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Exposure Draft Hong Kong Financial Reporting Standard S1

General Requirements for Disclosure of Sustainability-related Financial Information

CPA
Hong Kong Institute of
Certified Public Accountants
香港會計師公會

CONTENTS

[Draft] HKFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information* is set out in paragraphs 1–86 and Appendices A–E. All paragraphs have equal authority. Paragraphs in **bold type** state the main principles. Terms defined in Appendix A are in *italics* the first time they appear in the [draft] Standard. Definitions of other terms are given in other HKFRS Sustainability Disclosure Standards. The [draft] Standard should be read in the context of its objective and the Basis for Conclusions.

[Draft] HKFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information*

Objective

1 **The objective of [draft] HKFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information* is to require an entity to disclose information about its sustainability-related risks and opportunities that is useful to *primary users of general purpose financial reports* in making decisions relating to providing resources to the entity.**[1]

2 Information about sustainability-related risks and opportunities is useful to primary users because an entity's ability to generate cash flows over the short, medium and long term is inextricably linked to the interactions between the entity and its stakeholders, society, the economy and the natural environment throughout the entity's *value chain*. Together, the entity and the resources and relationships throughout its value chain form an interdependent system in which the entity operates. The entity's dependencies on those resources and relationships and its impacts on those resources and relationships give rise to sustainability-related risks and opportunities for the entity.

3 **This [draft] Standard requires an entity to disclose information about all sustainability-related risks and opportunities that could reasonably be expected to affect the entity's cash flows, its access to finance or cost of capital over the short, medium or long term. For the purposes of this [draft] Standard, these risks and opportunities are collectively referred to as 'sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects'.**

4 This [draft] Standard also prescribes how an entity prepares and reports its *sustainability-related financial disclosures*. It sets out general requirements for the content and presentation of those disclosures so that the information disclosed is useful to primary users in making decisions relating to providing resources to the entity.

Scope

5 **An entity shall apply this [draft] Standard in preparing and reporting sustainability-related financial disclosures in accordance with *HKFRS Sustainability Disclosure Standards*.**

6 Sustainability-related risks and opportunities that could not reasonably be expected to affect an entity's prospects are outside the scope of this [draft] Standard.

7 Other HKFRS Sustainability Disclosure Standards specify information an entity is required to disclose about specific sustainability-related risks and opportunities.

8 **An entity may apply HKFRS Sustainability Disclosure Standards irrespective of whether the entity's related general purpose financial statements (referred to as 'financial statements') are prepared in accordance with HKFRS Accounting Standards or other generally accepted accounting principles or practices (GAAP).**

9 This [draft] Standard uses terminology suitable for profit-oriented entities, including public-sector business entities. If entities with not-for-profit activities in the private sector or the public sector apply this [draft] Standard, they might need to amend the descriptions used for particular items of information when applying HKFRS Sustainability Disclosure Standards.

Conceptual foundations

10 **For sustainability-related financial information to be useful, it must be relevant and faithfully represent what it purports to represent. These are fundamental qualitative characteristics of useful sustainability-related financial information. The usefulness of sustainability-related financial information is enhanced if the information is comparable,**

[1] Throughout this [draft] Standard, the terms 'primary users' and 'users' are used interchangeably, with the same meaning.

verifiable, timely and understandable. These are enhancing qualitative characteristics of useful sustainability-related financial information (see Appendix D).

Fair presentation

11 **A complete set of sustainability-related financial disclosures shall present fairly all sustainability-related risks and opportunities that could reasonably be expected to affect an entity's prospects.**

12 To identify sustainability-related risks and opportunities that could reasonably be expected to affect an entity's prospects, an entity shall apply paragraphs B1–B12.

13 **Fair presentation requires disclosure of relevant information about sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects, and their faithful representation in accordance with the principles set out in this [draft] Standard. To achieve faithful representation, an entity shall provide a complete, neutral and accurate depiction of those sustainability-related risks and opportunities.**

14 Materiality is an entity-specific aspect of relevance based on the nature or magnitude, or both, of the items to which the information relates, in the context of the entity's sustainability-related financial disclosures.

15 Fair presentation also requires an entity:

(a) to disclose information that is comparable, verifiable, timely and understandable; and

(b) to disclose additional information if compliance with the specifically applicable requirements in HKFRS Sustainability Disclosure Standards is insufficient to enable *users of general purpose financial reports* to understand the effects of sustainability-related risks and opportunities on the entity's cash flows, its access to finance and cost of capital over the short, medium and long term.

16 Applying HKFRS Sustainability Disclosure Standards, with additional information disclosed when necessary (see paragraph 15(b)), is presumed to result in sustainability-related financial disclosures that achieve fair presentation.

Materiality

17 **An entity shall disclose *material information* about the sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects.**

18 **In the context of sustainability-related financial disclosures, information is material if omitting, misstating or obscuring that information could reasonably be expected to influence decisions that primary users of general purpose financial reports make on the basis of those reports, which include financial statements and sustainability-related financial disclosures and which provide information about a specific *reporting entity*.**

19 To identify and disclose material information, an entity shall apply paragraphs B13–B37.

Reporting entity

20 **An entity's sustainability-related financial disclosures shall be for the same reporting entity as the related financial statements (see paragraph B38).**

Connected information

21 **An entity shall provide information in a manner that enables users of general purpose financial reports to understand the following types of connections:**

(a) the connections between the items to which the information relates—such as connections between various sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects; and

(b) the connections between disclosures provided by the entity:

(i) within its sustainability-related financial disclosures—such as connections between disclosures on governance, strategy, risk management and metrics and targets; and

(ii) across its sustainability-related financial disclosures and other *general purpose financial reports* published by the entity—such as its related financial statements (see paragraphs B39–B44).

22 **An entity shall identify the financial statements to which the sustainability-related financial disclosures relate.**

23 **Data and assumptions used in preparing the sustainability-related financial disclosures shall be consistent—to the extent possible considering the requirements of HKFRS Accounting Standards or other applicable GAAP—with the corresponding data and assumptions used in preparing the related financial statements (see paragraph B42).**

24 **When currency is specified as the unit of measure in the sustainability-related financial disclosures, the entity shall use the presentation currency of its related financial statements.**

Core content

25 **Unless another HKFRS Sustainability Disclosure Standard permits or requires otherwise in specified circumstances, an entity shall provide disclosures about:**

(a) governance—the governance processes, controls and procedures the entity uses to monitor and manage sustainability-related risks and opportunities (see paragraphs 26–27);

(b) strategy—the approach the entity uses to manage sustainability-related risks and opportunities (see paragraphs 28–42);

(c) risk management—the processes the entity uses to identify, assess, prioritise and monitor sustainability-related risks and opportunities (see paragraphs 43–44); and

(d) metrics and targets—the entity's performance in relation to sustainability-related risks and opportunities, including progress towards any targets the entity has set or is required to meet by law or regulation (see paragraphs 45–53).

Governance

26 **The objective of sustainability-related financial disclosures on governance is to enable users of general purpose financial reports to understand the governance processes, controls and procedures an entity uses to monitor, manage and oversee sustainability-related risks and opportunities.**

27 To achieve this objective, an entity shall disclose information about:

(a) the governance body(s) (which can include a board, committee or equivalent body charged with governance) or individual(s) responsible for oversight of sustainability-related risks and opportunities. Specifically, the entity shall identify that body(s) or individual(s) and disclose information about:

(i) how responsibilities for sustainability-related risks and opportunities are reflected in the terms of reference, mandates, role descriptions and other related policies applicable to that body(s) or individual(s);

(ii) how the body(s) or individual(s) determines whether appropriate skills and competencies are available or will be developed to oversee strategies designed to respond to sustainability-related risks and opportunities;

(iii) how and how often the body(s) or individual(s) is informed about sustainability-related risks and opportunities;

(iv) how the body(s) or individual(s) takes into account sustainability-related risks and opportunities when overseeing the entity's strategy, its decisions on major transactions and its risk management processes and related policies, including whether the body(s) or individual(s) has considered trade-offs associated with those risks and opportunities; and

(v) how the body(s) or individual(s) oversees the setting of targets related to sustainability-related risks and opportunities, and monitors progress towards those targets (see paragraph 51), including whether and how related performance metrics are included in remuneration policies.

(b) management's role in the governance processes, controls and procedures used to monitor, manage and oversee sustainability-related risks and opportunities, including information about:

(i) whether the role is delegated to a specific management-level position or management-level committee and how oversight is exercised over that position or committee; and

(ii) whether management uses controls and procedures to support the oversight of sustainability-related risks and opportunities and, if so, how these controls and procedures are integrated with other internal functions.

Strategy

28 **The objective of sustainability-related financial disclosures on strategy is to enable users of general purpose financial reports to understand an entity's strategy for managing sustainability-related risks and opportunities.**

29 Specifically, an entity shall disclose information to enable users of general purpose financial reports to understand:

(a) the sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects (see paragraphs 30–31);

(b) the current and anticipated effects of those sustainability-related risks and opportunities on the entity's *business model* and value chain (see paragraph 32);

(c) the effects of those sustainability-related risks and opportunities on the entity's strategy and decision-making (see paragraph 33);

(d) the effects of those sustainability-related risks and opportunities on the entity's financial position, financial performance and cash flows for the reporting period, and their anticipated effects on the entity's financial position, financial performance and cash flows over the short, medium and long term, taking into consideration how those sustainability-related risks and opportunities have been factored into the entity's financial planning (see paragraphs 34–40); and

(e) the resilience of the entity's strategy and its business model to those sustainability-related risks (see paragraphs 41–42).

Sustainability-related risks and opportunities

30 An entity shall disclose information that enables users of general purpose financial reports to understand the sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects. Specifically, the entity shall:

(a) describe sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects;

(b) specify the time horizons—short, medium or long term—over which the effects of each of those sustainability-related risks and opportunities could reasonably be expected to occur; and

(c) explain how the entity defines 'short term', 'medium term' and 'long term' and how these definitions are linked to the planning horizons used by the entity for strategic decision-making.

31 Short-, medium- and long- term time horizons can vary between entities and depend on many factors, including industry-specific characteristics, such as cash flow, investment and business cycles, the planning horizons typically used in an entity's industry for strategic decision-making and capital allocation plans, and the time horizons over which users of general purpose financial reports conduct their assessments of entities in that industry.

Business model and value chain

32 An entity shall disclose information that enables users of general purpose financial reports to understand the current and anticipated effects of sustainability-related risks and opportunities on the entity's business model and value chain. Specifically, the entity shall disclose:

(a) a description of the current and anticipated effects of sustainability-related risks and opportunities on the entity's business model and value chain; and

(b) a description of where in the entity's business model and value chain sustainability-related risks and opportunities are concentrated (for example, geographical areas, facilities and types of assets).

Strategy and decision-making

33 An entity shall disclose information that enables users of general purpose financial reports to understand the effects of sustainability-related risks and opportunities on its strategy and decision-making. Specifically, the entity shall disclose information about:

(a) how the entity has responded to, and plans to respond to, sustainability-related risks and opportunities in its strategy and decision-making;

(b) the progress against plans the entity has disclosed in previous reporting periods, including quantitative and qualitative information; and

(c) trade-offs between sustainability-related risks and opportunities that the entity considered (for example, in making a decision on the location of new operations, an entity might have considered the environmental impacts of those operations and the employment opportunities they would create in a community).

Financial position, financial performance and cash flows

34 An entity shall disclose information that enables users of general purpose financial reports to understand:

(a) the effects of sustainability-related risks and opportunities on the entity's financial position, financial performance and cash flows for the reporting period (current financial effects); and

(b) the anticipated effects of sustainability-related risks and opportunities on the entity's financial position, financial performance and cash flows over the short, medium and long term, taking into consideration how sustainability-related risks and opportunities are included in the entity's financial planning (anticipated financial effects).

35 Specifically, an entity shall disclose quantitative and qualitative information about:

(a) how sustainability-related risks and opportunities have affected its financial position, financial performance and cash flows for the reporting period;

(b) the sustainability-related risks and opportunities identified in paragraph 35(a) for which there is a significant risk of a material adjustment within the next annual reporting period to the carrying amounts of assets and liabilities reported in the related financial statements;

(c) how the entity expects its financial position to change over the short, medium and long term, given its strategy to manage sustainability-related risks and opportunities, taking into consideration:

    (i) its investment and disposal plans (for example, plans for capital expenditure, major acquisitions and divestments, joint ventures, business transformation, innovation, new business areas, and asset retirements), including plans the entity is not contractually committed to; and

    (ii) its planned sources of funding to implement its strategy; and

(d) how the entity expects its financial performance and cash flows to change over the short, medium and long term, given its strategy to manage sustainability-related risks and opportunities.

36 In providing quantitative information, an entity may disclose a single amount or a range.

37 In preparing disclosures about the anticipated financial effects of a sustainability-related risk or opportunity, an entity shall:

(a) use all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort (see paragraphs B8–B10); and

(b) use an approach that is commensurate with the skills, capabilities and resources that are available to the entity for preparing those disclosures.

38 An entity need not provide quantitative information about the current or anticipated financial effects of a sustainability-related risk or opportunity if the entity determines that:

(a) those effects are not separately identifiable; or

(b) the level of measurement uncertainty involved in estimating those effects is so high that the resulting quantitative information would not be useful (see paragraphs 77–82).

39 In addition, an entity need not provide quantitative information about the anticipated financial effects of a sustainability-related risk or opportunity if the entity does not have the skills, capabilities or resources to provide that quantitative information.

40 If an entity determines that it need not provide quantitative information about the current or anticipated financial effects of a sustainability-related risk or opportunity applying the criteria set out in paragraphs 38–39, the entity shall:

(a) explain why it has not provided quantitative information;

(b) provide qualitative information about those financial effects, including identifying line items, totals and subtotals within the related financial statements that are likely to be affected, or have been affected, by that sustainability-related risk or opportunity; and

(c) provide quantitative information about the combined financial effects of that sustainability-related risk or opportunity with other sustainability-related risks or opportunities and other factors unless the entity determines that quantitative information about the combined financial effects would not be useful.

Resilience

41 An entity shall disclose information that enables users of general purpose financial reports to understand its capacity to adjust to the uncertainties arising from sustainability-related risks. An entity shall disclose a qualitative and, if applicable, quantitative assessment of the resilience of its strategy and business model in relation to its sustainability-related risks, including information about how the assessment was carried out and its time horizon. When providing quantitative information, an entity may disclose a single amount or a range.

42 Other HKFRS Sustainability Disclosure Standards may specify the type of information an entity is required to disclose about its resilience to specific sustainability-related risks and how to prepare those disclosures, including whether a *scenario analysis* is required.

Risk management

43 **The objective of sustainability-related financial disclosures on risk management is to enable users of general purpose financial reports:**

(a) to understand an entity's processes to identify, assess, prioritise and monitor sustainability-related risks and opportunities, including whether and how those processes are integrated into and inform the entity's overall risk management process; and

(b) to assess the entity's overall risk profile and its overall risk management process.

44 To achieve this objective, an entity shall disclose information about:

(a) the processes and related policies the entity uses to identify, assess, prioritise and monitor sustainability-related risks, including information about:

(i) the inputs and parameters the entity uses (for example, information about data sources and the scope of operations covered in the processes);

(ii) whether and how the entity uses scenario analysis to inform its identification of sustainability-related risks;

(iii) how the entity assesses the nature, likelihood and magnitude of the effects of those risks (for example, whether the entity considers qualitative factors, quantitative thresholds or other criteria);

(iv) whether and how the entity prioritises sustainability-related risks relative to other types of risk;

(v) how the entity monitors sustainability-related risks; and

(vi) whether and how the entity has changed the processes it uses compared with the previous reporting period;

(b) the processes the entity uses to identify, assess, prioritise and monitor sustainability-related opportunities; and

(c) the extent to which, and how, the processes for identifying, assessing, prioritising and monitoring sustainability-related risks and opportunities are integrated into and inform the entity's overall risk management process.

Metrics and targets

45 **The objective of sustainability-related financial disclosures on metrics and targets is to enable users of general purpose financial reports to understand an entity's performance in relation to its sustainability-related risks and opportunities, including progress towards any targets the entity has set, and any targets it is required to meet by law or regulation.**

46 **An entity shall disclose, for each sustainability-related risk and opportunity that could reasonably be expected to affect the entity's prospects:**

(a) metrics required by an applicable HKFRS Sustainability Disclosure Standard; and

(b) metrics the entity uses to measure and monitor:

(i) that sustainability-related risk or opportunity; and

(ii) its performance in relation to that sustainability-related risk or opportunity, including progress towards any targets the entity has set, and any targets it is required to meet by law or regulation.

47 In the absence of an HKFRS Sustainability Disclosure Standard that specifically applies to a sustainability-related risk or opportunity, an entity shall apply paragraphs 57–58 to identify applicable metrics.

48 **Metrics disclosed by an entity applying paragraphs 45–46 shall include metrics associated with particular business models, activities or other common features that characterise participation in an industry.**

49 If an entity discloses a metric taken from a source other than HKFRS Sustainability Disclosure Standards, the entity shall identify the source and the metric taken.

50 If a metric has been developed by an entity, the entity shall disclose information about:

(a) how the metric is defined, including whether it is derived by adjusting a metric taken from a source other than HKFRS Sustainability Disclosure Standards and, if so, which source and how the metric disclosed by the entity differs from the metric specified in that source;

(b) whether the metric is an absolute measure, a measure expressed in relation to another metric or a qualitative measure (such as a red, amber, green—or RAG—status);

(c) whether the metric is validated by a third party and, if so, which party; and

(d) the method used to calculate the metric and the inputs to the calculation, including the limitations of the method used and the significant assumptions made.

51 An entity shall disclose information about the targets it has set to monitor progress towards achieving its strategic goals, and any targets it is required to meet by law or regulation. For each target, the entity shall disclose:

(a) the metric used to set the target and to monitor progress towards reaching the target;

(b) the specific quantitative or qualitative target the entity has set or is required to meet;

(c) the period over which the target applies;

(d) the base period from which progress is measured;

(e) any milestones and interim targets;

(f) performance against each target and an analysis of trends or changes in the entity's performance; and

(g) any revisions to the target and an explanation for those revisions.

52 The definition and calculation of metrics, including metrics used to set the entity's targets and monitor progress towards reaching them, shall be consistent over time. If a metric is redefined or replaced, an entity shall apply paragraph B52.

53 An entity shall label and define metrics and targets using meaningful, clear and precise names and descriptions.

General requirements

Sources of guidance

Identifying sustainability-related risks and opportunities

54 In identifying sustainability-related risks and opportunities that could reasonably be expected to affect an entity's prospects, an entity shall apply HKFRS Sustainability Disclosure Standards.

55 In addition to HKFRS Sustainability Disclosure Standards:

(a) an entity shall refer to and consider the applicability of the *disclosure topics* in the SASB Standards. An entity might conclude that the disclosure topics in the SASB Standards are not applicable in the entity's circumstances.

(b) an entity may refer to and consider the applicability of:

(i) the CDSB Framework Application Guidance for Water-related Disclosures and the CDSB Framework Application Guidance for Biodiversity-related Disclosures (collectively referred to as 'CDSB Framework Application Guidance');

(ii) the most recent pronouncements of other standard-setting bodies whose requirements are designed to meet the information needs of users of general purpose financial reports; and

(iii) the sustainability-related risks and opportunities identified by entities that operate in the same industry(s) or geographical region(s).

Identifying applicable disclosure requirements

56 In identifying applicable disclosure requirements about a sustainability-related risk or opportunity that could reasonably be expected to affect an entity's prospects, an entity shall apply the HKFRS Sustainability Disclosure Standard that specifically applies to that sustainability-related risk or opportunity.

57 In the absence of an HKFRS Sustainability Disclosure Standard that specifically applies to a sustainability-related risk or opportunity, an entity shall apply judgement to identify information that:

(a) is relevant to the decision-making of users of general purpose financial reports; and

(b) faithfully represents that sustainability-related risk or opportunity.

58 In making the judgement described in paragraph 57:

(a) an entity shall refer to and consider the applicability of the metrics associated with the disclosure topics included in the SASB Standards. An entity might conclude that the metrics specified in the SASB Standards are not applicable in the entity's circumstances.

(b) an entity may—to the extent that these sources do not conflict with HKFRS Sustainability Disclosure Standards—refer to and consider the applicability of:

(i) the CDSB Framework Application Guidance;

(ii) the most recent pronouncements of other standard-setting bodies whose requirements are designed to meet the information needs of users of general purpose financial reports; and

(iii) the information, including metrics, disclosed by entities that operate in the same industry(s) or geographical region(s).

(c) an entity may—to the extent that these sources assist the entity in meeting the objective of this [draft] Standard (see paragraphs 1–4) and do not conflict with HKFRS Sustainability Disclosure Standards—refer to and consider the applicability of the sources specified in Appendix C.

Disclosure of information about sources of guidance

59 An entity shall identify:

(a) the specific standards, pronouncements, industry practice and other sources of guidance that the entity has applied in preparing its sustainability-related financial disclosures, including, if applicable, identifying the disclosure topics in the SASB Standards; and

(b) the industry(s) specified in the HKFRS Sustainability Disclosure Standards, the SASB Standards or other sources of guidance relating to a particular industry(s) that the entity has applied in preparing its sustainability-related financial disclosures, including in identifying applicable metrics.

Location of disclosures

60 **An entity is required to provide disclosures required by HKFRS Sustainability Disclosure Standards as part of its general purpose financial reports.**

61 Subject to any regulation or other requirements that apply to an entity, there are various possible locations in its general purpose financial reports in which to disclose sustainability-related financial information. Sustainability-related financial disclosures could be included in an entity's management commentary or a similar report when it forms part of an entity's general purpose financial reports. Management commentary or a similar report is a required report in many jurisdictions. It might be known by or included in reports with various names, such as 'management report', 'management's discussion and analysis', 'operating and financial review', 'integrated report' or 'strategic report'.

62 An entity may disclose information required by an HKFRS Sustainability Disclosure Standard in the same location as information disclosed to meet other requirements, such as information required by regulators. The entity shall ensure that the sustainability-related financial disclosures are clearly identifiable and not obscured by that additional information (see paragraph B27).

63 Information required by an HKFRS Sustainability Disclosure Standard may be included in sustainability-related financial disclosures by cross-reference to another report published by the entity. If an entity includes information by cross-reference, the entity shall apply the requirements in paragraphs B45–B47.

Timing of reporting

64 **An entity shall report its sustainability-related financial disclosures at the same time as its related financial statements. The entity's sustainability-related financial disclosures shall cover the same reporting period as the related financial statements.**

65 Normally, an entity prepares sustainability-related financial disclosures for a 12-month period. However, for practical reasons, some entities prefer to report, for example, for a 52-week period. This [draft] Standard does not preclude that practice.

66 When an entity changes the end of its reporting period and provides sustainability-related financial disclosures for a period longer or shorter than 12 months, it shall disclose:

(a) the period covered by the sustainability-related financial disclosures;

(b) the reason for using a longer or shorter period; and

(c) the fact that the amounts disclosed in the sustainability-related financial disclosures are not entirely comparable.

67 If, after the end of the reporting period but before the date on which the sustainability-related financial disclosures are authorised for issue, an entity receives information about conditions that existed at the end of the reporting period, it shall update disclosures that relate to those conditions in the light of the new information.

68 An entity shall disclose information about transactions, other events and conditions that occur after the end of the reporting period, but before the date on which the sustainability-related financial disclosures are authorised for issue, if non-disclosure of that information could reasonably be expected to influence decisions that primary users of general purpose financial reports make on the basis of those reports.

69 This [draft] Standard does not mandate which entities would be required to provide interim sustainability-related financial disclosures, how frequently, or how soon after the end of an interim period. However, governments, securities regulators, stock exchanges and accountancy bodies may require entities whose debt or equity securities are publicly traded to publish interim general purpose financial reports. If an entity is required or elects to publish interim sustainability-related financial disclosures in accordance with HKFRS Sustainability Disclosure Standards, the entity shall apply paragraph B48.

Comparative information

70 **Unless another HKFRS Sustainability Disclosure Standard permits or requires otherwise, an entity shall disclose comparative information in respect of the preceding period for all amounts disclosed in the reporting period. If such information would be useful for an understanding of the sustainability-related financial disclosures for the reporting period, the entity shall also disclose comparative information for narrative and descriptive sustainability-related financial information (see paragraphs B49–B59).**

71 Amounts reported in sustainability-related financial disclosures might relate, for example, to metrics and targets or to current and anticipated financial effects of sustainability-related risks and opportunities.

Statement of compliance

72 **An entity whose sustainability-related financial disclosures comply with all the requirements of HKFRS Sustainability Disclosure Standards shall make an explicit and unreserved statement of compliance. An entity shall not describe sustainability-related financial disclosures as complying with HKFRS Sustainability Disclosure Standards unless they comply with all the requirements of HKFRS Sustainability Disclosure Standards.**

73 This [draft] Standard relieves an entity from disclosing information otherwise required by an HKFRS Sustainability Disclosure Standard if law or regulation prohibits the entity from disclosing that information (see paragraph B33). This [draft] Standard also relieves an entity from disclosing information about a sustainability-related opportunity otherwise required by an HKFRS Sustainability Disclosure Standard if that information is commercially sensitive as described in this [draft] Standard (see paragraphs B34–B37). An entity using these exemptions is not prevented from asserting compliance with HKFRS Sustainability Disclosure Standards.

Judgements, uncertainties and errors

Judgements

74 **An entity shall disclose information to enable users of general purpose financial reports to understand the judgements, apart from those involving estimations of amounts (see paragraph 77), that the entity has made in the process of preparing its sustainability-related financial disclosures and that have the most significant effect on the information included in those disclosures.**

75 In the process of preparing sustainability-related financial disclosures, an entity makes various judgements, apart from those involving estimations, that can significantly affect the information reported in the entity's sustainability-related financial disclosures. For example, an entity makes judgements in:

(a) identifying sustainability-related risks and opportunities that could be reasonably expected to affect the entity's prospects;

(b) determining which sources of guidance to apply in accordance with paragraphs 54–58;

(c) identifying material information to include in the sustainability-related financial disclosures; and

(d) assessing whether an event or change in circumstances is significant and requires reassessment of the scope of all affected sustainability-related risks and opportunities throughout the entity's value chain (see paragraph B11).

76 Other HKFRS Sustainability Disclosure Standards may require disclosure of some of the information that an entity would otherwise be required to disclose in accordance with paragraph 74.

Measurement uncertainty

77 **An entity shall disclose information to enable users of general purpose financial reports to understand the most significant uncertainties affecting the amounts reported in its sustainability-related financial disclosures.**

78 **An entity shall:**

(a) identify the amounts that it has disclosed that are subject to a high level of measurement uncertainty; and

(b) in relation to each amount identified in paragraph 78(a), disclose information about:

(i) the sources of measurement uncertainty—for example, the dependence of the amount on the outcome of a future event, on a measurement technique or on the availability and quality of data from the entity's value chain; and

(ii) the assumptions, approximations and judgements the entity has made in measuring the amount.

79 When amounts reported in sustainability-related financial disclosures cannot be measured directly and can only be estimated, measurement uncertainty arises. In some cases, an estimate involves assumptions about possible future events with uncertain outcomes. The use of reasonable estimates is an essential part of preparing sustainability-related financial disclosures and does not undermine the usefulness of the information if the estimates are accurately described and explained. Even a high level of measurement uncertainty would not necessarily prevent such an estimate from providing useful information.

80 The requirement in paragraph 77 for an entity to disclose information about the uncertainties affecting the amounts reported in sustainability-related financial disclosures relates to the estimates that require the entity's most difficult, subjective or complex judgements. As the number of variables and assumptions increases, those judgements become more subjective and complex, and the uncertainty affecting the amounts reported in the sustainability-related financial disclosures increases accordingly.

81 The type and extent of the information an entity might need to disclose vary according to the nature of the amount reported in the sustainability-related financial disclosures—the sources of and the factors contributing to the uncertainty and other circumstances. Examples of the type of information an entity might need to disclose are:

(a) the nature of the assumption or other source of measurement uncertainty;

(b) the sensitivity of the disclosed amount to the methods, assumptions and estimates underlying its calculation, including the reasons for the sensitivity;

(c) the expected resolution of an uncertainty and the range of reasonably possible outcomes for the disclosed amount; and

(d) an explanation of changes made to past assumptions concerning the disclosed amount, if the uncertainty remains unresolved.

82 Other HKFRS Sustainability Disclosure Standards may require disclosure of some of the information that an entity would otherwise be required to disclose in accordance with paragraphs 77–78.

Errors

83 **An entity shall correct material prior period errors by restating the comparative amounts for the prior period(s) disclosed unless it is *impracticable* to do so.**

84 Prior period errors are omissions from and misstatements in the entity's sustainability-related financial disclosures for one or more prior periods. Such errors arise from a failure to use, or the misuse of, reliable information that:

(a) was available when the sustainability-related financial disclosures for that period(s) were authorised for issue; and

(b) could reasonably be expected to have been obtained and considered in the preparation of those disclosures.

85 Corrections of errors are distinguished from changes in estimates. Estimates are approximations that an entity might need to revise as additional information becomes known.

86 If an entity identifies a material error in its prior period sustainability-related financial disclosures, it shall apply paragraphs B55–B59.

Appendix A
Defined terms

This appendix is an integral part of [draft] HKFRS S1 and has the same authority as the other parts of the [draft] Standard.

business model
An entity's system of transforming inputs through its activities into outputs and outcomes that aims to fulfil the entity's strategic purposes and create value for the entity and hence generate cash flows over the short, medium and long term.

disclosure topic
A specific sustainability-related risk or opportunity based on the activities conducted by entities within a particular industry as set out in an **HKFRS Sustainability Disclosure Standard** or a SASB Standard.

general purpose financial reports
Reports that provide financial information about a **reporting entity** that is useful to **primary users** in making decisions relating to providing resources to the entity. Those decisions involve decisions about:

(a) buying, selling or holding equity and debt instruments;

(b) providing or selling loans and other forms of credit; or

(c) exercising rights to vote on, or otherwise influence, the entity's management's actions that affect the use of the entity's economic resources.

General purpose financial reports include—but are not restricted to—an entity's general purpose financial statements and **sustainability-related financial disclosures**.

HKFRS Sustainability Disclosure Standards
Standards of that name issued by the Hong Kong Institute of Certified Public Accountants.

impracticable
Applying a requirement is impracticable when an entity cannot apply it after making every reasonable effort to do so.

material information
In the context of **sustainability-related financial disclosures**, information is material if omitting, misstating or obscuring that information could reasonably be expected to influence decisions that **primary users of general purpose financial reports** make on the basis of those reports, which include financial statements and sustainability-related financial disclosures and which provide information about a specific **reporting entity**.

primary users of general purpose financial reports (primary users)
Existing and potential investors, lenders and other creditors.

reporting entity
An entity that is required, or chooses, to prepare general purpose financial statements.

scenario analysis
A process for identifying and assessing a potential range of outcomes of future events under conditions of uncertainty.

sustainability-related financial disclosures
A particular form of **general purpose financial reports** that provide information about the **reporting entity's** sustainability-related risks and opportunities that could reasonably be expected to affect the entity's cash flows, its access to finance or cost of capital over the short, medium or long term, including information about the entity's governance, strategy and risk management in relation to those risks and opportunities, and related metrics and targets.

users of general purpose financial reports (users)	See **primary users of general purpose financial reports (primary users)**. These definitions describe the same population.
value chain	The full range of interactions, resources and relationships related to a **reporting entity's business model** and the external environment in which it operates. A value chain encompasses the interactions, resources and relationships an entity uses and depends on to create its products or services from conception to delivery, consumption and end-of-life, including interactions, resources and relationships in the entity's operations, such as human resources; those along its supply, marketing and distribution channels, such as materials and service sourcing, and product and service sale and delivery; and the financing, geographical, geopolitical and regulatory environments in which the entity operates.

Appendix B
Application guidance

This appendix is an integral part of [draft] HKFRS S1 and has the same authority as the other parts of the [draft] Standard.

Sustainability-related risks and opportunities (paragraphs 11–12)

B1 This [draft] Standard requires an entity to disclose information about all sustainability-related risks and opportunities that could reasonably be expected to affect the entity's cash flows, its access to finance or cost of capital over the short, medium or long term (referred to as 'sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects') (see paragraph 3).

B2 An entity's sustainability-related risks and opportunities arise out of the interactions between the entity and its stakeholders, society, the economy and the natural environment throughout the entity's value chain. These interactions—which can be direct and indirect—result from operating an entity's business model in pursuit of the entity's strategic purposes and from the external environment in which the entity operates. These interactions take place within an interdependent system in which an entity both depends on resources and relationships throughout its value chain to generate cash flows and affects those resources and relationships through its activities and outputs—contributing to the preservation, regeneration and development of those resources and relationships or to their degradation and depletion. These dependencies and impacts might give rise to sustainability-related risks and opportunities that could reasonably be expected to affect an entity's cash flows, its access to finance and cost of capital over the short, medium and long term.

B3 For example, if an entity's business model depends on a natural resource—such as water—the entity could both affect and be affected by the quality, availability and affordability of that resource. Specifically, degradation or depletion of that resource—including resulting from the entity's own activities and from other factors—could create a risk of disruption to the entity's operations and affect the entity's business model or strategy and could ultimately negatively affect the entity's financial performance and financial position. In contrast, regeneration and preservation of that resource—including resulting from the entity's own activities and from other factors—could positively affect the entity. Similarly, if an entity operates in a highly competitive market and requires a highly specialised workforce to achieve its strategic purposes, the entity's future success will likely depend on the entity's ability to attract and retain that resource. At the same time, that ability will depend, in part, on the entity's employment practices—such as whether the entity invests in employee training and wellbeing—and the levels of employee satisfaction, engagement and retention. These examples illustrate the close relationship between the value the entity creates, preserves or erodes for others and the entity's own ability to succeed and achieve its goals.

B4 Resources and relationships that an entity depends on and affects by its activities and outputs can take various forms, such as natural, manufactured, intellectual, human, social or financial. They can be internal—such as the entity's workforce, its know-how or its organisational processes—or they can be external—such as materials and services the entity needs to access or the relationships it has with suppliers, distributors and customers. Furthermore, resources and relationships include, but are not limited to, the resources and relationships recognised as assets in the entity's financial statements.

B5 An entity's dependencies and impacts are not limited to resources the entity engages with directly, and to the entity's direct relationships. Those dependencies and impacts also relate to resources and relationships throughout the entity's value chain. For example, they can relate to the entity's supply and distribution channels; the effects of the consumption and disposal of the entity's products; and the entity's sources of finance and its investments, including investments in associates and joint ventures. If the entity's business partners throughout its value chain face sustainability-related risks and opportunities, the entity could be exposed to related consequences of its own.

Identifying sustainability-related risks and opportunities

B6 An entity shall use all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort (see paragraphs B8–B10):

(a) to identify the sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects; and

(b) to determine the scope of its value chain, including its breadth and composition, in relation to each of those sustainability-related risks and opportunities.

B7 In identifying the sustainability-related risks and opportunities that could reasonably be expected to affect its prospects, an entity shall apply the requirements on sources of guidance in paragraphs 54–55.

Reasonable and supportable information

B8 Reasonable and supportable information used by an entity in preparing its sustainability-related financial disclosures shall cover factors that are specific to the entity as well as general conditions in the external environment. In some cases—such as in identifying sustainability-related risks and opportunities that could reasonably be expected to affect an entity's prospects—reasonable and supportable information includes information about past events, current conditions and forecasts of future conditions. Other HKFRS Sustainability Disclosure Standards may specify what is reasonable and supportable information in specific cases.

B9 An entity may use various sources of data that may be both internal and external. Possible data sources include the entity's risk management processes; industry and peer group experience; and external ratings, reports and statistics. Information that is used by the entity in preparing its financial statements, operating its business model, setting its strategy and managing its risks and opportunities is considered to be available to the entity without undue cost or effort.

B10 An entity need not undertake an exhaustive search for information to identify sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects. The assessment of what constitutes undue cost or effort depends on the entity's specific circumstances and requires a balanced consideration of the costs and efforts for the entity and the benefits of the resulting information for primary users. That assessment can change over time as circumstances change.

Reassessment of the scope of sustainability-related risks and opportunities throughout the value chain

B11 On the occurrence of a significant event or significant change in circumstances, an entity shall reassess the scope of all affected sustainability-related risks and opportunities throughout its value chain. A significant event or significant change in circumstances can occur without the entity being involved in that event or change in circumstances or as a result of a change in what the entity assesses to be important to users of general purpose financial reports. For example, such significant events or significant changes in circumstances might include:

(a) a significant change in the entity's value chain (for example, a supplier in the entity's value chain makes a change that significantly alters the supplier's greenhouse gas emissions);

(b) a significant change in the entity's business model, activities or corporate structure (for example, a merger or acquisition that expands the entity's value chain); and

(c) a significant change in an entity's exposure to sustainability-related risks and opportunities (for example, a supplier in the entity's value chain is affected by the introduction of a new regulation that the entity had not anticipated).

B12 An entity is permitted, but not required, to reassess the scope of any sustainability-related risk or opportunity throughout its value chain more frequently than required by paragraph B11.

Materiality (paragraphs 17–19)

B13 Paragraph 17 requires an entity to disclose material information about the sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects. Materiality of information is judged in relation to whether omitting, misstating or obscuring that information could reasonably be expected to influence decisions of primary users of general purpose financial reports, which provide information about a specific reporting entity.

B14 The decisions of primary users relate to providing resources to the entity and involve decisions about:

(a) buying, selling or holding equity and debt instruments;

(b) providing or selling loans and other forms of credit; or

(c) exercising rights to vote on, or otherwise influence, the entity's management's actions that affect the use of the entity's economic resources.

B15 The decisions described in paragraph B14 depend on primary users' expectations about returns, for example, dividends, principal and interest payments or market price increases. Those expectations depend on primary users' assessment of the amount, timing and uncertainty of future net cash inflows to the entity and on their assessment of stewardship of the entity's economic resources by the entity's management and its governing body(s) or individual(s).

B16 Assessing whether information could reasonably be expected to influence the decisions made by primary users requires consideration of the characteristics of those users and of the entity's own circumstances.

B17 Sustainability-related financial disclosures are prepared for primary users who have reasonable knowledge of business and economic activities and who review and analyse information diligently. At times, even well-informed and diligent users may need to seek the aid of an adviser to understand sustainability-related financial information.

B18 Individual primary users may have different, and sometimes even conflicting, information needs and desires. Information needs of primary users may also evolve over time. Sustainability-related financial disclosures are intended to meet common information needs of primary users.

Identifying material information

B19 Materiality judgements are specific to an entity. Consequently, this [draft] Standard does not specify any thresholds for materiality or predetermine what would be material in a particular situation.

B20 To identify material information about a sustainability-related risk or opportunity, an entity shall apply, as the starting point, the requirements of the HKFRS Sustainability Disclosure Standard that specifically applies to that sustainability-related risk or opportunity. In the absence of an HKFRS Sustainability Disclosure Standard that specifically applies to a sustainability-related risk or opportunity, the entity shall apply the requirements on sources of guidance specified in paragraphs 57–58. Those sources specify information, including metrics, that may be relevant to a particular sustainability-related risk or opportunity, to a particular industry or in specified circumstances.

B21 An entity shall assess whether the information identified in applying paragraph B20, either individually or in combination with other information, is material in the context of the entity's sustainability-related financial disclosures taken as a whole. In assessing whether information is material, an entity shall consider both quantitative and qualitative factors. For example, an entity might consider the magnitude and the nature of the effect of a sustainability-related risk or opportunity on the entity.

B22 In some cases, HKFRS Sustainability Disclosure Standards require the disclosure of information about possible future events with uncertain outcomes. In judging whether information about such possible future events is material, an entity shall consider:

(a) the potential effects of the events on the amount, timing and uncertainty of the entity's future cash flows over the short, medium and long term (referred to as 'the possible outcome'); and

(b) the range of possible outcomes and the likelihood of the possible outcomes within that range.

B23 When considering possible outcomes, an entity shall consider all pertinent facts and circumstances. Information about a possible future event is more likely to be judged as being material if the potential effects are significant and the event is likely to occur. However, an entity shall also consider whether information about low-probability and high-impact outcomes might be material either individually or in combination with information about other low-probability and high-impact outcomes. For example, an entity might be exposed to several sustainability-related risks, each of which could cause the same type of disruption—such as disruption to the entity's supply chain. Information about an individual source of risk might not be material if disruption from that source is highly unlikely to occur. However, information about the aggregate risk—the risk of supply chain disruption from all sources—might be material.

B24 If a possible future event is expected to affect an entity's cash flows, but only many years in the future, information about that event is usually less likely to be judged material than information about a possible future event with similar effects that are expected to occur sooner. However, in some circumstances, an item of information could reasonably be expected to influence primary users' decisions regardless of the magnitude of the potential effects of the future event or the timing of that event. For example, this might happen if information about a particular sustainability-related risk or opportunity is highly scrutinised by primary users of an entity's general purpose financial reports.

B25 An entity need not disclose information otherwise required by an HKFRS Sustainability Disclosure Standard if the information is not material. This is the case even if the HKFRS Sustainability Disclosure Standard contains a list of specific requirements or describes them as minimum requirements.

B26 An entity shall disclose additional information when compliance with the specifically applicable requirements in an HKFRS Sustainability Disclosure Standard is insufficient to enable users of general purpose financial reports to understand the effects of sustainability-related risks and opportunities on the entity's cash flows, its access to finance and cost of capital over the short, medium and long term.

B27 An entity shall identify its sustainability-related financial disclosures clearly and distinguish them from other information provided by the entity (see paragraph 62). An entity shall not obscure material information. Information is obscured if it is communicated in a way that would have a similar effect for primary users to omitting or misstating that information. Examples of circumstances that might result in material information being obscured include:

(a) material information is not clearly distinguished from additional information that is not material;

(b) material information is disclosed in the sustainability-related financial disclosures, but the language used is vague or unclear;

(c) material information about a sustainability-related risk or opportunity is scattered throughout the sustainability-related financial disclosures;

(d) items of information that are dissimilar are inappropriately aggregated;

(e) items of information that are similar are inappropriately disaggregated; and

(f) the understandability of the sustainability-related financial disclosures is reduced as a result of material information being hidden by immaterial information to the extent that a primary user is unable to determine what information is material.

B28 An entity shall reassess its materiality judgements at each reporting date to take account of changed circumstances and assumptions. Because of changes in the entity's individual circumstances, or in the external environment, some types of information included in an entity's sustainability-related financial disclosures for prior periods might no longer be material. Conversely, some types of information not previously disclosed might become material.

Aggregation and disaggregation

B29 When an entity applies HKFRS Sustainability Disclosure Standards, it shall consider all facts and circumstances and decide how to aggregate and disaggregate information in its sustainability-related financial disclosures. The entity shall not reduce the understandability of its sustainability-related financial disclosures by obscuring material information with immaterial information or by aggregating material items of information that are dissimilar to each other.

B30 An entity shall not aggregate information if doing so would obscure information that is material. Information shall be aggregated if items of information have shared characteristics and shall not be aggregated if they do not have shared characteristics. The entity might need to disaggregate information about sustainability-related risks and opportunities, for example, by geographical location or in consideration of the geopolitical environment. For example, to ensure that material information is not obscured, an entity might need to disaggregate information about its use of water to distinguish between water drawn from abundant sources and water drawn from water-stressed areas.

Interaction with law or regulation

B31 Law or regulation might specify requirements for an entity to disclose sustainability-related information in its general purpose financial reports. In such circumstances, the entity is permitted to include in its sustainability-related financial disclosures information to meet legal or regulatory requirements, even if that information is not material. However, such information shall not obscure material information.

B32 An entity shall disclose material sustainability-related financial information, even if law or regulation permits the entity not to disclose such information.

B33 An entity need not disclose information otherwise required by an HKFRS Sustainability Disclosure Standard if law or regulation prohibits the entity from disclosing that information. If an entity omits material information for that reason, it shall identify the type of information not disclosed and explain the source of the restriction.

Commercially sensitive information

B34 If an entity determines that information about a sustainability-related opportunity is commercially sensitive in the limited circumstances described in paragraph B35, the entity is permitted to omit that information from its sustainability-related financial disclosures. Such an omission is permitted even if information is otherwise required by an HKFRS Sustainability Disclosure Standard and the information is material.

B35 An entity qualifies for the exemption specified in paragraph B34 if, and only if:

(a) information about the sustainability-related opportunity is not already publicly available;

(b) disclosure of that information could reasonably be expected to prejudice seriously the economic benefits the entity would otherwise be able to realise in pursuing the opportunity; and

(c) the entity has determined that it is impossible to disclose that information in a manner—for example, at an aggregated level—that would enable the entity to meet the objectives of the disclosure requirements without prejudicing seriously the economic benefits the entity would otherwise be able to realise in pursuing the opportunity.

B36 If an entity elects to use the exemption specified in paragraph B34, the entity shall, for each item of information omitted:

(a) disclose the fact that it has used the exemption; and

(b) reassess, at each reporting date, whether the information qualifies for the exemption.

B37 An entity is prohibited from using the exemption specified in paragraph B34 in relation to a sustainability-related risk or as a basis for broad non-disclosure of sustainability-related financial information.

Reporting entity (paragraph 20)

B38 Paragraph 20 requires that sustainability-related financial disclosures shall be for the same reporting entity as the related financial statements. For example, consolidated financial statements prepared in accordance with HKFRS Accounting Standards provide information about the parent and its subsidiaries as a single reporting entity. Consequently, that entity's sustainability-related financial disclosures shall enable users of general purpose financial reports to understand the effects of the sustainability-related risks and opportunities on the cash flows, access to finance and cost of capital over the short, medium and long term for the parent and its subsidiaries.

Connected information (paragraphs 21–24)

B39 Paragraph 21 requires an entity to provide information in a manner that enables users of general purpose financial reports to understand connections both between the items to which the information relates and between disclosures provided by the entity in its general purpose financial reports.

B40 Connected information provides insight into connections between the items to which the information relates. For example:

(a) if an entity pursued a particular sustainability-related opportunity and that resulted in an increase in the entity's revenue, connected information will depict that relationship between the entity's strategy and its financial performance;

(b) if an entity identified a trade-off between two sustainability-related risks it is exposed to and took action on the basis of its assessment of that trade-off, connected information will depict the relationship between those risks and the entity's strategy; and

(c) if an entity committed to a particular sustainability-related target, but that commitment has not yet affected the entity's financial position or financial performance because the applicable recognition criteria have not been met, connected information will depict that relationship.

B41 Connected information includes:

(a) connections between various types of information about a particular sustainability-related risk or opportunity, such as:

(i) between disclosures on governance, strategy and risk management; and

(ii) between narrative information and quantitative information (including related metrics and targets and information in the related financial statements).

(b) connections between disclosures about various sustainability-related risks and opportunities. For example, if an entity integrates its oversight of sustainability-related risks and opportunities, the entity shall integrate the disclosures on governance instead of providing separate disclosures on governance for each sustainability-related risk and opportunity.

B42 Drawing connections between disclosures involves, but is not limited to, providing necessary explanations and cross-references and using consistent data, assumptions, and units of measure. In providing connected information, an entity shall:

(a) explain connections between disclosures in a clear and concise manner;

(b) avoid unnecessary duplication if HKFRS Sustainability Disclosure Standards require the disclosure of common items of information; and

(c) disclose information about significant differences between the data and assumptions used in preparing the entity's sustainability-related financial disclosures and the data and assumptions used in preparing the related financial statements.

B43 For example, in providing connected information an entity might need to explain the effect or likely effect of its strategy on its financial statements and financial planning, or explain how that strategy relates to the metrics the entity uses to measure progress against targets. Another entity might need to explain how its use of natural resources or changes within its supply chain could amplify or, in contrast, reduce its sustainability-related risks and opportunities. The entity might need to link the information about its use of natural resources or changes within its supply chain to information about current or anticipated financial effects on the entity's production costs, its strategic response to mitigate those risks and its related investment in new assets. The entity might need to link narrative information to the related metrics and targets and to information in the related financial statements.

B44 Other examples of connected information include:

(a) an explanation of the combined effects of the entity's sustainability-related risks and opportunities and its strategy on its financial position, financial performance and cash flows over the short, medium and long term. For example, an entity might face decreasing demand for its products because of consumer preferences for lower-carbon alternatives. The entity might need to explain how its strategic response, such as closing a major factory, could affect its workforce and local communities, and the effect of such a closure on the useful lives of its assets and on impairment assessments.

(b) a description of the alternatives that an entity evaluated in setting its strategy in response to its sustainability-related risks and opportunities, including a description of the trade-offs between those risks and opportunities that the entity considered (see paragraph 33(c)). For example, an entity might need to explain the potential effects of its decision to restructure its operations in response to a sustainability-related risk on the future size and composition of the entity's workforce.

Information included by cross-reference (paragraph 63)

B45 Information required by an HKFRS Sustainability Disclosure Standard might be available in another report published by the entity. For example, the required information could be disclosed in the related financial statements. Material information can be included in an entity's sustainability-related financial disclosures by cross-reference, provided that:

(a) the cross-referenced information is available on the same terms and at the same time as the sustainability-related financial disclosures; and

(b) the complete set of sustainability-related financial disclosures is not made less understandable by including information by cross-reference.

B46 Information included by cross-reference becomes part of the complete set of sustainability-related financial disclosures and shall comply with the requirements of HKFRS Sustainability Disclosure Standards. For example, it needs to be relevant, representationally faithful, comparable, verifiable, timely and understandable. The body(s) or individual(s) that authorises the general purpose financial reports takes the same responsibility for the information included by cross-reference as it does for the information included directly.

B47 If information required by an HKFRS Sustainability Disclosure Standard is included by cross-reference:

(a) the sustainability-related financial disclosures shall clearly identify the report within which that information is located and explain how to access that report; and

(b) the cross-reference shall be to a precisely specified part of that report.

Interim reporting (paragraph 69)

B48 In the interest of timeliness and cost considerations, and to avoid repetition of information previously reported, an entity may be required or choose to provide less information at interim dates than it provides in its annual sustainability-related financial disclosures. Interim sustainability-related financial disclosures are intended to provide an update on the latest complete set of annual disclosures of sustainability-related financial information. These disclosures focus on new information, events and circumstances and do not duplicate information previously reported. Although the information provided in interim sustainability-related financial disclosures may be more condensed than in annual sustainability-related financial disclosures, an entity is not prohibited or discouraged from publishing a complete set of sustainability-related financial disclosures as specified in this [draft] Standard as part of its interim general purpose financial report.

Comparative information (paragraphs 52, 70 and 83–86)

B49 Paragraph 70 requires an entity to disclose comparative information in respect of the preceding period for all amounts disclosed in the reporting period.

Metrics

B50 In some cases, the amount disclosed for a metric is an estimate. Except as specified in paragraph B51, if an entity identifies new information in relation to the estimated amount disclosed in the preceding period and the new information provides evidence of circumstances that existed in that period, the entity shall:

(a) disclose a revised comparative amount that reflects that new information;

(b) disclose the difference between the amount disclosed in the preceding period and the revised comparative amount; and

(c) explain the reasons for revising the comparative amount.

B51 In applying the requirement in paragraph B50, an entity need not disclose a revised comparative amount:

(a) if it is impracticable to do so (see paragraph B54).

(b) if the metric is forward-looking. Forward-looking metrics relate to possible future transactions, events and other conditions. The entity is permitted to revise a comparative amount for a forward-looking metric if doing so does not involve the use of hindsight.

B52 If an entity redefines or replaces a metric in the reporting period, the entity shall:

(a) disclose a revised comparative amount, unless it is impracticable to do so;

(b) explain the changes; and

(c) explain the reasons for those changes, including why the redefined or replacement metric provides more useful information.

B53 If an entity introduces a new metric in the reporting period, it shall disclose a comparative amount for that metric unless it is impracticable to do so.

B54 Sometimes, it is impracticable to revise a comparative amount to achieve comparability with the reporting period. For example, data might not have been collected in the preceding period in a way that allows retrospective application of a new definition of a metric, and it might be impracticable to recreate the data. If it is impracticable to revise a comparative amount for the preceding period, an entity shall disclose that fact.

Errors

B55 Paragraph 83 requires an entity to correct material prior period errors.

B56 Such errors include: the effects of mathematical mistakes, mistakes in applying the definitions for metrics or targets, oversights or misinterpretations of facts, and fraud.

B57 Potential reporting period errors discovered in that period are corrected before the sustainability-related financial disclosures are authorised for issue. However, material errors are sometimes not discovered until a subsequent period.

B58 If an entity identifies a material error in its prior period(s) sustainability-related financial disclosures, it shall disclose:

(a) the nature of the prior period error;

(b) the correction, to the extent practicable, for each prior period disclosed; and

(c) if correction of the error is impracticable, the circumstances that led to the existence of that condition and a description of how and from when the error has been corrected.

B59 When it is impracticable to determine the effect of an error on all prior periods presented, the entity shall restate the comparative information to correct the error from the earliest date practicable.

Appendix C
Sources of guidance

This appendix is an integral part of [draft] HKFRS S1 and has the same authority as the other parts of the [draft] Standard.

C1 This [draft] Standard requires (see paragraph 57) that in the absence of an HKFRS Sustainability Disclosure Standard that specifically applies to a sustainability-related risk or opportunity, an entity shall apply judgement to identify information that:

(a) is relevant to the decision-making of users of general purpose financial reports; and

(b) faithfully represents that sustainability-related risk or opportunity.

C2 In making that judgement, an entity may—to the extent that these sources assist the entity in meeting the objective of this [draft] Standard (see paragraphs 1–4) and do not conflict with HKFRS Sustainability Disclosure Standards—refer to and consider the applicability of:

(a) the Global Reporting Initiative Standards; and

(b) the European Sustainability Reporting Standards.

C3 In applying the sources of guidance specified in paragraph C2, an entity shall not obscure material information required by HKFRS Sustainability Disclosure Standards (see paragraph B27). If an entity applies the sources of guidance specified in paragraph C2 without applying the requirements in HKFRS Sustainability Disclosure Standards, the entity shall not make an explicit and unreserved statement of compliance with HKFRS Sustainability Disclosure Standards.

Appendix D
Qualitative characteristics of useful sustainability-related financial information

This appendix is an integral part of [draft] HKFRS S1 and has the same authority as the other parts of the [draft] Standard.

Introduction

D1 The *Conceptual Framework for Financial Reporting (Conceptual Framework)* was issued by the Hong Kong Institute of Certified Public Accountants (HKICPA). It describes the objective of, and the concepts that apply to, general purpose financial reports. One purpose of the *Conceptual Framework* is to assist the HKICPA to develop HKFRS Accounting Standards for preparing financial statements based on consistent concepts.

D2 Sustainability-related financial disclosures are part of general purpose financial reports. The qualitative characteristics in the *Conceptual Framework*, therefore, apply to sustainability-related financial information. However, the nature of some of the information required to meet the objective of this [draft] Standard (see paragraphs 1–4) differs in some respects from the information provided in financial statements.

D3 Sustainability-related financial information is useful if it is relevant and faithfully represents what it purports to represent. Relevance and faithful representation are fundamental qualitative characteristics of useful sustainability-related financial information. The usefulness of sustainability-related financial information is enhanced if the information is comparable, verifiable, timely and understandable. Comparability, verifiability, timeliness and understandability are enhancing characteristics of useful sustainability-related financial information.

Fundamental qualitative characteristics of useful sustainability-related financial information

Relevance

D4 Relevant sustainability-related financial information is capable of making a difference in the decisions made by primary users. Information may be capable of making a difference in a decision even if some users choose not to take advantage of it or are already aware of it from other sources. Sustainability-related financial information is capable of making a difference in decisions made by users if it has predictive value, confirmatory value or both.

D5 Sustainability-related financial information has predictive value if it can be used as an input to processes employed by primary users to predict future outcomes. Sustainability-related financial information need not be a prediction or forecast to have predictive value. Sustainability-related financial information with predictive value is employed by primary users in making their own predictions. For example, information about water quality, which can include information about the water being polluted, could inform the expectations of users about the ability of an entity to meet local water-quality requirements.

D6 Sustainability-related financial information has confirmatory value if it provides feedback about (confirms or changes) previous evaluations.

D7 The predictive value and confirmatory value of sustainability-related financial information are interrelated. Information that has predictive value often also has confirmatory value. For example, information for the current year about greenhouse gas emissions, which can be used as the basis for predicting greenhouse gas emissions in future years, can also be compared with predictions about greenhouse gas emissions for the current year that were made in past years. The results of those comparisons can help a user to correct and improve the processes that were used to make those previous predictions.

Materiality

D8 Information is material if omitting, misstating or obscuring that information could reasonably be expected to influence decisions that the primary users of general purpose financial reports make on the basis of those reports, which provide information about a specific reporting entity. In other words, materiality is an entity-specific aspect of relevance. The materiality of information is assessed in the context of an entity's sustainability-related financial disclosures and is based on the nature or magnitude of the item to which the information relates, or both.

Faithful representation

D9 Sustainability-related financial information represents phenomena in words and numbers. To be useful, the information must not only represent relevant phenomena, it must also faithfully represent the substance of the phenomena that it purports to represent.

D10 To be a faithful representation, a depiction would be complete, neutral and accurate. The objective of general purpose financial reports is to maximise those qualities to the extent possible.

D11 A complete depiction of a sustainability-related risk or opportunity includes all material information necessary for primary users to understand that risk or opportunity.

D12 Sustainability-related financial information shall be neutral. A neutral depiction is one without bias in the selection or disclosure of information. Information is neutral if it is not slanted, weighted, emphasised, de-emphasised or otherwise manipulated to make it more likely that primary users will receive that information favourably or unfavourably. Neutral information is not information without purpose or without influence on behaviour. On the contrary, relevant information is, by definition, capable of making a difference in users' decisions.

D13 Some sustainability-related financial information—for example, targets or plans—is aspirational. A neutral discussion of such matters covers both aspirations and the factors that could prevent an entity from achieving these aspirations.

D14 Neutrality is supported by the exercise of prudence. Prudence is the exercise of caution when making judgements under conditions of uncertainty. The exercise of prudence means that opportunities are not overstated and risks are not understated. Equally, the exercise of prudence does not allow for the understatement of opportunities or the overstatement of risks.

D15 Sustainability-related financial information shall be accurate. Information can be accurate without being perfectly precise in all respects. The precision needed and attainable, and the factors that make information accurate, depend on the nature of the information and the nature of the matters to which it relates. For example, accuracy requires that:

(a) factual information is free from material error;

(b) descriptions are precise;

(c) estimates, approximations and forecasts are clearly identified as such;

(d) no material errors are made in selecting and applying an appropriate process for developing an estimate, approximation or forecast;

(e) assertions and inputs used in developing estimates are reasonable and based on information of sufficient quality and quantity; and

(f) information on judgements about the future faithfully reflects both those judgements and the information on which they are based.

Enhancing qualitative characteristics of useful sustainability-related financial information

D16 The usefulness of sustainability-related financial information is enhanced if it is comparable, verifiable, timely and understandable.

Comparability

D17 The decisions made by the primary users of general purpose financial reports involve choosing between alternatives; for example, selling or holding an investment, or investing in one reporting entity or another. Comparability is the characteristic that enables users to identify and understand similarities in, and differences among, items. Unlike the other qualitative characteristics, comparability does not relate to a single item. A comparison requires at least two items. Information is more useful to users if it is also comparable, that is, if it can be compared with:

(a) information provided by the entity in previous periods; and

(b) information provided by other entities, in particular those with similar activities or operating within the same industry.

D18 Sustainability-related financial disclosures shall be provided in a way that enhances comparability.

D19 Consistency is related to, but is not the same as, comparability. Consistency refers to the use of the same approaches or methods for providing disclosures about the same sustainability-related risks and opportunities, from period to period, both by a reporting entity and other entities. Comparability is the goal; consistency helps to achieve that goal.

D20 Comparability is not uniformity. For information to be comparable, like things shall look alike and different things shall look different. Comparability of sustainability-related financial information is not enhanced by making unlike things look alike any more than it is enhanced by making like things look different.

Verifiability

D21 Verifiability helps to give users confidence that information is complete, neutral and accurate. Information is verifiable if it is possible to corroborate either the information itself or the inputs used to derive it. Verifiable information is more useful to primary users than information that is not verifiable.

D22 Verifiability means that various knowledgeable and independent observers could reach consensus, although not necessarily complete agreement, that a particular depiction is a faithful representation. Quantified information need not be a single point estimate to be verifiable. A range of possible amounts and the related probabilities could also be verified.

D23 Sustainability-related financial information shall be provided in a way that enhances its verifiability. Verifiability can be enhanced by, for example:

(a) including information that can be corroborated by comparing it with other information available to primary users about an entity's business, about other businesses or about the external environment in which the entity operates;

(b) providing information about inputs and methods of calculation used to produce estimates or approximations; and

(c) providing information reviewed and agreed by the entity's board, board committees or equivalent bodies.

D24 Some sustainability-related financial information will be presented as explanations or forward-looking information. That information can be supportable, for example by faithfully representing fact-based strategies, plans and risk analyses. To help primary users decide whether to use such information, an entity shall describe the underlying assumptions and methods of producing the information, as well as other factors that provide evidence that the information reflects the actual plans or decisions made by the entity.

Timeliness

D25 Timeliness means having information available to decision-makers in time to be capable of influencing their decisions. Generally, the older information is, the less useful it is. However, some information may continue to be timely long after the end of a reporting period because, for example, some users may need to identify and assess trends.

Understandability

D26 Sustainability-related financial information shall be clear and concise. For sustainability-related financial disclosures to be concise, they need:

(a) to avoid generic information, sometimes called ‘boilerplate’, that is not specific to the entity;

(b) to avoid duplication of information in the general purpose financial reports, including unnecessary duplication of information also provided in the related financial statements; and

(c) to use clear language and clearly structured sentences and paragraphs.

D27 The clearest form a disclosure can take will depend on the nature of the information and might include tables, graphs or diagrams in addition to narrative text. If graphs or diagrams are used, additional text or tables might be necessary to avoid obscuring material detail.

D28 Clarity might be enhanced by distinguishing information about developments in the reporting period from ‘standing’ information that remains unchanged, or changes little, from one period to the next—for example, by separately describing features of an entity’s sustainability-related governance and risk management processes that have changed since the previous reporting period.

D29 Disclosures are concise if they include only material information. Any immaterial information included shall be provided in a way that avoids obscuring material information.

D30 Some sustainability-related risks and opportunities are inherently complex and might be difficult to present in a manner that is easy to understand. An entity shall present such information as clearly as possible. However, complex information about these risks and opportunities shall not be excluded from general purpose financial reports to make those reports easier to understand. Excluding such information would render those reports incomplete and, therefore, possibly misleading.

D31 The completeness, clarity and comparability of sustainability-related financial information all rely on information being presented as a coherent whole. For sustainability-related financial information to be coherent, it shall be presented in a way that explains the context and the connections between the related items of information.

D32 If sustainability-related risks and opportunities located in one part of an entity’s general purpose financial reports have implications for information disclosed in other parts, the entity shall include the information necessary for users to assess those implications.

D33 Coherence also requires an entity to provide information in a way that allows users to relate information about its sustainability-related risks and opportunities to information in the entity’s financial statements.

Appendix E
Effective date and transition

This appendix is an integral part of [draft] HKFRS S1 and has the same authority as the other parts of the [draft] Standard.

Effective date

E1 An entity shall apply this [draft] Standard for annual reporting periods beginning on or after 1 August 2025. Earlier application is permitted. If an entity applies this [draft] Standard earlier, it shall disclose that fact and apply [draft] HKFRS S2 *Climate-related Disclosures* at the same time.

E2 For the purposes of applying paragraphs E3–E6, the date of initial application is the beginning of the annual reporting period in which an entity first applies this [draft] Standard.

Transition

E3 An entity is not required to provide the disclosures specified in this [draft] Standard for any period before the date of initial application. Accordingly, an entity is not required to disclose comparative information in the first annual reporting period in which it applies this [draft] Standard.

E4 In the first annual reporting period in which an entity applies this [draft] Standard, the entity is permitted to report its sustainability-related financial disclosures after it publishes its related financial statements. In applying this transition relief, an entity shall report its sustainability-related financial disclosures:

(a) at the same time as its next second-quarter or half-year interim general purpose financial report, if the entity is required to provide such an interim report;

(b) at the same time as its next second-quarter or half-year interim general purpose financial report, but within nine months of the end of the annual reporting period in which the entity first applies this [draft] Standard, if the entity voluntarily provides such an interim report; or

(c) within nine months of the end of the annual reporting period in which the entity first applies this [draft] Standard, if the entity is not required to and does not voluntarily provide an interim general purpose financial report.

E5 In the first annual reporting period in which an entity applies this [draft] Standard, the entity is permitted to disclose information on only climate-related risks and opportunities (in accordance with [draft] HKFRS S2) and consequently apply the requirements in this [draft] Standard only insofar as they relate to the disclosure of information on climate-related risks and opportunities. If an entity uses this transition relief, it shall disclose that fact.

E6 If an entity uses the transition relief in paragraph E5:

(a) in the first annual reporting period in which the entity applies this [draft] Standard, it is not required to disclose comparative information about its climate-related risks and opportunities (see paragraph E3); and

(b) in the second annual reporting period in which the entity applies this [draft] Standard, it is not required to disclose comparative information about its sustainability-related risks and opportunities, other than its climate-related risks and opportunities.

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Accompanying Guidance on
Exposure Draft Hong Kong Financial Reporting Standard S1

General Requirements for Disclosure of Sustainability-related Financial Information

Hong Kong Institute of
Certified Public Accountants
香港會計師公會

Accompanying Guidance on IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information*

[Draft] HKFRS S1 is based on IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information*. In approving HKFRS S1, the Financial Reporting Standards Committee of the Hong Kong Institute of Certified Public Accountants has considered and agreed with the International Sustainability Standards Board's (ISSB) Accompanying Guidance on IFRS S1. The ISSB's Accompanying Guidance is reproduced below for your consideration when commenting on the [draft] HKFRS S1. The paragraph numbers of IFRS S1 referred to below generally correspond with those in [draft] HKFRS S1.

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IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information*

Illustrative Guidance

This guidance accompanies, but is not part of, IFRS S1. It illustrates aspects of IFRS S1 but is not intended to provide interpretative guidance.

Primary users

IG1 The objective of IFRS S1 is to require an entity to disclose information about its sustainability-related risks and opportunities that is useful to primary users of general purpose financial reports in making decisions relating to providing resources to the entity.[1]

Meeting primary users' information needs

IG2 Assessing whether information could reasonably be expected to influence decisions made by the primary users of a specific reporting entity's general purpose financial reports requires that entity to consider the characteristics of those users while also considering the entity's own circumstances. General purpose financial reports include—but are not restricted to—an entity's general purpose financial statements and sustainability-related financial disclosures.

IG3 Existing and potential investors, lenders and other creditors are the primary users to whom general purpose financial reports are directed. General purpose financial reports are prepared for users with a reasonable knowledge of business and economic activities and who review and analyse the information diligently. However, even well-informed and diligent users may need to seek the aid of an adviser to understand sustainability-related financial information.

IG4 General purpose financial reports do not, and cannot, provide all the information that primary users need. Therefore, the entity aims to meet the common information needs of its primary users. It does not aim to address specialised information needs—information needs that are unique to particular users.

IG5 To meet the common information needs of its primary users, an entity first separately identifies the information needs of one of the three types of primary users—for example, investors (existing and potential). The entity then repeats the assessment for the two remaining types—lenders (existing and potential) and other creditors (existing and potential). The combined information needs identified by these assessments form the set of common information needs that the entity aims to meet.

IG6 In other words, the assessment of common information needs does not require an entity to identify the information needs that are shared by all users. Some identified information needs will be common to all types of users, but others may be specific to only one or two types. If an entity were to focus only on information needs that are common to all types of primary users, it might exclude information that meets the needs of only one type.

Use of publicly available information

IG7 Primary users do not source information exclusively from general purpose financial reports. For example, such users might also consider information about the industry an entity operates in; information about the entity's competitors and the state of the economy; and information in the entity's press releases as well as other documents the entity has published. However, the fact that information is publicly available does not relieve an entity of its responsibility to disclose material information about the sustainability-related risks and opportunities that could reasonably be expected to affect the entity's cash flows, its access to finance or cost of capital over the short,

[1] Throughout IFRS S1, the terms 'primary users' and 'users' are used interchangeably, with the same meaning and refer to existing and potential investors, lenders and other creditors.

medium or long term. These risks and opportunities are collectively referred to as 'sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects'.

Applying sources of guidance

IG8 This guidance suggests possible ways to apply some of the requirements in IFRS S1. It does not specify additional requirements.

IG9 IFRS S1 requires an entity to refer to and consider the applicability of specified sources of guidance. It also specifies sources of guidance an entity is permitted, but not required, to refer to in preparing its sustainability-related financial disclosures (see paragraphs 54–59 and Appendix C of IFRS S1). These sources can inform the identification of:

(a) sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects; and

(b) information about those sustainability-related risks and opportunities that is relevant to the decision-making of users of general purpose financial reports and faithfully represents those sustainability-related risks and opportunities.

IG10 Paragraphs IG11–IG27 illustrate how entities can apply sources of guidance in meeting the requirements in IFRS S1. Paragraphs IG11–IG24 focus on the SASB Standards and paragraphs IG25–IG27 focus on the CDSB Framework Application Guidance for Water-related Disclosures and the CDSB Framework Application Guidance for Biodiversity-related Disclosures (collectively referred to as 'CDSB Framework Application Guidance').

SASB Standards

IG11 As set out in IFRS S1, an entity is required to refer to and consider the applicability of the disclosure topics in the SASB Standards in identifying sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects.

IG12 The SASB Standards are organised by industry. Each SASB Standard contains:

(a) industry descriptions—which are intended to help entities identify applicable industry guidance by describing the business models, activities and other common features that characterise participation in the industry;

(b) disclosure topics—which describe specific sustainability-related risks or opportunities associated with the activities conducted by entities within a particular industry;

(c) metrics—which accompany disclosure topics and are designed to, either individually or as part of a set, provide useful information regarding an entity's performance for a specific disclosure topic;

(d) technical protocols—which provide guidance on definitions, scope, implementation and presentation of associated metrics; and

(e) activity metrics—which quantify the scale of specific activities or operations by an entity and are intended for use in conjunction with metrics referred to in paragraph IG12(c) to normalise data and facilitate comparison.

IG13 The disclosure topics and associated metrics in the SASB Standards are not exhaustive. IFRS S1 requires an entity to present fairly all sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects.

Identifying applicable SASB Standards

IG14 Each SASB Standard includes an industry name and description. The industry names and descriptions are intended to enable an entity to identify the SASB Standard(s) that is likely to be applicable to its business model and associated activities. Industry names may not precisely align with the industry an entity considers itself to be a part of because industries can be classified and defined according to varying conventions. Moreover, there may be activities that are not specifically addressed by a SASB Standard for a particular industry, although it is likely that those activities, or at least similar activities, are addressed in other SASB Standards.

IG15 In order to consider applicable SASB Standards, it is important for an entity to understand the activities that a particular SASB Standard covers. Each SASB Standard summarises the business it covers in an 'Industry Description' section.

IG16 Some entities might find that their business models and activities are closely aligned with the industry description of a single SASB Standard. If so, an entity might need only to refer to the single applicable SASB Standard (see paragraphs IE3–IE8). Other entities might need to refer to and consider the applicability of more than one SASB Standard to help them identify sustainability-related risks and opportunities associated with their activities (see paragraphs IE9–IE15). Such entities might include those with hybrid or complex business models whose activities span a wider array of activities than reflected in any one SASB Standard.

Disclosure topics

IG17 After identifying the SASB Standard(s) most closely aligned with the entity's activities, an entity next considers the applicability of the disclosure topics contained in the identified SASB Standard(s) to the entity's activities. The disclosure topics describe specific sustainability-related risks and opportunities associated with the activities conducted by entities within a particular industry. These disclosure topics are intended to enable entities to consistently identify sustainability-related risks and opportunities based on their business model and activities.

IG18 For example, an entity that conducts meat, poultry and dairy operations would refer to and consider the applicability of the disclosure topics in the *Meat, Poultry & Dairy* SASB Standard. In considering the applicability of the SASB Standard for this industry, an entity might conclude that the disclosure topics in that SASB Standard are applicable in the entity's circumstances, including disclosure topics such as:

(a) food safety; and

(b) workforce health & safety.

IG19 Therefore, the entity could use the disclosure topics in this SASB Standard—including, but not limited to the disclosure topics listed in paragraph IG18—to inform its identification of sustainability-related risks and opportunities, in accordance with paragraph 55 of IFRS S1. Specifically, applying those disclosure topics, the entity could explain that a failure to maintain the quality and safety of its product might result in costly recalls, harm the reputation of its brand, lead to fines, reduce its revenues and increase regulatory scrutiny, including the imposition of trade restrictions. The entity could also use the disclosure topics to disclose information required by paragraph 33 of IFRS S1 about how it manages the identified risks, for example, information about the robust workforce safety practices to avoid reputational impairment, costly turnover, low worker morale and productivity, risks associated with potential liability for injuries, associated healthcare and workers' compensation costs.

IG20 An entity could repeat this approach for each of the applicable disclosure topics. The SASB Standards inform the identification of sustainability-related risks and opportunities of a *typical* entity within a given industry. Consequently, in some cases the SASB Standards might:

(a) include disclosure topics that would not result in useful information for users of general purpose financial reports for *every* entity within a given industry; and

(b) not include every disclosure topic that would result in useful information.

In some cases, an entity might conclude that a disclosure topic would not result in useful information because of the entity's business model. That might be the case, for example, if the entity does not engage in activities that are covered by that disclosure topic. Conversely, an entity might also need to consider additional sources of guidance specified in paragraph 55(b) of IFRS S1 to identify sustainability-related risks or opportunities that could reasonably be expected to affect the entity's prospects.

Metrics

IG21 In the absence of an IFRS Sustainability Disclosure Standard that specifically applies to a sustainability-related risk or opportunity, IFRS S1 requires an entity to refer to and consider the applicability of the metrics associated with the disclosure topics included in the SASB Standards. An entity might conclude that metrics specified in the SASB Standards are not applicable in the entity's circumstances.

IG22 Hypothetically, a meat, poultry and dairy entity might refer to and consider the applicability of the following metrics included in the *Meat, Poultry & Dairy* SASB Standard:

(a) food safety:

(i) FB-MP-250a.1—Global Food Safety Initiative (GFSI) audit (1) non-conformance rate and (2) associated corrective action rate for (a) major and (b) minor non-conformances;

(ii) FB-MP-250a.2—Percentage of supplier facilities certified to a Global Food Safety Initiative (GFSI) food safety certification program;

(iii) FB-MP-250a.3—(1) Number of recalls issued and (2) total weight of products recalled; and

(iv) FB-MP-250a.4—Discussion of markets that ban imports of the entity's products; and

(b) workforce health & safety:

(i) FB-MP-320a.1—(1) Total recordable incident rate (TRIR) and (2) fatality rate; and

(ii) FB-MP-320a.2—Description of efforts to assess, monitor, and mitigate acute and chronic respiratory health conditions.

IG23 Each of these metrics is supported by technical protocols that provide detailed guidance on definitions, scope, implementation and presentation. For example, in applying the accompanying technical protocols, the hypothetical meat, poultry and dairy entity would disclose information related to workforce health and safety for all of its workers, regardless of their location and type of employment, such as full-time, part-time, direct, contract, executive, labour, salary, hourly or seasonal. The entity might disclose this information to comply with the requirement in paragraph 32(a) of IFRS S1 to describe the effects of workforce health and safety-related risks on its business model and its value chain. Furthermore, the entity might disaggregate this information—for example, by location of operations—to disclose information in accordance with the requirement in paragraph 32(b) of IFRS S1 to describe where in the entity's business model and value chain workforce health and safety-related risks are concentrated. The technical protocols may also serve as criteria against which the disclosed information can be verified.

IG24 The accompanying technical protocols would also guide the hypothetical entity in supplementing the metrics with appropriate context—for example, a discussion of notable recalls, including information related to the cause, amount, remediation cost, nature (voluntary or involuntary), associated corrective actions and other significant outcomes related to the recall, such as legal proceedings or consumer illness. The entity might disclose this information to comply with the requirements in paragraph 35 of IFRS S1 to disclose quantitative and qualitative information about the current and anticipated financial effects of food safety-related risks on its financial position, performance and cash flows.

CDSB Framework Application Guidance

IG25 As set out in IFRS S1, an entity may refer to and consider the applicability of the CDSB Framework Application Guidance in identifying sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects (see paragraph 55 of IFRS S1). In the absence of an IFRS Sustainability Disclosure Standard that specifically applies to a sustainability-related risk or opportunity, an entity may refer to and consider the applicability of the CDSB Framework Application Guidance in identifying information that is relevant to the decision-making of users of general purpose financial reports and faithfully represents the sustainability-related risk or opportunity (see paragraphs 57–58 of IFRS S1).

IG26 The CDSB Framework Application Guidance can support entities in identifying water- and biodiversity-related risks and opportunities. For example, the CDSB Framework Application Guidance on Biodiversity-related Disclosures identifies potential physical biodiversity-related risks such as reduction in soil fertility, reduction in pollination for crop production and reduced availability of fish stocks. Similarly, the CDSB Framework Application Guidance on Water-related Disclosures identifies potential water-related opportunities such as improved water efficiency, development of new products and services, and conservation and restoration of ecosystems through engagement and collaboration with stakeholders. In applying the requirement in paragraph 21 of IFRS S1 on connected information, the CDSB Framework Application Guidance explains how water- and biodiversity-related risks might be connected to other sustainability-related risks and opportunities that could reasonably be expected to affect an entity's prospects; for example, water-related risks, such as more frequent flooding, are often inherently linked to climate-related risks.

IG27 An entity might have identified water- or biodiversity-related risks and opportunities in accordance with the SASB Standards, the CDSB Framework Application Guidance or other sources of guidance in accordance with paragraph 55 of IFRS S1. In the absence of a specifically applicable IFRS Sustainability Disclosure Standard, the entity may consider the applicability of the CDSB Framework Application Guidance in identifying information to be provided, including metrics, about the water- or biodiversity-related risks or opportunities that could reasonably be expected to affect an entity's prospects. An entity might consider the CDSB Framework Application Guidance in applying the core content requirements in paragraphs 25–53 of IFRS S1, for example:

(a) Governance—in providing disclosures on governance relating to water-related risks and opportunities, the CDSB Framework Application Guidance on Water-related Disclosures suggests an entity might provide information about how water policies, strategy and information are delegated to management. In relation to collaboration with stakeholders to achieve effective water management, the guidance also suggests an entity might provide information about whether there are specific bodies, individuals or mechanisms located in areas that are affected by significant water loss whose function is to ensure compliance with water-related regulation and engagement with stakeholders.

(b) Strategy—in providing disclosures on strategy relating to biodiversity-related risks and opportunities, the CDSB Framework Application Guidance on Biodiversity-related Disclosures suggests an entity might provide, for example, information about the geographic-specificity of biodiversity-related risks and opportunities and how those risks and opportunities may vary over the short, medium and long term. The guidance also suggests the type of quantitative and qualitative information an entity might consider providing in accordance with paragraphs 34–40 of IFRS S1, for example, the operational expenses, cost savings and revenue associated with biodiversity management, such as information about remediation costs or provisions in the case of accidents such as polluting spills, costs of staff training and revenue from biodiversity-efficient products and services.

(c) Metrics and targets—the CDSB Framework Application Guidance on Biodiversity-related Disclosures provides examples of common biodiversity metrics such as concentrations of key pollutants in wastewater, the volume of timber and non-timber forest products harvested and areas of forest, grassland or wetland converted due to urbanisation. Due to changes in biodiversity over time, the guidance suggests an entity provides information about the time frames it has set for targets. The guidance also discusses targets tailored to specific locations due to geographical variation in biodiversity priorities, as well as differing legal and regulatory requirements.

Illustrative Examples

These examples accompany, but are not part of, IFRS S1. They illustrate aspects of IFRS S1 but are not intended to provide interpretative guidance.

IE1 These examples portray hypothetical situations illustrating how an entity might apply some of the requirements in IFRS S1 on the basis of the limited facts presented. The analysis in each example is not intended to represent the only manner in which the requirements could be applied, nor are the examples intended to apply only to the specific industries illustrated. Although some aspects of the examples may be present in actual fact patterns, an entity should evaluate all of the relevant facts and circumstances of a particular fact pattern when applying IFRS S1.

SASB Standards

IE2 Examples 1 and 2 illustrate how an entity might apply the requirements related to sources of guidance. Those requirements include:

(a) to refer to and consider the applicability of the disclosure topics in the SASB Standards (see paragraph 55(a) of IFRS S1);

(b) to refer to and consider the applicability of the metrics associated with the disclosure topics included in the SASB Standards (see paragraph 58(a) of IFRS S1);

(c) to identify the specific standards, pronouncements, industry practice and other sources of guidance that the entity has applied in preparing its sustainability-related financial disclosures, including, if applicable, identifying the disclosure topics in the SASB Standards (see paragraph 59(a) of IFRS S1);

(d) to identify the industry(s) specified in the IFRS Sustainability Disclosure Standards, the SASB Standards or other sources of guidance relating to a particular industry(s) that the entity has applied in preparing its sustainability-related financial disclosures, including in identifying applicable metrics (see paragraph 59(b) of IFRS S1); and

(e) to identify the source and metric taken if an entity discloses a metric from a source other than IFRS Sustainability Disclosure Standards (see paragraph 49 of IFRS S1).

Example 1—An entity with a single line of business

IE3 Entity Y is a regional passenger airline company. In identifying sustainability-related risks and opportunities that could reasonably be expected to affect its prospects, Entity Y is required to apply IFRS Sustainability Disclosure Standards in accordance with paragraph 54 of IFRS S1. In addition to applying IFRS Sustainability Disclosure Standards, Entity Y is required to refer to and consider the applicability of the disclosure topics in the SASB Standards. Entity Y concludes that its business model and activities most closely align with the *Airlines* SASB Standard.

IE4 Entity Y applies IFRS S2 *Climate-related Disclosures* and identifies climate-related risks or opportunities that could reasonably be expected to affect its prospects. In addition, Entity Y refers to and considers the applicability of the disclosure topics in the *Airlines* SASB Standard in accordance with paragraph 55(a) of IFRS S1. Entity Y concludes that all four disclosure topics in the *Airlines* SASB Standard are applicable to its activities and uses those disclosure topics to inform its identification of sustainability-related risks and opportunities that could reasonably be expected to affect its prospects.

IE5 In disclosing information about its sustainability-related risks and opportunities, Entity Y applies IFRS Sustainability Disclosure Standards that specifically apply to its identified sustainability-related risks and opportunities. For example, Entity Y applies IFRS S2 to disclose information about its greenhouse gas emissions. In the absence of an IFRS Sustainability Disclosure Standard that specifically applies to the sustainability-related risks and opportunities which Entity Y has identified, Entity Y refers to and considers the applicability of the metrics associated with the applicable disclosure topics in the *Airlines* SASB Standard. Entity Y concludes that applying these metrics will provide information that is relevant to the decision-making of users of general purpose financial reports and faithfully represents the sustainability-related risks and opportunities that it has identified. For example, the metrics associated with the 'Accident & Safety Management' disclosure topic include:

(a) TR-AL-540a.1—Description of implementation and outcomes of a Safety Management System;

(b) TR-AL-540a.2—Number of aviation accidents; and

(c) TR-AL-540a.3—Number of governmental enforcement actions of aviation safety regulations.

IE6 In identifying information to provide, Entity Y considers the applicability of the technical protocols accompanying the metrics. For example, while disclosing a description of the implementation and outcomes of a Safety Management System, Entity Y might describe any actions or measures it has implemented to mitigate any safety risks and hazardous situations that it has identified. These actions or measures include, for example, particular changes in controls, operations, management, processes, products, business partners, training or technology.

IE7 Entity Y is required to apply the requirements relating to ‘core content’ in IFRS S1. Entity Y considers the disclosure topics, metrics and associated technical protocols in the *Airlines* SASB Standard when providing information required by IFRS S1, including information relating to strategy and metrics and targets.

IE8 Entity Y discloses that it applied the disclosure topics and metrics in the *Airlines* SASB Standard in preparing its sustainability-related financial disclosures, in accordance with paragraphs 49 and 59 of IFRS S1.

Example 2—A large conglomerate with diverse activities

IE9 Entity A is a large conglomerate with diverse activities. Entity A produces electrical and industrial equipment for use in a range of industries. In addition to IFRS Sustainability Disclosure Standards, Entity A is required to refer to and consider the applicability of the disclosure topics in the SASB Standards in identifying its sustainability-related risks and opportunities. Because of the wide-ranging nature of its activities, Entity A begins its consideration of the applicability of the SASB Standards by considering the various sectors into which the SASB Standards are grouped. Entity A conducts activities in industries in the Health Care, Resource Transformation and Infrastructure sectors, and in some cases owns particular parts of its production process rather than relying on suppliers. It also has some activities in the Transportation and Consumer Goods sectors.

IE10 Entity A refers to and considers the applicability of the disclosure topics in the SASB Standards. Entity A concludes that eight SASB Standards are applicable to its business model and activities. Entity A considers the disclosure topics in the eight standards. Although Entity A observes that it engages in activities related to all of those disclosure topics, Entity A concludes that some of those disclosure topics are not applicable in the entity’s circumstances. For example, Entity A concludes that the sustainability-related risk or opportunity characterised by a particular disclosure topic could not reasonably be expected to affect its prospects over the short, medium or long term because the disclosure topic relates to activities that are insignificant for the entity.

IE11 Entity A concludes that most of the disclosure topics in the SASB Standards it has considered are applicable to its significant activities. In some cases where it has less significant activities, it finds that only particular disclosure topics in those related industries are applicable. For example, Entity A concludes that most of the disclosure topics that it considered for its transportation and retail businesses are not applicable, due to the relatively small size of these businesses. However, Entity A concludes that incidents related to safety and labour practices in these businesses, although unlikely to have a large effect on its cash flows in the short term, could have a major effect on its reputation over the medium and long term. This reputational risk could affect the performance of its larger businesses, including its ability to attract and retain talent, over a medium- and long-term time horizon, which could be reasonably expected to affect its medium- and long-term cash flows, access to finance and cost of capital. Thus, Entity A considers these topics in identifying sustainability-related risks and opportunities that could reasonably be expected to affect its prospects.

IE12 In the absence of an IFRS Sustainability Disclosure Standard that specifically applies to the sustainability-related risks and opportunities that Entity A has identified, Entity A refers to and considers the applicability of the metrics associated with applicable disclosure topics. In identifying applicable metrics, Entity A considers whether the metric will provide information that is relevant to the decision-making of users of general purpose financial reports and that faithfully represents the sustainability-related risks and opportunities that it has identified.

IE13 In preparing its sustainability-related financial disclosures, Entity A concludes that some information should be aggregated to avoid obscuring material information with immaterial information. For example, it concludes that information about its strategy for sourcing critical materials for devices produced by its various activities should be aggregated because the entity manages the supplier relationships for those critical materials centrally.

IE14 In contrast, for other types of information, Entity A concludes aggregation would result in obscuring material information. For example, it concludes that information about the number of recalls related to its equipment in the Health Care sector should not be aggregated with information about the number of recalls related to its equipment in the Consumer Goods sector because the technologies, production processes and markets for each sector differ. Therefore, there are also varied reasons for the occurrence of product recalls in these sectors.

IE15 Entity A discloses information about the SASB Standards it has applied in preparing its sustainability-related financial disclosures, in accordance with paragraphs 49 and 59 of IFRS S1, including identifying the specific SASB Standards, disclosure topics and metrics it applied. Entity A also provides information to enable users of general purpose financial reports to understand the judgements that it has made in the process of preparing its sustainability-related financial disclosures and that have the most significant effect on the information included in those disclosures in accordance with paragraph 74 of IFRS S1.

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Basis for Conclusions on
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General Requirements for Disclosure of Sustainability-related Financial Information

Hong Kong Institute of
Certified Public Accountants
香港會計師公會

Basis for Conclusions on IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information*

[Draft] HKFRS S1 is based on IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information*. In approving HKFRS S1, the Financial Reporting Standards Committee of the Hong Kong Institute of Certified Public Accountants has considered and agreed with the International Sustainability Standards Board's (ISSB) Basis for Conclusions on IFRS S1. The ISSB's Basis for Conclusions is reproduced below for your consideration when commenting on the [draft] HKFRS S1. The paragraph numbers of IFRS S1 referred to below generally correspond with those in [draft] HKFRS S1.

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Basis for Conclusions on IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information*

This Basis for Conclusions accompanies, but is not part of, IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information*. It summarises the considerations of the International Sustainability Standards Board (ISSB) in developing IFRS S1. Individual ISSB members gave greater weight to some factors than to others. The ISSB also published an Effects Analysis, which describes the likely costs and benefits of IFRS S1.*

Introduction

BC1 IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information* (IFRS S1) was developed in response to calls from users of general purpose financial reports (users) for more consistent, complete, comparable and verifiable sustainability-related financial information. Users told the ISSB that this information would enable them to assess an entity's exposure to and management of sustainability-related risks and opportunities over the short, medium and long term, and would inform their decisions relating to providing resources to an entity. Such information supplements and complements the information in the entity's general purpose financial statements (referred to as 'financial statements').

Overview

BC2 IFRS S1 sets out the overall requirements for providing users of general purpose financial reports with a complete set of sustainability-related financial disclosures. IFRS S1 applies to all sustainability-related risks and opportunities that could reasonably be expected to affect an entity's cash flows, its access to finance or cost of capital over the short, medium or long term. These risks and opportunities are collectively referred to as 'sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects'. Consistent with the *Conceptual Framework for Financial Reporting* (*Conceptual Framework*) issued by the International Accounting Standards Board (IASB), IFRS S1 is intended to result in the disclosure of information that meets the information needs of users of general purpose financial reports. In developing IFRS S1, the ISSB noted that many users cannot require an entity to provide information directly to them and must rely on general purpose financial reports for much of the information they need.

BC3 IFRS S1 requires an entity to disclose information about its sustainability-related risks and opportunities that is useful to users of general purpose financial reports in making decisions relating to providing resources to the entity. The information required by IFRS S1 relates to general aspects of how an entity operates, in particular to its governance, strategy, risk management, and metrics and targets associated with sustainability-related risks and opportunities. IFRS S1 refers to these four aspects as the 'core content', meaning the respective information is essential to users' understanding of how an entity identifies, assesses, prioritises, monitors and manages sustainability-related risks and opportunities. This focus on core content reflects feedback on the 2020 consultation on sustainability reporting held by the IFRS Foundation Trustees (the Trustees) and builds on the widely accepted recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD).

BC4 IFRS Sustainability Disclosure Standards use terminology suitable for profit-oriented entities, including public-sector business entities. IFRS S1 specifies that if entities with not-for-profit activities in the private sector or public sector apply this Standard, they might need to amend the descriptions used for particular items of information when applying IFRS Sustainability Disclosure Standards. The ISSB noted interest in IFRS Sustainability Disclosure Standards among the public sector and entities other than profit-oriented entities. For example, the ISSB noted the ongoing work by the International Public Sector Accounting Standards Board (IPSASB) on public sector sustainability reporting guidance that is related to IFRS S1 and IFRS S2 *Climate-related Disclosures* (IFRS S2). The ISSB also noted national measurement schemes, and interest expressed by regulators and other organisations that oversee financial market stability.

Financial statements prepared under other GAAP

BC5 IFRS S1 applies to sustainability-related financial disclosures provided as part of an entity's general purpose financial reports. IFRS S1 is designed to require the disclosure of information that complements an entity's financial statements, regardless of which generally accepted accounting principles or practices (GAAP) the entity uses in preparing those financial statements. IFRS S1 establishes a base for decision-useful and comparable reporting of sustainability-related financial information by requiring the application of some established practices from financial reporting. IFRS S1 uses definitions and requirements that are consistent, if applicable, with the IASB's *Conceptual Framework*, IAS 1 *Presentation of Financial Statements* and IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors*. The ISSB intends that such an approach does not, in any way, limit the suitability of IFRS Sustainability Disclosure Standards for entities applying other GAAP instead of IFRS Accounting Standards.

Relationship with other IFRS Sustainability Disclosure Standards

BC6 IFRS S1 sets out the general requirements that an entity is required to apply to assert compliance with IFRS Sustainability Disclosure Standards. IFRS S1 identifies the essential elements of a complete set of sustainability-related financial disclosures and sets out the qualitative characteristics of useful sustainability-related financial information. An entity applying IFRS Sustainability Disclosure Standards would apply the requirements in IFRS S1 in conjunction with other Standards (for example, an entity applying IFRS S2 would refer to IFRS S1 to decide how to aggregate or disaggregate information). As a result, IFRS S1 will establish the basis for further development of IFRS Sustainability Disclosure Standards by the ISSB in the future.

BC7 The purpose of IFRS S1 for sustainability-related financial disclosures is similar to that of the IASB's *Conceptual Framework*, IAS 1 and IAS 8, which are applicable to financial statements prepared in accordance with IFRS Accounting Standards.

Proportionality

BC8 Although most respondents to the consultation on Exposure Draft IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information* (Exposure Draft) agreed with the proposed requirements, many of these respondents suggested that the ISSB give more consideration to the range of capabilities and preparedness of entities around the world to apply the proposals. The reasons that some entities might be unable to comply fully with the proposals include:

(a) *resource constraints*—the costs of investing in and operating the systems and processes necessary to enable disclosure are proportionately higher for some entities;

(b) *data availability*—high-quality external data is less available in some markets, industries and parts of the value chain; and

(c) *specialist availability*—skills or expertise are less available to some entities and in some markets.

BC9 The ISSB discussed a range of mechanisms to respond to these 'proportionality' challenges. The ISSB made several proportionality-related decisions intended to ease the burden of disclosure and assist entities in applying IFRS Sustainability Disclosure Standards.

Table 1—Summary of ISSB decisions that assist with proportionality or in the application of IFRS S1

Area	Mechanisms to address proportionality challenges: Concept of 'reasonable and supportable information… without undue cost or effort'	Mechanisms to address proportionality challenges: Consideration of skills, capabilities and resources	Transition relief	Additional clarifications/ mechanisms to facilitate application: Concept of 'unable to do so'[(a)]	Additional clarifications/ mechanisms to facilitate application: Guidance, educational material and other efforts to facilitate application
Identification of risks and opportunities	X				X
Current financial effects				X	X
Anticipated financial effects	X	X		X	X
Determination of the scope of the value chain	X				X
Other areas—for example, timing of reporting and providing comparative information in the first annual reporting period			X		X

(a) Although the term 'unable to do so' was used in the Exposure Draft, it is no longer used in IFRS S1; however, this concept is articulated through whether the current or anticipated financial effects are separately identifiable or whether the level of measurement uncertainty involved in estimating those effects is so high that the resulting quantitative information would not be useful.

Reasonable and supportable information

BC10 Requirements that involve a high level of judgement or uncertainty are not unique to sustainability-related financial disclosures. IFRS Accounting Standards require an entity to recognise and measure amounts that are subject to high measurement uncertainty. For example, IFRS 9 *Financial Instruments* requires an entity to account for expected credit losses by using forward-looking information and apply its judgement in making estimations.

BC11 The IASB has, in several recent IFRS Accounting Standards, specified the type of information that an entity is required to use, by referring to 'all reasonable and supportable information that is available at the reporting date without undue cost or effort'. This concept is not used in IFRS Accounting Standards as a broad principle, but the IASB has used it in specific circumstances to guide an entity in applying requirements that involve a high level of measurement uncertainty.

BC12 Determining what qualifies as reasonable and supportable information involves an entity:

(a) considering all information that is reasonably available, including information it already has. An entity is prohibited from disregarding known information.

(b) having an appropriate basis for using the information, satisfying the requirement in IFRS S1 for information to be supportable.

(c) considering information that is available at the reporting date, such as historical, current or forward-looking information (including forecasts of future conditions).

BC13 An entity is not required to carry out an exhaustive search for such information. The information should be available without undue cost or effort.

BC14 The ISSB has introduced the concept of 'all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort' in IFRS S1 in regard to:

(a) identifying sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects (paragraph B6(a) of IFRS S1);

(b) determining the scope of the entity's value chain, including its breadth and composition, in relation to each of those sustainability-related risks and opportunities (paragraph B6(b) of IFRS S1); and

(c) preparing disclosures about the anticipated financial effects of sustainability-related risks and opportunities on an entity's financial performance, financial position and cash flows (paragraph 37(a) of IFRS S1).

BC15 The ISSB decided that referring to 'all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort' is beneficial if entities apply requirements that involve a high level of judgement or uncertainty because the concept establishes parameters for the type of information to consider, and for the effort required to obtain such information.

BC16 Referring to 'all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort' does not introduce additional disclosure requirements. Nor does this reference exempt an entity from providing a disclosure. It does not apply to all requirements in IFRS S1. Instead, it provides clarity about the information that an entity uses in the preparation of its sustainability-related financial disclosures, and applies only to specific disclosure requirements. The concept of 'all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort' also emphasises that an entity is required to use relevant and appropriate information.

BC17 The ISSB decided that the concept of 'all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort' will also assist those entities that would otherwise be unable to comply fully with the requirements in IFRS Sustainability Disclosure Standards. For example, an entity is permitted to carry out a less exhaustive search for information if the cost of obtaining particular information is proportionately higher for the entity than for other entities with more resources. Although an entity is still required to comply with the disclosure requirements, it is permitted to do so with information that is available without undue cost or effort determined based on its circumstances. The ISSB noted that an entity is prohibited from arguing that no effort is necessary, because information about sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects is useful to users of general purpose financial reports. The greater the usefulness of information about a sustainability-related risk or opportunity for users, the greater the effort expected of an entity in obtaining that information. Overall, although the concept of 'all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort' is intended to assist all entities in applying the requirements, it is particularly helpful to those entities that would otherwise find the requirements in IFRS S1 and IFRS S2 challenging to apply.

Background

BC18 In March 2021, the Trustees recruited members of various reporting initiatives to create the Technical Readiness Working Group (TRWG), chaired by the IFRS Foundation (Foundation), to provide recommendations to the ISSB. The TRWG comprised representatives of:

(a) the Climate Disclosure Standards Board (CDSB);

(b) the Value Reporting Foundation, which included:

(i) the Sustainability Accounting Standards Board (SASB); and

(ii) the International Integrated Reporting Council;

(c) the IASB;

(d) the TCFD; and

(e) the World Economic Forum, in particular its Stakeholder Capitalism Metrics Initiative.

The International Organization of Securities Commissions (IOSCO) and IPSASB participated as official observers.

BC19 The TRWG's work on general requirements for the disclosure of sustainability-related financial information resulted in a prototype standard titled *General Requirements for Disclosure of Sustainability-related Financial Information*, published on the Foundation's website in November 2021. The prototype standard was not subject to the Foundation's formal due process or that of any TRWG member.

BC20 The establishment of the ISSB was announced by the Trustees in November 2021. In order to expedite the initial work of the ISSB, the Trustees granted special powers to the ISSB Chair Emmanuel Faber and Vice-Chair Suzanne Lloyd (as a transitional measure) to work with staff to issue an exposure draft, based on the prototype standard, before the ISSB was quorate. This decision is consistent with paragraph 56 of the IFRS Foundation *Constitution* published in November 2021. The right of the ISSB Chair and Vice-Chair was made subject to oversight by the Due Process Oversight Committee (DPOC) of the Trustees. The DPOC confirmed in a meeting on 21 March 2022 that it had no objection to the ISSB Chair and Vice-Chair publishing the Exposure Draft.

BC21 In March 2022, the ISSB Chair and Vice-Chair published the Exposure Draft, which built on the prototype standard developed by the TRWG. Accordingly, this Exposure Draft was based on the work of standard-setters and framework-providers, which had been subject to extensive public consultation and redeliberation, and had attracted significant interest in the market.

BC22 The ISSB received 735 comment letters and survey responses as feedback on the Exposure Draft. The respondents represented a range of stakeholder groups and geographies. The largest number of responses came from preparers. Users of general purpose financial reports also demonstrated a high level of interest in the Exposure Draft and accounted for a very high number of responses, relative to response rates observed in similar consultations. The user responses came from organisations such as investor associations, as well as from individual users. The ISSB also conducted 328 individual and group events before the consultation period ended in July 2022. A further 143 individual and group meetings with stakeholders took place from August to December 2022.

BC23 Respondents welcomed the plan to consolidate several standards and frameworks to develop a single set of high-quality sustainability disclosure standards. The feedback also indicated that:

(a) most respondents welcomed the timely publication of the Exposure Draft. Many respondents encouraged the ISSB to continue moving at pace in issuing IFRS S1 and IFRS S2, with some respondents emphasising the importance of both timeliness and quality.

(b) most respondents agreed with the use of the TCFD recommendations as the structure of the requirements on core content in IFRS S1.

(c) most respondents highlighted the necessity for interoperability with jurisdictional initiatives and other sustainability-related standards. Respondents mainly focused their comments about interoperability on several proposals by other organisations that were open for comment at the same time as the ISSB's proposals. Almost all European preparers stressed the importance of interoperability with the sustainability reporting proposals of the European Financial Reporting Advisory Group (EFRAG) to minimise reporting burden and complexity. Almost all US preparers stressed the importance of interoperability with the proposals of the United States Securities and Exchange Commission (US SEC) in *The Enhancement and Standardization of Climate-Related Disclosures for Investors* (the US SEC Climate Proposal). Many preparers from jurisdictions outside Europe and the US expressed concerns about potential duplication of requirements and 'double reporting' if they were subject to the requirements in IFRS Sustainability Disclosure Standards and to EFRAG or US SEC requirements in the future. Many respondents emphasised the importance of interoperability with multi-stakeholder standards, particularly the Global Reporting Initiative (GRI) Standards. They welcomed the Memorandum of Understanding (MoU) between the Foundation and GRI and encouraged the ISSB to continue to work closely with GRI.[1]

(d) most respondents supported the positioning of IFRS S1, as proposed in the Exposure Draft, as an overarching standard setting out the general requirements designed to apply with all IFRS Sustainability Disclosure Standards. They acknowledged the important role of the proposed requirements, concepts and principles in providing consistent and comparable sustainability-related financial information.

(e) many respondents suggested that the ISSB give more consideration to the range of capabilities and preparedness of entities around the world to apply the proposals.

(f) many respondents asked for more support, guidance and examples to enable entities to apply the proposals effectively. Preparers of sustainability-related financial disclosures also requested greater clarity on some aspects of the proposed requirements in the Exposure Draft.

(g) many respondents emphasised the importance of close collaboration between the ISSB and IASB. Respondents also stressed the importance of improving the understandability, consistency and connectivity of IFRS Sustainability Disclosure Standards by using the same definitions and concepts as IFRS Accounting Standards where relevant. Some respondents commented on the importance of promoting integrated reporting, and welcomed the announcement from the Chairs of the ISSB and IASB that the boards would work together to build on the Integrated Reporting Framework.[2]

BC24 The ISSB considered the feedback in deciding its general approach to redeliberation as well as the specific proposals and timetable for redeliberation. From the feedback, the ISSB identified:

(a) proposals that were well received;

(b) proposals that received mixed feedback;

(c) proposals that were seen as relatively well-established by previously published sustainability standards and frameworks; and

(d) proposals that might be better addressed through the future work plan of the ISSB.

BC25 The ISSB decided to focus its work on proposals that received mixed feedback, including suggestions to add to, remove or modify the proposed requirements. The ISSB also considered proposals for which stakeholders provided new information or emphasised different information from that relied on in developing the proposals in the Exposure Draft. In relation to IFRS S1, the ISSB decided to redeliberate:

(a) ‘enterprise value’;

(b) breadth of reporting required;

(c) ‘significant’ sustainability-related risks or opportunities;

(d) identifying ‘significant’ sustainability-related risks and opportunities and information to disclose (including using the work of other standard-setters, referred to later in this document as ‘sources of guidance’);

(e) application of the materiality assessment;

(f) connected information;

(g) frequency (or timing) of reporting; and

(h) comparative information and updated estimates.

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1 See IFRS Foundation, ‘IFRS Foundation and GRI to align capital market and multi-stakeholder standards to create an interconnected approach for sustainability disclosures’, IFRS Foundation, London, IFRS Foundation, 2022, https://www.ifrs.org/news-and-events/news/2022/03/ifrs-foundation-signs-agreement-with-gri/ (accessed 13 March 2023).

2 See IFRS Foundation, ‘Integrated Reporting—articulating a future path’, IFRS Foundation, London, IFRS Foundation, 2022, https://www.ifrs.org/news-and-events/news/2022/05/integrated-reporting-articulating-a-future-path/ (accessed 13 March 2023).

BC26 The ISSB also decided to redeliberate one topic and one proposal relating to both IFRS S1 and IFRS S2:

(a) proportionality of the proposals; and

(b) current and anticipated financial effects of sustainability-related and climate-related risks and opportunities on an entity’s financial performance, financial position and cash flows.

Global baseline and interoperability with jurisdictional and regulatory initiatives

BC27 IFRS Sustainability Disclosure Standards are intended to establish a comprehensive global baseline of sustainability-related financial disclosures to meet the needs of users of general purpose financial reports and, therefore, of international capital markets. The global baseline is intended to serve as a comprehensive foundation of disclosure requirements, resulting in comparable, cost-effective and decision-useful sustainability-related financial disclosures that are designed to meet the needs of users. Jurisdictions will be able to build any necessary incremental disclosure requirements on this common baseline.

BC28 IFRS S1 is intended to be compatible with law or regulation in the jurisdictions in which entities operate, including law or regulation that specifies the documents, formats and structures for disclosing information. Entities are permitted to report additional information needed to meet jurisdictional requirements alongside information required by IFRS Sustainability Disclosure Standards. The ISSB observed that, for the purposes of comparability, it is important for the global baseline to be visible in an entity’s sustainability-related financial disclosures. IFRS S1 permits additional disclosures if they do not obscure the information required by IFRS Sustainability Disclosure Standards.

BC29 Almost all respondents to the Exposure Draft agreed with, and strongly welcomed, the development of IFRS Sustainability Disclosure Standards to establish a comprehensive global baseline of sustainability-related financial disclosures for the capital markets.

BC30 A strong message from respondents to the Exposure Draft was the importance of achieving a high degree of interoperability with jurisdictional requirements, notably with proposals published by EFRAG and the US SEC. In response to the strong and widely held views on interoperability, the Foundation began several initiatives, including forming the Jurisdictional Working Group (JWG) to discuss important strategic matters relating to IFRS S1 and IFRS S2 and jurisdictional initiatives on sustainability reporting. When established, the JWG included:

(a) the Chinese Ministry of Finance;

(b) the European Commission and EFRAG;

(c) the Japanese Financial Services Agency and the Sustainability Standards Board of Japan;

(d) the UK’s Financial Conduct Authority;

(e) the US SEC; and

(f) IOSCO (as an observer).

BC31 The JWG provided feedback on the urgency and importance of a global baseline and of achieving interoperability between proposed sustainability reporting standards. Participants in the JWG noted that interoperable global standards are essential for capital markets, and suggested that a lack of interoperability between sustainability-related reporting regimes in various jurisdictions would be costly for entities and would risk undermining the provision of clear and consistent information to users of general purpose financial reports. Participants also emphasised the importance of enabling users to clearly identify information relevant to them and information relevant to a broader set of stakeholders, so that material information for users is not obscured.

BC32 The ISSB works to collaborate with and learn from others. As part of this collaboration, the Trustees announced the establishment of the Sustainability Standards Advisory Forum (SSAF) in May 2022. Its membership was announced in December 2022. The SSAF is a formal technical advisory body to the ISSB. It provides an advisory forum in which members representing jurisdictional and regional bodies contribute their technical input and expertise to inform the ISSB’s standard-setting. The ISSB continues to collaborate with others in the global sustainability reporting landscape, including with GRI as part of the MoU.

BC33 Furthermore, during the redeliberation process for the Exposure Draft, the ISSB made several decisions on matters related to IFRS S1 and IFRS S2 that are important to achieving interoperability. The ISSB clarified some details of the global baseline—in particular, that disclosures in accordance with IFRS Sustainability Disclosure Standards are designed to meet the information needs of investors, creditors and other lenders (that is, 'primary users of general purpose financial reports'); that the information to be provided in such disclosures is based on a materiality assessment consistent with that used in the application of IFRS Accounting Standards; and that the information may be presented with information disclosed to meet other requirements, such as specific jurisdictional requirements, but may not be obscured by that additional information.

BC34 Other decisions made by the ISSB to achieve interoperability included:

(a) confirming that the structure of the disclosure requirements proposed in the Exposure Draft aligns with TCFD recommendations on governance, strategy, risk management, and metrics and targets (see paragraphs BC91–BC122)—referred to as 'core content';

(b) removing the definition of 'enterprise value' and the words 'to assess enterprise value' from the objective of IFRS S1 and the description of the assessment of materiality (see paragraphs BC35–BC41 and BC67–BC74);

(c) confirming that information is required for short-, medium- and long-term time horizons, but that those horizons are not defined (see paragraph BC102);

(d) confirming the definition of 'value chain' proposed in the Exposure Draft (see paragraphs BC52–BC55); and

(e) introducing a requirement to permit, but not require, entities to consider the GRI Standards and the European Sustainability Reporting Standards (ESRS) in identifying information to provide about sustainability-related risks and opportunities (see paragraphs BC136–BC139).

Objective

BC35 The objective of IFRS S1 is to require an entity to disclose information about its sustainability-related risks and opportunities that is useful to users of general purpose financial reports in making decisions relating to providing resources to the entity. Most respondents to the Exposure Draft agreed with the focus of IFRS Sustainability Disclosure Standards on users and their information needs. However, respondents provided mixed feedback on the application of some of the fundamental concepts in the Exposure Draft. This feedback centred around the terms 'enterprise value', 'materiality' and 'significant', and how to apply these terms to identify and assess information that is potentially useful for users' decisions.

BC36 Some respondents requested more clarity about the concept of 'enterprise value' and others questioned whether 'enterprise value' was an appropriate term for anchoring sustainability-related financial disclosures and material information. The ISSB included the term 'enterprise value' in the Exposure Draft with the intention of broadening the scope of financial reporting and disclosures to capture a wider set of information. This information would extend beyond an entity's current financial position and performance, and might include, for example, the anticipated financial effects of sustainability-related risks and opportunities. The term was also intended to narrow the scope of disclosures to only include information about sustainability-related risks and opportunities that is useful to users of general purpose financial reports. However, contrary to the ISSB's intention, the use of the term might have constrained the objective of the Exposure Draft and created confusion for some respondents. For example, some users stated that 'enterprise value' can be defined or understood too narrowly, thereby creating a risk that the sustainability-related financial information disclosed in accordance with IFRS S1 would not be useful for their purposes. The definition of 'enterprise value' also gave rise to confusion, with many respondents believing that the reference to market capitalisation meant that the term applied only to listed entities. Some respondents stated that the use of this term could create confusion because it has a particular and different meaning in European legislation.

BC37 Some respondents expressed concerns about the adaptations made to the wording from the IASB's *Conceptual Framework* that was used to develop the concept of materiality in the Exposure Draft. The Exposure Draft adapted the definition of 'material information' from the *Conceptual Framework* to state in paragraph 2 of the Exposure Draft that 'the assessment of materiality shall be made in the context of the information necessary for users of general purpose financial reporting to assess enterprise value'. For further discussion on materiality, see paragraphs BC67– BC84.

BC38 Respondents questioned the use of the term 'significant' to determine the sustainability-related risks and opportunities included within the scope of the Exposure Draft. Respondents expressed concerns about the use of the term and were confused by its relationship with materiality. Most respondents said the term lacked a clear definition, and some stated that the distinction between the use of the terms 'significant' and 'material' was unclear in the Exposure Draft.

BC39 In response to the feedback, the ISSB decided to change the wording of the objective, and to better align the definition of materiality in IFRS S1 with that used by the IASB. The ISSB also removed the definition of 'enterprise value' from the list of defined terms in Appendix A of IFRS S1 and removed the terms 'significant' and 'all significant' when describing, in the Standard, the sustainability-related risks and opportunities an entity is required to provide information about.

BC40 Although the ISSB decided against using these terms, its approach and its focus on users of general purpose financial reports remained unchanged. The ISSB decided to continue using definitions of 'material information' and 'primary users of general purpose financial reports' that are consistent with the IASB's definitions. In addition, although the ISSB decided against routinely using the term 'significant' in IFRS S1 to describe the sustainability-related risks and opportunities that an entity is required to report on, the ISSB's intention remained consistent with the Exposure Draft. That is, the intention is to require an entity to provide material information about sustainability-related risks and opportunities, specifically about the sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects. The ISSB noted that the term 'significant' had been intended to assist an entity in identifying the sustainability-related risks and opportunities to report on and that 'material' was intended to be used in determining the information to provide—to clarify this distinction, the ISSB decided to provide guidance in Appendix B of IFRS S1.

BC41 In response to the feedback, the ISSB clarified the content in the 'Objective' section of IFRS S1. This section includes:

(a) a description of sustainability-related risks and opportunities that IFRS Sustainability Disclosure Standards address;

(b) a general requirement for an entity to provide information about all those risks and opportunities; and

(c) a description of the role of IFRS S1 in setting out the general requirements for the content and presentation of sustainability-related financial disclosures.

The objective of IFRS S1 builds on the Integrated Reporting Framework, but in some cases the Standard does not use identical terms.

Sustainability-related risks and opportunities

BC42 The concept of sustainability is frequently linked to 'sustainable development', which was defined in 1987 as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.[3] The United Nations (UN) released definitions of sustainability, Sustainable Development Goals and international policy pronouncements identifying matters that the UN has concluded are important in considering sustainability, including:

(a) climate change (the UN Framework Convention on Climate Change);

(b) biodiversity (the Convention on Biological Diversity);

(c) oceans (the UN Convention on the Law of the Sea);

(d) desertification (the UN Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa); and

(e) human rights (the Universal Declaration of Human Rights).

[3] World Commission on Environment and Development, *The Brundtland Report: Our Common Future*, Oxford, Oxford University Press, 1987.

BC43 The terms 'sustainability' and 'sustainable development' therefore apply widely across social and ecological communities, and apply to current and future generations. The terms also encompass environmental and social notions of justice, health, welfare and preservation, and acknowledgement of planetary boundaries.

BC44 IFRS S1 focuses on sustainability-related financial information—information about an entity's sustainability-related risks and opportunities that could reasonably be expected to affect the entity's cash flows, its access to finance or cost of capital over the short, medium or long term. This includes information about an entity's governance, strategy and risk management in relation to those risks and opportunities, and related metrics and targets. Therefore, understanding sustainability-related risks and opportunities, including their relationship with the established notions of sustainability and sustainable development, is pivotal to understanding the scope of IFRS S1 and IFRS Sustainability Disclosure Standards more broadly.

BC45 IFRS S1 specifies that sustainability-related risks and opportunities arise out of the interactions between an entity and its stakeholders, society, the economy and the natural environment throughout the entity's value chain. This description is intentionally broad. Furthermore, an entity's sustainability-related risks and opportunities—and their effects, as well as expectations of their effects, on an entity—will change over time and in relation to the interdependent system in which an entity operates. IFRS S1 elaborates that an entity both depends on resources and relationships throughout its value chain and affects those resources and relationships, which contributes to their preservation, regeneration and development, or to their degradation and depletion.

BC46 In describing the concepts underlying sustainability-related risks and opportunities, the ISSB decided to build on concepts from the Integrated Reporting Framework—a decision consistent with the ISSB's aim to build on the existing work of framework-providers and standard-setters. The fundamental concepts in the Integrated Reporting Framework emphasise that an entity's ability to create, preserve and erode value for itself over time—and hence to generate returns for the entity's investors, lenders and other creditors—is inextricably linked to value that the entity creates, preserves or erodes for others.

BC47 These concepts that underlie sustainability-related risks and opportunities are broadly consistent with the concepts and guidance in the IASB's Exposure Draft *Management Commentary*. For example, the Exposure Draft *Management Commentary* explains that an entity's activities create value for the entity if they enhance or preserve the net present value of the entity's future cash flows. Conversely, the entity's activities erode value if they reduce the net present value of the entity's future cash flows. It also explains that creating value is a precursor to generating cash flows. Conversely, some activities might increase cash inflows in the short term but can erode value in the long term.

BC48 The ISSB decided to enhance the description of the concepts that underlie sustainability-related risks and opportunities (and sustainability-related financial information) in the 'Objective' section (see paragraphs 1–3 of IFRS S1) and in the application guidance (see paragraphs B1–B12 of IFRS S1). The ISSB also noted that related definitions, including definitions of 'primary users' and 'material information', help further reinforce the understanding of sustainability-related risks and opportunities.

BC49 The ISSB emphasised that the focus of IFRS S1 on the information needs of users of general purpose financial reports distinguishes sustainability-related financial information from broader, multi-stakeholder reporting focused on an entity's contribution to sustainable development. The ISSB has not broadened its scope beyond investor-focused disclosure. Disclosures made in accordance with IFRS Sustainability Disclosure Standards are conceptually and practically complementary to—but not a replacement for—reporting on an entity's significant impacts on people, the environment and the economy. IFRS S1 focuses on information that is useful to users in making decisions relating to providing resources to an entity.

Identifying sustainability-related risks and opportunities

BC50 The ISSB decided to enhance the description in IFRS S1 of concepts that underlie sustainability-related risks and opportunities. This enhancement was one of many approaches intended to assist preparers in identifying sustainability-related risks and opportunities, including those risks and opportunities that could reasonably be expected to affect an entity's prospects. The ISSB noted other approaches intended to assist entities, including:

(a) the requirements and guidance in IFRS S2 specific to climate-related risks and opportunities;

(b) the sources of guidance in IFRS S1 that provide practical guidance on identifying sustainability-related risks and opportunities, including risks and opportunities across a range of sustainability-related issues and specific to industries; and

(c) the ISSB's ongoing and future work to continue developing IFRS Sustainability Disclosure Standards and educational materials.

BC51 Paragraph 3 of IFRS S1 requires an entity to disclose information about all sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects. In feedback to the ISSB, preparers described challenges in identifying risks and opportunities, such as the breadth of assessments that would be necessary to cover all the sustainability-related risks and opportunities that might affect the entity. In response, the ISSB introduced the concept of an entity using 'all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort', including information about past events, current conditions and forecasts of future conditions when identifying sustainability-related risks and opportunities (see paragraphs BC10–BC17). The ISSB observed that introducing this concept clarifies that an entity:

(a) is prohibited from overstating or understating opportunities (or risks) premised on information that is unsupportable or unreasonable;

(b) is required to use all information that is available to the entity at the reporting date (including information about past events, current conditions and forecasts of future conditions);

(c) is not required to use information that was unavailable at the reporting date; and

(d) is not expected to carry out an exhaustive search for information to identify every sustainability-related risk or opportunity—because such an exhaustive search would represent 'undue cost or effort'.

BC52 Sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects include those that arise throughout the entity's value chain. IFRS S1 requires an entity to disclose a description of the current and anticipated effects of sustainability-related risks and opportunities on the entity's business model and value chain. An entity is also required to disclose a description of where in the entity's business model and value chain sustainability-related risks and opportunities are concentrated. Examples of the type of information an entity might provide include:

(a) a beverage company might need to disclose risks associated with water use, especially in areas where water is scarce. The entity might describe how its use of water affects the supply available to meet its operational needs. It might explain how its water consumption affects communities close to the entity's operations that rely on the same source of water. It might also explain how over-consumption of water in those locations could lead to risks of reputational damage and loss of customers, or to the imposition of taxes or limits on the use of the resource. It could describe how these risks have been assessed throughout its supply chain.

(b) a clothing brand company might describe the opportunity associated with changing to use less resource-intensive materials in its products and packaging. The potential effects might be driven by the entity's commitments to sustainable business practices, or consumer preferences for more sustainable or recycled alternatives. The entity might also disclose the areas of its value chain and operations that are potentially most affected by this opportunity, and the processes in place to assess and monitor the opportunity.

(c) an electronics manufacturer might describe the risks of human rights issues in its supply chain including reputational damage and supply chain disruptions. In doing so, the entity might describe the effects on its policies, actions it has taken to assess and monitor the risks, and how it manages any identified abuses.

BC53 During its redeliberation process, the ISSB confirmed that the definition of 'value chain' would remain the same as the definition proposed in the Exposure Draft. The ISSB made minor editorial changes to the definitions of 'value chain' and 'business model' to align those defined terms with the 'Objective' section of IFRS S1.

BC54 Joint ventures, associates and investments are not considered to be part of the reporting entity that is presenting consolidated financial statements, although these items are recognised in the financial statements. In the same way that financial statements recognise these investments and report aspects of the performance of associates and joint ventures, sustainability-related financial information related to those investments is relevant to users of general purpose financial reports in assessing the effects of sustainability-related risks and opportunities on the entity's cash flows, its access to finance and cost of capital over the short, medium and long term.

BC55 IFRS S1 does not specify how to include sustainability-related financial information about joint ventures, associates and investments. However, specific IFRS Sustainability Disclosure Standards, including IFRS S2, will provide requirements and guidance related to the disclosure of information about the sustainability-related risks and opportunities arising throughout an entity's value chain.

BC56 An entity is required to disclose information about sustainability-related risks and opportunities throughout its value chain. When doing so, the entity is required to identify the sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects and determine the scope of its value chain, including its breadth and composition, in relation to each of those sustainability-related risks and opportunities. An entity is also required to disclose the current and anticipated effects of sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects throughout its business model and value chain and describe where these risks and opportunities are concentrated. In feedback to the ISSB, respondents described the challenges associated with obtaining the necessary information to determine the scope of an entity's value chain, due to the possible extent of the value chain, as well as potential complexities in obtaining information to prepare the required disclosures.

BC57 Some respondents to the Exposure Draft stated that obtaining information about the value chain might require a reporting entity to collect information from parties that the entity does not control or in which it has no ownership interest. Some of these respondents suggested that the ISSB limit the scope of the value chain that an entity is required to consider. The ISSB decided not to put limits on the scope of the value chain that an entity is required to consider and confirmed that an entity is required to provide material information about sustainability-related risks and opportunities arising throughout its value chain. For example, the ultimate consumers of an entity's products might be the most important contributors to the entity's Scope 3 greenhouse gas emissions, or the employment practices of a supplier in an entity's supply chain could have a reputational effect on the entity even if the supplier has no direct relationship with the reporting entity.

BC58 In response to concerns about the potential difficulties faced by an entity in obtaining information when assessing the scope of its value chain, the ISSB decided that an entity determining the scope of its value chain is required to use 'all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort', in relation to each sustainability-related risk and opportunity identified that could reasonably be expected to affect the entity's prospects. The ISSB noted that the concept of 'all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort' assists entities by establishing parameters for the type of information they consider when preparing disclosures regarding the value chain, and the effort required to obtain such information. Specifically, the ISSB noted that this concept clarifies that an entity:

(a) is required to use all information available to it at the reporting date without undue cost or effort;

(b) is not required to carry out an exhaustive search for information associated with its value chain that would require undue cost or effort; and

(c) is required to determine the scope of its value chain using information that is reasonable and supportable.

This also provides relief to entities that face challenges associated with obtaining information from entities throughout their value chain.

Reassessing the scope of sustainability-related risks and opportunities throughout the value chain

BC59 The ISSB noted that in the Exposure Draft it was implicit that an entity would be required to reassess, at every reporting date, the scope of the sustainability-related risks and opportunities arising throughout its value chain. For example, an entity would be required to reassess, at every reporting date, which Scope 3 greenhouse gas emissions categories and entities throughout its value chain to include in the measurement of its Scope 3 greenhouse gas emissions.

BC60 In discussing the feedback, the ISSB acknowledged this issue is not unique to Scope 3 greenhouse gas emissions. The ISSB decided that the costs an entity would incur to reassess the scope of each sustainability-related risk and opportunity throughout its value chain at each reporting date would outweigh the benefit to users of general purpose financial reports, who typically would benefit from a reassessment only if a significant change had occurred. Therefore, the ISSB decided that a requirement for an entity to reassess at each reporting date was unnecessary.

BC61 Instead, in response to the feedback, the ISSB decided that an entity is required to reassess the scope of all affected sustainability-related risks and opportunities arising throughout its value chain only if a significant event or a significant change in circumstances occurs. Such a significant event or significant change in circumstances can occur without the entity being involved in that event or change in circumstances, or as a result of a change in what the entity assesses to be important to users of general purpose financial reports. For example, if a regulation is introduced that an entity had not anticipated for greenhouse gas emissions associated with employee travel, the entity might be required to reassess which categories to include in the measurement of its Scope 3 greenhouse gas emissions. However, if this regulation does not affect the entity's other sustainability-related risks and opportunities, for example the entity's identified risk of water scarcity in its supply chain, then the entity would not be required to reassess the scope of those other sustainability-related risks and opportunities. The ISSB observed that a significant event or significant change in circumstances may not necessarily arise from a change in an entity's value chain and therefore, the scope of a sustainability-related risk or opportunity may change even though the entity's value chain has not changed.

BC62 An entity could choose to reassess the scope of any sustainability-related risk or opportunity throughout its value chain more frequently—for example, each year.

Conceptual foundations

Fair presentation

BC63 Paragraph 11 of IFRS S1 requires that 'a complete set of sustainability-related financial disclosures shall present fairly all sustainability-related risks and opportunities that could reasonably be expected to affect an entity's prospects'. Fair presentation requires disclosure of relevant information about sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects and their faithful representation in accordance with the principles set out in IFRS S1. Fair presentation also requires an entity 'to disclose information that is comparable, verifiable, timely and understandable' and 'to disclose additional information if compliance with the specifically applicable requirements in IFRS Sustainability Disclosure Standards is insufficient to enable users of general purpose financial reports to understand the effects of sustainability-related risks and opportunities on the entity's cash flows, its access to finance and cost of capital over the short, medium and long term' (see paragraph 15(a)–(b) of IFRS S1). Fair presentation is a well-understood concept in IFRS Accounting Standards—its characteristics are set out in IAS 1—and in other GAAP. The concepts and language in IFRS S1 were derived from IAS 1 and adapted in the context of sustainability-related financial disclosures.

BC64 The ISSB does not have a separate conceptual framework that applies directly to sustainability-related financial information. IFRS S1 includes guidance on the qualitative characteristics of useful sustainability-related financial information, set out in Appendix D. This guidance is an integral part of IFRS S1 and thus is required to be applied by an entity using IFRS S1. The characteristics described in Appendix D are adapted from the IASB's *Conceptual Framework* and are intended to ensure that information in general purpose financial reports—including both sustainability-related financial disclosures and financial statements—is useful to users of those reports. The guidance is also intended to provide information to assist an entity in the preparation of sustainability-related financial disclosures.

BC65 As with the *Conceptual Framework*, the fundamental qualitative characteristics of useful sustainability-related financial information are relevance and faithful representation. The enhancing characteristics are comparability, verifiability, timeliness and understandability. IFRS S1 explains how these concepts apply to sustainability-related financial information. For example, IFRS S1 explains that information in the form of explanations or forward-looking statements is still verifiable.

BC66 Faithful representation is a component of the concept of 'fair presentation' in IAS 1. According to the *Conceptual Framework*, to be a perfectly faithful representation, a depiction would have three characteristics: it would be complete, neutral and free from error. In developing the Exposure Draft, the ISSB noted that individuals that prepare sustainability-related financial disclosures may not be the same individuals involved in preparing financial statements, and may not be familiar with IFRS Accounting Standards or the *Conceptual Framework*. Therefore, paragraph 3 of the Exposure Draft used the common label of 'accurate', instead of 'free from error', to describe a 'complete depiction' of an entity's sustainability-related financial information. The ISSB has aligned the terms used in paragraph D10 of IFRS S1 with those used in paragraph 13 of IFRS S1.

Materiality

BC67 The Exposure Draft proposed that materiality be assessed in relation to the effects of sustainability-related risks and opportunities on an entity's enterprise value. In response to the feedback, the ISSB confirmed that the materiality definition in IFRS Sustainability Disclosure Standards is aligned with the IASB's definitions of 'material information' and 'material' in its *Conceptual Framework* and IAS 1 respectively, which do not refer to enterprise value. To improve alignment, the ISSB removed 'enterprise value' from its description of materiality and removed the definition of 'enterprise value' from IFRS S1.

BC68 The ISSB has clarified that IFRS S1 requires an entity to disclose material information about the sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects. The ISSB based its definition of material information on the definitions of 'material information' and 'material' in the *Conceptual Framework* and IAS 1, respectively. All the definitions highlight that materiality judgements are made in relation to a specific reporting entity and focus on information that could reasonably be expected to influence decisions of users of general purpose financial reports. The definition in IFRS S1 is specific to sustainability-related financial disclosures and states that materiality judgements are made in the context of an entity's sustainability-related financial disclosures. This approach is consistent with how the definitions of 'material information' in IAS 1 and in the IASB's Exposure Draft *Management Commentary* are specific to financial statements and management commentary, respectively. The definition in IFRS S1 also acknowledges that users do not make their decisions on the basis of just one form of general purpose financial reports published by the entity. Using conceptually aligned definitions facilitates connectivity across an entity's general purpose financial report prepared applying IFRS Standards.

BC69 Materiality judgements for sustainability-related financial disclosures will inevitably differ from those for financial statements. Different materiality judgements are necessary because sustainability-related financial disclosures and financial statements serve their specific objectives and provide different types of information about a reporting entity. Sustainability-related financial disclosures provide information about sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects, while financial statements provide information about the entity's assets, liabilities, equity, income and expenses. The ISSB noted that information about sustainability-related risks and opportunities is unconstrained by definitions of assets and liabilities and the criteria for recognising them. Furthermore, the ISSB expects that in preparing sustainability-related financial disclosures, entities will often have to consider financial implications over longer time periods than the time periods considered in preparing financial statements. In addition, in preparing sustainability-related financial disclosures, entities will need to consider the financial implications of interactions throughout their value chain. Finally, the ISSB observed that sustainability-related financial information may have different measurement bases compared to information included in financial statements.

BC70 Risk severity is commonly expressed in terms of probability and impact. Opportunities can also be expressed in the same terms. IFRS S1 states that when making materiality judgements, an entity is required to consider risks and opportunities that are unlikely to occur but have a potentially high impact. An entity is required to consider:

(a) relationships between the impacts of its activities on the environment and society, and the impacts of the environment and society on an entity's cash flows, cost of capital and access to finance;

(b) changes in assumptions and conditions over time; and

(c) potential changes in the information needs of users of general purpose financial reports.

BC71 The definition of material information in IFRS S1 is aligned with the *Conceptual Framework* and IAS 1. However, IFRS Sustainability Disclosure Standards are designed to be applied with any GAAP, and the definition of materiality is not the same in every GAAP. For example, the Financial Accounting Standards Board (FASB), in its Statement of Financial Accounting Concepts No. 8, defines materiality as follows:

> The omission or misstatement of an item in a financial report is material if, in light of surrounding circumstances, the magnitude of the item is such that it is probable that the judgment of a reasonable person relying upon the report would have been changed or influenced by the inclusion or correction of the item.[4]

BC72 Furthermore, there is some variation in how the concept of materiality is interpreted, applied and enforced in various jurisdictions. Therefore, including a definition in IFRS S1 ensures entities that apply the requirements in IFRS Sustainability Disclosure Standards are applying and interpreting the same words. All entities applying these Standards are required to use the same definition of material information.

BC73 In making decisions relating to materiality, the ISSB has reiterated that material information must not be obscured by other information, including information that is provided to satisfy law, regulation or other requirements outside those of IFRS Sustainability Disclosure Standards. Because the ISSB is using a definition of material information that is consistent with IAS 1, it decided to include guidance in IFRS S1 with regards the obscuring of material information based on guidance in IAS 1.

BC74 The ISSB emphasised that to avoid obscuring material information, an entity is required to make material information required by IFRS Sustainability Disclosure Standards prominent and distinguishable from immaterial information provided to satisfy law, regulation or other requirements. Ways in which this distinction might be achieved include:

(a) using digital tagging to ensure that users of general purpose financial reports could extract the information required by IFRS Sustainability Disclosure Standards;

(b) presenting the information required by IFRS Sustainability Disclosure Standards together with immaterial information in a single report, using formatting to distinguish the information required by IFRS Sustainability Disclosure Standards (for example, using boxes or shading to emphasise the information required by IFRS Sustainability Disclosure Standards or to make the distinction clear);

(c) presenting the information required by IFRS Sustainability Disclosure Standards separately so that information is clearly distinguished from immaterial information (for example, splitting the report into parts); and

(d) providing two sets of information—one that includes the entire package of information without distinction (both the information required by IFRS Sustainability Disclosure Standards and immaterial information) and an accompanying report that only provides the information required by IFRS Sustainability Disclosure Standards.

Aggregation and disaggregation

BC75 The concepts of aggregation and disaggregation in relation to the financial statements in IAS 1 are equally important for sustainability-related financial disclosures to ensure that users of general purpose financial reports are provided with information at appropriately aggregated and disaggregated levels. IFRS S1 requires an entity to consider all facts and circumstances when deciding how to aggregate and disaggregate information in sustainability-related financial disclosures. It also requires that the understandability of disclosures is not reduced 'by obscuring material information with immaterial information or by aggregating material items of information

[4] See the section in the FASB Statement of Financial Accounting Concepts No. 8, Conceptual Framework for Financial Reporting—Chapter 3 'Qualitative Characteristics of Useful Financial Information' (paragraph QC11) as amended August 2018.

that are dissimilar to each other' (see paragraph B29 of IFRS S1). These principles of aggregation and disaggregation build on IAS 1.

Commercially sensitive information

BC76 In reviewing feedback on the Exposure Draft, a strong theme emerged regarding stakeholder concerns about being required to disclose information about opportunities that could be commercially sensitive. Respondents were concerned that disclosure of such information could reveal too much detail associated with an entity's strategy and planned actions, which are integral to competitive advantage.

BC77 Some preparers said they would be reluctant to disclose commercially sensitive information about opportunities because it might reduce their competitiveness in the market or otherwise be commercially harmful.

BC78 In response, the ISSB decided to introduce a targeted exemption, noting that the circumstances in which an entity is exempt from providing material information to users of general purpose financial reports would be limited. The exemption in IFRS S1 permits an entity, in limited circumstances described in paragraph B35 of IFRS S1, to omit information about a sustainability-related opportunity from its sustainability-related financial disclosures.

BC79 The ISSB decided that the exemption would be intentionally narrow and apply only to the disclosure of information about opportunities. The ISSB acknowledged that this decision might create asymmetry between the disclosure of information about risks and the disclosure of information about opportunities. However, the ISSB observed that many entities already voluntarily report on sustainability-related opportunities, despite no requirement to report this information. As stated by a few respondents to the ISSB's Exposure Draft, entities are often in favour of sharing the opportunities available to them. In contrast, it is typically necessary for a standard to require disclosure of risks to ensure information is provided in a comparable and neutral way.

BC80 In assessing the circumstances in which an entity would apply the exemption, the ISSB agreed that the entity is required to first consider whether it is possible to disclose the information about the opportunity at a sufficiently aggregated level to resolve the entity's concerns about commercial sensitivity, while still meeting the objectives of the disclosure requirements in IFRS S1. The ISSB explained that, in such circumstances, an entity would consider how to disclose information without identifying specific information that might cause a significant loss of competitive advantage. The ISSB emphasised that an entity is required to ensure that aggregation does not obscure material information.

BC81 The ISSB included additional requirements in IFRS S1 that an entity is required to apply for each item of information omitted if it applies this exemption. The ISSB discussed and agreed that:

(a) an entity that applies the exemption is required to disclose that it has done so. The ISSB decided that this disclosure would signal to users of general purpose financial reports that specific information has been omitted for reasons of commercial sensitivity, without requiring the entity to disclose information about what has been omitted, thus reducing the effect of the exemption.

(b) an entity is required to have a specific reason for non-disclosure, but is not required to disclose this reason. The ISSB considered whether to require an entity to disclose the reason it has omitted information, similar to the requirement in paragraph 92 of IAS 37 *Provisions, Contingent Liabilities and Contingent Assets*. However, the ISSB decided that an entity would be unable to provide a useful disclosure of its reasoning without revealing the commercially sensitive information. Instead, the ISSB decided to require an entity to disclose that it has used the exemption to make users aware that information has been excluded. The ISSB noted that a general risk that an entity's competitiveness could be weakened by disclosure would not, on its own, be an adequate reason for the entity to avoid disclosure.

(c) an entity is required to reassess, at each reporting date, whether the information still qualifies for the exemption. If the entity is no longer eligible for the exemption, it would be required to disclose that information at that reporting date.

BC82 The approach taken by the ISSB is broadly consistent with the approach taken in IFRS Accounting Standards; in specific circumstances in which an exemption from disclosure has been considered appropriate, the IASB has permitted non-disclosure of commercially sensitive information. The approach is also similar to that taken in the US SEC Climate Proposal and by EFRAG in [Draft] ESRS 1 *General requirements* (November 2022). The disclosure of commercially sensitive information in financial reporting is an area that standard-setters and regulators other than the IASB have also examined. For example, the Australian Securities and Investments Commission permits an entity not to provide information likely to result in 'unreasonable prejudice' to the entity.

BC83 The exemption in IFRS S1 from providing information about specific opportunities does not apply to information that is already publicly available. Disclosing information that is already contained in continuous disclosure notices, investor presentations, briefings to analysts, or other publicly available documents is unlikely to harm an entity's advantage in pursuing the opportunity (that is, the disclosure is unlikely to prejudice seriously the economic benefits the entity could realise). The exemption is not intended to permit broad non-disclosure of information about opportunities; neither is it permitted to be applied for non-disclosure of information about risks.

BC84 The exemption in IFRS S1 applies to the disclosure of information about sustainability-related opportunities in all circumstances, unless an IFRS Sustainability Disclosure Standard states otherwise. Therefore, the exemption is applicable to information about climate-related opportunities in IFRS S2.

Reporting entity

BC85 An entity is required to disclose sustainability-related financial information for the same reporting entity as the related financial statements. For example, if a parent prepares consolidated financial statements, the reporting entity is the parent and its subsidiaries. The reporting entity's sustainability-related financial disclosures focus on the sustainability-related risks and opportunities that enable users of general purpose financial reports to assess the effects of those risks and opportunities on the entity's cash flows, its access to finance and cost of capital over the short, medium and long term—that is, in information presented with consolidated financial statements, the effects on the parent and its subsidiaries. Requiring the same reporting entity for both financial statements and sustainability-related financial disclosures is designed to enable information disclosed in the financial statements to be connected with sustainability-related financial information.

Connected information

BC86 IFRS S1 requires an entity to provide information in a manner that enables users of general purpose financial reports to understand the following types of connections:

(a) the connections between the items to which the information relates—such as connections between various sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects; and

(b) the connections between disclosures provided by the entity:

  (i) within its sustainability-related financial disclosures—such as connections between disclosures on governance, strategy, risk management, and metrics and targets; and

  (ii) across its sustainability-related financial disclosures and other general purpose financial reports published by the entity—such as its related financial statements.

BC87 The requirements in IFRS S1 on connected information are intended to provide users of general purpose financial reports with a better understanding of the connections between various disclosures in an entity's general purpose financial reports, as well insight into the connections between the items to which the information relates (such as connections between various sustainability-related risks and opportunities, or connections between those risks and opportunities and the entity's performance). Entities are also required to explain the relationships and trade-offs that arise between various sustainability-related risks and opportunities. For example, an entity could explain how environmental risks affect its reputation or ability to operate, and how developing new products to respond to those risks affects the workforce composition or financial performance reported in the entity's financial statements.

BC88 Examples of the types of connections IFRS S1 is designed to elicit include:

(a) a pharmaceutical company has been exposed to claims of unethical testing. The entity might need to explain how its strategic response has, or has not, led to the recognition of provisions and associated operating costs in its financial statements.

(b) an electronics manufacturer has publicly announced a target of net zero for its corporate greenhouse gas emissions, which are primarily created during its manufacturing process. Accordingly, the entity adopts a new strategy that involves shifting its procurement of energy to renewable sources and investing in more energy-efficient machinery. The entity might need to explain how this strategy to achieve the target led to an increase in capital expenditure and possibly an impairment review of non-energy-efficient machinery, as well as lower (and less volatile) energy prices, increased revenue due to a related increased demand from its customers, and an increase in margins on sales.

(c) a supplier finds that demand for its goods has risen due to its treatment of workers and its record on respecting workers' rights, especially because its approach in this area was better than many of its peers. The entity might need to explain how its strategy and performance in relation to the treatment of its workers has positioned the entity favourably and has led to increases in revenue.

(d) an entity has a net zero greenhouse gas emissions plan that relies on replacing its fleet of diesel-powered vehicles with electric vehicles. Shifting to electric vehicles will require much more capital investment than was necessary for diesel vehicles. The transition plan is that each vehicle will be replaced when it reaches the end of its useful economic life. The entity concludes that the vehicles are not impaired and no changes to depreciation rates or useful life estimates are required to be reflected in the financial statements. The entity might need to explain that the transition plan will have consequences for its future cash flows and that its accounting, as reflected in the financial statements, is consistent with its transition plan.

BC89 The ISSB acknowledges that some sustainability-related risks and opportunities are linked. For example, an entity might face decreasing demand for its products because of changing consumer preferences for lower-carbon alternatives, affecting its workforce and communities. IFRS S1 requires disclosures that show the connections between sustainability-related risks and opportunities, on the one hand, and financial position, financial performance and cash flows in the related financial statements, on the other. For example, such a connection could be demonstrated by a disclosure about the anticipated financial effects of new or potential products that minimise environmental impacts. IFRS S1 states that if an entity provides quantitative information about anticipated financial effects, the entity is permitted to disclose a single estimate or a range of possible outcomes. This acknowledges that ranges of possible outcomes could be more useful in some cases than single estimates. The requirements in paragraph 38 of IFRS S1 are drafted in a way that acknowledges that the nature of the connections between various sustainability-related risks and opportunities might make it difficult for an entity to isolate the implications of individual risks and opportunities.

BC90 Respondents to the Exposure Draft asked for clarification on how users of general purpose financial reports draw connections between items of information if the entity uses different data and assumptions to prepare its sustainability-related financial disclosures and its related financial statements. The ISSB clarified in paragraph 23 of IFRS S1 that an entity is required to align data and assumptions to the extent possible by taking into consideration the requirements in IFRS Accounting Standards (or other GAAP) instead of mandating full alignment. This requirement is intended to promote connectivity between sustainability-related financial information and information included in an entity's financial statements. The ISSB noted that there could be legitimate reasons for data and assumptions to vary between an entity's sustainability-related financial disclosures and its financial statements. Paragraph B42 of IFRS S1 requires an entity to disclose information about significant differences between the data and assumptions used preparing the entity's sustainability-related financial disclosures and the data and assumptions used in preparing the related financial statements.

Core content

BC91 Unless another IFRS Sustainability Disclosure Standard permits or requires otherwise in specified circumstances, an entity is required to provide disclosures about:

(a) *governance*—the governance processes, controls and procedures the entity uses to monitor and manage sustainability-related risks and opportunities;

(b) *strategy*—the approach the entity uses to manage sustainability-related risks and opportunities;

(c) *risk management*—the processes the entity uses to identify, assess, prioritise and monitor sustainability-related risks and opportunities; and

(d) *metrics and targets*—the entity's performance in relation to sustainability-related risks and opportunities, including progress towards any targets the entity has set or is required to meet by law or regulation.

BC92 The information required includes general aspects of the way an entity operates, referred to as 'core content'. The core content is based on the TCFD recommendations. The ISSB confirmed that this approach, which was proposed in the Exposure Draft, is required. In the Trustees' 2020 consultation on sustainability reporting, the feedback on essential requirements for success showed that stakeholders thought it was important to align with and build on the work of the TCFD.

BC93 Accordingly, IFRS S1 requires that the disclosure of information about sustainability-related risks and opportunities be built around consideration of governance, strategy, risk management, and related metrics and targets. Information focusing on this core content is necessary for users of general purpose financial reports to assess the effects of sustainability-related risks and opportunities on an entity's cash flows, its access to finance and cost of capital over the short, medium and long term. The disclosures about core content require an explanation of what the entity is doing, instead of prescribing how an entity governs, manages risks and opportunities, and sets its strategy in managing its business. The ISSB noted that other jurisdictional requirements (such as ESRS) have been developed based on the TCFD recommendations, and these shared origins help facilitate interoperability for entities applying IFRS Sustainability Disclosure Standards and other jurisdictional requirements.

BC94 Entities are exposed to a range of sustainability-related risks and opportunities. IFRS S1 permits an entity to integrate information in its disclosures relating to the core content if appropriate, instead of having to repeat information in disclosures. However, an entity is required to explain any adaptations that have been made to its processes to take into account the unique characteristics of those risks and opportunities if that information is material. For example:

(a) users of general purpose financial reports understand better how an entity's integrated risk management processes are applied to sustainability-related risks and opportunities if the entity explains how and why those processes have been adapted in response to the unique characteristics of sustainability-related risks and opportunities, such as longer time frames.

(b) an entity might disclose that it has an overall process, controls and procedures for monitoring and managing sustainability-related risks and opportunities. In applying other IFRS Sustainability Disclosures Standards (for example, IFRS S2), it might explain that the monitoring and managing of specific sustainability-related risks and opportunities—in this example, climate-related risks and opportunities—is integrated into its overall process, controls and procedures. The entity might also highlight any aspects of the governance of those risks or opportunities that is different from its overall approach to monitoring and managing sustainability-related risks and opportunities.

Governance

BC95 Users of general purpose financial reports have expressed interest in understanding the role of an entity's governance bodies and their members in overseeing sustainability-related risks and opportunities. Users are also interested in understanding management's role in assessing and managing sustainability-related risks and opportunities. Such information could help users evaluate whether sustainability-related risks and opportunities receive attention from individual(s) or body(s) such as the board and management.

BC96 Paragraph 26 of IFRS S1 requires an entity to disclose information that enables users of general purpose financial reports to understand the governance processes, controls and procedures the entity uses to monitor, manage and oversee sustainability-related risks and opportunities. To achieve this objective, IFRS S1 requires an entity to disclose information about the governance body(s) or individual(s) with oversight of sustainability-related risks and opportunities, and to disclose information about management's role in the governance processes, controls and procedures used to monitor, manage and oversee sustainability-related risks and opportunities. 'Governance body(s)' includes boards, committees or equivalent bodies charged with governance who have oversight of sustainability-related risks and opportunities. The responsibility for the oversight of sustainability-related risks and opportunities in some entities might be held by an individual(s) rather than a governance body(s). For example, an individual(s) might be charged with the overall oversight of sustainability-related risks and opportunities due to their specific expertise and experience.

BC97 These governance disclosure requirements are based mostly on the TCFD recommendations, but with some additional requirements. For example, IFRS S1 requires an entity to disclose how the responsibilities of a governance body(s) or an individual(s) for sustainability-related risks and opportunities are reflected in terms of reference, mandates, role descriptions and other related policies. The disclosure requirements in IFRS S1 that supplement the TCFD recommendations are included to meet the information needs of users of general purpose financial reports.

BC98 Some stakeholders said that information about the governance body(s) or individual(s) responsible for the oversight of sustainability-related risks and opportunities could be enhanced by an entity also providing information about the specific expertise these bodies or their members possess on sustainability-related matters. Accordingly, IFRS S1 requires the disclosure of information about how the body(s) or individual(s) determines that the appropriate skills and competencies are available, or will be developed, to oversee strategies designed to respond to sustainability-related risks and opportunities. This level of specificity in skills and competencies might be challenging for some entities to reach—especially smaller corporate boards. For many governance bodies, the expertise needed is likely to focus on a specific sustainability-related risk or opportunity—for example, physical risks associated with climate change for an entity with operations in flood-prone regions. In such cases, industry experience is often the most relevant source of expertise. IFRS S1 does not prescribe the approach an entity is required to take, but requires an entity to explain the approach it has taken and why. Accordingly, a smaller entity with a less complex governance structure than a larger entity would explain that structure in applying IFRS S1.

BC99 IFRS S1 differentiates between the governance body(s) and the individual(s) responsible for oversight of sustainability-related risks and opportunities, and management-level positions or committees that are similarly responsible. This distinction enables users of general purpose financial reports to understand how responsibilities are delegated in relation to sustainability-related matters, which might be similar in nature to how roles and responsibilities are delegated as part of their existing management and governance processes. For example, an entity's board of directors (governance body) might provide oversight on broader sustainability-related matters, whereas the executive body (management) might make operational decisions about how specific sustainability-related risks and opportunities are assessed and managed.

Strategy

BC100 The Exposure Draft proposed that an entity provide information about its strategy for addressing sustainability-related risks and opportunities. The ISSB decided to replace 'addressing' with 'managing' in the strategy disclosure objective to be consistent with the requirements for disclosures on identifying, assessing, managing and monitoring sustainability-related risks and opportunities.

Sustainability-related risks and opportunities

BC101 IFRS S1 requires an entity to disclose information that enables users of general purpose financial reports to understand the sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects. For further discussion of sustainability-related risks and opportunities, see paragraphs BC42– BC62.

BC102 The Exposure Draft proposed disclosures reflecting short-, medium- and long-term perspectives without prescribing specific time frames to be used by entities. Time horizons are an entity-specific concept. How an entity defines and assesses what it considers to be short, medium and long term is a result of many factors, including the industry it operates in and the associated business and investment cycles. Entity- or industry-specific time horizons often translate into management processes such as rolling forecast horizons, budget periods and strategic planning cycles. The ISSB decided that relevant information about an entity's sustainability-related risks and opportunities is best understood in the context of entity-specific assessments of short, medium and long term. Although some jurisdictions define time horizons in their requirements, the ISSB confirmed the approach used in the Exposure Draft and did not define time horizons in IFRS S1. An entity is required by IFRS S1 to provide information about the time horizon it has used for 'short term', 'medium term' and 'long term'.

Current and anticipated financial effects

BC103 The Exposure Draft proposed that an entity be required to disclose the effects of its sustainability-related risks and opportunities on its financial position, financial performance and cash flows for the reporting period (current financial effects). It also proposed requiring an entity to disclose the anticipated effects of sustainability-related risks and opportunities on the entity's financial position, financial performance and cash flows over the short, medium and long term, taking into consideration how sustainability-related risks and opportunities are included in the entity's financial planning (anticipated financial effects). Feedback on the Exposure Draft showed agreement with this proposal, but suggested that respondents did not share an understanding of the type of quantitative or qualitative information an entity is required to provide, or of the circumstances in which quantitative information is required. Respondents said that the circumstances in which an entity would be considered 'unable' to provide quantitative information were unclear.

BC104 The requirements in paragraph 34 of IFRS S1 are designed to produce information that supplements or expands upon information provided in the related financial statements, identifying and explaining the connections between sustainability-related risks and opportunities and the information reported in the financial statements.

BC105 The ISSB observed that the connections between items of information can be explained without duplicating information. For example, in some circumstances, information in the notes to the financial statements would satisfy the requirement to disclose how sustainability-related risks and opportunities have affected an entity's current and anticipated financial position, financial performance and cash flows. The ISSB noted that an entity might consider providing that information in the sustainability-related financial disclosures by cross-reference to the related financial statements (provided the specific requirements for cross-referencing in paragraphs B45–B47 of IFRS S1 are met).

BC106 To assist entities in applying the requirements about anticipated financial effects, the ISSB introduced the requirement to use 'all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort'. This clarifies that an entity:

(a) is prohibited from overstating or understating the anticipated financial effects of opportunities or risks premised on information that is unsupportable or unreasonable.

(b) is not required to carry out an exhaustive search for information to determine the anticipated financial effects of risks and opportunities. The entity is permitted to carry out an information search that is proportional to the cost and effort involved in obtaining that information.

(c) is not required to carry out an exhaustive search for information to measure the anticipated financial effects. In measuring anticipated financial effects of such risks and opportunities, the entity is required to use all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort.

(d) is permitted to use only the information that is available to the entity at the reporting date (including information about past events, current conditions and forecasts of future conditions) and is not required to use information that only becomes available after that date.

BC107 The ISSB decided that an entity is required to use an approach that is commensurate with the skills, capabilities and resources that are available to the entity in preparing disclosures about the anticipated financial effects of a sustainability-related risk or opportunity. The ISSB noted that an entity cannot avoid providing quantitative information for anticipated financial effects because it does not have the skills or capabilities to do so if it has the resources available to obtain or develop those skills or capabilities.

BC108 Feedback indicated that it is not always possible for an entity to provide information about the current and anticipated financial effects of individual sustainability-related risks and opportunities because financial effects might arise from many risks or opportunities and affect many items in the financial statements. It might be difficult to attribute financial effects to an individual sustainability-related risk or opportunity. Therefore, the ISSB decided that an entity is not required to provide quantitative information about the current or anticipated financial effects of a sustainability-related risk or opportunity if the entity determines that:

(a) those effects are not separately identifiable; or

(b) the level of measurement uncertainty involved in estimating those effects is so high that the resulting quantitative information would not be useful.

BC109 In determining whether an entity is required to provide quantitative information (as discussed in BC107–BC108), the ISSB referred to concepts in IFRS Accounting Standards. The concept of 'separately identifiable' is found in various IFRS Accounting Standards, in which the term has been used to describe items that can be isolated in a manner that supports robust measurement. The ISSB decided that the concept of measurement uncertainty from the IASB's *Conceptual Framework* could be adapted for IFRS S1 to clarify that an entity might not be able to quantify current and anticipated financial effects if quantifying the effects of individual sustainability-related risks and opportunities would involve a high level of measurement uncertainty.

BC110 The ISSB decided that if an entity is not required to provide quantitative information about the current or anticipated financial effects of a sustainability-related risk or opportunity, the entity would be required to:

(a) explain why it has not provided quantitative information;

(b) provide qualitative information about those financial effects, including identifying the line items, totals and subtotals within the related financial statements that are likely to be affected, or have been affected, by that sustainability-related risk or opportunity; and

(c) provide quantitative information about the combined effects of that sustainability-related risk or opportunity with other sustainability-related risks or opportunities and other factors unless the entity determines that quantitative information about the combined financial effects would not be useful.

BC111 The ISSB noted that although an entity might not be in a position to provide quantitative information about the current or anticipated financial effects of a particular sustainability-related risk or opportunity, it is still required to provide other quantitative and qualitative information that is useful to users of general purpose financial reports. For example, if an entity does not provide quantitative information for a particular sustainability-related risk or opportunity, it is required to provide quantitative information about the combined financial effects of that risk or opportunity and the other factors affecting it, unless that information is not useful. The ISSB noted that the requirements to disclose current and anticipated financial effects provide users with an understanding of how the financial statements are currently affected by or are anticipated to be affected by sustainability-related risks and opportunities. The ISSB also noted that the requirement to identify affected line items, subtotals and totals in the financial statements is useful in situations in which an entity cannot provide quantitative information about financial effects of individual sustainability-related risks and opportunities. This requirement is useful because it highlights which area in the financial statements is most likely to have been, or will be, affected by the sustainability-related risk or opportunity.

BC112 The ISSB considered the feedback on some of the terms used in the requirements relating to current and anticipated financial effects. The ISSB decided to consistently use the term 'reporting period' to refer to the period for which sustainability-related financial disclosures are prepared and to refer to the related financial statements for that reporting period. The ISSB also decided to use the phrase 'short, medium and long term' consistently in IFRS S1, replacing the term 'over time' used in the Exposure Draft.

BC113 The ISSB decided to clarify the relationship between the disclosure requirements for information about resilience and the disclosure requirements for information about current and anticipated financial effects. The ISSB noted that the two sets of requirements are distinct and are intended to serve different information needs. The requirements on the resilience of an entity's strategy and business model are intended to inform users of general purpose financial reports about the entity's ability to cope with and withstand the effects of sustainability-related risks and related uncertainties in different scenarios. The requirements on the current and anticipated financial effects of sustainability-related risks and opportunities are intended to provide information about the effects of these risks and opportunities on an entity's financial performance, financial position and cash flows. The requirements can be applied independently. An entity is not required to carry out a resilience assessment to determine the anticipated financial effects of sustainability-related risks and opportunities. However, if the entity does carry out a resilience assessment, the entity might find that assessment useful and relevant in determining the anticipated financial effects of sustainability-related risks and opportunities.

Risk management

BC114 IFRS S1 requires an entity to disclose information about the processes it uses to identify, assess, prioritise and monitor sustainability-related risks and opportunities.

BC115 The risk management disclosure requirements are based on the TCFD recommendations that were used to develop the four aspects of core content, but with some changes. The TCFD recommendations focus only on processes related to risks, whereas IFRS S1 extends disclosure to include opportunities. This extension reflects the view that risks and opportunities could result from or relate to the same source of uncertainty. It also reflects the evolution of common practice in risk management, whereby processes for identification, assessment, prioritisation and response are increasingly being extended to cover opportunities as well.

BC116 A few respondents to the Exposure Draft misunderstood the proposed risk management disclosure requirements as requiring an entity to disclose information about the sustainability-related risks and opportunities to which it is exposed. The risk management disclosure requirements focus on providing information about the processes used to identify, assess, prioritise and monitor sustainability-related risks and opportunities—in contrast to the strategy disclosure objective of the core content requirements, which is to enable users of general purpose financial reports to understand an entity's strategy for managing sustainability-related risks and opportunities.

BC117 The requirements set out in IFRS S1 seek to capture the interrelated nature of the core content areas (governance, strategy, risk management, and metrics and targets) without duplicating disclosure requirements. Therefore, IFRS S1 requires disclosures on both:

(a) *risk management*—the processes an entity uses to identify, assess, prioritise and monitor sustainability-related risks and opportunities, collectively referred to as an entity's risk management processes, while the management of those risks and opportunities is part of an entity's strategy; and

(b) *strategy*—the sustainability-related risks and opportunities that could reasonably be expected to affect an entity's prospects; the current and anticipated effects of those sustainability-related risks and opportunities on the entity's business model and value chain; the effects of sustainability-related risks and opportunities on the entity's strategy and decision-making; the current and anticipated financial effects of sustainability-related risks and opportunities on its financial position, financial performance and cash flows; and the resilience of the entity's strategy and its business model to sustainability-related risks.

BC118 To improve the clarity of the requirements in the risk management core content, the ISSB clarified the disclosure requirements about the processes an entity uses to identify, assess, prioritise and monitor sustainability-related risks and opportunities, and the disclosure requirements about how these processes are integrated into the entity's overall processes for managing risks and opportunities. An entity might, for example, disclose that climate-related risks and opportunities are integrated into its overall process for managing risks and opportunities, such as general strategic or operational risks and opportunities, but that the identification, assessment, prioritisation and monitoring of other sustainability-related risks and opportunities are not part of its overall risk management process and occur separately.

BC119 Disclosure requirements for sustainability-related risks are more detailed than those for opportunities, reflecting the relative maturity of risk management processes and the necessity for users of general purpose financial reports to have information about an entity's processes for identifying, assessing, prioritising and monitoring risks.

Metrics and targets

BC120 Some respondents to the Exposure Draft expressed concerns that the wording of the objective of the 'Metrics and targets' section did not fully reflect the intention of disclosures about metrics and targets. The feedback suggested that some respondents interpreted the objective of these disclosures as being limited to disclosures of the metrics and targets an entity already uses. The ISSB concluded that this interpretation could lead to an entity excluding metrics required by IFRS Sustainability Disclosure Standards that were not used by the entity, even though information provided by disclosing those metrics is material.

BC121 The ISSB decided to clarify that the objective is to require an entity:

(a) to disclose the metrics required by IFRS Sustainability Disclosure Standards (even if the entity does not use these metrics);

(b) to disclose information about the metrics the entity uses to measure and monitor sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects (even if those metrics are not required by IFRS Sustainability Disclosure Standards); and

(c) to disclose information on its performance in relation to those risks and opportunities, including progress towards any targets the entity has set, or is required to meet by law or regulation.

The ISSB noted that these disclosures are subject to materiality. The ISSB stated that its intention in clarifying the objective was not to prescribe how entities manage their businesses, but instead to clarify the disclosure requirements for metrics and targets, which set out the information that is important for users of general purpose financial reports. Similarly, the ISSB did not stipulate that an entity is required to set specific targets, but IFRS S1 requires an entity to disclose information about targets if they have been set by the entity or if the entity is required by law or regulation to set specific targets.

BC122 The ISSB also noted that paragraphs 49–50 of IFRS S1 require an entity to disclose information about metrics taken from a source other than IFRS Sustainability Disclosure Standards or developed by the entity. In doing so, the ISSB observed that paragraph 59 of IFRS S1 requires an entity to disclose information about the specific standards, pronouncements, industry practice and other sources of guidance that the entity has applied in preparing its sustainability-related financial disclosures, including the industries specified in the IFRS Sustainability Disclosure Standards, the SASB Standards or other sources of guidance. The ISSB noted that other IFRS Sustainability Disclosure Standards will provide further disclosure requirements in relation to metrics and targets.

General requirements

BC123 The 'General requirements' section of IFRS S1 sets out requirements related to the location of disclosures, timing of reporting, comparative information, sources of guidance, and the statement of compliance with IFRS Sustainability Disclosure Standards.

BC124 Some of the requirements in IFRS S1 are based on principles in IFRS Accounting Standards. The reason for this is that these principles will be familiar to entities that prepare financial statements, and particularly to entities that comply with IFRS Accounting Standards. This approach helps ensure that all the information in the general purpose financial reports is prepared consistently if appropriate and that entities make connections across its related financial statements and its sustainability-related financial disclosures.

Sources of guidance

BC125 IFRS S1 includes requirements for entities on how to use sources of guidance to identify the sustainability-related risks and opportunities that could reasonably be expected to affect an entity's prospects. These requirements are necessary to facilitate reporting on a range of sustainability-related risks and opportunities. The sources of guidance are particularly important at the time of publication of IFRS S1 because the only specific requirements the ISSB has issued for disclosing information about sustainability-related risks and opportunities are in relation to climate-related risks and opportunities in IFRS S2. Furthermore, the sources of guidance are important because IFRS S1 requires an entity to disclose industry-based metrics in relation to its sustainability-related risks and opportunities—that is, metrics that are associated with particular business models, activities or other common features that characterise participation in an industry (see paragraph 48 of IFRS S1). Although the sources of guidance are intended to assist entities in applying IFRS S1 by reducing the costs of application, the guidance might be particularly useful for entities that have not previously reported sustainability-related financial disclosures focused on meeting the needs of users of general purpose financial reports.

BC126 The Exposure Draft proposed that an entity be required to refer to ('shall consider') sources of guidance in addition to applying IFRS Sustainability Disclosure Standards to determine which sustainability-related risks and opportunities to provide information about. The Exposure Draft also proposed that an entity be required to refer to such guidance to identify appropriate disclosure requirements and provide information to meet the needs of users of general purpose financial reports in the absence of a specifically applicable IFRS Sustainability Disclosure Standard. This approach was based on similar requirements in IAS 8. To help entities identify sustainability-related risks and opportunities to report on and identify the information to be provided about those risks and opportunities, it was proposed that an entity be required to refer to the SASB Standards, the *CDSB Framework Application Guidance for Water-related Disclosures* and the *CDSB Framework Application Guidance for Biodiversity-related Disclosures* (collectively referred to as 'CDSB Framework Application Guidance'). These standards and guidance were released by other sustainability standard-setters focused on meeting users' information needs and on the sustainability-related risks and opportunities identified by entities that operate in the same industries or geographical regions. The wording 'shall consider' was used in the Exposure Draft, requiring an entity to refer to these sources of guidance.

BC127 In feedback on the Exposure Draft, many respondents agreed with the proposed sources of guidance. Respondents stated that they agreed with the ISSB's approach of building on established standards and frameworks for sustainability reporting, including the SASB Standards and the CDSB Framework. However, some respondents noted that the wording 'shall consider' would require consideration of all the sources of guidance listed in the Exposure Draft, which led them to comment on the potentially large burden these requirements would place on entities and assurance providers. Some respondents suggested that, instead of the 'shall consider' requirement, the proposals could be modified to 'may consider' for some or all of the sources of guidance listed. Some respondents asked what the instruction 'shall consider' meant in practice and whether an entity could determine it was not required to apply these sources of guidance.

BC128 The proposed reference to other sources of guidance was intended to provide a clear range of sources of guidance for an entity to consider, thereby reducing diversity in reporting in practice and improving comparability between information provided by peer entities and information that might otherwise result in the absence of further IFRS Sustainability Disclosure Standards. The sources of guidance referenced were selected with the objective of identifying sources that were likely to result in the provision of information that would enable entities to meet the objective of IFRS S1. As the ISSB develops additional IFRS Sustainability Disclosure Standards, entities will have less need to rely on the sources of guidance referenced in IFRS S1 than they will initially because forthcoming Standards will identify sustainability-related risks and opportunities to report on and will set out requirements for disclosures designed to meet the needs of users of general purpose financial reports. However, even though more IFRS Sustainability Disclosure Standards will be developed, the sources of guidance will still be useful to entities in identifying sustainability-related risks and opportunities and information to provide about those risks and opportunities.

BC129 In response to the feedback, the ISSB examined whether requiring an entity to consider a long list of sources of guidance is warranted for incremental benefit. The ISSB noted that limiting the sources of guidance in IFRS S1 that an entity is required to refer to and consider—both in addition to IFRS Sustainability Disclosure Standards in identifying sustainability-related risks and opportunities and in the absence of a specifically applicable IFRS Sustainability Disclosure Standard in identifying information to provide about those risks and opportunities—would make the requirement less burdensome to apply. The ISSB noted that this change would also help reduce the burden on assurance providers.

BC130 Due to feedback that industry-specific disclosures are important to users of general purpose financial reports, the ISSB decided to confirm that an entity is required to refer to and consider the applicability of the SASB Standards in identifying sustainability-related risks and opportunities and information to report about those risks and opportunities. The rationale for the decision was that the SASB Standards were developed with a similar objective to IFRS S1 and that the overall design of the SASB Standards—that is, disclosure topics and associated metrics—generally matches the structure of the requirements in IFRS S1—that is, requirements for identifying sustainability-related risks and opportunities that could reasonably be expected to affect an entity's prospects and for providing information, including metrics, about those risks and opportunities. The ISSB noted that using the SASB Standards is expected to reduce application costs for entities and to yield useful and comparable disclosures for users. The feedback, particularly from users, generally favoured the use of the SASB Standards. In addition, the disclosure topics in the SASB Standards are useful in helping entities understand the range of sustainability-related risks and opportunities that are within the scope of IFRS S1, which is particularly important in assisting preparers in identifying sustainability-related risks and opportunities.

BC131 In discussing the feedback on the Exposure Draft, the ISSB noted that the proposal that an entity 'shall consider' particular sources of guidance was intended to create a requirement to review and consider the use of those sources of guidance in a systematic manner, but was not intended to require the application of those sources of guidance. The Basis for Conclusions of the Exposure Draft stated that:

> Consistent with the proposals in the Exposure Draft, applying the SASB Standards and CDSB pronouncements would be considered good practice for an entity applying IFRS Sustainability Disclosure Standards, but applying those pronouncements would not be a formal requirement for an entity. For example, an entity could still assert compliance with IFRS Sustainability Disclosure Standards in accordance with paragraph 91 if it did not apply the requirements in these documents.

BC132 The ISSB decided that it would be helpful to clarify what it means to 'consider' the sources of guidance. It noted that the consideration of the sources of guidance is generally expected to occur through a process that an entity has in place. Although an entity is required to consider the SASB Standards, it is not required to apply the SASB Standards. Instead, an entity is required to provide information that is relevant to the decision-making needs of users of general purpose financial reports and that faithfully represents the entity's sustainability-related risks and opportunities. If the entity determines that the sources of guidance considered do not result in disclosures that meet those requirements specified in paragraph 57 of IFRS S1, the entity is not required to apply these sources of guidance. The ISSB agreed it was important to distinguish between sources an entity is required to consider ('shall consider') and sources that it is permitted but not required to consider ('may consider'). The ISSB noted that requiring an entity to consider the SASB Standards is beneficial for users by helping to limit diversity in practice and improve comparability, especially among peer companies. However, the ISSB also noted that requiring an entity to 'consider' rather than 'apply' the sources of guidance reduces that benefit.

BC133 In the SASB Standards, disclosure topics and metrics are organised by industry, enabling an entity to identify sustainability-related risks and opportunities that are applicable to its business model and associated activities. The disclosure topics in the SASB Standards represent those sustainability-related risks and opportunities that are likely to be applicable for entities in that industry. The associated metrics are likely to be applicable in assessing the effects of sustainability-related risks and opportunities on the entity's cash flows, its access to finance and cost of capital over the short, medium and long term. The judgements about what sustainability-related risks and opportunities could reasonably be expected to affect an entity's prospects and what information, including metrics, is material is entity-specific. However, the ISSB expects that the disclosure topics in the SASB Standards and associated metrics are typically applicable for an entity with the given business model and associated activities.

BC134 The ISSB noted a complementary relationship between IFRS S1, which establishes general requirements that apply to all entities, and the guidance provided by the SASB Standards, which is industry-based. Therefore, an entity can expect the guidance provided by the SASB Standards to be tailored to the activities of entities within a particular industry. SASB Standards include disclosure topics focused on sustainability-related risks and opportunities that arise in an industry throughout the value chain. Furthermore, the metrics that accompany disclosure topics in the SASB Standards are commonly tailored to the activities of entities within a particular industry. As a result, the SASB Standards provide guidance that can complement or inform an entity's application of IFRS Sustainability Disclosure Standards, including the requirements related to value chain. However, in applying the SASB Standards to support the application of IFRS Sustainability Disclosure Standards, an entity is required to comply with all the requirements in IFRS Sustainability Disclosure Standards to assert compliance with these Standards.

BC135 In discussing the feedback, the ISSB decided that it is more appropriate to permit the CDSB Framework Application Guidance to be considered rather than to require it to be considered. The ISSB decided similarly to permit an entity to refer to the most recent pronouncements of other standard-setting bodies whose requirements are designed to meet the needs of users of general purpose financial reports, and to also refer to the sustainability-related risks and opportunities identified by entities that operate in the same industries or geographical regions instead of requiring those sources to be considered. The ISSB noted that not requiring entities to consider these sources avoids requiring entities to consider an extensive list of open-ended sources of guidance, which would increase the reporting burden for entities and increase complexities for assurance providers. The ISSB also noted that permitting entities to refer to these sources would facilitate transition to IFRS Sustainability Disclosure Standards by enabling entities to use sources that they might already be familiar with.

BC136 The ISSB noted that in referring in the Exposure Draft to the most recent pronouncements of other standard-setting bodies whose requirements are designed to meet the needs of users of general purpose financial reports, an entity would not be permitted to refer to the materials of standard-setters with a broader remit than the ISSB, even if particular disclosures required by those standard-setters would have met the needs of those users. This restriction was included in the Exposure Draft to reduce the risk of disclosures being provided that would not meet users' information needs. In discussing its proposals on sources of guidance, the ISSB decided an entity is permitted to consider the GRI Standards and ESRS to identify information to provide, including metrics, about sustainability-related risks and opportunities. However, an entity is permitted to consider these sources only to the extent that the information identified assists the entity in meeting the objective of IFRS S1 and that these sources do not conflict with IFRS Sustainability Disclosure Standards. The ISSB agreed that the references to the GRI Standards and ESRS as sources of guidance would be located in an appendix in IFRS S1.

BC137 The ISSB noted that the Exposure Draft only permitted an entity to refer to the most recent pronouncements of other standard-setting bodies whose requirements are designed to meet the needs of 'primary users' of general purpose financial reports. Therefore, the addition of references to the GRI Standards and ESRS would be necessary to permit an entity to refer to these sources of guidance. Under the revised approach, an entity is permitted to refer to the GRI Standards and ESRS to identify information to provide once the entity has identified sustainability-related risks and opportunities. Allowing these standards to be referred to in identifying information to provide but not to identify sustainability-related risks or opportunities, is intended to ensure that any information disclosed by entities relates to a topic that has been identified as of interest to users of general purpose financial reports. Thus, an entity identifies sustainability-related risks and opportunities by using IFRS Sustainability Disclosure Standards, SASB Standards, or the other sources of guidance listed in paragraph 55(b) of IFRS S1, but not by using the GRI Standards or ESRS.

BC138 The ISSB noted that referencing the GRI Standards and ESRS in the sources of guidance could help improve interoperability with other sustainability-reporting requirements and reduce the burden for entities, especially entities that are already using the GRI Standards to provide metrics or other information or those who are mandated to comply with ESRS. The ISSB also noted that it has an MoU with GRI and is working closely with the European Commission and EFRAG to facilitate interoperability between ESRS and IFRS Sustainability Disclosure Standards. Both these arrangements were an important consideration in determining the appropriateness of referring to these sources of guidance. However, unlike the SASB Standards and the CDSB Framework Application Guidance, the GRI Standards and ESRS are intended to meet the information needs of a broader audience than users of general purpose financial reports. The ISSB noted that a subset of disclosures provided in accordance with these standards could produce information that is useful to users.

BC139 The ISSB emphasised that, if using the GRI Standards or ESRS, an entity is prohibited from obscuring material information required by IFRS Sustainability Disclosure Standards with immaterial information. An entity is prohibited from making an explicit and unreserved statement of compliance with IFRS Sustainability Disclosure Standards if, in preparing its sustainability-related financial disclosures, the entity applied those sources of guidance without considering the requirements in IFRS Sustainability Disclosure Standards. The ISSB noted that because an entity is required to ensure information identified through using the GRI Standards or ESRS meets the objective of IFRS S1, an entity would not be permitted to simply repurpose a report prepared in accordance with the GRI Standards or ESRS to meet the requirements in IFRS Sustainability Disclosure Standards.

BC140 The Exposure Draft proposed that an entity be required to disclose the industry or industries specified for the disclosures that it has provided. This requirement was intended to provide greater transparency for users of general purpose financial reports on how disclosures have been prepared. The requirement was also intended to assist users in understanding the materiality judgements made by an entity in applying the industry-based disclosure requirements (for example, if an entity used the SASB Standards to prepare disclosures in the absence of specifically applicable requirements in IFRS Sustainability Disclosure Standards). In particular, once the industry has been disclosed as required, users are able to see if an entity omitted a metric that is applicable for an entity in that industry.

BC141 During its redeliberation, the ISSB decided to confirm the requirement in the Exposure Draft for an entity to disclose the industry or industries specified in the applicable IFRS Sustainability Disclosure Standards or the SASB Standards that the entity has applied in preparing its sustainability-related financial disclosures, including in identifying applicable metrics. The ISSB also decided to broaden the requirement in the Exposure Draft to capture the disclosure of the sources of guidance that the entity has applied in preparing its sustainability-related financial disclosures including, if applicable, identifying the disclosure topics in the SASB Standards. IFRS S1 also requires an entity to disclose information about the judgements the entity has made in the process of preparing its sustainability-related financial disclosures and that have the most significant effect on the information included in those disclosures (see paragraph 74 of IFRS S1). An example of such a judgement is an entity determining which sources of guidance to apply in preparing its sustainability-related financial disclosures. In applying the requirement, it might be necessary for an entity to disclose that it applied particular sources of guidance that it considered and also to disclose that it considered other sources of guidance but did not apply those other sources of guidance.

Location of disclosures

BC142 Sustainability-related financial disclosures are required to be published as part of a reporting entity's general purpose financial reports. A consequence of this requirement is that the entity is required to report its sustainability-related financial disclosures at the same time as it issues its related financial statements (subject to transition relief, as described in paragraph E4 of IFRS S1). General purpose financial reports provide financial information about a reporting entity that is useful to users in making decisions relating to providing resources to the entity. The ISSB decided to require an entity to publish its sustainability-related financial disclosures as part of the entity's general purpose financial reports to ensure users of general purpose financial reports are provided with a comprehensive and connected package of reports. This requirement is a change for entities that previously disclosed sustainability-related financial information in a report intended for other stakeholders and for entities that published a report later than their financial statements.

BC143 Though corporate reporting varies between jurisdictions, the term 'general purpose financial reports' includes—but is not restricted to—an entity's financial statements and sustainability-related financial disclosures. IFRS S1 does not prescribe the exact location of sustainability-related financial disclosures in general purpose financial reports. The ISSB acknowledges that jurisdictions might specify the exact location in which an entity is required to provide its sustainability-related financial disclosures. Management commentary—or a similar report if it forms part of an entity's general purpose financial reports—is a possible location for sustainability-related financial disclosures. IFRS S1 states that management commentary might be known by, or included in reports with, various names, such as 'management report', 'management's discussion and analysis', 'operating and financial review', 'integrated report' or 'strategic report'.

BC144 IFRS S1 permits an entity to cross-reference between reports to provide sustainability-related financial disclosures, subject to the requirements being met in paragraphs B45–B47 in IFRS S1. For example, if information is included by cross-reference, that information must be available on the same terms and at the same time as all other sustainability-related financial disclosures, and the location of that information must be precisely specified. Most respondents supported the proposal in the Exposure Draft, which permitted cross-referencing. Many preparers commented on the cost-effectiveness, while many users of general purpose financial reports commented on the importance of the conditions in which cross-referencing is permitted, which were further clarified in IFRS S1. The ISSB observed that information provided by cross-reference is required to be available whenever an entity's sustainability-related financial disclosures are available. If the information is not part of the same report as the entity's sustainability-related financial disclosures, an entity would explain how users can access the information.

Timing of reporting

BC145 The Exposure Draft proposed that an entity be required to report its sustainability-related financial disclosures at the same time as its related financial statements. Most respondents to the Exposure Draft agreed with the proposed requirement for sustainability-related financial disclosures to be published at the same time and for the same reporting period as the financial statements; however, many respondents commented that entities would find it challenging to meet the requirement, at least in the near term. Despite the challenges involved, most respondents agreed that it makes sense to report sustainability-related financial disclosures at the same time as the financial statements. These respondents agreed because simultaneous publication would provide users of general purpose financial reports with a coherent, holistic and connected picture of an entity's financial position and performance, and provide users with a comprehensive set of sustainability-related financial disclosures, which would enable them to make more informed capital allocation decisions. In discussing this feedback, the ISSB noted that many entities are new to reporting sustainability-related financial information. As such, the ISSB agreed with respondents' view that entities would face challenges in meeting the proposed requirement, including:

(a) perceptions of an increased reporting burden and higher than usual costs, especially in the first years of application;

(b) reporting systems that are underdeveloped—meaning collating and aggregating sustainability-related data could be time-consuming;

(c) calculation of some metrics might be delayed by the need to wait for information from, for example, finalised financial statements or third-party data providers;

(d) jurisdictional reporting requirements might be inconsistent with the proposed requirement; and

(e) additional reliance on assumptions and estimates might be necessary to complete the data for the reporting period, which could affect the quality of the data.

BC146 During its redeliberation process, the ISSB confirmed that an entity is required to report its sustainability-related financial disclosures at the same time and for the same reporting period as the related financial statements. However, the ISSB also decided to introduce transition relief in response to preparers' concerns (see paragraph E4 of IFRS S1).

Comparative information

BC147 IFRS S1 requires an entity to disclose comparative information in respect of the preceding period for all amounts disclosed in the reporting period. The wording used was adapted from and follows requirements in paragraph 38 of IAS 1. The Exposure Draft proposed that an entity disclose comparative information for all metrics. However, the ISSB noted that it would be more useful to users of general purpose financial reports for IFRS S1 to require the disclosure for 'all amounts' rather than limiting the disclosure to metrics. The ISSB clarified that amounts reported in sustainability-related financial disclosures might relate, for example, to the current and anticipated financial effects of sustainability-related risks and opportunities or to metrics and targets.

BC148 If the information would be useful for an understanding of the reporting period's disclosures, an entity is also required to disclose comparative information for narrative and descriptive sustainability-related financial disclosures. As a transition relief, comparative information is not required to be disclosed in the first annual reporting period in which an entity applies IFRS S1 (see paragraph E3 of IFRS S1).

BC149 Most respondents agreed with the principle of providing comparative information. However, they gave mixed feedback on the proposals that an entity be required to disclose comparative information that reflects updated estimates. Most users of general purpose financial reports who provided comments agreed with the proposal to require entities to disclose comparative information that reflects updated estimates. However, many other respondents, including preparers, audit firms and accounting standard-setters, raised concerns about the proposed requirement. Some of their concerns were that:

(a) the proposed requirement was inconsistent with the approach to changes in estimates set out in IAS 8—this inconsistency might lead to challenges in connecting sustainability-related financial disclosures with the financial statements;

(b) the costs and complexity associated with updating estimates might outweigh the benefits in some situations;

(c) the potential challenges for the assurance process; and

(d) the proposals are unclear about whether and how to distinguish the requirements for revising comparative information to reflect updated estimates and correction of errors, respectively.

BC150 The requirement to revise comparative information differs from the approach to changes in estimates in financial statements established in IFRS Accounting Standards. Changes in estimates are recognised in the current and future periods affected by the change according to the requirements in IFRS Accounting Standards—that is, in the period of the change. Under this approach, the comparative information is not changed and the change in estimate is reflected in the reporting period profit or loss. This practice is followed, for example, for changes in estimates of the useful life of an asset, fair value, and expected credit losses. Changes in such estimates are also reflected in reported equity because they are part of a double-entry model. In sustainability-related financial disclosures, however, estimates and metrics cannot affect equity—for example, a change in a Scope 3 greenhouse gas emissions estimate affects only the estimate itself—which is a reason behind the ISSB's decision that IFRS S1 should require an entity to revise comparatives for sustainability-related metrics. Another reason for requiring that an entity revise comparatives to reflect updated estimates is so the entity provides users of general purpose financial reports with the best information possible about trends.

BC151 The nature of some sustainability-related metrics necessitates a significant element of estimation, including estimation related to the entity's value chain. The ISSB decided that an entity would provide more useful information if the entity revised comparatives to reflect changes in estimates that relate to the preceding period rather than changing reporting period information.

BC152 An entity is required to revise the estimated amount disclosed for a metric, but is not required to revise narrative or descriptive disclosures. This requirement applies only if information about a change is material and if updating the estimate is not impracticable. To clarify the meaning of 'impracticable', the ISSB decided to base the definition of 'impracticable' in IFRS S1 on the definition in IAS 1, confirming that the term is used in a manner consistent with IFRS Accounting Standards. Accordingly, IFRS S1 sets a high threshold for how an entity determines whether it is 'impracticable' to meet the requirements. Applying the requirement is 'impracticable' if the entity cannot do so after making every reasonable effort to do so. For the avoidance of doubt, this threshold is higher than a cost-benefit threshold.[5]

BC153 In response to the feedback, the ISSB decided to clarify the requirements for revising comparative information. It decided that if an entity identifies new information in relation to the estimated amount disclosed for a metric in the preceding period and that information provides evidence of circumstances that existed in the preceding period, the entity is required to disclose a revised comparative amount for the metric taking into account the new information. In doing so, the entity is also required to disclose the difference between the amount disclosed for the metric in the preceding period and the revised comparative amount, and to explain why the comparative amount has been revised.

BC154 The ISSB decided to exclude forward-looking metrics from the requirement to revise comparative information to reflect updated estimates. However, an entity is permitted to revise a comparative amount disclosed for a forward-looking metric if doing so does not involve hindsight.

BC155 The ISSB confirmed what an entity is required to do if the entity redefines or replaces a metric in the reporting period. In those circumstances, the entity is required to disclose a revised comparative amount for the metric, unless it is impracticable to do so. The entity is required to explain the changes in the metric and the reasons for the changes, including why the redefined or replaced metric provides more useful information than the previous metric.

[5] The IASB considered 'lowering the impracticability threshold to a cost-benefit threshold' as part of amending IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors*.

Statement of compliance

BC156 An entity is permitted to include an explicit and unqualified statement of compliance only if its sustainability-related financial disclosures comply with all the requirements of IFRS Sustainability Disclosure Standards. Qualified statements of compliance with IFRS Sustainability Disclosure Standards are prohibited. This requirement reflects the importance of communicating to users of general purpose financial reports whether the entity has been selective in its approach to reporting sustainability-related financial information or whether the entity has applied all the requirements.

BC157 IFRS S1 does not require an entity to implement strategic goals, such as following a particular transition plan to a lower-carbon economy, but does require the entity, for example, to disclose information about the targets it has set or is required to set by law or regulation. Therefore, an entity that does not manage some of its sustainability-related risks and opportunities, or that has not established its own metrics and targets for them, could still assert compliance with IFRS Sustainability Disclosure Standards if its disclosures explain that fact. Similarly, an entity might not have governance processes, controls or procedures in place to monitor and manage specific sustainability-related risks or opportunities. The fact that an entity does not have such processes, controls and procedures in place is itself likely to be material information for users of general purpose financial reports.

Judgements, uncertainties and errors

Judgements

BC158 In preparing sustainability-related financial disclosures, an entity will need to apply judgement and use assumptions and estimates specific to its circumstances. The ISSB considered feedback asking for a requirement to be introduced for an entity to disclose the judgements, assumptions and estimates that it has made in preparing and presenting its sustainability-related financial disclosures. Respondents indicated that such a requirement would help users of general purpose financial reports understand how sustainability-related financial disclosures have been prepared, and would support assurance of the information and assessment of the completeness of information.

BC159 IAS 1 includes a requirement to disclose the judgements an entity has made in applying its accounting policies that have the most significant effects on the amounts recognised in its financial statements (paragraphs 122–123 of IAS 1). The ISSB decided to adapt the principle of this requirement in the requirements in IFRS S1 related to disclosures about judgements an entity has made in the process of preparing and disclosing its sustainability-related financial information.

BC160 The ISSB decided to confirm a requirement for an entity to disclose the judgements that it has made that have the most significant effects on the information provided in its sustainability-related financial disclosures. Judgements disclosed to meet this requirement would contribute to users' understanding of information presented in the entity's sustainability-related financial disclosures. Furthermore, the ISSB noted that such a requirement sets an overarching requirement for an entity to disclose significant judgements that it has made in the absence of a specifically applicable disclosure requirement about judgements in other IFRS Sustainability Disclosure Standards.

BC161 The requirement to disclose information about significant judgements complements the proposal in the Exposure Draft for an entity to disclose the industry or industries specified in the relevant IFRS Sustainability Disclosure Standard or industry-based SASB Standards that it used in preparing its sustainability-related financial information. As discussed in paragraphs BC140–BC141, the ISSB decided to expand that requirement to require an entity to identify the specific sources of guidance that have been applied in preparing its sustainability-related financial disclosures. The entity is required to identify these sources in addition to disclosing the industry or industries specified in IFRS Sustainability Disclosure Standards, SASB Standards or other industry-based sources of guidance.

BC162 The ISSB noted that other IFRS Sustainability Disclosure Standards might also require disclosures about judgements and estimates. In this case, the ISSB noted that the requirements in IFRS S1 would complement those more specific requirements in other IFRS Sustainability Disclosure Standards.

Measurement uncertainty

BC163 The Exposure Draft proposed that an entity identifies metrics it has disclosed that have significant estimation uncertainty. These requirements were adapted from and are consistent with similar requirements in paragraph 125 of IAS 1. Following feedback from respondents, the ISSB acknowledged that measurement uncertainty does not solely arise if metrics cannot be measured directly and can only be estimated. Measurement uncertainty also arises, for example, in providing information about the effects of sustainability-related risks and opportunities on an entity's financial position, financial performance and cash flows for the reporting period, and the anticipated financial effects over the short, medium and long term. For example, some of an entity's assets might be increasingly at risk from climate-related forest fire events and, therefore, this risk would be considered as part of the impairment analysis and measurement of those assets. If the frequency and severity of these fires are highly uncertain, users would need information about this uncertainty, including the fact that there is a significant risk of a material adjustment within the next annual reporting period to the carrying amounts of these assets.

BC164 The Exposure Draft referred to metrics in proposing disclosures about uncertainty. However, the ISSB decided that the disclosure requirements relating to measurement uncertainty would not be limited to metrics but would also cover other amounts reported in sustainability-related financial disclosures—for example, the requirements relating to current and anticipated financial effects. Therefore, IFRS S1 requires an entity to disclose information to enable users of general purpose financial reports to understand the most significant uncertainties affecting the amounts reported in the sustainability-related financial disclosures. In doing so, an entity identifies the amounts it has disclosed that are subject to a high level of measurement uncertainty, including information about assumptions, approximations and judgements in measuring the amount. This requirement is consistent with and based on paragraph 125 of IAS 1.

Errors

BC165 The ISSB decided to maintain the distinction between the requirements for an entity that revises a comparative amount to, for example, update an estimate for a metric or redefine a metric, and the requirements for restating an amount due to an error. Prior period errors are omissions from and misstatements in the entity's sustainability-related financial disclosures for one or more prior periods. Potential reporting period errors discovered in that period are corrected before the sustainability-related financial disclosures are authorised for issue. However, material errors are sometimes not discovered until a subsequent period. The ISSB confirmed that if an entity identifies a material error in the sustainability-related financial disclosures for its prior periods, it is required to disclose:

(a) the nature of the prior period error;

(b) the correction, to the extent practicable, for each prior period disclosed; and

(c) if correction of the error is impracticable, the circumstances that led to the existence of that condition, and a description of how and from when the error has been corrected.

Effective date

BC166 In determining the effective date of IFRS S1, the ISSB considered feedback on the Exposure Draft. Most respondents provided suggestions on the effective date:

(a) a few respondents suggested that IFRS S1 should become effective as soon as possible or within one year of being issued;

(b) most respondents suggested an effective date of two or more years after issuance; and

(c) a few respondents suggested an effective date of three or more years after issuance.

BC167 A few users of general purpose financial reports asked for effective dates for IFRS S1 and IFRS S2 of no more than 12 months after issuance, noting that the proposed requirements build on well-established standards and frameworks. Many respondents commented on the urgency of creating a global baseline of sustainability-related financial disclosures given similar proposals developed by EFRAG and the US SEC.

BC168 The IASB generally has had a practice of allowing a period of 12–18 months between the issuance of a new Standard and its effective date. The ISSB observed that in the IASB's early standard-setting work the period between the issuance of a new IFRS Accounting Standard and its effective date was 6–12 months. The IASB's most recent IFRS Accounting Standards had periods of up to three years between the issuance of a Standard and the effective date.

BC169 However, the ISSB's situation is different from that of the IASB. If the IASB sets an effective date for a new IFRS Accounting Standard, that date is relevant to those entities already applying IFRS Accounting Standards. It is relevant because, to continue to assert compliance with IFRS Accounting Standards, an entity is required to apply the Standards in accordance with the effective date requirements established by the IASB. Typically, jurisdictions applying IFRS Accounting Standards use the same effective dates as those set by the IASB. However, because the ISSB is issuing its first Standards, there will be a range of dates over which jurisdictions will adopt the IFRS Sustainability Disclosure Standards for the first time and regulators will subsequently require entities to apply the Standards.

BC170 The ISSB understands the importance of taking into account the preparedness of entities when setting the effective date for IFRS S1 and IFRS S2. The requirements will be new, and entities will need time to create or adjust internal systems, processes and controls to prepare the disclosures required by IFRS Sustainability Disclosure Standards. The length of this adoption period will depend, among other things, on an entity's current approach to sustainability-related risks and opportunities and the reporting of these, as well as on the entity's circumstances—for example, its size and the requirements or regulations that apply. The ISSB has made a number of decisions to help preparers apply the requirements and comply with IFRS S1 and IFRS S2 at an earlier date than would otherwise be the case. The ISSB has decided to introduce transition relief and, for example, requirements to permit entities to consider other possibly familiar sources of guidance.

BC171 The ISSB decided that setting an effective date for annual reporting periods beginning on or after 1 January 2024 is consistent with the ISSB's current pace in meeting users' urgent need for sustainability-related and climate-related financial disclosures. The ISSB also decided that early application of IFRS S1 and IFRS S2 is only permitted for entities applying both Standards at the same time. The ISSB decided that if an entity applies the Standards early, it is required to disclose that fact.

Note from the HKICPA: *The proposed effective date for [draft] HKFRS S1 is for annual reporting periods beginning on or after 1 August 2025. Please refer to Part II (i) of the explanatory memorandum accompanying this [draft] standard for the reasons for setting such a proposed effective date.*

Transition

BC172 In reviewing the feedback on the Exposure Draft, the ISSB identified several concerns about data availability and preparer readiness. In response to these concerns, the ISSB noted that it would be helpful to provide transition relief to give entities more time to prepare to align reporting of sustainability-related financial disclosures and financial statements. The ISSB decided to permit an entity not to report its sustainability-related financial disclosures at the same time as its related financial statements (see paragraph E4 of IFRS S1). The relief is available for one year from the date an entity first applies IFRS S1 and IFRS S2. The ISSB decided that the relief permits the annual sustainability-related financial disclosures to be provided with the following second-quarter or half-year interim general purpose financial report rather than just permitting a delay. The reason for specifying the timing of the reporting was to enable users of general purpose financial reports to know when the information would be provided, therefore ensuring that this information is brought to their attention, given its importance. An entity taking advantage of this relief is permitted to report its sustainability-related financial disclosures for its first annual reporting period:

(a) at the same time as its next second-quarter or half-year interim general purpose financial report, if the entity is required to provide such an interim report;

(b) at the same time as its next second-quarter or half-year interim general purpose financial report, but within nine months of the end of the annual reporting period in which the entity first applies IFRS S1, if the entity voluntarily provides such an interim report; or

(c) within nine months of the end of the annual reporting period in which the entity first applies IFRS S1, if the entity is not required to and does not voluntarily provide an interim general purpose financial report.

BC173 The ISSB decided that this relief is a reasonable balance between providing relief to entities while seeking to maintain the objective of timely reporting, and enabling users of general purpose financial reports to have the information necessary to inform investment decisions. In introducing this relief, the ISSB is not suggesting that an entity is required to provide quarterly or half-yearly reporting.

BC174 The ISSB decided to provide relief for an entity from the requirement to disclose comparative information in the first annual reporting period in which it applies IFRS S1. Permitting an entity to report on only that reporting period enables it to provide users of general purpose financial reports with the information they need sooner. Therefore, this relief allows the requirements in IFRS S1 to become effective sooner than if comparative information were required.

BC175 The ISSB also decided to introduce a transition relief that permits, in the first annual reporting period in which an entity applies IFRS S1, the entity to disclose information on only climate-related risks and opportunities (in accordance with IFRS S2). Therefore, the entity would apply the requirements in IFRS S1 only to the extent that they relate to the disclosure of information about climate-related risks and opportunities. If an entity applies the relief in paragraphs E5–E6 of IFRS S1, an entity applies IFRS S2 to identify climate-related risks and opportunities to provide information about. That is, an entity discloses information about climate-related risks and opportunities as set out in IFRS S2.

BC176 If an entity uses this transition relief, then it is required to disclose that fact. The ISSB decided that if an entity uses this transition relief in the first annual reporting period in which the entity applies IFRS S1, the relief from providing comparative information would be extended. So, an entity electing only to report on climate-related risks and opportunities in the first annual reporting period it applies IFRS S1 is not required to disclose comparative information about its climate-related risks and opportunities (applying the relief described in paragraph BC174). In the second annual reporting period in which the entity applies IFRS S1, it is not required to disclose comparative information about its sustainability-related risks and opportunities, other than its climate-related risks and opportunities. Thus, in the second annual reporting period, comparative information is only required to be provided in relation to climate-related risks and opportunities.

BC177 The ISSB observed that an entity might want to disclose information about sustainability-related risks and opportunities, in addition to climate-related risks and opportunities, in the first annual reporting period in which the entity applies IFRS S1 and IFRS S2. The entity might still apply the relief to the extent that it does not disclose information about all sustainability-related risks and opportunities that could be reasonably expected to affect the entity's prospects, in accordance with IFRS S1. In such circumstances, the intention of this relief is not to restrict an entity from providing incremental information to users of general purpose financial reports—that is, the entity is permitted to disclose information about other sustainability-related risks and opportunities, in addition to climate, in that first annual reporting period. However, the ISSB emphasised that if an entity uses the relief, the entity must disclose that it has used the relief and ensure that the information about climate-related risks and opportunities provided in accordance with IFRS S1 and IFRS S2 is not obscured by the incremental information.

BC178 The ISSB noted that the transition relief in paragraphs E5–E6 of IFRS S1 would provide entities with more time to prepare to report on all sustainability-related risks and opportunities. The ISSB also noted that entities could benefit from becoming more familiar with the language and concepts in IFRS S1 and IFRS S2, and better understand their own value chain, while focusing their efforts on providing information about climate-related risks and opportunities. Such an understanding would be beneficial to an entity's preparedness for broader reporting in accordance with IFRS S1.

Exposure Draft HKFRS S2
Issued 16 September 2024

Exposure Draft Hong Kong Financial Reporting Standard S2

Climate-related Disclosures

Hong Kong Institute of
Certified Public Accountants
香港會計師公會

CONTENTS

[Draft] HKFRS S2 *Climate-related Disclosures* is set out in paragraphs 1–37 and Appendices A–C. All paragraphs have equal authority. Paragraphs in **bold type** state the main principles. Terms defined in Appendix A are in *italics* the first time they appear in the [draft] Standard. Definitions of other terms are given in other HKFRS Sustainability Disclosure Standards. The [draft] Standard should be read in the context of its objective, the Basis for Conclusions and [draft] HKFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information*.

[Draft] HKFRS S2 *Climate-related Disclosures*

Objective

1 **The objective of [draft] HKFRS S2 *Climate-related Disclosures* is to require an entity to disclose information about its *climate-related risks and opportunities* that is useful to *primary users of general purpose financial reports* in making decisions relating to providing resources to the entity.**[1]

2 This [draft] Standard requires an entity to disclose information about climate-related risks and opportunities that could reasonably be expected to affect the entity's cash flows, its access to finance or cost of capital over the short, medium or long term. For the purposes of this [draft] Standard, these risks and opportunities are collectively referred to as 'climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects'.

Scope

3 This [draft] Standard applies to:

(a) climate-related risks to which the entity is exposed, which are:

(i) *climate-related physical risks*; and

(ii) *climate-related transition risks*; and

(b) climate-related opportunities available to the entity.

4 Climate-related risks and opportunities that could not reasonably be expected to affect an entity's prospects are outside the scope of this [draft] Standard.

Core content

Governance

5 **The objective of climate-related financial disclosures on governance is to enable users of general purpose financial reports to understand the governance processes, controls and procedures an entity uses to monitor, manage and oversee climate-related risks and opportunities.**

6 To achieve this objective, an entity shall disclose information about:

(a) the governance body(s) (which can include a board, committee or equivalent body charged with governance) or individual(s) responsible for oversight of climate-related risks and opportunities. Specifically, the entity shall identify that body(s) or individual(s) and disclose information about:

(i) how responsibilities for climate-related risks and opportunities are reflected in the terms of reference, mandates, role descriptions and other related policies applicable to that body(s) or individual(s);

(ii) how the body(s) or individual(s) determines whether appropriate skills and competencies are available or will be developed to oversee strategies designed to respond to climate-related risks and opportunities;

(iii) how and how often the body(s) or individual(s) is informed about climate-related risks and opportunities;

(iv) how the body(s) or individual(s) takes into account climate-related risks and opportunities when overseeing the entity's strategy, its decisions on major transactions and its risk management processes and related policies, including

[1] Throughout this [draft] Standard, the terms 'primary users' and 'users' are used interchangeably, with the same meaning.

whether the body(s) or individual(s) has considered trade-offs associated with those risks and opportunities; and

(v) how the body(s) or individual(s) oversees the setting of targets related to climate-related risks and opportunities, and monitors progress towards those targets (see paragraphs 33–36), including whether and how related performance metrics are included in remuneration policies (see paragraph 29(g)).

(b) management's role in the governance processes, controls and procedures used to monitor, manage and oversee climate-related risks and opportunities, including information about:

(i) whether the role is delegated to a specific management-level position or management-level committee and how oversight is exercised over that position or committee; and

(ii) whether management uses controls and procedures to support the oversight of climate-related risks and opportunities and, if so, how these controls and procedures are integrated with other internal functions.

7 In preparing disclosures to fulfil the requirements in paragraph 6, an entity shall avoid unnecessary duplication in accordance with [draft] HKFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information* ([draft] HKFRS S1) (see paragraph B42(b) of [draft] HKFRS S1). For example, although an entity shall provide the information required by paragraph 6, if oversight of sustainability-related risks and opportunities is managed on an integrated basis, the entity would avoid duplication by providing integrated governance disclosures instead of separate disclosures for each sustainability-related risk and opportunity.

Strategy

8 The objective of climate-related financial disclosures on strategy is to enable users of *general purpose financial reports* to understand an entity's strategy for managing climate-related risks and opportunities.

9 Specifically, an entity shall disclose information to enable users of general purpose financial reports to understand:

(a) the climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects (see paragraphs 10–12);

(b) the current and anticipated effects of those climate-related risks and opportunities on the entity's *business model* and *value chain* (see paragraph 13);

(c) the effects of those climate-related risks and opportunities on the entity's strategy and decision-making, including information about its *climate-related transition plan* (see paragraph 14);

(d) the effects of those climate-related risks and opportunities on the entity's financial position, financial performance and cash flows for the reporting period, and their anticipated effects on the entity's financial position, financial performance and cash flows over the short, medium and long term, taking into consideration how those climate-related risks and opportunities have been factored into the entity's financial planning (see paragraphs 15–21); and

(e) the *climate resilience* of the entity's strategy and its business model to climate-related changes, developments and uncertainties, taking into consideration the entity's identified climate-related risks and opportunities (see paragraph 22).

Climate-related risks and opportunities

10 An entity shall disclose information that enables users of general purpose financial reports to understand the climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects. Specifically, the entity shall:

(a) describe climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects;

(b) explain, for each climate-related risk the entity has identified, whether the entity considers the risk to be a climate-related physical risk or climate-related transition risk;

(c) specify, for each climate-related risk and opportunity the entity has identified, over which time horizons—short, medium or long term—the effects of each climate-related risk and opportunity could reasonably be expected to occur; and

(d) explain how the entity defines ‘short term’, ‘medium term’ and ‘long term’ and how these definitions are linked to the planning horizons used by the entity for strategic decision-making.

11 In identifying the climate-related risks and opportunities that could reasonably be expected to affect an entity’s prospects, the entity shall use all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort, including information about past events, current conditions and forecasts of future conditions.

12 In identifying the climate-related risks and opportunities that could reasonably be expected to affect an entity’s prospects, the entity shall refer to and consider the applicability of the industry-based *disclosure topics* defined in the *Industry-based Guidance on Implementing Exposure Draft HKFRS S2*.

Business model and value chain

13 An entity shall disclose information that enables users of general purpose financial reports to understand the current and anticipated effects of climate-related risks and opportunities on the entity’s business model and value chain. Specifically, the entity shall disclose:

(a) a description of the current and anticipated effects of climate-related risks and opportunities on the entity’s business model and value chain; and

(b) a description of where in the entity’s business model and value chain climate-related risks and opportunities are concentrated (for example, geographical areas, facilities and types of assets).

Strategy and decision-making

14 An entity shall disclose information that enables users of general purpose financial reports to understand the effects of climate-related risks and opportunities on its strategy and decision-making. Specifically, the entity shall disclose:

(a) information about how the entity has responded to, and plans to respond to, climate-related risks and opportunities in its strategy and decision-making, including how the entity plans to achieve any climate-related targets it has set and any targets it is required to meet by law or regulation. Specifically, the entity shall disclose information about:

(i) current and anticipated changes to the entity’s business model, including its resource allocation, to address climate-related risks and opportunities (for example, these changes could include plans to manage or decommission carbon-, energy- or water-intensive operations; resource allocations resulting from demand or supply-chain changes; resource allocations arising from business development through capital expenditure or additional expenditure on research and development; and acquisitions or divestments);

(ii) current and anticipated direct mitigation and adaptation efforts (for example, through changes in production processes or equipment, relocation of facilities, workforce adjustments, and changes in product specifications);

(iii) current and anticipated indirect mitigation and adaptation efforts (for example, through working with customers and supply chains);

(iv) any climate-related transition plan the entity has, including information about key assumptions used in developing its transition plan, and dependencies on which the entity’s transition plan relies; and

(v) how the entity plans to achieve any climate-related targets, including any greenhouse gas emissions targets, described in accordance with paragraphs 33–36.

(b) information about how the entity is resourcing, and plans to resource, the activities disclosed in accordance with paragraph 14(a).

(c) quantitative and qualitative information about the progress of plans disclosed in previous reporting periods in accordance with paragraph 14(a).

Financial position, financial performance and cash flows

15 An entity shall disclose information that enables users of general purpose financial reports to understand:

(a) the effects of climate-related risks and opportunities on the entity's financial position, financial performance and cash flows for the reporting period (current financial effects); and

(b) the anticipated effects of climate-related risks and opportunities on the entity's financial position, financial performance and cash flows over the short, medium and long term, taking into consideration how climate-related risks and opportunities are included in the entity's financial planning (anticipated financial effects).

16 Specifically, an entity shall disclose quantitative and qualitative information about:

(a) how climate-related risks and opportunities have affected its financial position, financial performance and cash flows for the reporting period;

(b) the climate-related risks and opportunities identified in paragraph 16(a) for which there is a significant risk of a material adjustment within the next annual reporting period to the carrying amounts of assets and liabilities reported in the related financial statements;

(c) how the entity expects its financial position to change over the short, medium and long term, given its strategy to manage climate-related risks and opportunities, taking into consideration:

(i) its investment and disposal plans (for example, plans for capital expenditure, major acquisitions and divestments, joint ventures, business transformation, innovation, new business areas, and asset retirements), including plans the entity is not contractually committed to; and

(ii) its planned sources of funding to implement its strategy; and

(d) how the entity expects its financial performance and cash flows to change over the short, medium and long term, given its strategy to manage climate-related risks and opportunities (for example, increased revenue from products and services aligned with a lower-carbon economy; costs arising from physical damage to assets from climate events; and expenses associated with climate adaptation or mitigation).

17 In providing quantitative information, an entity may disclose a single amount or a range.

18 In preparing disclosures about the anticipated financial effects of a climate-related risk or opportunity, an entity shall:

(a) use all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort; and

(b) use an approach that is commensurate with the skills, capabilities and resources that are available to the entity for preparing those disclosures.

19 An entity need not provide quantitative information about the current or anticipated financial effects of a climate-related risk or opportunity if the entity determines that:

(a) those effects are not separately identifiable; or

(b) the level of measurement uncertainty involved in estimating those effects is so high that the resulting quantitative information would not be useful.

20 In addition, an entity need not provide quantitative information about the anticipated financial effects of a climate-related risk or opportunity if the entity does not have the skills, capabilities or resources to provide that quantitative information.

21 If an entity determines that it need not provide quantitative information about the current or anticipated financial effects of a climate-related risk or opportunity applying the criteria set out in paragraphs 19–20, the entity shall:

(a) explain why it has not provided quantitative information;

(b) provide qualitative information about those financial effects, including identifying line items, totals and subtotals within the related financial statements that are likely to be affected, or have been affected, by that climate-related risk or opportunity; and

(c) provide quantitative information about the combined financial effects of that climate-related risk or opportunity with other climate-related risks or opportunities and other factors unless the entity determines that quantitative information about the combined financial effects would not be useful.

Climate resilience

22 An entity shall disclose information that enables users of general purpose financial reports to understand the resilience of the entity's strategy and business model to climate-related changes, developments and uncertainties, taking into consideration the entity's identified climate-related risks and opportunities. The entity shall use climate-related scenario analysis to assess its climate resilience using an approach that is commensurate with the entity's circumstances (see paragraphs B1–B18). In providing quantitative information, the entity may disclose a single amount or a range. Specifically, the entity shall disclose:

(a) the entity's assessment of its climate resilience as at the reporting date, which shall enable users of general purpose financial reports to understand:

- (i) the implications, if any, of the entity's assessment for its strategy and business model, including how the entity would need to respond to the effects identified in the climate-related scenario analysis;
- (ii) the significant areas of uncertainty considered in the entity's assessment of its climate resilience;
- (iii) the entity's capacity to adjust or adapt its strategy and business model to climate change over the short, medium and long term, including;
  - (1) the availability of, and flexibility in, the entity's existing financial resources to respond to the effects identified in the climate-related scenario analysis, including to address climate-related risks and to take advantage of climate-related opportunities;
  - (2) the entity's ability to redeploy, repurpose, upgrade or decommission existing assets; and
  - (3) the effect of the entity's current and planned investments in climate-related mitigation, adaptation and opportunities for climate resilience; and

(b) how and when the climate-related scenario analysis was carried out, including:

- (i) information about the inputs the entity used, including:
  - (1) which climate-related scenarios the entity used for the analysis and the sources of those scenarios;
  - (2) whether the analysis included a diverse range of climate-related scenarios;
  - (3) whether the climate-related scenarios used for the analysis are associated with climate-related transition risks or climate-related physical risks;
  - (4) whether the entity used, among its scenarios, a climate-related scenario aligned with the *latest international agreement on climate change*;
  - (5) why the entity decided that its chosen climate-related scenarios are relevant to assessing its resilience to climate-related changes, developments or uncertainties;
  - (6) the time horizons the entity used in the analysis; and
  - (7) what scope of operations the entity used in the analysis (for example, the operating locations and business units used in the analysis);
- (ii) the key assumptions the entity made in the analysis, including assumptions about:
  - (1) climate-related policies in the jurisdictions in which the entity operates;
  - (2) macroeconomic trends;

(3) national- or regional-level variables (for example, local weather patterns, demographics, land use, infrastructure and availability of natural resources);

(4) energy usage and mix; and

(5) developments in technology; and

(iii) the reporting period in which the climate-related scenario analysis was carried out (see paragraph B18).

23 In preparing disclosures to meet the requirements in paragraphs 13–22, an entity shall refer to and consider the applicability of cross-industry metric categories, as described in paragraph 29, and industry-based metrics associated with disclosure topics defined in the *Industry-based Guidance on Implementing Exposure Draft HKFRS S2* as described in paragraph 32.

Risk management

24 The objective of climate-related financial disclosures on risk management is to enable users of general purpose financial reports to understand an entity's processes to identify, assess, prioritise and monitor climate-related risks and opportunities, including whether and how those processes are integrated into and inform the entity's overall risk management process.

25 To achieve this objective, an entity shall disclose information about:

(a) the processes and related policies the entity uses to identify, assess, prioritise and monitor climate-related risks, including information about:

(i) the inputs and parameters the entity uses (for example, information about data sources and the scope of operations covered in the processes);

(ii) whether and how the entity uses climate-related scenario analysis to inform its identification of climate-related risks;

(iii) how the entity assesses the nature, likelihood and magnitude of the effects of those risks (for example, whether the entity considers qualitative factors, quantitative thresholds or other criteria);

(iv) whether and how the entity prioritises climate-related risks relative to other types of risk;

(v) how the entity monitors climate-related risks; and

(vi) whether and how the entity has changed the processes it uses compared with the previous reporting period;

(b) the processes the entity uses to identify, assess, prioritise and monitor climate-related opportunities, including information about whether and how the entity uses climate-related scenario analysis to inform its identification of climate-related opportunities; and

(c) the extent to which, and how, the processes for identifying, assessing, prioritising and monitoring climate-related risks and opportunities are integrated into and inform the entity's overall risk management process.

26 In preparing disclosures to fulfil the requirements in paragraph 25, an entity shall avoid unnecessary duplication in accordance with [draft] HKFRS S1 (see paragraph B42(b) of [draft] HKFRS S1). For example, although an entity shall provide the information required by paragraph 25, if oversight of sustainability-related risks and opportunities is managed on an integrated basis, the entity would avoid duplication by providing integrated risk management disclosures instead of separate disclosures for each sustainability-related risk and opportunity.

Metrics and targets

27 **The objective of climate-related financial disclosures on metrics and targets is to enable users of general purpose financial reports to understand an entity's performance in relation to its climate-related risks and opportunities, including progress towards any climate-related targets it has set, and any targets it is required to meet by law or regulation.**

28 To achieve this objective, an entity shall disclose:

(a) information relevant to the cross-industry metric categories (see paragraphs 29–31);

(b) industry-based metrics that are associated with particular business models, activities or other common features that characterise participation in an industry (see paragraph 32); and

(c) targets set by the entity, and any targets it is required to meet by law or regulation, to mitigate or adapt to climate-related risks or take advantage of climate-related opportunities, including metrics used by the governance body or management to measure progress towards these targets (see paragraphs 33–37).

Climate-related metrics

29 An entity shall disclose information relevant to the cross-industry metric categories of:

(a) *greenhouse gases*—the entity shall:

(i) disclose its absolute gross greenhouse gas emissions generated during the reporting period, expressed as metric tonnes of *CO_2 equivalent* (see paragraphs B19–B22), classified as:

(1) *Scope 1 greenhouse gas emissions*;

(2) *Scope 2 greenhouse gas emissions*; and

(3) *Scope 3 greenhouse gas emissions*;

(ii) measure its greenhouse gas emissions in accordance with the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) unless required by a jurisdictional authority or an exchange on which the entity is listed to use a different method for measuring its greenhouse gas emissions (see paragraphs B23–B25);

(iii) disclose the approach it uses to measure its greenhouse gas emissions (see paragraphs B26–B29) including:

(1) the measurement approach, inputs and assumptions the entity uses to measure its greenhouse gas emissions;

(2) the reason why the entity has chosen the measurement approach, inputs and assumptions it uses to measure its greenhouse gas emissions; and

(3) any changes the entity made to the measurement approach, inputs and assumptions during the reporting period and the reasons for those changes;

(iv) for Scope 1 and Scope 2 greenhouse gas emissions disclosed in accordance with paragraph 29(a)(i)(1)–(2), disaggregate emissions between:

(1) the consolidated accounting group (for example, for an entity applying HKFRS Accounting Standards, this group would comprise the parent and its consolidated subsidiaries); and

(2) other investees excluded from paragraph 29(a)(iv)(1) (for example, for an entity applying HKFRS Accounting Standards, these investees would include associates, joint ventures and unconsolidated subsidiaries);

(v) for Scope 2 greenhouse gas emissions disclosed in accordance with paragraph 29(a)(i)(2), disclose its location-based Scope 2 greenhouse gas emissions, and provide information about any contractual instruments that is necessary to inform users' understanding of the entity's Scope 2 greenhouse gas emissions (see paragraphs B30–B31); and

(vi) for Scope 3 greenhouse gas emissions disclosed in accordance with paragraph 29(a)(i)(3), and with reference to paragraphs B32–B57, disclose:

(1) the categories included within the entity's measure of Scope 3 greenhouse gas emissions, in accordance with the *Scope 3 categories* described in the Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011); and

(2) additional information about the entity's Category 15 greenhouse gas emissions or those associated with its investments (*financed emissions*), if the entity's activities include asset management, commercial banking or insurance (see paragraphs B58–B63);

(b) climate-related transition risks—the amount and percentage of assets or business activities vulnerable to climate-related transition risks;

(c) climate-related physical risks—the amount and percentage of assets or business activities vulnerable to climate-related physical risks;

(d) climate-related opportunities—the amount and percentage of assets or business activities aligned with climate-related opportunities;

(e) capital deployment—the amount of capital expenditure, financing or investment deployed towards climate-related risks and opportunities;

(f) *internal carbon prices*—the entity shall disclose:

(i) an explanation of whether and how the entity is applying a carbon price in decision-making (for example, investment decisions, transfer pricing and scenario analysis); and

(ii) the price for each metric tonne of greenhouse gas emissions the entity uses to assess the costs of its greenhouse gas emissions;

(g) remuneration—the entity shall disclose:

(i) a description of whether and how climate-related considerations are factored into executive remuneration (see also paragraph 6(a)(v)); and

(ii) the percentage of executive management remuneration recognised in the current period that is linked to climate-related considerations.

30 In preparing disclosures to meet the requirements in paragraph 29(b)–(d), an entity shall use all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort.

31 In preparing disclosures to meet the requirements in paragraph 29(b)–(g), an entity shall refer to paragraphs B64–B65.

32 An entity shall disclose industry-based metrics that are associated with one or more particular business models, activities or other common features that characterise participation in an industry. In determining the industry-based metrics that the entity discloses, the entity shall refer to and consider the applicability of the industry-based metrics associated with disclosure topics described in the *Industry-based Guidance on Implementing Exposure Draft HKFRS S2*.

Climate-related targets

33 An entity shall disclose the quantitative and qualitative climate-related targets it has set to monitor progress towards achieving its strategic goals, and any targets it is required to meet by law or regulation, including any greenhouse gas emissions targets. For each target, the entity shall disclose:

(a) the metric used to set the target (see paragraphs B66–B67);

(b) the objective of the target (for example, mitigation, adaptation or conformance with science-based initiatives);

(c) the part of the entity to which the target applies (for example, whether the target applies to the entity in its entirety or only a part of the entity, such as a specific business unit or specific geographical region);

(d) the period over which the target applies;

(e) the base period from which progress is measured;

(f) any milestones and interim targets;

(g) if the target is quantitative, whether it is an absolute target or an intensity target; and

(h) how the latest international agreement on climate change, including jurisdictional commitments that arise from that agreement, has informed the target.

34 An entity shall disclose information about its approach to setting and reviewing each target, and how it monitors progress against each target, including:

(a) whether the target and the methodology for setting the target has been validated by a third party;

(b) the entity's processes for reviewing the target;

(c) the metrics used to monitor progress towards reaching the target; and

(d) any revisions to the target and an explanation for those revisions.

35 An entity shall disclose information about its performance against each climate-related target and an analysis of trends or changes in the entity's performance.

36 For each greenhouse gas emissions target disclosed in accordance with paragraphs 33–35, an entity shall disclose:

(a) which greenhouse gases are covered by the target.

(b) whether Scope 1, Scope 2 or Scope 3 greenhouse gas emissions are covered by the target.

(c) whether the target is a gross greenhouse gas emissions target or net greenhouse gas emissions target. If the entity discloses a net greenhouse gas emissions target, the entity is also required to separately disclose its associated gross greenhouse gas emissions target (see paragraphs B68–B69).

(d) whether the target was derived using a sectoral decarbonisation approach.

(e) the entity's planned use of *carbon credits* to offset greenhouse gas emissions to achieve any net greenhouse gas emissions target. In explaining its planned use of carbon credits the entity shall disclose information including, and with reference to paragraphs B70–B71:

(i) the extent to which, and how, achieving any net greenhouse gas emissions target relies on the use of carbon credits;

(ii) which third-party scheme(s) will verify or certify the carbon credits;

(iii) the type of carbon credit, including whether the underlying offset will be nature-based or based on technological carbon removals, and whether the underlying offset is achieved through carbon reduction or removal; and

(iv) any other factors necessary for users of general purpose financial reports to understand the credibility and integrity of the carbon credits the entity plans to use (for example, assumptions regarding the permanence of the carbon offset).

37 In identifying and disclosing the metrics used to set and monitor progress towards reaching a target described in paragraphs 33–34, an entity shall refer to and consider the applicability of cross-industry metrics (see paragraph 29) and industry-based metrics (see paragraph 32), including those described in an applicable HKFRS Sustainability Disclosure Standard, or metrics that otherwise satisfy the requirements in [draft] HKFRS S1.

Appendix A
Defined terms

This appendix is an integral part of [draft] HKFRS S2 and has the same authority as the other parts of the [draft] Standard.

carbon credit	An emissions unit that is issued by a carbon crediting programme and represents an emission reduction or removal of **greenhouse gases**. Carbon credits are uniquely serialised, issued, tracked and cancelled by means of an electronic registry.
climate resilience	The capacity of an entity to adjust to climate-related changes, developments or uncertainties. Climate resilience involves the capacity to manage **climate-related risks** and benefit from **climate-related opportunities**, including the ability to respond and adapt to **climate-related transition risks** and **climate-related physical risks**. An entity's climate resilience includes both its strategic resilience and its operational resilience to climate-related changes, developments and uncertainties.
climate-related physical risks	Risks resulting from climate change that can be event-driven (acute physical risk) or from longer-term shifts in climatic patterns (chronic physical risk). Acute physical risks arise from weather-related events such as storms, floods, drought or heatwaves, which are increasing in severity and frequency. Chronic physical risks arise from longer-term shifts in climatic patterns including changes in precipitation and temperature which could lead to sea level rise, reduced water availability, biodiversity loss and changes in soil productivity. These risks could carry financial implications for an entity, such as costs resulting from direct damage to assets or indirect effects of supply-chain disruption. The entity's financial performance could also be affected by changes in water availability, sourcing and quality; and extreme temperature changes affecting the entity's premises, operations, supply chains, transportation needs and employee health and safety.
climate-related risks and opportunities	Climate-related risks refers to the potential negative effects of climate change on an entity. These risks are categorised as **climate-related physical risks** and **climate-related transition risks**. Climate-related opportunities refers to the potential positive effects arising from climate change for an entity. Efforts to mitigate and adapt to climate change can produce climate-related opportunities for an entity.
climate-related transition plan	An aspect of an entity's overall strategy that lays out the entity's targets, actions or resources for its transition towards a lower-carbon economy, including actions such as reducing its **greenhouse gas** emissions.
climate-related transition risks	Risks that arise from efforts to transition to a lower-carbon economy. Transition risks include policy, legal, technological, market and reputational risks. These risks could carry financial implications for an entity, such as increased operating costs or asset impairment due to new or amended climate-related regulations. The entity's financial performance could also be affected by shifting consumer demands and the development and deployment of new technology.
CO_2 equivalent	The universal unit of measurement to indicate the ***global warming potential*** of each **greenhouse gas**, expressed in terms of the **global warming potential** of one unit of carbon dioxide. This unit is used to evaluate releasing (or avoiding releasing) different **greenhouse gases** against a common basis.

financed emissions — The portion of gross greenhouse gas emissions of an investee or counterparty attributed to the loans and investments made by an entity to the investee or counterparty. These emissions are part of Scope 3 Category 15 (investments) as defined in the Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011).

global warming potential — A factor describing the radiative forcing impact (degree of harm to the atmosphere) of one unit of a given **greenhouse gas** relative to one unit of CO_2.

greenhouse gases — The seven greenhouse gases listed in the Kyoto Protocol—carbon dioxide (CO_2); methane (CH_4); nitrous oxide (N_2O); hydrofluorocarbons (HFCs); nitrogen trifluoride (NF_3); perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6).

indirect greenhouse gas emissions — Emissions that are a consequence of the activities of an entity, but occur at sources owned or controlled by another entity.

internal carbon price — Price used by an entity to assess the financial implications of changes to investment, production and consumption patterns, and of potential technological progress and future emissions-abatement costs. An entity can use internal carbon prices for a range of business applications. Two types of internal carbon prices that an entity commonly uses are:

(a) a shadow price, which is a theoretical cost or notional amount that the entity does not charge but that can be used to understand the economic implications or trade-offs for such things as risk impacts, new investments, the net present value of projects, and the cost and benefit of various initiatives; and

(b) an internal tax or fee, which is a carbon price charged to a business activity, product line, or other business unit based on its **greenhouse gas** emissions (these internal taxes or fees are similar to intracompany transfer pricing).

latest international agreement on climate change — An agreement by states, as members of the United Nations Framework Convention on Climate Change, to combat climate change. The agreements set norms and targets for a reduction in **greenhouse gases**.

Scope 1 greenhouse gas emissions — Direct **greenhouse gas** emissions that occur from sources that are owned or controlled by an entity.

Scope 2 greenhouse gas emissions — ***Indirect greenhouse gas emissions*** from the generation of purchased or acquired electricity, steam, heating or cooling consumed by an entity.

Purchased and acquired electricity is electricity that is purchased or otherwise brought into an entity’s boundary. Scope 2 greenhouse gas emissions physically occur at the facility where electricity is generated.

Scope 3 greenhouse gas emissions — **Indirect greenhouse gas emissions** (not included in **Scope 2 greenhouse gas emissions**) that occur in the **value chain** of an entity, including both upstream and downstream emissions. Scope 3 greenhouse gas emissions include the **Scope 3 categories** in the Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011).

Scope 3 categories — **Scope 3 greenhouse gas emissions** are categorised into these 15 categories—as described in the Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011):

(1) purchased goods and services;

(2) capital goods;

(3) fuel- and energy-related activities not included in **Scope 1 greenhouse gas emissions** or **Scope 2 greenhouse gas emissions**;

(4) upstream transportation and distribution;

(5) waste generated in operations;

(6) business travel;

(7) employee commuting;

(8) upstream leased assets;

(9) downstream transportation and distribution;

(10) processing of sold products;

(11) use of sold products;

(12) end-of-life treatment of sold products;

(13) downstream leased assets;

(14) franchises; and

(15) investments.

Terms defined in other [draft] Standards and used in this [draft] Standard with the same meaning

business model	An entity's system of transforming inputs through its activities into outputs and outcomes that aims to fulfil the entity's strategic purposes and create value for the entity and hence generate cash flows over the short, medium and long term.
disclosure topic	A specific sustainability-related risk or opportunity based on the activities conducted by entities within a particular industry as set out in an HKFRS Sustainability Disclosure Standard or a SASB Standard.
general purpose financial reports	Reports that provide financial information about a reporting entity that is useful to **primary users** in making decisions relating to providing resources to the entity. Those decisions involve decisions about: (a) buying, selling or holding equity and debt instruments; (b) providing or selling loans and other forms of credit; or (c) exercising rights to vote on, or otherwise influence, the entity's management's actions that affect the use of the entity's economic resources. General purpose financial reports include—but are not restricted to—an entity's general purpose financial statements and sustainability-related financial disclosures.
impracticable	Applying a requirement is impracticable when an entity cannot apply it after making every reasonable effort to do so.
primary users of general purpose financial reports (primary users)	Existing and potential investors, lenders and other creditors.
value chain	The full range of interactions, resources and relationships related to a reporting entity's **business model** and the external environment in which it operates. A value chain encompasses the interactions, resources and relationships an entity uses and depends on to create its products or services from conception to delivery, consumption and end-of-life, including interactions, resources and relationships in the entity's operations, such as human resources; those along its supply, marketing and distribution channels, such as materials and service sourcing, and product and service sale and delivery; and the financing, geographical, geopolitical and regulatory environments in which the entity operates.

Appendix B
Application guidance

This appendix is an integral part of [draft] HKFRS S2 and has the same authority as the other parts of the [draft] Standard.

Climate resilience (paragraph 22)

B1 Paragraph 22 requires an entity to use climate-related scenario analysis to assess its climate resilience, using an approach that is commensurate with its circumstances.[2] The entity is required to use an approach to climate-related scenario analysis that enables it to consider all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort. Paragraphs B2–B18 provide guidance on how an entity uses scenario analysis to assess the entity's climate resilience. Specifically:

(a) paragraphs B2–B7 set out the factors the entity shall consider when assessing its circumstances;

(b) paragraphs B8–B15 set out the factors the entity shall consider when determining an appropriate approach to climate-related scenario analysis; and

(c) paragraphs B16–B18 set out additional factors for the entity to consider when determining its approach to climate-related scenario analysis over time.

Assessing the circumstances

B2 An entity shall use an approach to climate-related scenario analysis that is commensurate with its circumstances as at the time the entity carries out its climate-related scenario analysis (see paragraph B3). To assess its circumstances the entity shall consider:

(a) the entity's exposure to climate-related risks and opportunities (see paragraphs B4–B5); and

(b) the skills, capabilities and resources available to the entity for the climate-related scenario analysis (see paragraphs B6–B7).

B3 An entity shall assess its circumstances each time it carries out its climate-related scenario analysis. For example, an entity that carries out its climate-related scenario analysis every three years to align with its strategic planning cycle (see paragraph B18) would be required to reconsider for this purpose its exposure to climate-related risks and opportunities and the skills, capabilities and resources available at that time.

Exposure to climate-related risks and opportunities

B4 An entity shall consider its exposure to climate-related risks and opportunities in its assessment of its circumstances and when determining the approach to use for its climate-related scenario analysis. This consideration provides essential context for understanding the potential benefits of using a particular approach to climate-related scenario analysis. For example, if an entity has a high degree of exposure to climate-related risk then a more quantitative or technically sophisticated approach to climate-related scenario analysis would be of greater benefit to the entity and users of general purpose financial reports. Users of general purpose financial reports would be less likely to benefit from quantitative or technically sophisticated climate-related scenario analysis if the entity is exposed to few or relatively less severe climate-related risks and opportunities. This means that—with all else being equal—the greater the entity's exposure to climate-related risks or opportunities, the more likely it is the entity would determine that a more technically sophisticated form of climate-related scenario analysis is required.

[2] This application guidance (paragraphs B1–B18) draws on the range of practice outlined in documents published by the Task Force on Climate-related Financial Disclosures (TCFD), including *Technical Supplement: The Use of Scenario Analysis in Disclosure of Climate-related Risks and Opportunities* (2017) and *Guidance on Scenario Analysis for Non-Financial Companies* (2020).

B5 This [draft] Standard requires an entity to identify the climate-related risks and opportunities to which it is exposed (see paragraph 10) and to disclose information about the process the entity uses to identify, assess, prioritise and monitor those risks and opportunities (see paragraph 25). The information the entity discloses in accordance with paragraphs 10 and 25 can inform the entity's consideration of its exposure to climate-related risks and opportunities.

Skills, capabilities and resources available

B6 An entity shall consider the available skills, capabilities and resources when determining an appropriate approach to use for its climate-related scenario analysis. These skills, capabilities and resources might include both internal and external skills, capabilities and resources. The entity's available skills, capabilities and resources provide context to inform its consideration of the potential cost and level of effort required by a particular approach to climate-related scenario analysis. For example, if an entity has only just begun to explore the use of climate-related scenario analysis to assess its climate resilience, it might be unable to use a quantitative or technically sophisticated approach to climate-related scenario analysis without undue cost or effort. For the avoidance of doubt, if resources are available to the entity then it will be able to invest in obtaining or developing the necessary skills and capabilities.

B7 Climate-related scenario analysis can be resource intensive and might—through an iterative learning process—be developed and refined over multiple planning cycles. As an entity repeats the climate-related scenario analysis, it is likely to develop skills and capabilities that will enable the entity to strengthen its approach to climate-related scenario analysis over time. For example, if an entity has not yet used climate-related scenario analysis or participates in an industry where climate-related scenario analysis is not commonly used, the entity might need more time to develop its skills and capabilities. In contrast, an entity in an industry where climate-related scenario analysis is established practice—such as extractives and mineral processing—would be expected to have strengthened its skills and capabilities through its experience.

Determining the appropriate approach

B8 An entity shall determine an approach to climate-related scenario analysis that enables it to consider all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort. The determination of the approach shall be informed by the assessments of the entity's exposure to climate-related risks and opportunities (see paragraphs B4–B5) and its available skills, capabilities and resources (see paragraphs B6–B7). Making such a determination involves:

(a) selecting inputs to the climate-related scenario analysis (see paragraphs B11–B13); and

(b) making analytical choices about how to carry out the climate-related scenario analysis (see paragraphs B14–B15).

B9 Reasonable and supportable information includes information about past events, current conditions and forecasts of future conditions. It also includes quantitative or qualitative information, and information that is obtained from an external source or owned or developed internally.

B10 An entity will need to use judgement to determine the mix of inputs and analytical choices that will enable the entity to consider all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort. The degree of judgement that is required depends on the availability of detailed information. As the time horizon increases and the availability of detailed information decreases, the degree of judgement required increases.

Selecting inputs

B11 When an entity selects the inputs to use in its climate-related scenario analysis, the entity shall consider all reasonable and supportable information—including scenarios, variables and other inputs—available to the entity at the reporting date without undue cost or effort. The inputs used in scenario analysis might include information that is qualitative or quantitative, and is obtained from an external source or developed internally. For example, publicly available climate-related scenarios—from authoritative sources—that describe future trends and a range of pathways to plausible outcomes are considered to be available to the entity without undue cost or effort.

B12 When selecting scenarios, variables and other inputs to use in climate-related scenario analysis, an entity might, for example, use one or more climate-related scenarios—including international and regional scenarios—that are publicly and freely available from authoritative sources. The entity shall have a reasonable and supportable basis for using a particular scenario or set of scenarios. For example, an entity with operations concentrated in a jurisdiction where emissions are regulated—or are likely to be regulated in the future—might determine that it is appropriate to carry out its analysis using a scenario consistent with an orderly transition to a lower-carbon economy or consistent with relevant jurisdictional commitments to the latest international agreement on climate change. Elsewhere, for example, an entity with heightened exposure to physical climate-related risks might determine that it is appropriate to carry out its analysis using a localised climate-related scenario that takes into account current policies.

B13 In considering whether the selected inputs are reasonable and supportable, an entity shall consider the objective of paragraph 22, which requires the entity to disclose information that enables users of general purpose financial reports to understand the resilience of the entity's strategy and business model to climate-related changes, developments and uncertainties, taking into consideration the entity's identified climate-related risks and opportunities. This means that the inputs to the entity's climate-related scenario analysis shall be relevant to the entity's circumstances, for example, to the particular activities the entity undertakes and the geographical location of those activities.

Making analytical choices

B14 An entity's resilience assessment will be informed not only by the individual inputs to its climate-related scenario analysis, but also by the information it develops in combining those inputs to carry out the analysis. The entity shall prioritise the analytical choices (for example, whether to use qualitative analysis or quantitative modelling) that will enable it to consider all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort. For example, if an entity is able—without undue cost or effort—to incorporate multiple carbon price pathways associated with a given outcome (for example, a 1.5 degree Celsius outcome), this analysis is likely to strengthen the entity's resilience assessment, assuming such an approach is warranted by the entity's risk exposure.

B15 Quantitative information will often enable an entity to carry out a more robust assessment of its climate resilience. However, qualitative information (including scenario narratives), either alone or combined with quantitative data, can also provide a reasonable and supportable basis for the entity's resilience assessment.

Additional considerations

B16 Climate-related scenario analysis is an evolving practice and, therefore, the approach that an entity uses is likely to change over time. As described in paragraphs B2–B7, the entity shall determine its approach to climate-related scenario analysis based on its particular circumstances, including the entity's exposure to climate-related risks and opportunities and the skills, capabilities and resources available for the scenario analysis. Those circumstances are also likely to change over time. Therefore, the entity's approach to climate-related scenario analysis need not be the same from one reporting period or strategic planning cycle to the next (see paragraph B18).

B17 An entity might use a simpler approach to climate-related scenario analysis, such as qualitative scenario narratives, if such an approach is appropriate to the entity's circumstances. For example, if an entity does not currently have the skills, capabilities or resources to carry out quantitative climate-related scenario analysis but has a high degree of exposure to climate-related risk, the entity might initially use a simpler approach to climate-related scenario analysis, but would build its capabilities through experience and, therefore, would apply a more advanced quantitative approach to climate-related scenario analysis over time. An entity with a high degree of exposure to climate-related risks and opportunities, and with access to the necessary skills, capabilities or resources, is required to apply a more advanced quantitative approach to climate-related scenario analysis.

B18 Although paragraph 22 requires an entity to disclose information about its climate resilience at each reporting date, the entity might carry out its climate-related scenario analysis in line with its strategic planning cycle, including a multi-year strategic planning cycle (for example, every three to five years). Therefore, in some reporting periods the entity's disclosures in accordance with paragraph 22(b) could remain unchanged from the previous reporting period if the entity does not conduct a scenario analysis annually. The entity shall—at a minimum—update its climate-related scenario analysis in line with its strategic planning cycle. However, an assessment of the entity's resilience is required to be carried out annually to reflect updated insight into the implications of climate uncertainty for the entity's business model and strategy. As such, an entity's disclosure in accordance with paragraph 22(a)—that is, the results of the entity's resilience assessment—shall be updated at each reporting period.

Greenhouse gases (paragraph 29(a))

Greenhouse gas emissions

Permission to use information from a reporting period that is different from the entity's reporting period, in specific circumstances

B19 An entity might have a different reporting period from some or all of the entities in its value chain. Such a difference would mean that greenhouse gas emissions information from these entities in its value chain for the entity's reporting period might not be readily available for the entity to use for its own disclosure. In such circumstances, the entity is permitted to measure its greenhouse gas emissions in accordance with paragraph 29(a)(i) using information for reporting periods that are different from its own reporting period if that information is obtained from entities in its value chain with reporting periods that are different from the entity's reporting period, on the condition that:

(a) the entity uses the most recent data available from those entities in its value chain without undue cost or effort to measure and disclose its greenhouse gas emissions;

(b) the length of the reporting periods is the same; and

(c) the entity discloses the effects of significant events and changes in circumstances (relevant to its greenhouse gas emissions) that occur between the reporting dates of the entities in its value chain and the date of the entity's general purpose financial reports.

Aggregation of greenhouse gases into CO_2 equivalent using global warming potential values

B20 Paragraph 29(a) requires an entity to disclose its absolute gross greenhouse gas emissions generated during the reporting period, expressed as metric tonnes of CO_2 equivalent. To meet this requirement, the entity shall aggregate the seven constituent greenhouse gases into CO_2 equivalent values.

B21 If an entity uses direct measurement to measure its greenhouse gas emissions, the entity is required to convert the seven constituent greenhouse gases into a CO_2 equivalent value using global warming potential values based on a 100-year time horizon, from the latest Intergovernmental Panel on Climate Change assessment available at the reporting date.

B22 If an entity uses emission factors to estimate its greenhouse gas emissions, the entity shall use—as its basis for measuring its greenhouse gas emissions—the emission factors that best represent the entity's activity (see paragraph B29). If these emission factors have already converted the constituent gases into CO_2 equivalent values, the entity is not required to recalculate the emission factors using global warming potential values based on a 100-year time horizon from the latest Intergovernmental Panel on Climate Change assessment available at the reporting date. However, if an entity uses emission factors that are not converted into CO_2 equivalent values, then the entity shall use the global warming potential values based on a 100-year time horizon from the latest Intergovernmental Panel on Climate Change assessment available at the reporting date.

Greenhouse Gas Protocol

B23 Paragraph 29(a)(ii) requires an entity to disclose its greenhouse gas emissions measured in accordance with the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004). For the avoidance of doubt, an entity shall apply the requirements in the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) only to the extent that they do not conflict with the requirements in this [draft] Standard. For example, the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) does not require an entity to disclose its Scope 3 greenhouse gas emissions, however, the entity is required to disclose Scope 3 greenhouse gas emissions in accordance with paragraph 29(a).

B24 An entity is required to use the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) unless the entity is required by a jurisdictional authority or an exchange on which it is listed to use a different method for measuring its greenhouse gas emissions. If the entity is required by a jurisdictional authority or an exchange on which it is listed to use a different method for measuring its greenhouse gas emissions, the entity is permitted to use this method rather than using the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) for as long as the jurisdictional or exchange requirement applies to the entity.

B25 In some circumstances, an entity might be subject to a requirement in the jurisdiction in which it operates to disclose its greenhouse gas emissions for a specific part of the entity or for some of its greenhouse gas emissions (for example, only for Scope 1 and Scope 2 greenhouse gas emissions). In such circumstances, the jurisdictional requirement does not exempt the entity from applying the requirements in this [draft] Standard to disclose the entity's Scope 1, Scope 2 and Scope 3 greenhouse gas emissions for the entity as a whole.

Measurement approach, inputs and assumptions

B26 Paragraph 29(a)(iii) requires an entity to disclose the measurement approach, inputs and assumptions it uses to measure its greenhouse gas emissions. As part of this requirement, the entity shall include information about:

(a) the measurement approach the entity uses in accordance with the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) (see paragraph B27);

(b) the applicable method if the entity is not using the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) and the measurement approach the entity uses (see paragraph B28); and

(c) the emission factors the entity uses (see paragraph B29).

The measurement approach set out in the Greenhouse Gas Protocol

B27 The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) includes different measurement approaches that an entity might use when measuring its greenhouse gas emissions. In disclosing information in accordance with paragraph 29(a)(iii), the entity is required to disclose information about the measurement approach it uses. For example, when the entity discloses its greenhouse gas emissions measured in accordance with the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004), the entity is required to use the equity share or control approach. Specifically, the entity shall disclose:

(a) the approach it uses to determine its greenhouse gas emissions (for example, the equity share or control approach in the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004)); and

(b) the reason, or reasons, for the entity's choice of measurement approach and how that approach relates to the disclosure objective in paragraph 27.

Other methods and measurement approaches

B28 When an entity discloses its greenhouse gas emissions measured in accordance with another method, applying paragraphs 29(a)(ii), B24–B25 or C4(a), the entity shall disclose:

(a) the applicable method and measurement approach the entity uses to determine its greenhouse gas emissions; and

(b) the reason, or reasons, for the entity's choice of method and measurement approach and how that approach relates to the disclosure objective in paragraph 27.

Emission factors

B29 As part of an entity's disclosure of the measurement approach, inputs and assumptions, the entity shall disclose information to enable users of general purpose financial reports to understand which emission factors the entity uses in its measurement of its greenhouse gas emissions. This [draft] Standard does not specify emission factors an entity is required to use in its measurement of its greenhouse gas emissions. Instead, this [draft] Standard requires an entity to use emission factors that best represent the entity's activity as its basis for measuring its greenhouse gas emissions.

Scope 2 greenhouse gas emissions

B30 Paragraph 29(a)(v) requires an entity to disclose its location-based Scope 2 greenhouse gas emissions and provide information about any contractual instruments the entity has entered into that could inform users' understanding of the entity's Scope 2 greenhouse gas emissions. For the avoidance of doubt, an entity is required to disclose its Scope 2 greenhouse gas emissions using a location-based approach and is required to provide information about contractual instruments only if such instruments exist and information about them informs users' understanding of an entity's Scope 2 greenhouse gas emissions.

B31 Contractual instruments are any type of contract between an entity and another party for the sale and purchase of energy bundled with attributes about the energy generation or for unbundled energy attribute claims (unbundled energy attribute claims relate to the sale and purchase of energy that is separate and distinct from the greenhouse gas attribute contractual instruments). Various types of contractual instruments are available in different markets and the entity might disclose information about its market-based Scope 2 greenhouse gas emissions as part of its disclosure.

Scope 3 greenhouse gas emissions

B32 In accordance with paragraph 29(a)(vi), an entity shall disclose information about its Scope 3 greenhouse gas emissions to enable users of general purpose financial reports to understand the source of these emissions. The entity shall consider its entire value chain (upstream and downstream) and shall consider all 15 categories of Scope 3 greenhouse gas emissions, as described in the Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011). In accordance with paragraph 29(a)(vi), the entity shall disclose which of these categories are included in its Scope 3 greenhouse gas emissions disclosures.

B33 For the avoidance of doubt, regardless of the method an entity uses to measure its greenhouse gas emissions, the entity is required to disclose the categories included within its measure of Scope 3 greenhouse gas emissions as described in paragraph 29(a)(vi)(1).

B34 In accordance with paragraph B11 in [draft] HKFRS S1, on the occurrence of a significant event or a significant change in circumstances, an entity shall reassess the scope of all affected climate-related risks and opportunities throughout its value chain, including reassessing which Scope 3 categories and entities throughout its value chain to include in the measurement of its Scope 3 greenhouse gas emissions. A significant event or significant change in circumstances can occur without the entity being involved in that event or change in circumstances or as a result of a change in what the entity assesses to be important to users of general purpose financial reports. For example, such significant events or significant changes in circumstances might include:

(a) a significant change in the entity's value chain (for example, a supplier in the entity's value chain makes a change that significantly alters the supplier's greenhouse gas emissions);

(b) a significant change in the entity's business model, activities or corporate structure (for example, a merger or acquisition that expands the entity's value chain); and

(c) a significant change in the entity's exposure to climate-related risks and opportunities (for example, a supplier in the entity's value chain is affected by the introduction of an emissions regulation that the entity had not anticipated).

B35 An entity is permitted, but not required, to reassess the scope of any climate-related risk or opportunity throughout its value chain more frequently than required by paragraph B11 in [draft] HKFRS S1.

B36 In accordance with paragraph B6(b) in [draft] HKFRS S1, to determine the scope of the value chain, which includes its breadth and composition, an entity shall use all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort.

B37 An entity that participates in one or more financial activities associated with asset management, commercial banking and insurance shall disclose additional information about the financed emissions associated with those activities as part of the entity's disclosure of its Scope 3 greenhouse gas emissions (see paragraphs B58–B63).

Scope 3 measurement framework

B38 An entity's measurement of Scope 3 greenhouse gas emissions is likely to include the use of estimation rather than solely comprising direct measurement. In measuring Scope 3 greenhouse gas emissions an entity shall use a measurement approach, inputs and assumptions that result in a faithful representation of this measurement. The measurement framework described in paragraphs B40–B54 provides guidance for an entity to use in preparing its Scope 3 greenhouse gas emissions disclosures.

B39 An entity is required to use all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort when the entity selects the measurement approach, inputs and assumptions it uses in measuring Scope 3 greenhouse gas emissions.

B40 An entity's measurement of Scope 3 greenhouse gas emissions relies upon a range of inputs. This [draft] Standard does not specify the inputs the entity is required to use to measure its Scope 3 greenhouse gas emissions, but does require the entity to prioritise inputs and assumptions using these identifying characteristics (which are listed in no particular order):

(a) data based on direct measurement (paragraphs B43–B45);

(b) data from specific activities within the entity's value chain (paragraphs B46–B49);

(c) timely data that faithfully represents the jurisdiction of, and the technology used for, the value chain activity and its greenhouse gas emissions (paragraphs B50–B52); and

(d) data that has been verified (paragraphs B53–B54).

B41 An entity is required to apply the Scope 3 measurement framework to prioritise inputs and assumptions even when the entity is required by a jurisdictional authority or an exchange on which the entity is listed to use a method other than the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) for measuring its greenhouse gas emissions (see paragraphs B24–B25), or whether the entity uses the transition relief described in paragraph C4(a).

B42 An entity's prioritisation of the measurement approach, inputs and assumptions and the entity's considerations of associated trade-offs—based on the characteristics in paragraph B40—requires management to apply judgement. For example, an entity might need to consider the trade-offs between timely data and data that is more representative of the jurisdiction and technology used for the value chain activity and its emissions. More recent data might provide less detail about the specific activity, including the technology that was used in the value chain and the location of that activity. On the other hand, older data that is published infrequently might be considered more representative of the specific activity and its greenhouse gas emissions.

Data based on direct measurement

B43 Two methods are used to quantify Scope 3 greenhouse gas emissions: direct measurement and estimation. Of these two methods—and with all else being equal—an entity shall prioritise direct measurement.

B44 'Direct measurement' refers to the direct monitoring of greenhouse gas emissions and, in theory, provides the most accurate evidence. However, it is expected that Scope 3 greenhouse gas emissions data will include estimation due to the challenges associated with direct measurement of Scope 3 greenhouse gas emissions.

B45 Estimation of Scope 3 greenhouse gas emissions involves approximate calculations of data based on assumptions and appropriate inputs. An entity that measures its Scope 3 greenhouse gas emissions using estimation is likely to use two types of input:

(a) data that represents the entity's activity that results in greenhouse gas emissions (activity data). For example, the entity might use distance travelled as activity data to represent the transport of goods within its value chain.

(b) emission factors that convert activity data into greenhouse gas emissions. For example, the entity will convert the distance travelled (activity data) into greenhouse gas emissions data using emission factors.

Data from specific activities within the entity's value chain

B46 An entity's measurement of its Scope 3 greenhouse gas emissions will be based on data obtained directly from specific activities within the entity's value chain (primary data), data not obtained directly from activities within the entity's value chain (secondary data), or a combination of both.

B47 In measuring an entity's Scope 3 greenhouse gas emissions, primary data is more likely to be representative of the entity's value chain activity and its greenhouse gas emissions than secondary data. Therefore, the entity shall prioritise—with all else being equal—the use of primary data.

B48 Primary data for Scope 3 greenhouse gas emissions includes data provided by suppliers or other entities in the value chain related to specific activities in an entity's value chain. For example, primary data could be sourced from meter readings, utility bills or other methods that represent specific activities in the entity's value chain. Primary data could be collected internally (for example, through the entity's own records), or externally from suppliers and other value chain partners (for example, supplier-specific emission factors for purchased goods or services). Data from specific activities within an entity's value chain provides a more accurate representation of the entity's specific value chain activities and, therefore, will provide a better basis for measuring the entity's Scope 3 greenhouse gas emissions.

B49 Secondary data for Scope 3 greenhouse gas emissions is data that is not obtained directly from specific activities within an entity's value chain. Secondary data is often supplied by third-party data providers and includes industry-average data (for example, from published databases, government statistics, literature studies and industry associations). Secondary data includes data used to approximate the activity or emission factors. Additionally, secondary data includes primary data from a specific activity (proxy data) used to estimate greenhouse gas emissions for another activity. If an entity uses secondary data to measure its Scope 3 greenhouse gas emissions, it shall consider the extent to which the data faithfully represents the entity's activities.

Timely data that faithfully represents the jurisdiction of, and the technology used for, the value chain activity and its greenhouse gas emissions

B50 If an entity uses secondary data, it shall prioritise the use of activity or emissions data that is based on, or represents, the technology used in the value chain activity the data is intended to represent. For example, an entity might obtain primary data from its activities (for example, the specific aircraft model, distance travelled and travel-class used by employees when travelling) and would then use secondary data that represents the greenhouse gas emissions arising from those activities to convert the primary data into an estimate of its greenhouse gas emissions from air travel.

B51 If an entity uses secondary data, it shall prioritise activity or emissions data that is based on, or represents, the jurisdiction in which the activity happened. For example, an entity shall prioritise emission factors that relate to the jurisdiction in which the entity operates or in which the activity has taken place.

B52 If an entity uses secondary data, it shall prioritise activity or emissions data that is timely and representative of the entity's value chain activity during the reporting period. In some jurisdictions, and for some technologies, secondary data is collected annually and, therefore, the data is likely to be representative of the entity's current practice. However, some secondary data sources rely on information collected in a reporting period that is different from the entity's own reporting period.

Verified data

B53 An entity shall prioritise Scope 3 greenhouse gas emissions data that is verified. Verification can provide users of general purpose financial reports with confidence that the information is complete, neutral and accurate.

B54 Verified data might include data that has been internally or externally verified. Verification can take place in several ways, including on-site checking, reviewing calculations, or cross-checking of data against other sources. However, in some cases an entity might be unable to verify its Scope 3 greenhouse gas emissions without undue cost or effort. For example, the entity might be prevented from obtaining a complete set of verified data due to the volume of data or because the data is obtained from entities in the value chain that are separated by many tiers from the reporting entity, that is, entities that the reporting entity does not interact with directly. In such cases, an entity might need to use unverified data.

Disclosure of inputs to Scope 3 greenhouse gas emissions

B55 An entity shall disclose information about the measurement approach, inputs and assumptions it uses to measure its Scope 3 greenhouse gas emissions in accordance with paragraph 29(a)(iii). This disclosure shall include information about the characteristics of the data inputs as described in paragraph B40. The purpose of this disclosure is to provide users of general purpose financial reports with information about how the entity has prioritised the highest quality data available, which faithfully represents the value chain activity and its Scope 3 greenhouse gas emissions. This disclosure also helps users of general purpose financial reports to understand why the measurement approach, inputs and assumptions the entity uses to estimate its Scope 3 greenhouse gas emissions are relevant.

B56 As part of the requirement in paragraph 29(a)(iii), and to reflect how an entity prioritises Scope 3 data in accordance with the measurement framework set out in paragraphs B40–B54, the entity shall disclose information that enables users of general purpose financial reports to understand:

(a) the extent to which the entity's Scope 3 greenhouse gas emissions are measured using inputs from specific activities within the entity's value chain; and

(b) the extent to which the entity's Scope 3 greenhouse gas emissions are measured using inputs that are verified.

B57 This [draft] Standard includes the presumption that Scope 3 greenhouse gas emissions can be estimated reliably using secondary data and industry averages. In those rare cases when an entity determines it is *impracticable* to estimate its Scope 3 greenhouse gas emissions, the entity shall disclose how it is managing its Scope 3 greenhouse gas emissions. Applying a requirement is impracticable when the entity cannot apply it after making every reasonable effort to do so.

Financed emissions

B58 Entities participating in financial activities face risks and opportunities related to the greenhouse gas emissions associated with those activities. Counterparties, borrowers or investees with higher greenhouse gas emissions might be susceptible to risks associated with technological changes, shifts in supply and demand and policy change, which in turn can affect the financial institution that is providing financial services to these entities. These risks and opportunities can arise in the form of credit risk, market risk, reputational risk and other financial and operational risks. For example, credit risk might arise in relation to financing clients affected by increasingly stringent carbon taxes, fuel efficiency regulations or other policies; credit risk might also arise through technological shifts. Reputational risk might arise from financing fossil-fuel projects. Entities participating in financial activities, including commercial and investment banks, asset managers and insurance entities, are increasingly monitoring and managing such risks by measuring their financed emissions. This measurement serves as an indicator of an entity's exposure to climate-related risks and opportunities and how the entity might need to adapt its financial activities over time.

B59 Paragraph 29(a)(i)(3) requires an entity to disclose its absolute gross Scope 3 greenhouse gas emissions generated during the reporting period, including upstream and downstream emissions. An entity that participates in one or more of the following financial activities is required to disclose additional and specific information about its Category 15 emissions or those emissions associated with its investments which is also known as 'financed emissions':

(a) asset management (see paragraph B61);

(b) commercial banking (see paragraph B62); and

(c) insurance (see paragraph B63).

B60 An entity shall apply the requirements for disclosing greenhouse gas emissions in accordance with paragraph 29(a) when disclosing information about its financed emissions.

Asset management

B61 An entity that participates in asset management activities shall disclose:

(a) its absolute gross financed emissions, disaggregated by Scope 1, Scope 2 and Scope 3 greenhouse gas emissions.

(b) for each of the disaggregated items in paragraph B61(a), the total amount of assets under management (AUM) that is included in the financed emissions disclosure, expressed in the presentation currency of the entity's financial statements.

(c) the percentage of the entity's total AUM included in the financed emissions calculation. If the percentage is less than 100%, the entity shall disclose information that explains the exclusions, including types of assets and associated amount of AUM.

(d) the methodology used to calculate the financed emissions, including the method of allocation the entity used to attribute its share of emissions in relation to the size of investments.

Commercial banking

B62 An entity that participates in commercial banking activities shall disclose:

(a) its absolute gross financed emissions, disaggregated by Scope 1, Scope 2 and Scope 3 greenhouse gas emissions for each industry by asset class. When disaggregating by:

(i) industry—the entity shall use the Global Industry Classification Standard (GICS) 6-digit industry-level code for classifying counterparties, reflecting the latest version of the classification system available at the reporting date.

(ii) asset class—the disclosure shall include loans, project finance, bonds, equity investments and undrawn loan commitments. If the entity calculates and discloses financed emissions for other asset classes, it shall include an explanation of why the inclusion of those additional asset classes provides relevant information to users of general purpose financial reports.

(b) its gross exposure to each industry by asset class, expressed in the presentation currency of the entity's financial statements. For:

(i) funded amounts—gross exposure shall be calculated as the funded carrying amounts (before subtracting the loss allowance, when applicable), whether prepared in accordance with HKFRS Accounting Standards or other GAAP.

(ii) undrawn loan commitments—the entity shall disclose the full amount of the commitment separately from the drawn portion of loan commitments.

(c) the percentage of the entity's gross exposure included in the financed emissions calculation. The entity shall:

(i) if the percentage of the entity's gross exposure included in the financed emissions calculation is less than 100%, disclose information that explains the exclusions, including the type of assets excluded.

(ii) for funded amounts, exclude from gross exposure all impacts of risk mitigants, if applicable.

(iii) disclose separately the percentage of its undrawn loan commitments included in the financed emissions calculation.

(d) the methodology the entity used to calculate its financed emissions, including the method of allocation the entity used to attribute its share of emissions in relation to the size of its gross exposure.

Insurance

B63 An entity that participates in financial activities associated with the insurance industry shall disclose:

(a) its absolute gross financed emissions, disaggregated by Scope 1, Scope 2 and Scope 3 greenhouse gas emissions for each industry by asset class. When disaggregating by:

(i) industry—the entity shall use the Global Industry Classification Standard (GICS) 6-digit industry-level code for classifying counterparties, reflecting the latest version of the classification system available at the reporting date.

(ii) asset class—the disclosure shall include loans, bonds and equity investments, as well as undrawn loan commitments. If the entity calculates and discloses financed emissions for other asset classes, it shall include an explanation of why the inclusion of those additional asset classes provides relevant information to users of general purpose financial reports.

(b) the gross exposure for each industry by asset class, expressed in the presentation currency of the entity's financial statements. For:

(i) funded amounts—gross exposure shall be calculated as the funded carrying amounts (before subtracting the loss allowance, when applicable), whether prepared in accordance with HKFRS Accounting Standards or other GAAP.

(ii) undrawn loan commitments—the entity shall disclose the full amount of the commitment separately from the drawn portion of loan commitments.

(c) the percentage of the entity's gross exposure included in the financed emissions calculation. The entity shall:

(i) if the percentage of the entity's gross exposure included in the financed emissions calculation is less than 100%, disclose information that explains the exclusions, including type of assets excluded.

(ii) disclose separately the percentage of its undrawn loan commitments included in the financed emissions calculation.

(d) the methodology the entity used to calculate its financed emissions, including the method of allocation the entity used to attribute its share of emissions in relation to the size of its gross exposure.

Cross-industry metric categories (paragraph 29(b)–(g))

B64 In addition to information about an entity's greenhouse gas emissions, the entity is required to disclose information relevant to the cross-industry metric categories set out in paragraph 29(b)–(g).

B65 In preparing disclosures to fulfil the requirements in paragraph 29(b)–(g), an entity shall:

(a) consider the time horizons over which the effects of climate-related risks and opportunities could reasonably be expected to occur, described in accordance with paragraph 10.

(b) consider where in the entity's business model and value chain climate-related risks and opportunities are concentrated (for example, geographical areas, facilities or types of assets) (see paragraph 13).

(c) consider the information disclosed in accordance with paragraph 16(a)–(b) in relation to the effects of climate-related risks and opportunities on the entity's financial position, financial performance and cash flows for the reporting period.

(d) consider whether industry-based metrics, as described in paragraph 32—including those defined in an applicable HKFRS Sustainability Disclosure Standard or those that otherwise satisfy the requirements in [draft] HKFRS S1—could be used to satisfy the requirements in whole or in part.

(e) consider the connections between the information disclosed to fulfil the requirements in paragraph 29(b)–(g) with the information disclosed in the related financial statements, in accordance with paragraph 21(b)(ii) of [draft] HKFRS S1. These connections include consistency in the data and assumptions used—to the extent possible—and linkages between the amounts disclosed in accordance with paragraph 29(b)–(g) and the amounts recognised and disclosed in the financial statements. For example, an entity would consider whether the carrying amount of assets used is consistent with amounts included in the financial statements and would explain the connections between information in these disclosures and amounts in the financial statements.

Climate-related targets (paragraphs 33–37)

Characteristics of a climate-related target

B66 Paragraph 33 requires an entity to disclose the quantitative or qualitative climate-related targets it has set, and any it is required to meet by law or regulation, including any greenhouse gas emissions targets. In disclosing these climate-related targets, the entity is required to disclose information about the characteristics of these targets as described in paragraph 33(a)–(h). If the climate-related target is quantitative, an entity is required to describe whether the target is an absolute target or an intensity target. An absolute target is defined as a total amount of a measure or a change in the total amount of a measure, whereas an intensity target is defined as a ratio of a measure, or a change in the ratio of a measure, to a business metric.

B67 In identifying and disclosing the metric used to set a climate-related target and measure progress, an entity shall consider the cross-industry metrics and industry-based metrics. If the metric has been developed by the entity to measure progress towards a target, the entity shall disclose information about that metric in accordance with paragraph 50 of [draft] HKFRS S1.

Greenhouse gas emissions targets

Gross and net greenhouse gas emissions targets

B68 If an entity has a greenhouse gas emissions target, the entity is required to specify whether the target is a gross greenhouse gas emissions target or a net greenhouse gas emissions target. Gross greenhouse gas emissions targets reflect the total changes in greenhouse gas emissions planned within the entity's value chain. Net greenhouse gas emissions targets are the entity's targeted gross greenhouse gas emissions minus any planned offsetting efforts (for example, the entity's planned use of carbon credits to offset its greenhouse gas emissions).

B69 Paragraph 36(c) specifies that if an entity has a net greenhouse gas emissions target it is required to also disclose a gross greenhouse gas emissions target. For the avoidance of doubt, if the entity discloses a net greenhouse gas emissions target, this target cannot obscure information about its gross greenhouse gas emissions targets.

Carbon credits

B70 Paragraph 36(e) requires an entity to describe its planned use of carbon credits—which are transferable or tradeable instruments—to offset emissions to achieve any net greenhouse gas emissions targets the entity has set, or any it is required to meet by law or regulation. Any information about the planned use of carbon credits shall clearly demonstrate the extent to which these carbon credits are relied on to achieve the net greenhouse gas emissions targets.

B71 In accordance with paragraph 36(e), an entity is required to disclose only its planned use of carbon credits. However, as part of this disclosure, the entity might also include information about carbon credits it has already purchased that the entity is planning to use to meet its net greenhouse gas emissions target, if the information enables users of general purpose financial reports to understand the entity's greenhouse gas emissions target.

Appendix C
Effective date and transition

This appendix is an integral part of [draft] HKFRS S2 and has the same authority as the other parts of the [draft] Standard.

Effective date

C1 An entity shall apply this [draft] Standard for annual reporting periods beginning on or after 1 August 2025. Earlier application is permitted. If an entity applies this [draft] Standard earlier, it shall disclose that fact and apply [draft] HKFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information* at the same time.

C2 For the purposes of applying paragraphs C3–C5, the date of initial application is the beginning of the annual reporting period in which an entity first applies this [draft] Standard.

Transition

C3 An entity is not required to provide the disclosures specified in this [draft] Standard for any period before the date of initial application. Accordingly, an entity is not required to disclose comparative information in the first annual reporting period in which it applies this [draft] Standard.

C4 In the first annual reporting period in which an entity applies this [draft] Standard, the entity is permitted to use one or both of these reliefs:

(a) if, in the annual reporting period immediately preceding the date of initial application of this [draft] Standard, the entity used a method for measuring its greenhouse gas emissions other than the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004), the entity is permitted to continue using that other method; and

(b) an entity is not required to disclose its Scope 3 greenhouse gas emissions (see paragraph 29(a)) which includes, if the entity participates in asset management, commercial banking or insurance activities, the additional information about its financed emissions (see paragraph 29(a)(vi)(2) and paragraphs B58–B63).

C5 If an entity uses the relief in paragraph C4(a) or paragraph C4(b), the entity is permitted to continue to use that relief for the purposes of presenting that information as comparative information in subsequent reporting periods.

Exposure Draft HKFRS S2 AG
Issued 16 September 2024

Accompanying Guidance on
Exposure Draft Hong Kong Financial Reporting Standard S2

Climate-related Disclosures

Hong Kong Institute of
Certified Public Accountants
香港會計師公會

Accompanying Guidance on IFRS S2 *Climate-related Disclosures*

[Draft] HKFRS S2 is based on IFRS S2 *Climate-related Disclosures*. In approving HKFRS S2, the Financial Reporting Standards Committee of the Hong Kong Institute of Certified Public Accountants has considered and agreed with the International Sustainability Standards Board's (ISSB) Accompanying Guidance on IFRS S2. The ISSB's Accompanying Guidance is reproduced below for your consideration when commenting on the [draft] HKFRS S2. The paragraph numbers of IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information* and IFRS S2 referred to below generally correspond with those in [draft] HKFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information* and [draft] HKFRS S2, respectively.

CONTENTS

IFRS S2 *Climate-related Disclosures*

Illustrative Guidance

This guidance accompanies, but is not part of, IFRS S2. It illustrates aspects of IFRS S2 but is not intended to provide interpretative guidance.

IG1 Paragraph 29 of IFRS S2 requires an entity to disclose information relevant to particular cross-industry metric categories. These examples[1] provide an illustration of such information for the requirements in paragraph 29(b)–29(e) of IFRS S2.

Metric category	**Unit of measure**	**Example metrics**
Climate-related transition risks	amount and percentage	• volume of real estate collaterals highly exposed to transition risk • concentration of credit exposure to carbon-related assets • percentage of revenue from coal mining • percentage of revenue passenger kilometres not covered by the Carbon Offsetting and Reduction Scheme for International Aviation
Climate-related physical risks	amount and percentage	• proportion of property, infrastructure or other alternative asset portfolios in areas subject to flooding, heat stress or water stress • proportion of real assets exposed to climate-related hazards • number and value of mortgage loans in 100-year flood zones • wastewater treatment capacity located in 100-year flood zones • revenue associated with water withdrawn and consumed in regions of high or extremely high baseline water stress
Climate-related opportunities	amount and percentage	• revenues from products or services that support the transition to a lower-carbon economy • net premiums written related to energy efficiency and lower-carbon technology • number of (1) zero-emissions vehicles, (2) hybrid vehicles and (3) plug-in hybrid vehicles sold • proportion of homes delivered certified to a third-party, multi-attribute, green-building standard
Capital deployment	presentation currency	• percentage of annual revenue invested in research and development of lower-carbon products/services • percentage of investment in climate adaptation measures (for example, soil health, irrigation and technology)

[1] Based on the Task Force on Climate-related Financial Disclosures Guidance on Metrics, Targets, and Transition Plans: *Chapter C—Climate-Related Metrics* (2021).

Illustrative Examples

These examples accompany, but are not part of, IFRS S2. They illustrate aspects of IFRS S2 but are not intended to provide interpretative guidance.

IE1 These examples set out hypothetical situations illustrating how an entity might apply some of the requirements in IFRS S2. The analysis in each example is not intended to represent the only manner in which the requirements could be applied, nor are the examples intended to apply only to the specific industries illustrated. For illustrative purposes, the examples use simple fact patterns. When making disclosures in accordance with IFRS S2, an entity would need to consider all relevant facts and the specific circumstances of a particular fact pattern.

Aggregation and disaggregation of greenhouse gas emissions

IE2 Examples 1–5 illustrate some considerations when determining if it is necessary to disaggregate information when disclosing greenhouse gas emissions in accordance with the requirements of IFRS S2. These examples do not illustrate all reasons that could be necessary to disaggregate information when disclosing greenhouse gas emissions. Where relevant, these examples refer to IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information* (IFRS S1), the *Industry-based Guidance on Implementing IFRS S2* and the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) (GHG Protocol Corporate Standard).

Example 1—Disaggregating Scope 1 and Scope 2 greenhouse gas emissions between the consolidated accounting group and other investees

IE3 Example 1 illustrates the requirements in paragraph 29(a)(i)–(iv) to disclose and disaggregate Scope 1 and Scope 2 greenhouse gas emissions between an entity's consolidated accounting group and its investees not included in the consolidated accounting group.

IE4 The entity applies the equity share approach, as outlined in the GHG Protocol Corporate Standard, to set its organisational boundary for the purposes of measuring its greenhouse gas emissions. The entity applies IFRS Accounting Standards and has one investment that it accounts for as an investment in an associate. Applying the equity share approach, the entity determines its Scope 1 greenhouse gas emissions to be 7,350 metric tonnes CO_2 equivalent (CO_2e), and its Scope 2 greenhouse gas emissions to be 1,320 CO_2e.

IE5 Table 1 illustrates the disaggregation of the total Scope 1 and Scope 2 greenhouse gas emissions disclosed by the entity when it applies paragraph 29(a)(iv).

Table 1: Disaggregation of Scope 1 and Scope 2 greenhouse gas emissions between the consolidated accounting group and the other investee

	Greenhouse gas emissions (metric tonnes CO_2e)		
	Scope 1	**Scope 2**	**Total**
Consolidated accounting group	4,900	830	5,730
Other investee (investment in associate)	2,450	490	2,940
Total disclosed (equity share method)	**7,350**	**1,320**	**8,670**

Example 2—Disaggregating Scope 3 greenhouse gas emissions by Scope 3 categories

IE6 Example 2 illustrates the disaggregation of Scope 3 greenhouse gas emissions in accordance with paragraph 29(a)(i)(3) and paragraph 29(a)(vi), applying the principles of aggregation and disaggregation set out in IFRS S1 (paragraphs B29–B30). For simplicity, this example illustrates only an entity's considerations related to how it presents its disclosures of Scope 3 greenhouse gas emissions from purchased goods and services (Category 1) and its Scope 3 greenhouse gas emissions from use of sold products (Category 11).

IE7 An entity applies paragraph B32 of IFRS S2. It measures its Scope 3 greenhouse gas emissions from purchased goods and services and use of products sold in accordance with the GHG Protocol Corporate Standard. The entity considers whether disaggregation of its Category 1 and Category 11 Scope 3 greenhouse gas emissions is required to meet the requirements in IFRS S1 (paragraphs B29–B30).

IE8 In relation to Category 1—purchased goods and services, the entity considers that:

(a) its greenhouse gas emissions in relation to this category account for 60% of its total disclosed Scope 1, Scope 2 and Scope 3 greenhouse gas emissions;

(b) it has committed to achieving a greenhouse gas emissions reduction target by 20Y0, and reducing Category 1 greenhouse gas emissions is a priority to achieving this target;

(c) it has set specific greenhouse gas emissions reduction targets for reducing Category 1 greenhouse gas emissions; and

(d) its supply chain is located in jurisdictions with nationally determined contributions, and, as a result, suppliers are subject to increasingly strict emissions-related regulations and taxation policies.

IE9 In relation to Category 11—use of sold products, the entity considers that:

(a) it has a three-year plan to improve the emission efficiency of its products that will reduce the greenhouse gas emissions arising when customers use the products the entity sells (use-phase emissions); and

(b) its greenhouse gas emissions in this category account for more than 25% of its total disclosed Scope 1, Scope 2 and Scope 3 greenhouse gas emissions.

IE10 Although IFRS S2 does not explicitly require disaggregation of Scope 3 greenhouse gas emissions by category, the entity considers the requirement in IFRS S1 that prohibits information from being aggregated if doing so would obscure information that is material.

IE11 For the reasons outlined in paragraphs IE8–IE10, the entity determines that disaggregating information about its Scope 3 Category 1 greenhouse gas emissions and its Scope 3 Category 11 greenhouse gas emissions is necessary to provide material information to users of general purpose financial reports.

IE12 The entity decides to include a table to supplement the disclosure of its Scope 3 greenhouse gas emissions, as illustrated in Table 2.

Table 2: Disclosure excerpt of Scope 3 greenhouse gas emissions disaggregated between Category 1 and Category 11

	Greenhouse gas emissions (metric tonnes CO_2e)	
	20X1	**20X0**
Category 1—Purchased goods and services	34,000	35,000
Category 11—Use of sold products	13,000	14,600

Example 3—Disaggregating greenhouse gas emissions by constituent greenhouse gases

IE13 Examples 3A and 3B illustrate the disaggregation of an entity's absolute greenhouse gas emissions by constituent greenhouse gases. Although IFRS S2 does not explicitly require such disaggregation, an entity is required to apply the principles of aggregation and disaggregation set out in IFRS S1 (paragraphs B29–B30).

Example 3A: Disaggregation of Scope 1 greenhouse gas emissions by constituent gas

IE14 For simplicity, this example illustrates only an entity's considerations related to methane emissions. Considerations related to other constituent gases are ignored.

IE15 An entity operates in the oil and gas industry. It measures its Scope 1 greenhouse gas emissions in accordance with the GHG Protocol Corporate Standard. The entity considers how to disclose information about its Scope 1 greenhouse gas emissions. In making its decision, the entity considers that:

(a) a jurisdiction in which it operates has introduced stringent regulations on the oil and gas industry relating to methane emissions arising from production;

(b) the entity is required to refer to and consider the applicability of *Volume 11—Oil & Gas Exploration & Production* of the *Industry-based Guidance on Implementing IFRS S2*, which includes guidance on the separate disclosure of percentage of gross global Scope 1 greenhouse gas emissions from methane emissions;

(c) the entity's risk function has determined that Scope 1 methane emissions from oil and gas production is widely scrutinised by regulators and, if not managed, could pose high reputational and regulatory risks; and

(d) the entity has made process improvements to reduce Scope 1 methane emissions, thus reducing the risk of potential regulatory liabilities.

IE16 Although IFRS S2 does not explicitly require disaggregation by constituent greenhouse gases, the entity considers the requirement in IFRS S1 that prohibits information from being aggregated if doing so would obscure information that is material.

IE17 For the reasons outlined in paragraphs IE15 and IE16, the entity determines that disaggregating information about its Scope 1 methane emissions is necessary to provide material information to users of general purpose financial reports.

IE18 The entity discloses its greenhouse gas emissions in accordance with paragraph 29(a) of IFRS S2 and decides to include a table to supplement the disclosure of its Scope 1 greenhouse gas emissions, as illustrated in Table 3.

Table 3: Disclosure excerpt of Scope 1 greenhouse gas emissions disaggregated by constituent gas

	Greenhouse gas emissions (metric tonnes CO_2e)	
	20X1	**20X0**
Methane	23,000	24,000

Example 3B: Disaggregation of a Scope 3 category by constituent gases

IE19 For simplicity, this example illustrates only an entity's considerations related to its use-phase emissions (Scope 3 Category 11), and, specifically, its CO_2 and nitrogen oxide (N_2O) emissions. Considerations related to other Scope 3 categories and other constituent gases are ignored.

IE20 An entity operates in the automobile industry. It measures its Scope 3 greenhouse gas emissions in accordance with the GHG Protocol Corporate Standard. The entity considers how to disclose information about its use-phase emissions (Scope 3 Category 11 greenhouse gas emissions). In making its decision, the entity considers that a substantial proportion of these greenhouse gas emissions occurs from combustion and tailpipe emissions when the cars are driven on the road. These use-phase emissions—specifically, CO_2 and N_2O—are subject to stringent regulation in several important jurisdictions where the entity's cars are sold. Based on this consideration, the entity determines that information about its use-phase emissions is material.

IE21 The entity then also considers circumstances related to CO_2 and N_2O emissions, including:

(a) government-funded subsidies have been introduced in important market jurisdictions and will be available to entities in the automotive industry. The subsidies will fund the production of vehicles that emit lower levels of N_2O. Therefore, the entity is incentivised to produce vehicles that meet the N_2O emissions limits in these jurisdictions.

(b) the entity is required to refer to and consider the applicability of *Volume 63—Automobiles* of the *Industry-based Guidance on Implementing IFRS S2* that includes metrics for sales-weighted average passenger fleet fuel economy, including the grams of CO_2 per kilometre for passenger cars.

(c) the entity is required to refer to and consider the applicability of *Volume 63—Automobiles* of the *Industry-based Guidance on Implementing IFRS S2* that includes guidance on the separate disclosure of information about the entity's strategy for reducing use-phase emissions such as CO_2 and N_2O, volatile organic compounds and particulate matter.

(d) the entity measures, manages and monitors use-phase CO_2 and N_2O emissions when designing and manufacturing its vehicles. It has set internal targets for greenhouse gas emissions reduction and a portion of the executive team's variable remuneration is linked to achieving these targets.

IE22 Although not explicitly required by IFRS S2 to disaggregate Scope 3 Category 11 greenhouse gas emissions by constituent greenhouse gases, the entity considers the requirement in IFRS S1 that prohibits information from being aggregated if doing so would obscure information that is material.

IE23 For the reasons outlined in paragraphs IE20–IE22, the entity determines that disaggregating information about use-phase CO_2 and N_2O emissions is necessary to provide material information to users of general purpose financial reports.

IE24 The entity discloses its greenhouse gas emissions in accordance with paragraph 29(a) of IFRS S2 and decides to include a table to supplement the disclosure of its Scope 3 greenhouse gas emissions, as illustrated in Table 4.

Table 4: Disclosure excerpt of Scope 3 Category 11 greenhouse gas emissions disaggregated by constituent gases

	Greenhouse gas emissions (metric tonnes CO_2e)	
	20X1	**20X0**
Carbon dioxide	46,000	48,000
Nitrogen oxide	1,000	1,020

Disaggregating financed emissions in asset management

IE25 Examples 4–5 illustrate how an entity with asset management operations might disaggregate the Scope 3 greenhouse gas emissions of its portfolios (Category 15) when it applies the requirements in IFRS S2 (paragraph B61) and the principles of aggregation and disaggregation in IFRS S1 (paragraphs B29–B30) to disclose the greenhouse gas emissions associated with total assets under management (AUM).

Example 4—Disaggregation by active and passive strategy

IE26 An asset manager manages CU11 billion in seven corporate bond portfolios.[2] Table 5 sets out details about the portfolios.

Table 5: Asset Manager AUM by portfolio and strategy

Portfolio name	Strategy	AUM (in CU)
Fund A	Active Corporate Bond	1.9bn
Fund B	Active Corporate Bond	1.9bn
Fund C	Active Corporate Bond	2.2bn
Fund D	Passive Corporate Bond	1.5bn
Fund E	Passive Corporate Bond	1.3bn
Fund F	Passive Corporate Bond	1.05bn
Fund G	Passive Corporate Bond	1.15bn

IE27 As an asset manager, the entity is required by IFRS S2 to provide information about the greenhouse gas emissions associated with its total AUM. The entity calculates the greenhouse gas emissions associated with its seven corporate bond portfolios and includes the portfolio emissions for 98% of its total AUM in its calculation. The remaining 2% of its total AUM, or CU220 million, is cash. The entity does not disclose any portfolio emissions associated with this cash. The entity discloses Scope 1, Scope 2 and Scope 3 greenhouse gas emissions at the total AUM level.

IE28 The entity considers how to disclose information about its financed emissions. In making its decision, the entity considers that:

(a) the entity's portfolios within each of the active and passive strategy groupings are highly similar in their composition and risk exposure.

(b) the active strategies have higher total fees than the passive strategies and contribute significantly more to the entity's revenue. This dynamic is not expected to change.

(c) the greenhouse gas emissions of its active strategies are significantly lower than those of its passive strategies.

IE29 Additionally, the portfolio emissions of the entity's active strategies better reflect its climate-related risk analysis because the entity's passive strategies track the performance and holdings of a benchmark, whereas its active strategies seek to outperform a benchmark. While both strategies face the risk of poor performance, the entity also identifies differing risk exposures between active and passive strategies as its active strategies may face outflows from underperforming a benchmark, but those strategies also have greater flexibility in managing or reducing their financed emissions compared to the entity's passive strategies.

IE30 Although IFRS S2 does not explicitly require disaggregation of an entity's financed emissions by active and passive strategies, the entity considers the requirement in IFRS S1 that prohibits information from being aggregated if doing so would obscure information that is material.

IE31 For the reasons outlined in paragraphs IE28–IE30, the entity decides that disaggregating information about its financed emissions, specifically related to active and passive strategies, is necessary to provide material information to users of general purpose financial reports.

[2] In this guidance, monetary amounts are denominated in currency units (CU).

IE32 The entity disaggregates its portfolio emissions by active and passive strategies, as illustrated in Table 6.

Table 6: Financed emissions disclosure disaggregated between active and passive strategies

	Financed emissions (metric tonnes CO_2e)		
	Active strategies	**Passive strategies**	**Total**
Scope 1	12,880,551	27,300,950	40,181,501
Scope 2	2,983,115	8,120,335	11,103,450
Scope 3	43,771,005	103,799,005	147,570,010
Total disclosed	**59,634,671**	**139,220,290**	**198,854,961**
AUM (in CU) included	5.88bn	4.9bn	10.78bn
% of total AUM included (% of strategy-specific AUM included)	53.5% (98%)	44.5% (98%)	98% (N/A)

Note A: 2.0% of AUM, or CU220 million, is excluded from the financed emissions calculation, which represents cash held in the funds.

Example 5—Disaggregation by asset class

IE33 An asset manager manages CU60 billion in eight long-term bond and equity portfolios. Table 7 sets out details about the portfolios.

Table 7: Asset manager AUM by portfolio and asset class

Portfolio name	Asset class	AUM (in CU)
Fund A	Long-term bond	6.8bn
Fund B	Long-term bond	6.9bn
Fund C	Long-term bond	8.9bn
Fund D	Equity (publicly traded)	6bn
Fund E	Equity (publicly traded)	6bn
Fund F	Equity (publicly traded)	7.9bn
Fund G	Equity (publicly traded)	8.6bn
Fund H	Equity (publicly traded)	8.9bn

IE34 As an asset manager, the entity is required by IFRS S2 to provide information about the greenhouse gas emissions associated with its total AUM. The entity calculates the emissions associated with its eight portfolios and includes the financed emissions for 98% of its total AUM in its calculation. The remaining 2% of AUM, or CU1.2bn, is cash. The entity does not disclose any financed emissions associated with this cash. The entity discloses these greenhouse gas emissions by Scope 1, Scope 2 and Scope 3 greenhouse gas emissions at the total AUM level.

IE35 The entity considers how to disclose information about its financed emissions. In making its decision, the entity considers that:

(a) the long-term bond portfolios seek long-term capital appreciation (average holding period of seven years) and the publicly traded equity portfolios seek short-term capital appreciation (average holding period of nine months).

(b) its assessment of the climate-related risks affecting these two asset classes differs because each asset class is affected differently by climate-related risks and opportunities.

(c) the entity's portfolios within each asset class are similar in their composition and risk exposure to the entity's other portfolios within the same asset class. This is true for both asset classes: long-term bonds and publicly traded equities.

IE36 Although IFRS S2 does not explicitly require disaggregation of an entity's financed emissions by long-term bonds and publicly traded equities, the entity considers the requirement in IFRS S1 that prohibits information from being aggregated if doing so would obscure information that is material.

IE37 For the reasons outlined in paragraphs IE35–IE36, the entity decides that disaggregating information about its financed emissions, specifically related to long-term bonds and publicly traded equities, is necessary to provide material information to users of general purpose financial reports.

IE38 The entity disaggregates its financed emissions by asset class, as illustrated in Table 8.

Table 8: Financed emissions disclosure disaggregated by asset class

	Financed emissions (metric tonnes CO_2e)		
	Long-term bonds	**Publicly traded equities**	**Total**
Scope 1	48,600,415	101,487,332	150,087,747
Scope 2	33,805,025	27,187,765	60,992,790
Scope 3	159,615,008	301,001,718	460,616,726
Total reported	**242,020,448**	**429,676,815**	**671,697,263**
AUM (in CU) included	22.15bn	36.65bn	58.8bn
% of total AUM included (% of asset class-specific AUM included)	36.9% (98%)	61.1% (98%)	98% (N/A)

Note A: 2.0% of AUM, or CU1.2bn, is excluded from the financed emissions calculation, which represents cash held in the funds.

Industry-based Guidance on Implementing IFRS S2

This guidance accompanies, but is not part of, IFRS S2. It illustrates aspects of IFRS S2 but is not intended to provide interpretative guidance.

Introduction

IB1 This guidance suggests possible ways to apply some of the disclosure requirements in IFRS S2. The guidance does not create additional requirements. Specifically, the guidance suggests ways to identify and disclose information about climate-related risks and opportunities associated with particular business models, activities or other common features that characterise participation in an industry. In applying IFRS S2, an entity is required to refer to and consider the applicability of the information set out in this guidance, in accordance with paragraphs 12 and 32 of IFRS S2.

IB2 This industry-based guidance has been derived from Sustainability Accounting Standards Board (SASB) Standards, which are maintained by the International Sustainability Standards Board (ISSB). Because the guidance is industry-based, only a subset is likely to apply to any entity.

Structure and terminology

IB3 This guidance is organised by industry to assist an entity in identifying the climate-related risks and opportunities that are applicable to its business model and associated activities.

IB4 The industry-based guidance contains:

(a) **industry descriptions**—which are intended to help entities identify applicable industry guidance by describing the business models, activities and other common features that characterise participation in the industry;

(b) **disclosure topics**—which describe specific climate-related risks or opportunities associated with the activities conducted by entities within a particular industry;

(c) **metrics**—which accompany disclosure topics and are designed to, either individually or as part of a set, provide useful information regarding an entity's performance for a specific disclosure topic;

(d) **technical protocols**—which provide guidance on definitions, scope, implementation and presentation of associated metrics; and

(e) **activity metrics**—which quantify the scale of specific activities or operations by an entity and are intended for use in conjunction with the metrics referred to in paragraph IB4(c) to normalise data and facilitate comparison.

Application

Materiality

IB5 The objective of IFRS S2 is to require an entity to disclose information about its climate-related risks and opportunities that is useful to users of general purpose financial reports in making decisions relating to providing resources to the entity.

IB6 The disclosure topics and associated metrics contained in this guidance and its related volumes have been identified as likely to result in useful information for users of general purpose financial reports. However, the responsibility for making materiality judgements and determinations rests with the reporting entity for all requirements in IFRS Sustainability Disclosure Standards and for all accompanying guidance, including this guidance. An entity is required to disclose information if it concludes that the information is material to users in making decisions relating to providing resources to the entity.

IB7 The disclosure topics and associated metrics in the industry-based guidance are not exhaustive. IFRS S2 requires an entity to consider the full range of climate-related risks and opportunities it faces, including any not identified in this guidance. The entity is required to describe those climate-related risks and opportunities that could reasonably be expected to affect the entity's cash flows, its access to finance or cost of capital over the short, medium or long term ('climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects'), in accordance with paragraph 10(a) of IFRS S2. Accordingly, an entity might need to provide information related to additional topics not included in the industry-based guidance—as well as associated metrics—used by the entity to meet the requirements of IFRS S2. The additional information would be particularly necessary if an entity faces climate-related risks or opportunities that are emerging rapidly or associated with unique aspects of its business model or circumstances.

Selecting the appropriate industry (or industries)

IB8 The industry-based guidance is organised according to the Sustainable Industry Classification System® (SICS®). When preparing disclosures in accordance with the industry-based guidance, an entity is required to identify the particular volume(s) it has applied in preparing its sustainability-related financial disclosures, in accordance with paragraph 59(b) of IFRS S1. As a starting point, an entity can identify its primary industry classification on the SASB Standards website.

IB9 Some entities participate in a range of activities that are likely to span more than one industry. For entities whose operations are integrated horizontally across industries (such as conglomerates) or vertically through the value chain, more than one volume of industry-based guidance may be necessary for completeness. Using more than one volume of industry-based guidance would allow such an entity to detail the full range of climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects.

Compatibility with SASB Standards

IB10 The industry-based guidance has been derived from SASB Standards. An entity that has, in a prior reporting period, used SASB Standards to prepare disclosures will find that the guidance is consistent with SASB Standards. Such consistency includes the:

(a) industry classifications;

(b) disclosure topics;

(c) metrics and technical protocols; and

(d) activity metrics.

IB11 Where applicable, the industry-based guidance is accompanied by the relevant SASB metric code to assist preparers who have previously used SASB Standards.

Identifying risks and opportunities and preparing disclosures

IB12 Paragraph 10 of IFRS S2 requires an entity to identify and describe the climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects, including those associated with one or more particular business models, activities or other common features that characterise participation in an industry. In fulfilling the industry-based disclosure requirement, preparers are required to refer to and consider the applicability of the industry-based guidance as a starting point for identifying climate-related risks and opportunities. In particular, the disclosure topics in this guidance describe specific climate-related risks or opportunities associated with the activities conducted by entities within a particular industry.

Example 1
An entity in the automobiles industry might review the guidance and determine that the disclosure topic on 'Fuel Economy and Use-phase Emissions' is applicable to its circumstances. The disclosure topic notes that '[M]otor vehicle fossil fuel combustion accounts for a significant share of greenhouse gas (GHG) emissions contributing to global climate change' and that '[m]ore stringent emissions standards and changing consumer demands are driving electric vehicle and hybrid market expansion, as well as for high fuel-efficiency conventional vehicles.' Accordingly, the disclosure topic could describe either a transition risk—if the entity takes action to mitigate the risk of changing buyer preferences and adapt its business model—or a climate-related opportunity—if the entity innovates to meet or exceed regulatory standards and capture an increasing share of an evolving market.

IB13 Paragraphs 13–22 of IFRS S2 require an entity to provide additional information on the climate-related risks and opportunities identified and described in paragraph 10 of IFRS S2. In preparing its climate-related financial disclosures, an entity is required to refer to and consider the applicability of the metrics associated with the industry-based guidance, in accordance with paragraph 23 of IFRS S2.

Example 2
The automaker (see Example 1) would disclose information about the 'Fuel Economy and Use-phase Emissions' disclosure topic in accordance with the industry-based guidance. For example, the entity would use the associated metrics, including the fuel economy of the entity's fleet (metric TR-AU-410a.1) and its sales of zero-emission vehicles (metric TR-AU-410a.2). These disclosures would help fulfil the industry-based requirements and those related to metrics and targets. However, the entity might also use the disclosures to fulfil the requirement in paragraph 14(c) of IFRS S2 to disclose quantitative information about the progress of plans disclosed in accordance with paragraph 14(a) of IFRS S2. This information would help users understand how the entity plans to achieve the climate-related targets it has set.

Preparing information to fulfil cross-industry metric categories

IB14 The industry-based guidance can assist entities in meeting the requirements for disclosures related to cross-industry metric categories in paragraphs 29(a)–(e) of IFRS S2. For example:

(a) paragraph 29(a) requires the disclosure of the entity's gross Scope 1 greenhouse gas emissions, which an entity in the semiconductors industry might enhance by disclosing the amount of Scope 1 greenhouse gas emissions from perfluorinated compounds (see metric TC-SC-110a.1);

(b) paragraph 29(c) requires the disclosure of quantitative information related to an entity's exposure to climate-related physical risk, which an entity in the agricultural products industry might fulfil by disclosing the percentage of key crops sourced from water-stressed regions (see metric FB-AG-440a.2);

(c) paragraph 29(d) requires the disclosure of quantitative information related to an entity's climate-related opportunities, which an entity in the chemicals industry might fulfil by disclosing its revenue from products designed for use-phase resource efficiency (see metric RT-CH-410a.1); and

(d) paragraph 29(e) requires the disclosure of quantitative information about an entity's climate-related capital deployment, which an entity in the oil and gas industry might fulfil by disclosing the amount it has invested in renewable energy (see metric EM-EP-420a.3).

IB15 Regardless of whether a preparer identifies a direct or explicit connection between a specific cross-industry metric category and a given industry-based disclosure topic or its corresponding metric(s), the entity shall refer to and consider the applicability of its full set of relevant industry-based guidance to present fairly the climate-related risks and opportunities to which it is exposed.

IB16 The industry-based guidance associated with IFRS S2 is published in separate industry-based volumes, labelled as Volumes 1–68 of the *Industry-based Guidance on Implementing IFRS S2*, as outlined in Table 1.

Table 1: Volumes 1–68: Industry-based Guidance

SICS® sector and industry	**IFRS S2 volume**
Consumer Goods	
Apparel, Accessories & Footwear	1 (CG-AA)
Appliance Manufacturing	2 (CG-AM)
Building Products & Furnishings	3 (CG-BF)
E-Commerce	4 (CG-EC)
Household & Personal Products	5 (CG-HP)
Multiline and Specialty Retailers & Distributors	6 (CG-MR)
Toys & Sporting Goods	
Extractives & Minerals Processing	
Coal Operations	7 (EM-CO)
Construction Materials	8 (EM-CM)
Iron & Steel Producers	9 (EM-IS)
Metals & Mining	10 (EM-MM)
Oil & Gas–Exploration & Production	11 (EM-EP)
Oil & Gas–Midstream	12 (EM-MD)
Oil & Gas–Refining & Marketing	13 (EM-RM)
Oil & Gas–Services	14 (EM-SV)
Financials	
Asset Management & Custody Activities	15 (FN-AC)
Commercial Banks	16 (FN-CB)
Consumer Finance	
Insurance	17 (FN-IN)
Investment Banking & Brokerage	18 (FN-IB)
Mortgage Finance	19 (FN-MF)
Security & Commodity Exchanges	
Food & Beverage	
Agricultural Products	20 (FB-AG)
Alcoholic Beverages	21 (FB-AB)
Food Retailers & Distributors	22 (FB-FR)
Meat, Poultry & Dairy	23 (FB-MP)
Non-Alcoholic Beverages	24 (FB-NB)
Processed Foods	25 (FB-PF)

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SICS® sector and industry	IFRS S2 volume
Restaurants	26 (FB-RN)
Tobacco	
Health Care	
Biotechnology & Pharmaceuticals	
Drug Retailers	27 (HC-DR)
Health Care Delivery	28 (HC-DY)
Health Care Distributors	29 (HC-DI)
Managed Care	30 (HC-MC)
Medical Equipment & Supplies	31 (HC-MS)
Infrastructure	
Electric Utilities & Power Generators	32 (IF-EU)
Engineering & Construction Services	33 (IF-EN)
Gas Utilities & Distributors	34 (IF-GU)
Home Builders	35 (IF-HB)
Real Estate	36 (IF-RE)
Real Estate Services	37 (IF-RS)
Waste Management	38 (IF-WM)
Water Utilities & Services	39 (IF-WU)
Renewable Resources & Alternative Energy	
Biofuels	40 (RR-BI)
Forestry Management	41 (RR-FM)
Fuel Cells & Industrial Batteries	42 (RR-FC)
Pulp & Paper Products	43 (RR-PP)
Solar Technology & Project Developers	44 (RR-ST)
Wind Technology & Project Developers	45 (RR-WT)
Resource Transformation	
Aerospace & Defence	46 (RT-AE)
Chemicals	47 (RT-CH)
Containers & Packaging	48 (RT-CP)
Electrical & Electronic Equipment	49 (RT-EE)
Industrial Machinery & Goods	50 (RT-IG)
Services	
Advertising & Marketing	
Casinos & Gaming	51 (SV-CA)
Education	

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SICS® sector and industry	**IFRS S2 volume**
Hotels & Lodging	52 (SV-HL)
Leisure Facilities	53 (SV-LF)
Media & Entertainment	
Professional & Commercial Services	
Technology & Communications	
Electronic Manufacturing Services & Original Design Manufacturing	54 (TC-ES)
Hardware	55 (TC-HW)
Internet Media & Services	56 (TC-IM)
Semiconductors	57 (TC-SC)
Software & IT Services	58 (TC-SI)
Telecommunication Services	59 (TC-TL)
Transportation	
Air Freight & Logistics	60 (TR-AF)
Airlines	61 (TR-AL)
Auto Parts	62 (TR-AP)
Automobiles	63 (TR-AU)
Car Rental & Leasing	64 (TR-CR)
Cruise Lines	65 (TR-CL)
Marine Transportation	66 (TR-MT)
Rail Transportation	67 (TR-RA)
Road Transportation	68 (TR-RO)

Exposure Draft HKFRS S2 IBG
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Industry-based Guidance on Implementing
Exposure Draft Hong Kong Financial Reporting Standard S2

Climate-related Disclosures

Hong Kong Institute of
Certified Public Accountants
香港會計師公會

Industry-based Guidance on Implementing IFRS S2 *Climate-related Disclosures*

[Draft] HKFRS S2 is based on IFRS S2 *Climate-related Disclosures*. In approving HKFRS S2, the Financial Reporting Standards Committee of the Hong Kong Institute of Certified Public Accountants has considered and agreed with the International Sustainability Standards Board's (ISSB) Industry-based Guidance on Implementing IFRS S2. The ISSB's Industry-based Guidance is reproduced below for your consideration when commenting on the [draft] HKFRS S2.

CONTENTS

Introduction

This volume is part of the Industry-based Guidance on Implementing IFRS S2 Climate-related Disclosures*. This guidance suggests possible ways to apply some of the disclosure requirements in IFRS S2 but does not create additional requirements.*

This volume suggests possible ways to identify, measure and disclose information about climate-related risks and opportunities that are associated with particular business models, economic activities and other common features that characterise participation in this industry.

This industry-based guidance has been derived from Sustainability Accounting Standards Board (SASB) Standards, which are maintained by the International Sustainability Standards Board (ISSB). The metric codes used in SASB Standards have been included for ease of reference. For additional context regarding the industry-based guidance contained in this volume, including structure and terminology, application and illustrative examples, refer to Section III of the Accompanying Guidance to IFRS S2.

Volume 1—Apparel, Accessories & Footwear

Industry Description

The Apparel, Accessories & Footwear industry includes entities involved in the design, manufacturing, wholesaling and retailing of various products, including adult and children's clothing, handbags, jewellery, watches and footwear. Products are manufactured primarily by vendors in emerging markets, thereby allowing entities in the industry to focus on design, wholesaling, marketing, supply chain management and retail activities.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Raw Materials Sourcing	(1) List of priority raw materials; for each priority raw material: (2) environmental or social factor(s) most likely to threaten sourcing, (3) discussion on business risks or opportunities associated with environmental or social factors and (4) management strategy for addressing business risks and opportunities	Discussion and Analysis	n/a	CG-AA-440a.3
	(1) Amount of priority raw materials purchased, by material, and (2) amount of each priority raw material that is certified to a third-party environmental or social standard, by standard	Quantitative	Metric tons (t)	CG-AA-440a.4

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of (1) Tier 1 suppliers and (2) suppliers beyond Tier 1 [1]	Quantitative	Number	CG-AA-000.A

1 Note to **CG-AA-000.A** – Tier 1 suppliers are defined as suppliers that transact directly with the entity, such as finished goods manufacturers (for example cut and sew facilities). Suppliers beyond Tier 1 are the key suppliers to the entity's Tier 1 suppliers and can include manufacturers, processing plants, and providers of raw materials extraction (for example mills, dye houses and washing facilities, sundry manufacturers, tanneries, embroiderers, screen printers, farms, and/or slaughter houses). The entity shall disclose whether any supplier data beyond Tier 1 is based on assumptions, estimates, or otherwise includes any uncertainty.

Raw Materials Sourcing

Topic Summary

The Apparel, Accessories & Footwear industry relies on many raw materials including cotton, leather, wool, rubber, and precious minerals and metals, as inputs for finished products. Sustainability impacts related to climate change, land use, resource scarcity and conflict in regions where the industry's supply chain operates affect the industry's ability to reliably source materials. The ability of entities to manage potential material shortages, supply disruptions, price volatility and reputational risks can be more difficult when supply chains lack transparency. Failure to effectively manage this issue can delay shipments and depress earnings, reduce margins, constrain revenue growth or increase costs of capital. The types of risk associated with sourcing materials can require varying solutions, including engaging with suppliers, enhancing transparency by using certification standards, using innovative alternative materials, or introducing circular economy practices. Entities that are proactive may reduce their exposure to price volatility and potential supply disruptions, while improving their brand reputation and developing new market opportunities.

Metrics

CG-AA-440a.3. (1) List of priority raw materials; for each priority raw material: (2) environmental or social factor(s) most likely to threaten sourcing, (3) discussion on business risks or opportunities associated with environmental or social factors and (4) management strategy for addressing business risks and opportunities

1 The entity shall disclose its priority raw materials purchased for finished goods.

1.1 The entity shall identify priority raw materials using the definition of 'priority materials' outlined in the Priority Material section of the *Textile Exchange's Materials Terminology Guide*.

1.2 Priority raw materials may include synthetic fibres, natural fibres, manufactured cellulosic materials, materials derived from animals and any other materials used directly to make apparel, accessories or footwear products, which may include cotton, rayon, viscose, polyester, acrylic, spandex, nylon, rubber, foam, leather, wool, cashmere, mohair, flax, silk, hemp and down.

1.3 The entity shall identify priority raw materials using the categorisation scheme presented in the Materials Portfolio section of the Textile Exchange's *Materials Terminology Guide*.

1.4 The scope of disclosure shall include priority raw materials present in finished goods and shall exclude raw materials used in packaging and manufacturing.

1.5 Priority raw materials include materials purchased by the entity or its suppliers for the purposes of producing the entity's finished goods.

1.6 If the entity is vertically integrated across the value chain and does not purchase its priority raw materials from a third-party supplier, it shall identify the priority raw materials sourced from its owned operations and used in the production of its finished goods.

2 For each priority raw material, the entity shall identify the important environmental or social factors most likely to threaten its ability to source or purchase each material.

2.1 Environmental factors may include:

2.1.1 Climate change impacts (for example, extreme weather events or water stress)

2.1.2 Regulation on greenhouse gases (GHG)

2.1.3 Environmental regulations for suppliers

2.1.4 Land use practices

2.1.5 Production methods that result in water pollution, soil degradation, deforestation or loss of biodiversity

2.2 Social factors may include:

2.2.1 Suppliers' animal welfare, labour and human rights practices

2.2.2 Materials sourcing from regions of conflict

2.2.3 Regulations on labour practices or human rights

3 For each priority raw material, the entity shall discuss the business risks and opportunities associated with environmental or social factors.

3.1 Business risks and opportunities may include:

3.1.1 Access to, and availability of, the priority raw material

3.1.2 Ability to trace the priority raw material

3.1.3 Price volatility of the priority raw material

3.1.4 Regulatory compliance issues associated with the priority raw material

3.1.5 Customer demand for products containing the priority raw material

3.1.6 The entity's brand value and reputation

4 For each priority raw material, the entity shall discuss its management strategy for addressing business risks and opportunities associated with environmental or social factors most likely to threaten its ability to source priority raw materials.

4.1 Relevant strategies may include:

4.1.1 Enhancing supply chain monitoring and traceability of raw materials suppliers through due diligence practices, research into traceability or the use of traceability systems, technology, supplier screening, supplier audits or certifications, or a list of countries from which the entity sources each priority raw material

4.1.2 Supporting raw material suppliers through supplier training or engagement programmes or introducing regenerative agricultural practices

4.1.3 Partnering with industry groups or non-governmental organisations to address environmental or social factors in supplier regions

4.1.4 Investing in the design phase or in research and development to identify substitutable or alternative materials less impacted by environmental and social factors

4.2 If the entity identifies cotton as one of its priority raw materials, it shall discuss its vulnerability to cotton-growing regions with water stress and how it manages the risk of price variability because of sourcing cotton from these regions.

4.2.1 The entity may identify its known sources of cotton for High (40%–80%) or Extremely High (>80%) Baseline Water Stress using the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

4.3 The entity shall disclose any relevant performance measures or targets used to assess the effectiveness of its management approach, as well as its progress against such targets.

4.4 Disclosure corresponds to the Sustainable Apparel Coalition's Higg Brand & Retail Module.

5 The entity may use the following table format to organise disclosure.

Priority Raw Material (Name)	**Environmental or Social Factors**	**Discussion of Business Risks or Opportunities**	**Management Strategy**

CG-AA-440a.4. (1) Amount of priority raw materials purchased, by material, and (2) amount of each priority raw material that is certified to a third-party environmental or social standard, by standard

1 For each priority raw material, the entity shall disclose the amount of materials purchased, in metric tons, during the reporting period.

1.1 The entity shall identify priority raw materials using the definition of 'priority materials' outlined in the Priority Material section of the Textile Exchange's *Materials Terminology Guide*.

1.2 Priority raw materials may include synthetic fibres, natural fibres, manufactured cellulosic materials, materials derived from animals, and any other materials used directly to make apparel, accessories, or footwear products, which may include cotton, rayon, viscose, polyester, acrylic, spandex, nylon, rubber, foam, leather, wool, cashmere, mohair, flax, silk, hemp and down.

1.3 The entity shall identify priority raw materials using the categorisation scheme presented in the 'Materials Portfolio' section of the Textile Exchange's *Materials Terminology Guide*.

1.4 If the entity purchases finished goods rather than unprocessed raw materials, it shall calculate the initial amount, in metric tons, of priority raw materials required for production.

1.4.1 The entity shall account for material loss and wastage throughout production and should reference the Textile Exchange's *Fibre Uptake Calculations & Reporting Best Practices Guide and Fibre Conversion Methodology*.

1.5 If the entity does not measure the weight of a material, it shall provide an alternative measurement, such as surface area.

1.6 The purchased amount of each priority raw material shall reflect the material in its original state and should not be presented with further data manipulation, such as reporting it as 'dry weight' consistent with guidance for Global Reporting Initiative (GRI) *Disclosure 301-1 Materials used by weight or volume*.

1.7 If estimation is required, the entity shall disclose the methods used.

1.8 The scope of disclosure shall include priority raw materials present in finished goods and exclude raw materials used in packaging and manufacturing.

1.9 Priority raw materials include materials purchased by the entity or its suppliers for the purposes of producing the entity's finished goods.

1.10 If the entity is vertically integrated across the value chain and does not purchase its priority raw materials from a third-party supplier, it shall identify the priority raw materials sourced from its owned operations and used in the production of its finished goods.

2 For each priority raw material, the entity shall disclose the amount, in metric tons, purchased that is certified to a third-party environmental or social standard, by standard.

2.1 Third-party environmental or social standards are defined as standards developed by a third party and address environmental or social factors likely to threaten an entity's ability to reliably source its priority raw materials.

2.2 Third-party environmental and social standards may include:

2.2.1 Textile Exchange's Recycled Claim Standard (RCS), Global Recycled Standard (GRS), Organic Content Standard (OCS), Responsible Down Standard (RDS), Responsible Wool Standard (RWS) and Responsible Mohair Standard (RMS)

2.2.2 Global Organic Textile Standard (GOTS)

2.2.3 Cotton Made in Africa (CmiA)

2.2.4 Fair Trade Certified

2.2.5 Organic Fair Trade

2.2.6 Leather Working Group (LWG)

2.2.7 Forest Stewardship Council (FSC) Certification

2.2.8 Programme for the Endorsement of Forest Certification (PEFC)

2.2.9 Better Cotton Initiative (BCI)

2.3 The scope of certified priority raw materials includes materials derived from a process certified to a third-party environmental or social standard.

2.4 The entity may disclose priority raw materials not certified to a third-party environmental or social standard, but that contribute to the entity's strategy to secure reliable sourcing.

2.4.1 Materials may include reclaimed cotton and wool, mechanically or chemically recycled natural, synthetic or semi-synthetic fibres.

2.4.2 Materials may include those certified to a standard/certification developed by the entity.

3 For each priority raw material, the entity shall discuss:

3.1 Why it has chosen the specified third-party certification(s)/standard(s)

3.2 How the certified materials contribute to managing the entity's business risks and opportunities

3.3 Any quantitative targets it has set for certified priority raw materials

4 The entity may use the following table format to organise disclosure.

Priority Raw Material (Name)	**Amount Purchased (Metric Tons)**	**Amount Certified, By Standard**	
		Certification/Standard & Associated Discussion (Technical Protocol #3 - 3.3)	**Amount Certified**

Volume 2—Appliance Manufacturing

Industry Description

Appliance Manufacturing industry entities design and manufacture household appliances and hand tools. Entities in this industry sell and manufacture products all over the world, primarily selling products to consumers through retailers.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Product Lifecycle Environmental Impacts	Percentage of eligible products by revenue certified to an energy efficiency certification	Quantitative	Percentage (%) by revenue	CG-AM-410a.1
	Percentage of eligible products by revenue certified to an environmental product lifecycle standard	Quantitative	Percentage (%) by revenue	CG-AM-410a.2
	Description of efforts to manage products' end-of-life impacts	Discussion and Analysis	n/a	CG-AM-410a.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Annual production [2]	Quantitative	Number of units	CG-AM-000.A

Product Lifecycle Environmental Impacts

Topic Summary

Entities in the Appliance Manufacturing industry seek to differentiate their products from those of competitors. One important differentiating factor is the lifecycle environmental impact of products and an entity's ability to design products with the entire lifecycle in mind, from creation and use to disposal. This includes appliance energy and water efficiency, which account for a significant proportion of a home's energy and water use, as well as designing for and facilitating safe end-of-life disposal and recycling. Entities designing and manufacturing products to decrease lifecycle environmental impacts are more likely to increase market share owing to a lower cost of ownership, and they may better manage increased regulation related to issues such as extended producer responsibility.

[2] Note to **CG-AM-000.A –** Production shall be disclosed as the number of units produced by product category, where relevant product categories may include small appliances and major appliances.

Metrics

CG-AM-410a.1. Percentage of eligible products by revenue certified to an energy efficiency certification

1 The entity shall disclose the percentage of its revenue from eligible products certified to an energy efficiency certification.

1.1 The entity shall calculate the percentage as the revenue from products meeting the requirements for the applicable certification divided by total revenue from products eligible for certification by each certification.

1.1.1 Eligible products are those in a product category for which certification exists, such as: heating and cooling product categories such as air purifiers, clothes dryers, clothes washers, dehumidifiers, dishwashers, freezers, refrigerators, air conditioners, boilers, ductless heating and cooling, furnaces, heat pumps and ventilation fans.

2 The scope of disclosure includes products that meet the requirements of the most current version of the applicable certification requirements.

2.1 If the entity has products certified to a previous version of certification requirements, it shall disclose this information, including to which version its products are certified, a breakdown of how many products are certified to that version and the time line(s) for achieving certification to the most current requirements version.

3 For each jurisdiction where the entity sells products, the entity shall disclose the applicable certification programme.

CG-AM-410a.2. Percentage of eligible products by revenue certified to an environmental product lifecycle standard

1 The entity shall disclose the percentage of its revenue from eligible products certified to a third-party environmental product lifecycle standard.

1.1 Environmental product lifecycle standard is defined as a certification programme or standard focused product design and materials, manufacturing processes, product performance during use-phase, and product end-of-life.

1.2 The entity shall calculate the percentage as the revenue from products meeting the requirements for the applicable certification divided by total revenue from products eligible for certification by each certification.

1.2.1 Eligible products are those in a product category for which certification exists, including: refrigeration appliances, washers, dryers, cooking appliances, air conditioners, microwave oven appliances, dehumidifier appliances and floor care appliances.

2 The scope of disclosure includes products that meet the requirements of the most current version of the applicable certification requirements.

2.1 If the entity has products certified to a previous version of certification requirements, it shall disclose this information, including to which version its products are certified, a breakdown of how many products are certified to that version, and its time line(s) for achieving certification to the most current requirements version.

3 For each jurisdiction where the entity sells products, the entity shall disclose the applicable certification programme or disclose the applicable international certification programme.

CG-AM-410a.3. Description of efforts to manage products' end-of-life impacts

1 The entity shall describe its efforts to manage the end-of-life impacts of its products, including those related to safe and proper disposal or recycling of constituent chemicals and other product components, which may include toxic heavy metals (for example, mercury and cadmium), rigid polymers, refrigerants and other metals (for example, steel and aluminium).

2 The entity shall describe the scope of its efforts, including to which product categories, business segments or operating regions they relate.

3 The entity shall discuss how it includes end-of-life considerations in product design such as:

3.1 Use of materials that are easily and commonly recyclable in existing recycling infrastructure

3.2 Eliminating or minimising the use of hazardous materials or materials that may otherwise pose environmental harm upon disposal (for example, refrigerants with ozone depleting potential or global warming potential)

3.3 Designing products for disassembly (i.e., designing products so they can be easily, rapidly, and cost-effectively disassembled with commonly available tools)

3.4 Proper labelling of products and their component materials to facilitate disassembly and recycling

4 The entity shall discuss its participation in extended producer responsibility (EPR) initiatives, including:

4.1 Whether the entity directly conducts product take-back, recovery and recycling or if the entity supports infrastructure for product recovery and recycling through joint ventures, partnerships with retailers and others, or by funding research into recycling technologies

4.2 Whether the initiative is voluntary or mandatory

4.3 Relevant performance measures or targets for the initiative such as the total amount of material recovered and the total amount of material recycled

Volume 3—Building Products & Furnishings

Industry Description

Entities in the Building Products & Furnishings industry design and manufacture home improvement products, home and office furnishings, and structural wood building materials. The industry's products include flooring, ceiling tiles, home and office furniture and fixtures, wood trusses, plywood, panelling and lumber. Entities typically sell their products through distribution channels to retail stores or through independent or entity-owned dealerships.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management in Manufacturing	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	CG-BF-130a.1
Product Lifecycle Environmental Impacts	Description of efforts to manage product lifecycle impacts and meet demand for sustainable products	Discussion and Analysis	n/a	CG-BF-410a.1
	(1) Weight of end-of-life material recovered, (2) percentage of recovered materials recycled	Quantitative	Metric tons (t), Percentage (%) by weight	CG-BF-410a.2
Wood Supply Chain Management	(1) Total weight of wood fibre materials purchased, (2) percentage from third-party certified forestlands, (3) percentage by standard and (4) percentage certified to other wood fibre standards, (5) percentage by standard [3]	Quantitative	Metric tons (t), Percentage (%) by weight	CG-BF-430a.1

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Annual production [4]	Quantitative	See note	CG-BF-000.A
Area of manufacturing facilities [5]	Quantitative	Square metres (m²)	CG-BF-000.B

[3] Note to **CG-BF-430a.1** – The entity shall describe its practices for sourcing: (1) wood fibre materials from forestlands that are not certified to a third-party forest management standard, and (2) wood fibre materials not certified to other wood fibre certification standards.

[4] Note to **CG-BF-000.A –** Production shall be disclosed in typical units tracked by the entity such as number of units, weight, and/or square feet.

[5] Note to **CG-BF-000.B** – The scope shall be limited to total area under roof, including manufacturing and administrative functions.

Energy Management in Manufacturing

Topic Summary

The Building Products & Furnishings industry creates value through energy-intensive manufacturing processes. Purchased electricity represents the largest share of energy consumption across the industry, while entities also may use fossil fuel energy on-site. The price of conventional grid electricity and volatility of fossil fuel prices may increase because of evolving climate change regulations and new incentives for energy efficiency and renewable energy, among other factors, while alternative energy sources become more cost-competitive. Decisions regarding energy sourcing and type, as well as the use of alternative energy, can create trade-offs related to the energy supply's cost and reliability for operations. Since the industry operates on relatively narrow profit margins, reductions in energy consumption may have a significant influence on financial performance. The way an entity manages energy efficiency, its reliance on different types of energy and their associated sustainability risks, and access alternative energy sources are likely to impact financial performance.

Metrics

CG-BF-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Product Lifecycle Environmental Impacts

Topic Summary

Depending on the specific building product or furnishing, significant environmental impacts can arise during raw material sourcing, transportation, manufacturing, use-phase or end-of-life. Increasing consumer and regulatory preference for less impactful products has spawned the development of more sustainable products, broadly termed 'green building materials'. In addition, product lifecycle certification has arisen as a tool for entities and their customers to assess and improve a product's lifecycle impact. Certification programmes typically examine specific sustainability characteristics of a product category and include the use of closed-loop materials that minimise a product's end-of-life environmental impacts and reduce the need for extracting or producing virgin materials. Through product innovation and design that facilitates end-of-life product recovery and the use of less impactful materials, the adoption of product certification programmes, and partnerships with customers, manufacturers of building products can improve lifecycle impacts, reduce regulatory risk, meet growing customer demand and realise cost savings.

Metrics

CG-BF-410a.1. Description of efforts to manage product lifecycle impacts and meet demand for sustainable products

1 The entity shall discuss strategies to assess and manage the environmental impact of products throughout their lifecycle.

1.1 Relevant strategies and efforts to assess product lifecycle impacts include the use of environmentally focused design principles, and the use of sustainability performance standards, screening tools and sampling methods, among others, including the operational processes used for these assessments.

1.2 Relevant strategies and efforts to manage product lifecycle impacts include changes in materials selection, assessment of upstream environmental impacts, changes in manufacturing (resource intensity), recycled and renewable materials use, optimisation of packaging, design for consolidated shipping, design of low-energy-consumption products, design for product take-back and labelling for recycling, among others.

2 The entity shall discuss factors that drive demand for its sustainable building and furnishings products, including green building certification programmes, jurisdictional procurement criteria, demand from retailers or retail consumer demand.

3 The entity shall describe the scope of its efforts including to which product categories, business segments or operating regions they relate.

4 The entity may discuss its use of Life Cycle Assessment (LCA) and Environmental Product Declarations (EPD) in the context of its approach to reducing environmental impact and maximising product resource efficiency.

4.1 Improvements to the environmental efficiency of products should be discussed in terms of LCA functional unit service parameters (time, extent and quality of function).

4.2 LCA should be based on ISO 14040 and ISO 14044. EPD should be based on ISO 14025 and ISO 21930:2017 for construction products.

5 The entity may disclose the percentage of its products certified to third-party multi-attribute or single-attribute sustainability standards.

6 The entity may describe its extended producer responsibility (EPR) efforts, including:

6.1 How end-of-life considerations are incorporated into product design, including using materials that are easily and commonly recyclable in existing recycling infrastructure

6.2 Designing products for disassembly (designing products so they can be easily, rapidly and cost-effectively disassembled with commonly available tools)

6.3 Proper labelling of products and their component materials to facilitate disassembly and recycling.

CG-BF-410a.2. (1) Weight of end-of-life material recovered, (2) percentage of recovered materials recycled

1 The entity shall disclose the weight, in metric tons, of materials recovered, including those recovered through recycling services, product take-back programmes and refurbishment services.

1.1 The scope of disclosure shall include products, materials and parts at the end of their useful life that would have otherwise been discarded as waste or used for energy recovery, but have instead been collected.

1.2 The scope of disclosure shall include both materials physically handled by the entity and materials of which the entity does not take physical possession, but for which it has contracted with a third party the task of collection for the express purpose of reuse, recycling or refurbishment.

1.3 The scope of disclosure excludes products and parts that are under warranty and have been collected for repairs.

2 The entity shall disclose the percentage of end-of-life materials recovered that were recycled or remanufactured.

2.1 Recycled and remanufactured materials are defined as waste materials reprocessed or treated by means of production or manufacturing processes and made into a final product or a component for incorporation into a product.

2.2 The scope of recycled materials includes materials used, reused or reclaimed.

2.2.1 Reused materials are defined as those recovered products or components of products used for the same purpose for which they were conceived.

2.2.2 Reclaimed materials are defined as those processed to recover or regenerate a usable product.

2.3 The scope of recycled materials includes materials sent for further recycling through the transfer to a third party for the express purpose of reuse, recycling or refurbishment.

2.4 The scope of recycled and remanufactured products includes primary recycled materials, co-products (outputs of equal value to primary recycled materials), and by-products (outputs of lesser value than primary recycled materials).

2.5 The entity shall calculate the percentage as the weight of incoming recovered material recycled or remanufactured divided by the total weight of incoming recovered material.

2.6 Portions of products and materials discarded in landfills are not considered recycled. Only the portions of products directly incorporated into new products, co-products or by-products shall be included in the percentage recycled.

2.7 Materials incinerated, including for energy recovery, are not considered reused, recycled or reclaimed.

2.7.1 Energy recovery is defined as the use of combustible waste to generate energy through direct incineration, with or without other waste, but with recovery of the heat.

3 The entity may disclose:

3.1 Whether it directly conducts product take-back, recovery and recycling or if it contracts with a third party the task of collection for the express purpose of reuse, recycling or refurbishment

3.2 If it supports infrastructure for product recovery and recycling through joint ventures, partnerships or by funding research into recycling technologies

3.3 Whether its product take-back, recovery and recycling efforts are voluntary or mandatory

3.4 Relevant performance measures or targets for its product take-back, recovery and recycling efforts such as the total amount of material recovered and the total amount of material recycled

Wood Supply Chain Management

Topic Summary

The Building Products & Furnishings industry uses large amounts of wood sourced from forests worldwide. Unsustainable production and timber harvesting can result in adverse environmental and social impacts, including biodiversity loss and harm to the livelihoods of forest-dependent communities. Entities inadvertently may source wood from areas susceptible to unsustainable forestry practices. Reports of illegal logging, environmental pollution or adverse impacts on communities can result in reputational repercussions that can damage an entity's brand value, affecting demand for their products. In addition, regulations banning the importation of illegally produced wood can result in supply constraints, penalties and further damage to brand value. To mitigate these risks, entities increasingly are adopting third-party certifications verifying wood is grown and harvested in a sustainable manner. Obtaining wood sourcing certifications also can provide entities with a potential growth channel because they can satisfy customer demand for certified products.

Metrics

CG-BF-430a.1. (1) Total weight of wood fibre materials purchased, (2) percentage from third-party certified forestlands, (3) percentage by standard and (4) percentage certified to other wood fibre standards, (5) percentage by standard

1 The entity shall disclose the total amount of wood fibre materials (in air-dried metric tons) purchased during the reporting period.

1.1 Wood fibre materials include wood-fibre-based raw materials, components, and semi-finished and finished goods.

1.2 The scope of wood-fibre-based materials includes all inputs processed to be sold as finished goods, including recycled raw materials, virgin raw materials and goods consumed directly in the production process, excluding biomass for energy.

1.3 If wood fibre comprises a portion of a material, component or product, the entity shall include the portion in the total amount.

2 The entity shall disclose the percentage of its total wood fibre materials purchased that have been sourced from forestlands certified to a third-party forest management standard.

2.1 Third-party forest management standards are those certifying forests are harvested in a sustainable manner and ensuring adherence to environmental and social criteria including legal compliance, land rights, community and worker relations, environmental impact and biodiversity, forest management plans and practices, land use, wildlife habitat conservation and water conservation, among others.

2.2 Third-party forest management standards include:

2.2.1 American Tree Farm (ATFS)

2.2.2 Forest Stewardship Council (FSC) (Forest Management and Chain of Custody certifications)

2.2.3 Programme for the Endorsement of Forest Certification (PEFC) Chain of Custody certifications

2.2.4 Forest certification systems endorsed by the PEFC

2.2.5 Sustainable Forest Initiative (SFI) Forest Management and Chain of Custody certifications

2.3 The percentage shall be calculated as the weight (in air-dried metric tons) of the entity's wood fibre materials purchased during the reporting period sourced from forestlands certified to one or more of the third-party forest management standards divided by the total weight (in air-dried metric tons) of wood fibre materials purchased during the reporting period.

2.3.1 Wood fibre certified to more than one third-party forest management standard shall be accounted for by the entity only once.

3 The entity shall disclose the percentage of its total wood fibre materials sourced from forestlands certified to each applicable third-party forest management standard, separately by standard.

3.1 The percentage shall be calculated as the weight (in air-dried metric tons) of the entity's wood fibre materials purchased during the reporting period sourced from forestlands certified to each applicable third-party forest management standard divided by the total weight (in air-dried metric tons) of wood fibre materials purchased during the reporting period.

3.1.1 Wood-fibre certified to more than one third-party forest management standard shall be accounted for by the entity in its calculations for each applicable standard.

4 The entity shall disclose the percentage of total wood fibre materials purchased that have been certified to wood fibre standards.

4.1 Wood fibre standards exclude third-party forest management standards.

4.2 Wood fibre standards include:

4.2.1 SFI Certified Fibre Sourcing Standard

4.2.2 FSC Controlled Wood Standard

4.2.3 PEFC Controlled Wood Standard

4.2.4 Recycled wood fibre standards that include post- and pre-consumer reclaimed material (for example, PEFC Recycled Label and FSC Recycled Label)

4.2.5 Any other due diligence standards related to wood fibre sourcing requirements for wood fibre from non-certified forestlands

4.3 The percentage shall be calculated as the weight (in air-dried metric tons) of the entity's wood fibre materials purchased during the reporting period certified to wood fibre standards divided by the total weight (in air-dried metric tons) of wood fibre materials purchased during the reporting period.

4.3.1 Wood-fibre certified to more than one wood fibre standard shall be accounted for by the entity only once.

5 The entity shall disclose the percentage of its wood fibre materials purchased that have been certified to wood fibre standards, separately by standard.

5.1 The percentage shall be calculated as the weight (in air-dried metric tons) of the entity's wood fibre materials purchased during the reporting period certified to each applicable wood fibre standard divided by the total weight (in air-dried metric tons) of wood fibre materials purchased during the reporting period.

5.1.1 Wood-fibre certified to more than one third-party wood fibre standard shall be accounted for by the entity in its calculations for each applicable standard.

Note to **CG-BF-430a.1**

1 The entity shall describe its practices for sourcing wood fibre materials from forestlands not certified to a third-party forest management standard and for sourcing wood fibre materials not certified to other wood fibre certification standards.

2 The entity shall describe its policies to verify the forestry management and harvesting practices of suppliers, which include codes of conduct, audits or contracts.

3 The scope of disclosure shall include how the entity's sourcing practices and policies consider the following criteria:

3.1 Wood legality and compliance with applicable jurisdictional laws or regulations

3.2 Wood sourced from areas of protected conservation status or high biodiversity value

3.3 Logging in or near areas of endangered species habitat

3.4 Logging in or near areas of indigenous peoples' land

3.5 The forestry management and harvesting practices of suppliers, including environmental impact assessments or forestry management plans

3.6 The use of genetically modified organisms (GMOs), pesticides or other chemicals in forests

3.7 Criteria outlined in the definition of SFI 'controversial sources', the definition of FSC 'controlled wood' or the equivalent

4 The entity also may disclose its wood fibre sources (for example, from corporate, private or government owned forestlands and whether fibre is grown domestically or internationally) and the potential risks associated with procuring fibre from these sources.

Volume 4—E-Commerce

Industry Description

E-Commerce industry entities provide an online marketplace for other entities or individuals to sell their goods and services, as well as retailers and wholesalers that provide an exclusively web-based platform for consumers to buy goods and services. Entities in this industry sell to consumers as well as to other businesses. Because of the accessibility of e-commerce sites, the industry is a global marketplace for buyers and sellers.

Note: This industry scope applies only to 'pure-play' e-commerce operations and does not address the manufacturing or brick-and-mortar retail operations of entities. Many consumer goods manufacturers and retailers have incorporated or are in the process of incorporating an e-commerce component to their business. Separate standards exist for the Multiline and Specialty Retailers & Distributors (CG-MR); Apparel, Accessories & Footwear (CG-AA); and Toys & Sporting Goods (CG-TS) industries. Depending on the specific activities and operations of entities in these industries, disclosure topics and metrics associated with the E-Commerce industry also may be relevant.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Hardware Infrastructure Energy & Water Management	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	CG-EC-130a.1
	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	CG-EC-130a.2
	Discussion of the integration of environmental considerations into strategic planning for data centre needs	Discussion and Analysis	n/a	CG-EC-130a.3
Product Packaging & Distribution	Total greenhouse gas (GHG) footprint of product shipments	Quantitative	Metric tons (t) CO_2-e	CG-EC-410a.1
	Discussion of strategies to reduce the environmental impact of product delivery	Discussion and Analysis	n/a	CG-EC-410a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Entity-defined measure of user activity [6]	Quantitative	Number	CG-EC-000.A
Data processing capacity, percentage outsourced [7]	Quantitative	See note	CG-EC-000.B
Number of shipments	Quantitative	Number	CG-EC-000.C

Hardware Infrastructure Energy & Water Management

Topic Summary

The E-Commerce industry uses a large part of the energy it consumes to power critical hardware and IT infrastructure in data centres. Data centres must be powered continuously, and disruptions to the energy supply can have a material impact on operations, depending on the disruption magnitude and timing. Entities also face a trade-off between energy and water consumption for their data centre cooling needs. Cooling data centres with water instead of chillers improves energy efficiency, but this method can result in dependence on potentially scarce local water resources. Entities that effectively manage this issue may benefit from cost savings and minimise reputational risks, because concerns over energy and water use are growing.

Metrics

CG-EC-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

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[6] Note to **CG-EC-000.A –** The entity shall define and disclose a basic measure of user activity suitable for its business activities. This measure may be sales transactions, purchase transactions, number of searches, monthly active users, page views, and/or unique URLs.

[7] Note to **CG-EC-000B** – Data processing capacity shall be reported in units of measure typically tracked by the entity or used as the basis for contracting its IT services needs, such as million service units (MSUs), million instructions per second (MIPS), mega floating-point operations per second (MFLOPS), compute cycles, or other units of measure. Alternatively, the entity may disclose owned and outsourced data processing needs in other units of measure, such as rack space or data centre square footage. The percentage outsourced shall include co-location facilities and cloud services (e.g., Platform as a Service and Infrastructure as a Service).

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

5 The entity may disclose the trailing twelve-month (TTM) weighted average power usage effectiveness (PUE) for its data centres.

5.1 PUE is defined as the ratio of the total amount of power a computer data centre facility uses to the amount of power delivered to computing equipment.

5.2 If disclosing PUE, the entity shall follow the guidance and calculation methodology described in *PUE™: A Comprehensive Examination of the Metric* (2014), published by ASHRAE and The Green Grid Association.

CG-EC-130a.2. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge;

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea.

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

CG-EC-130a.3. Discussion of the integration of environmental considerations into strategic planning for data centre needs

1 The entity shall discuss the environmental considerations integrated into siting, design, construction, refurbishment and operational specifications for its data centres, including factors related to energy and water consumption.

1.1 Environmental factors may include energy-efficiency standards; layout design, such as 'hot aisle/cold aisle' layouts; and location-based factors, such as accounting for regional humidity, average temperature, water availability and groundwater stress, water permits, jurisdictional carbon legislation or pricing, and the carbon intensity of electricity from the local grid.

2 The scope of disclosure shall include data centres currently owned and operated by the entity, data centres that have been planned or are under construction, and outsourced data centre services.

3 The entity shall discuss how it incorporates environmental considerations into decisions related to its data centres made during the reporting period, including if they influenced decisions to insource or outsource data centre services, improve efficiency of existing data centres or construct new data centres.

Product Packaging & Distribution

Topic Summary

A significant part of the E-Commerce industry's added value comes from an entity's ability to move a wide array of goods efficiently to consumers who would otherwise have to personally travel to collect the goods from brick-and-mortar stores. As the volume of packaging shipments increases, the industry may become more exposed to environmental externalities, such as carbon pricing and rising fuel costs that present risks associated with the shipping of products. While entities that outsource shipping and logistics have less control over the specific processes of shipping operations, they still can select suppliers with more energy-efficient business practices. Because this is a highly competitive and low-margin industry, the ability to reduce shipping costs through fuel reduction and more efficient routing may permit entities to pass those savings on to their customers. E-commerce entities also have an incentive to minimise the use of packaging. Efficient packaging can decrease costs by reducing the amount of purchased packaging material, as well as saving logistics costs because more products may fit into a single shipping load.

Metrics

CG-EC-410a.1. Total greenhouse gas (GHG) footprint of product shipments

1 The entity shall disclose the complete tank-to-wheels greenhouse gas (GHG) footprint, in metric tons of CO_2-e, associated with outbound shipment of the entity's products.

1.1 Tank-to-wheels emissions relate to vehicle processes and exclude upstream emissions associated with primary energy production (well-to-tank emissions).

1.2 The entity shall calculate its disclosure according to EN 16258:2012 – Methodology for calculation and declaration of energy consumption and GHG emissions of transport services (freight and passengers).

1.2.1 Calculations shall be consistent with the methodology used to calculate the 'tank-to-wheels GHG emissions (Gt)' result that is described in EN 16258:2012.

1.2.2 Determination of transportation system scope, boundaries and any necessary allocations shall be consistent with the methodology described in EN 16258:2012.

2 The scope of disclosure includes emissions from all freight transportation and logistics activities associated with the outbound shipment of the entity's products, including those from contract carriers and outsourced freight forwarding services and logistics providers (Scope 3) as well as those from the entity's own assets (Scope 1).

3 The scope of disclosure includes emissions from all modes of transportation, such as road freight, air freight, barge transport, marine transport, and rail transport.

4 Consistent with EN 16258:2012, disclosure may be based on calculations from a mix of categories of emissions values (specific measured values, transport operator vehicle-type- or route-type-specific values, transport operator fleet values and default values).

5 If relevant and necessary for interpretation of disclosure, the entity shall describe its allocation methods, emissions values, boundaries, mix of transport services used and other information.

CG-EC-410a.2. Discussion of strategies to reduce the environmental impact of product delivery

1 The entity shall discuss its strategies to reduce the environmental impact of fulfilment and product delivery, including impacts associated with packaging materials and those associated with product transportation.

2 Relevant strategies to discuss may include:

2.1 Discussion of logistics selection, mode selection and management (for example, rail transport vs air freight transport) or operation for route efficiency

2.2 Discussion of packaging choices that may include decisions to use recycled or renewable (for example, bio-based plastic) packaging material, decisions to optimise the amount of packaging materials used (for example, source reduction), use of refillable or reusable packaging, and design for efficient shipping and transport

2.3 Discussion of fuel choices and vehicle choices for fleets owned or operated by the entity, such as decisions to use renewable and low-emission fuels and low-emission vehicles

2.4 Other relevant strategies, such as efforts to reduce idling of vehicles owned or operated by the entity, innovations to improve the efficiency of 'last-mile' delivery and strategies to optimise delivery times to reduce traffic congestion

Volume 5—Household & Personal Products

Industry Description

Household & Personal Products industry entities manufacture a wide range of goods for personal and commercial consumption, including cosmetics, household and industrial cleaning supplies, soaps and detergents, sanitary paper products, household batteries, razors and kitchen utensils. Household and personal products entities operate globally and typically sell their products to mass merchants, grocery stores, membership club stores, drug stores, high-frequency stores, distributors and e-commerce retailers. Some entities sell products through independent representatives rather than third-party retail establishments.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	CG-HP-140a.1
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	CG-HP-140a.2
Environmental & Social Impacts of Palm Oil Supply Chain	Amount of palm oil sourced, percentage certified through the Roundtable on Sustainable Palm Oil (RSPO) supply chains as (a) Identity Preserved, (b) Segregated, (c) Mass Balance or (d) Book & Claim	Quantitative	Metric tons (t), Percentage (%)	CG-HP-430a.1

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Units of products sold, total weight of products sold	Quantitative	Number, Metric tons (t)	CG-HP-000.A
Number of manufacturing facilities	Quantitative	Number	CG-HP-000.B

Water Management

Topic Summary

Water is vital to the Household & Personal Products industry, both as a coolant in manufacturing processes and as a main input for many of the industry's products. Water is becoming a scarce resource around the world because of population growth and increasing consumption, rapid urbanisation, and declining supplies because of subsurface aquifer depletion, drought and climate change. Many entities in this industry have operations in regions of the world facing water scarcity. Without careful planning, entities could face increased costs or lose water access in these regions, which may be a risk to production. Having rigorous checks in place to ensure a steady supply of water to all factories, as well as investing in technology to increase water use efficiency, will help entities reduce water-related risks as water scarcity becomes an increasingly global issue.

Metrics

CG-HP-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity’s product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea.

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute’s (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

CG-HP-140a.2. Description of water management risks and discussion of strategies and practices to mitigate those risks

1 The entity shall describe its water management risks associated with water withdrawals, water consumption and discharge of water or wastewater.

1.1 Risks associated with water withdrawals and water consumption include risks to the availability of adequate, clean water resources, which include:

1.1.1 Environmental constraints—such as operating in water-stressed regions, drought, concerns of aquatic impingement or entrainment, interannual or seasonal variability, and risks from the impact of climate change

1.1.2 Regulatory and financial constraints—such as volatility in water costs, stakeholder perceptions and concerns related to water withdrawals (for example, those from local communities, non-governmental organisations and regulatory agencies), direct competition with and impact from the actions of other users (for example, commercial and municipal users), restrictions to withdrawals because of regulations, and constraints on the entity's ability to obtain and retain water rights or permits

1.2 Risks associated with the discharge of water or wastewater include the ability to obtain rights or permits related to discharges, regulatory compliance related to discharges, restrictions to discharges, the ability to maintain control over the temperature of water discharges, liabilities, reputational risks and increased operating costs because of regulation, stakeholder perceptions and concerns related to water discharges (for example, those from local communities, non-governmental organisations and regulatory agencies).

2 The entity may describe water management risks in the context of:

2.1 How risks may vary by withdrawal source, including surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities; and

2.2 How risks may vary by discharge destinations, including surface water, groundwater or wastewater utilities.

3 The entity may discuss the potential effects that water management risks may have on its operations and the time line over which such risks are expected to manifest.

3.1 Effects include those associated with costs, revenue, liabilities, continuity of operations and reputation.

4 The entity shall discuss its short- and long-term strategies or plans to mitigate water management risks, which include:

4.1 The scope of its strategy, plans, goals or targets, such as how they relate to various business units, geographies or water-consuming operational processes.

4.2 Any water management goals or targets it has prioritised, and an analysis of performance against those goals or targets.

4.2.1 Goals and targets include those associated with reducing water withdrawals, reducing water consumption, reducing water discharges, reducing aquatic impingements, improving the quality of water discharges and regulatory compliance.

4.3 The activities and investments required to achieve the plans, goals or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4.4 Disclosure of strategies, plans, goals or targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

5 For water management targets, the entity shall additionally disclose:

5.1 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target.

5.2 The time lines for the water management activities, including the start year, the target year and the base year.

5.3 The mechanism(s) for achieving the target, including:

5.3.1 Efficiency efforts, such as the use of water recycling or closed-loop systems;

5.3.2 Product innovations, such as redesigning products or services to require less water;

5.3.3 Process and equipment innovations, such as those that enable the reduction of aquatic impingements or entrainments;

5.3.4 Use of tools and technologies (for example, the World Wildlife Fund Water Risk Filter, the Global Water Tool and Water Footprint Network Footprint Assessment Tool) to analyse water use, risks and opportunities; and

5.3.5 Collaborations or programmes in place with the community or other organisations

5.4 The percentage reduction or improvement from the base year, in which the base year is the first year against which water management targets are evaluated towards the achievement of the target.

6 The entity shall discuss whether its water management practices result in any additional lifecycle impacts or trade-offs in its organisation, including trade-offs in land use, energy production and greenhouse gas (GHG) emissions, and why the entity chose these practices despite lifecycle trade-offs.

Environmental & Social Impacts of Palm Oil Supply Chain

Topic Summary

Palm oil has increased in popularity as a cheap input for a wide range of goods in the Household & Personal Products industry, including cleaning products, candles and cosmetics. Palm oil harvesting in specific regions of the world may contribute to deforestation, GHG emissions and other environmental and social problems. If not sourced responsibly, palm oil materials contribute to environmental and social externalities that can present reputational and regulatory risks for entities. Furthermore, entities in this industry are exposed to the risk of supply chain disruptions, input price increases and reputational damage associated with environmental and social externalities from palm oil sourcing. Entities face pressure to track and responsibly source palm oil and ensure minimum working condition standards in the supply chain, because palm oil production often is associated with labour issues. Implementing sourcing standards can reduce these risks, as can product-design phase innovations to reduce dependence on controversial materials such as palm oil.

Metrics

CG-HP-430a.1. Amount of palm oil sourced, percentage certified through the Roundtable on Sustainable Palm Oil (RSPO) supply chains as (a) Identity Preserved, (b) Segregated, (c) Mass Balance or (d) Book & Claim

1 The entity shall disclose the amount, in metric tons, of palm oil sourced during the reporting period.

1.1 The scope of palm oil includes palm kernel oil and palm kernel expeller.

2 The entity shall disclose the percentage, on a weight basis, of palm oil it sourced that has been third-party certified to bear a Roundtable on Sustainable Palm Oil (RSPO) claim for each of the RSPO supply chain models: (a) Identity Preserved (IP), (b) Segregated (SG), (c) Mass Balance (MB) or (d) Book & Claim (B&C).

2.1 B&C transactions are represented by 'RSPO Credits' purchased in the RSPO PalmTrace platform.

2.2 The percentage shall be calculated as the weight in each respective RSPO supply chain model (IP, SG, MB or B&C) of RSPO-certified palm oil sourced by the entity divided by the total weight, in metric tons, of palm oil sourced by the entity.

3 The entity may discuss other strategies, approaches and mechanisms used to manage risks and opportunities associated with the environmental and social impacts of palm oil sourcing.

Volume 6—Multiline and Specialty Retailers & Distributors

Industry Description

The Multiline and Specialty Retailers & Distributors industry encompasses a variety of retailing categories such as department stores, mass merchants, home products stores and warehouse clubs, as well as a smaller segment of distributors like electronics wholesalers and automotive wholesalers. These entities (except for the distribution segment) commonly manage global supply chains to anticipate consumer demands, keep costs low and keep products stocked in their brick-and-mortar storefronts. This is a highly competitive industry in which each category generally has a small number of important players characterised by generally low margins. The relatively substitutable nature of retail makes entities in this industry especially susceptible to reputational risks.

Note: Separate standards exist for the Food Retailers & Distributors (FB-FR), Drug Retailers (HC-DR), E-Commerce (CG-EC) and Apparel, Accessories & Footwear (CG-AA) industries. Retail entities involved in food or drug retail, e-commerce, or apparel, accessories and footwear manufacturing should also consider the disclosure topics and metrics outlined in these other standards.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management in Retail & Distribution	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	CG-MR-130a.1

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of: (1) retail locations and (2) distribution centres	Quantitative	Number	CG-MR-000.A
Total area of: (1) retail space and (2) distribution centres	Quantitative	Square metres (m^2)	CG-MR-000.B

Energy Management in Retail & Distribution

Topic Summary

Entities in this industry require significant amounts of energy for retail facilities and warehouses. An increasing number of greenhouse gas (GHG) emissions regulations and incentives for energy efficiency and renewable energy may result in price increases for conventional electricity sources while making alternative sources more cost-competitive. Fossil fuel-based energy production and consumption contribute to significant environmental impacts, including climate change and pollution. Energy sourcing decisions can create trade-offs related to energy supply costs and operational reliability. Overall energy efficiency and access to alternative energy sources are becoming increasingly important for entities to manage. Efficiency in this area can have financial implications through direct cost savings, which are particularly beneficial in this low-margin industry.

Metrics

CG-MR-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Volume 7—Coal Operations

Industry Description

The Coal Operations industry includes entities that mine coal and those that manufacture coal products. Mining activity covers both underground and surface mining, and thermal and metallurgical coal.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	Quantitative	Metric tons (t) CO_2-e, Percentage (%)	EM-CO-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	EM-CO-110a.2
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	EM-CO-140a.1
	Number of incidents of non-compliance associated with water quality permits, standards and regulations	Quantitative	Number	EM-CO-140a.2
Reserves Valuation & Capital Expenditures	Sensitivity of coal reserve levels to future price projection scenarios that account for a price on carbon emissions	Quantitative	Million metric tons (Mt)	EM-CO-420a.1
	Estimated carbon dioxide emissions embedded in proven coal reserves	Quantitative	Metric tons (t) CO_2-e	EM-CO-420a.2
	Discussion of how price and demand for coal or climate regulation influence the capital expenditure strategy for exploration, acquisition and development of assets	Discussion and Analysis	n/a	EM-CO-420a.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Production of thermal coal	Quantitative	Million metric tons (Mt)	EM-CO-000.A
Production of metallurgical coal	Quantitative	Million metric tons (Mt)	EM-CO-000.B

Greenhouse Gas Emissions

Topic Summary

Coal operations are energy intensive and generate significant direct greenhouse gas (GHG) emissions, including carbon dioxide from fuel use and methane released from coal beds during mining and post-mining activities. Regulatory efforts to reduce GHG emissions in response to the risks posed by climate change may result in higher operating and capital expenditures based on the magnitude of their direct emissions. Operational efficiencies can be achieved through the cost-effective reduction of GHG emissions. Such efficiencies can mitigate the potential financial impact of increased fuel costs from regulations that limit—or put a price on—GHG emissions.

Metrics

EM-CO-110a.1. Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalent (CO_2-e), and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard*(GHG protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 These emissions include direct emissions of GHGs from stationary or mobile sources; these sources include equipment at mine sites, mine mouth electric generating facilities, coal seam methane emissions, production and processing facilities, storage facilities, office buildings, and transportation (marine, road, and rail).

2.2 Acceptable calculation methodologies include those that conform to the *GHG Protocol* as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples include:

2.2.1 *GHG Reporting Guidance for the Aerospace Industry* provided by the International Aerospace Environmental Group (IAEG)

2.2.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* provided by the U.S. Environmental Protection Agency (EPA)

2.2.3 India GHG Inventory Program

2.2.4 ISO 14064-1

2.2.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.2.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.3 GHG emission data shall be consolidated according to the approach with which the entity consolidates its financial reporting data, which is generally aligned with the 'financial control' approach defined by the GHG Protocol as well as:

2.3.1 The financial approach detailed in Chapter 3 of the IPIECA/API/OGP *Petroleum Industry Guidelines for Reporting Greenhouse Gas Emissions*, 2nd Edition, 2011 (hereafter, the 'IPIECA GHG Guidelines')

2.3.2 The approach provided by the Climate Disclosure Standards Board (CDSB) that is described in REQ-07, 'Organisational boundary,' of the *CDSB Framework for reporting environmental and social information*

3 The entity shall disclose the percentage of its gross global Scope 1 GHG emissions covered under an emissions-limiting regulation or programme intended to limit or reduce emissions directly, such as cap-and-trade schemes, carbon tax/fee systems, and other emissions control (for example, command-and-control approach) and permit-based mechanisms.

3.1 Examples of emissions-limiting regulations include:

3.1.1 California Cap-and-Trade (California Global Warming Solutions Act)

3.1.2 European Union Emissions Trading Scheme (EU ETS)

3.1.3 Quebec Cap-and-Trade (Quebec Environment Quality Act)

3.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO_2-e) that are covered under emissions-limiting regulations divided by the total amount of gross global Scope 1 GHG emissions (CO_2-e).

3.2.1 For emissions subject to more than one emissions-limiting regulation, the entity shall not account for those emissions more than once.

3.3 The scope of emissions-limiting regulations excludes emissions covered under voluntary emissions-limiting regulations (for example, voluntary trading systems), as well as reporting-based regulations.

4 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

5 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure program) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

6 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

EM-CO-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined according to *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

5 The entity shall discuss whether its strategies, plans, or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Water Management

Topic Summary

Coal operations have an impact on both the quality and quantity of local water resources. Coal operations are water intensive. The use of water in coal washing to remove sulphur, cool drilling equipment and transport coal in slurry pipelines can impact resources. The severity of these risks can vary depending on the region’s water availability and the regulatory environment. Reducing water use and contamination also could create operational efficiencies for entities and lower their operating costs. Wastewater treatment and discharge often is regulated by jurisdictional authorities. Violating limits on selenium, sulphate and dissolved solids could affect coal operations entities through significant penalties, compliance costs, delays in production or higher costs related to mine closure.

Metrics

EM-CO-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all of its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose its water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose its water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

EM-CO-140a.2. Number of incidents of non-compliance associated with water quality permits, standards and regulations

1 The entity shall disclose the total number of incidents of non-compliance, including violations of a technology-based standard and exceedances of quantity or quality-based standards.

2 The scope of disclosure includes incidents governed by applicable jurisdictional statutory permits and regulations, which include the discharge of a hazardous substance, violation of pre-treatment requirements or total maximum daily load (TMDL) exceedances.

2.1 Typical parameters of concern include selenium, total dissolved solids (TDS), sulphate, total suspended solids (TSS) and pH.

3 The scope of disclosure shall only include incidents of non-compliance that resulted in a formal enforcement action(s).

3.1 Formal enforcement actions are defined as governmental recognised actions that address a violation or threatened violation of water quantity or quality laws, regulations, policies or orders, and can result in administrative penalty orders, administrative orders and judicial actions, among others.

4 Violations shall be disclosed, regardless of their measurement methodology or frequency. These include violations for:

4.1 Continuous discharges, limitations, standards and prohibitions that are generally expressed as maximum daily, weekly or monthly averages; and

4.2 Non-continuous discharges, limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge and mass or concentration of specified pollutants.

Reserves Valuation & Capital Expenditures

Topic Summary

Coal entities may be unable to extract a significant proportion of their coal reserves if greenhouse gas (GHG) emissions are controlled to limit global temperature increases. Stewardship of capital resources while considering medium- to long-term trends, particularly related to climate change mitigation actions, is critical to prevent asset impairment and maintain profitability and creditworthiness. Globally, regulations and policies are and may continue to be put into place to limit GHG emissions from coal-fired power plants—the customers of coal entities—thus reducing demand for and the price of coal. Coal demand also is being affected by regulations governing other harmful air emissions that apply to coal-fired power plants. An expansion of GHG-mitigation regulations may increase the magnitude of potential financial impacts in the medium to long term. Along with improved competitiveness of alternative energy technologies, these jurisdictional regulations and policies pose long-term risks for the reserves and capital investments of coal operations entities.

Metrics

EM-CO-420a.1. Sensitivity of coal reserve levels to future price projection scenarios that account for a price on carbon emissions

1 The entity shall perform a sensitivity analysis of its reserves to determine how several future scenarios may affect the determination of whether the reserves are proven or probable.

2 The entity shall analyse the sensitivity of its current proven and probable reserves using the price trajectories published by the International Energy Agency (IEA) in its World Energy Outlook (WEO) publication, including:

2.1 Current Policies Scenario, which assumes no changes in policies from the mid-point of the year of publication of the WEO

2.2 New Policies Scenario, which assumes that broad policy commitments and plans that have been announced by countries—including national pledges to reduce greenhouse gas emissions and plans to phase out fossil-energy subsidies—occur, even if the measures to implement these commitments have yet to be identified or announced. This broadly serves as the IEA baseline scenario.

2.3 Sustainable Development Scenario, which assumes an energy pathway occurs that is consistent with the goal of limiting the global increase in temperature to 1.5°C by limiting concentration of greenhouse gases in the atmosphere.

2.4 The entity shall consider the WEO scenarios as a normative reference, thus any updates to the WEO made year-on-year shall be considered updates to this guidance.

2.5 Reserves are defined as mineral deposits that could be economically and legally extracted or produced at the time of the reserve determination.

2.6 Proven reserves are reserves for which (a) quantity is computed from dimensions revealed in outcrops, trenches, workings or drill holes; grade or quality are computed from the results of detailed sampling and (b) the sites for inspection, sampling and measurement are spaced so closely and the geographical character is so well defined that size, shape, depth and mineral content of reserves are well established.

2.7 Probable reserves are reserves for which quantity and grade or quality are computed from information like that used for proven (measured) reserves, but the sites for inspection, sampling and measurement are farther apart or are otherwise less adequately spaced. The degree of assurance, although lower than that for proven (measured) reserves, is high enough to assume continuity between points of observation.

3 The entity shall conduct a reserves sensitivity analysis and disclose, in the aggregate, an estimate of reserves estimated for each product type based on different price and cost criteria, such as a range of prices and costs that may reasonably be achieved, including standardised futures prices or management's own forecasts.

4 The entity shall also disclose the price and cost schedules and assumptions on which disclosed values are based.

5 The entity may summarise its findings in the following table format:

Table 3. Sensitivity of Reserves to Prices By Principal Product Type and Price Scenario

PRICE CASE	PROVEN RESERVES		PROBABLE RESERVES	
(Scenario)	Coal	Product A	Coal	Product A
	(tons)	(measure)	(tons)	(measure)
Current Policies Scenario (base)				
New Policies Scenario				
Sustainable Development Scenario				

6 The entity may disclose the sensitivity of its reserve levels in other price and demand scenarios in addition to those described above, particularly if these scenarios differ depending on the type of coal reserves, regulatory environment in the countries or regions where mining occurs, end-use of the entity's products, or other factors.

7 For additional sensitivity analyses, the entity should consider disclosing the following, per the Task Force on Climate-Related Financial Disclosures (TCFD) Recommendations Report Figure 8 as well as the Implementing the Recommendations of the TCFD Report, Section E:

7.1 The alternative scenarios used, including other 2ºC or lower scenarios

7.2 Critical input parameters, assumptions, and analytical choices for the climate-related scenarios used, particularly as they relate to key areas such as policy assumptions, energy deployment pathways, technology pathways, and related timing assumptions

7.3 Time frames used for scenarios, including short-, medium-, and long-term milestones (e.g., how organisations consider timing of potential future implications under the scenarios used)

EM-CO-420a.2. Estimated carbon dioxide emissions embedded in proven coal reserves

1 The entity shall calculate and disclose an estimate of the carbon dioxide emissions embedded in its proven coal reserves.

1.1 This estimate applies a factor for potential CO_2 only and does not include an estimate for all potential greenhouse gas emissions because these are dependent on downstream use (for example, utility electricity generation, industrial heating and electricity generation, cement production or steel production).

2 Estimated potential carbon dioxide emissions from proven coal reserves shall be calculated according to the following formula, derived from Meinshausen et al:

2.1 $E = R \times V \times C$, where:

2.1.1 E are the potential emissions in kilograms of carbon dioxide (kg CO_2)

2.1.2 R are the proven reserves in gigagrams (Gg)

2.1.3 V is the net calorific value in terajoules per gigagram (TJ/Gg)

2.1.4 C is the effective carbon dioxide emission factor in kilograms CO_2 per terajoule (kg/TJ)

3 In the absence of data specific to the entity’s coal reserves, carbon content shall be calculated using default data for each major type of coal resource published by the Intergovernmental Panel on Climate Change (IPCC) in its *2006 IPCC Guidelines for National Greenhouse Gas Inventories*.

3.1 The entity shall use default carbon content values per unit of energy listed in IPCC Table 1.3 Default Values of Carbon Content, Volume 2: Energy, Chapter 1.

3.2 The entity shall use calorific values per weight of coal resource contained in IPCC Table 1.2 Default Net Calorific Values (NCVs) and Lower and Upper Limit of the 95% Confidence Intervals, Volume 2: Energy, Chapter 1.

4 The entity shall use engineering estimates to determine the weight of its coal reserves in gigagrams.

5 For other assumptions required to estimate the carbon content of coal reserves, the entity shall rely on guidance from the IPCC, Greenhouse Gas Protocol, US Energy Information Agency (EIA) or the International Energy Agency (IEA).

EM-CO-420a.3. Discussion of how price and demand for coal or climate regulation influence the capital expenditure strategy for exploration, acquisition and development of assets

1 The entity shall discuss how projections for price and demand for coal and the path of air quality and climate regulation influence the entity's capital expenditure (CAPEX) strategy.

1.1 This discussion should include the entity's projections and assumptions about future coal prices and the likelihood that certain price and demand scenarios occur.

2 The entity shall discuss the implications of price and demand scenario planning (EM-CO-420a.1) and how they may affect decisions to explore, acquire and develop new reserves.

3 The entity may discuss factors that materially influence its CAPEX decision making, which may include:

3.1 How the scope of air quality and climate change regulation—such as which countries, regions or industries are likely to be impacted—may influence where the entity focuses its exploration and development

3.2 Its view of the alignment between the time horizon during which price and demand for coal may be affected by climate regulation and time horizons for returns on capital expenditures on reserves

3.3 How the structure of climate regulations—a carbon tax versus cap-and-trade—may differently affect price and demand, and thus the entity's capital expenditure decision making

4 The entity may discuss how these trends affect decision-making in the context of the various types of reserve expenditures, including development of assets, acquisition of properties with proven reserves, acquisition of properties with unproven resources and exploration activities.

Volume 8—Construction Materials

Industry Description

Construction Materials entities have global operations and produce construction materials for sale to construction entities or wholesale distributors. These primarily include cement and aggregates, but also glass, plastic materials, insulation, bricks and roofing material. Materials producers operate their own quarries, mining crushed stone or sand and gravel. They may also purchase raw materials from the mining and petroleum industries.

Note: Entities producing wood-building products are included the Building Products & Furnishings (CG-BF) industry, Forestry Management industry (RR-FM), and Pulp & Paper Products industry (RR-PP) under the Sustainable Industry Classification System (SICS) and are not included in the Construction Materials standard.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	Quantitative	Metric tons (t) CO_2-e, Percentage (%)	EM-CM-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	EM-CM-110a.2
Air Quality	Air emissions of the following pollutants: (1) NO_x (excluding N_2O), (2) SO_x, (3) particulate matter (PM_{10}), (4) dioxins/furans, (5) volatile organic compounds (VOCs), (6) polycyclic aromatic hydrocarbons (PAHs) and (7) heavy metals	Quantitative	Metric tons (t)	EM-CM-120a.1
Energy Management	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage alternative and (4) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	EM-CM-130a.1
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	EM-CM-140a.1
Waste Management	Amount of waste generated, percentage hazardous and percentage recycled	Quantitative	Metric tons (t), Percentage (%)	EM-CM-150a.1

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TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Product Innovation	Percentage of products that qualify for credits in sustainable building design and construction certifications	Quantitative	Percentage (%) by annual sales revenue	EM-CM-410a.1
	Total addressable market and share of market for products that reduce energy, water or material impacts during usage or production	Quantitative	Presentation currency, Percentage (%)	EM-CM-410a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Production by major product line [8]	Quantitative	Metric tons (t)	EM-CM-000.A

Greenhouse Gas Emissions

Topic Summary

The production of construction materials, particularly cement, generates significant direct greenhouse gas (GHG) emissions from on-site fuel combustion and chemical processes. The industry has achieved efficiency gains in reducing emissions per ton of materials produced. At the same time, increasing production is associated with increasing absolute emissions from cement production. The production of construction materials remains carbon-intensive relative to other industries, exposing the industry to higher operating and capital expenditures from emissions regulations. Strategies to reduce GHG emissions include energy efficiency, use of alternative and renewable fuels, carbon sequestration and clinker substitution. Operational efficiencies can be achieved through the cost-effective reduction of GHG emissions. Such efficiencies can mitigate the potential financial impact of increased fuel costs as well as direct emissions from regulations that limit—or put a price on—GHG emissions.

Metrics

EM-CM-110a.1. Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalent (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

[8] Note to **EM-CM-000.A –** Determination of major product line (e.g., cement and aggregates, composites, roofing materials, fibreglass, brick, and tile, or others) should be based on revenue generation, and may include a category of “other” construction materials products that combines multiple smaller revenue streams.

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 These emissions include direct emissions of GHGs from stationary or mobile sources that include production facilities, office buildings and product transportation (marine, road and rail).

2.2 Acceptable calculation methodologies include those that conform to the GHG Protocol as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples include:

2.2.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)

2.2.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the US Environmental Protection Agency (EPA)

2.2.3 India GHG Inventory Program

2.2.4 ISO 14064-1

2.2.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.2.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.3 GHG emission data shall be consolidated according to the approach with which the entity consolidates its financial reporting data, which is generally aligned with the 'financial control' approach defined by the GHG Protocol and the approach provided by the Climate Disclosure Standards Board (CDSB) that is described in REQ-07, 'Organisational boundary,' of the *CDSB Framework for reporting environmental and social information*.

3 The entity shall disclose the percentage of its gross global Scope 1 GHG emissions covered under an emissions-limiting regulation or programme intended to limit or reduce emissions directly, such as cap-and-trade schemes, carbon tax/fee systems, and other emissions control (for example, command-and-control approach) and permit-based mechanisms.

3.1 Examples of emissions-limiting regulations include:

3.1.1 California Cap-and-Trade (California Global Warming Solutions Act)

3.1.2 European Union Emissions Trading Scheme (EU ETS)

3.1.3 Quebec Cap-and-Trade (Quebec Environment Quality Act)

3.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO_2-e) covered under emissions-limiting regulations divided by the total amount of gross global Scope 1 GHG emissions (CO_2-e).

3.2.1 For emissions subject to more than one emissions-limiting regulation, the entity shall not account for those emissions more than once.

3.3 The scope of emissions-limiting regulations excludes emissions covered under voluntary emissions-limiting regulations (for example, voluntary trading systems), as well as reporting-based regulations.

4 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

5 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

6 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

EM-CM-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

5 The entity shall discuss whether its strategies, plans, or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Air Quality

Topic Summary

On-site fuel combustion and production processes in the Construction Materials industry emit criteria air pollutants and hazardous chemicals, including small quantities of organic compounds and heavy metals. Emissions of particular concern include nitrogen oxides, sulphur dioxides, particulate matter, heavy metals (for example, mercury), dioxins and volatile organic compounds, among others. These air emissions can have significant, localised human health and environmental impacts. Financial impacts resulting from air emissions will vary depending on the specific location of operations and the applicable air emissions regulations, but they could include higher operating or capital expenditures and regulatory or legal penalties. Active management of the issue—through technological and process improvements—may allow entities to limit the impact of regulations and benefit from operational efficiencies that could lead to a lower cost structure over time.

Metrics

EM-CM-120a.1 Air emissions of the following pollutants: (1) NO_x (excluding N_2O), (2) SO_x, (3) particulate matter (PM_{10}), (4) dioxins/furans, (5) volatile organic compounds (VOCs), (6) polycyclic aromatic hydrocarbons (PAHs) and (7) heavy metals

1 The entity shall disclose its emissions of air pollutants, in metric tons per pollutant, released into the atmosphere.

1.1 The scope of disclosure includes air pollutants associated with the entity's direct air emissions resulting from all the entity's activities and sources of emissions, which may include stationary and mobile sources, production facilities, office buildings and transportation fleets.

2 The entity shall disclose its emissions of (1) oxides of nitrogen (NO_x), reported as NO_x.

2.1 The scope of NO_x includes NO and NO_2 but excludes N_2O.

3 The entity shall disclose its emissions of (2) oxides of sulphur (SO_x), reported as SO_x.

3.1 The scope of SO_x includes SO_2 and SO_3.

4 The entity shall disclose its emissions of (3) particulate matter 10 micrometres or less in diameter (PM_{10}), reported as PM_{10}.

4.1 PM_{10} is defined as any airborne finely divided solid or liquid material with an aerodynamic diameter less than or equal to a nominal 10 micrometres.

5 The entity shall disclose its emissions of (4) dioxins/furans.

5.1 Dioxins/furans include, but are not limited to the sum of the 17 congeners of polychlorinated dibenzodioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) that contain chlorine

6 The entity shall disclose its emissions of (5) non-methane volatile organic compounds (VOCs).

6.1 VOCs are defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate and methane, that participates in atmospheric photochemical reactions, except those designated under applicable jurisdictional law or regulation as having negligible photochemical reactivity.

6.1.1 If applicable regulatory definitions of VOCs may conflict with this definition, the entity may define VOCs in accordance with the applicable regulatory definition.

7 The entity shall disclose its emissions of (6) polycyclic aromatic hydrocarbons (PAHs).

7.1 PAHs are a large group of organic compounds containing two or more fused aromatic (benzene) rings. A main source of emission is the incomplete combustion or pyrolysis of organic material.

7.2 PAHs include those listed in the World Health Organization's *2021 Human health effects of polycyclic aromatic hydrocarbons as ambient air pollutants: report of the Working Group on Polycyclic Aromatic Hydrocarbons of the Joint Task Force on the Health Aspects of Air Pollution*.

8 The entity shall disclose its emissions of (7) heavy metals.

8.1 The scope of heavy metals includes lead (Pb), mercury (Hg), and cadmium (Cd).

9 The entity may discuss the calculation methodology for its emissions disclosure, such as whether data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

Energy Management

Topic Summary

The production of construction materials requires significant energy, sourced primarily from direct fossil fuel combustion as well as from purchased electricity. Energy-intense production has implications for climate change, and electricity purchases from the grid can create indirect Scope 2 emissions. Construction materials entities also use alternative fuels for kilns, such as scrap tyres and waste oil—often waste generated by other industries. If properly managed, these can lower energy costs and greenhouse gas (GHG) emissions. However, potentially negative impacts could occur, such as releases of harmful air pollutants that entities need to minimise to obtain net benefits from using such fuels. Decisions about use of alternative fuels, renewable energy and on-site generation of electricity (versus purchases from the grid) can be important in influencing both the costs and reliability of energy supply. Affordable, easily accessible and reliable energy is an important competitive factor in this industry, with purchased fuels and electricity accounting for a significant proportion of total production costs. How a construction materials entity manages energy efficiency, reliance on different types of energy and associated sustainability risks, and access to alternative sources of energy may influence its profitability.

Metrics

EM-CM-130a.1. (1) Total energy consumed, (2) percentage grid electricity, (3) percentage alternative and (4) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed from alternative sources, in terms of its energy content.

3.1 Alternative sources of energy include used tyres, spent solvents and waste oils, processed municipal solid waste, household wastes, agricultural wastes such as rice, peanut shells and coffee husks, animal meal and sewage sludge.

4 The entity shall disclose (4) the percentage of energy it consumed that was renewable energy.

4.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

4.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

4.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

4.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

4.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

4.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

4.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

5 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Water Management

Topic Summary

Construction materials production requires substantial volumes of water. Entities face operational, regulatory and reputational risks associated with water scarcity, costs of water acquisition, regulations on effluents or amount of water used, and competition with local communities and other industries for limited water resources. Risks are likely to be higher in regions of water scarcity because of potential water availability constraints and price volatility. Entities unable to secure a stable water supply could face production disruptions, while rising water prices could directly increase production costs. Consequently, the adoption of technologies and processes that reduce water consumption could lower operating risks and costs for entities by minimising the impact of regulations, water supply shortages and community-related disruptions on entity operations.

Metrics

EM-CM-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

Waste Management

Topic Summary

Construction materials production recycling rates are high. However, waste from production processes, pollution control devices and from hazardous waste management activities present a regulatory risk and can increase operating costs. Cement kiln dust (CKD)—consisting of fine-grained, solid, highly alkaline waste removed from cement kiln exhaust gas by air pollution control devices—is the most significant waste category in the industry. Regulatory risk remains high from evolving environmental laws. Entities that reduce waste streams—hazardous waste streams in particular—and recycle by-products, can reduce regulatory and litigation risks and costs.

Metrics

EM-CM-150a.1. Amount of waste generated, percentage hazardous and percentage recycled

1 The entity shall disclose the amount of waste generated in metric tons.

1.1 Waste is defined as anything for which the entity has no further use, and which is discarded or released to the environment.

1.2 The scope includes slags, dusts, sludges, used oil and other solid wastes that meet the above definition.

1.3 The scope excludes gaseous waste.

2 The entity shall disclose the percentage of waste generated that was hazardous.

2.1 The percentage of hazardous waste shall be calculated as the weight hazardous waste as defined in accordance with the applicable jurisdictional, legal or regulatory framework where the waste was generated divided by the total weight of waste material.

2.2 Hazardous waste generally displays the following characteristics: ignitability, corrosivity, reactivity or toxicity.

2.3 The entity may use United Nations Environmental Programme (UNEP) *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal* for the purposes of defining hazardous waste for operations located in jurisdictions that lack applicable legal or regulatory definitions.

3 The entity shall disclose the percentage of waste generated that was recycled.

3.1 The percentage recycled shall be calculated as the weight of waste material reused, plus the weight recycled or remanufactured (through treatment or processing) by the entity, plus the amount sent externally for further recycling, divided by the total weight of waste material.

3.1.1 Reused materials are defined as those recovered products or components of products used for the same purpose for which they were conceived.

3.1.2 Recycled and remanufactured materials are defined as waste materials that have been reprocessed or treated by means of production or manufacturing processes and made into a final product or made into a component for incorporation into a product.

3.1.3 The scope of recycled and remanufactured products includes primary recycled materials, co-products (outputs of equal value to primary recycled materials) and by-products (outputs of lesser value to primary recycled materials).

3.1.4 Portions of products and materials discarded in landfills are not considered recycled; only the portions of products directly incorporated into new products, co-products or by-products shall be included in the percentage recycled.

3.1.5 Materials sent for further recycling include those materials transferred to a third party for the expressed purpose of reuse, recycling or refurbishment.

3.2 Materials incinerated, including for energy recovery, shall not be considered within the scope of recycled materials.

3.2.1 Energy recovery is defined as the use of combustible waste to generate energy through direct incineration, with or without other waste, but with recovery of the heat.

3.2.2 The entity may separately disclose the percentage of hazardous waste generated that was incinerated.

4 The entity shall disclose the legal or regulatory framework(s) used to define waste, hazardous waste and recycled hazardous waste.

Product Innovation

Topic Summary

Innovations in building materials are an essential component in the growth of sustainable construction. Consumer and regulatory trends are driving adoption of sustainable building materials and processes that are more resource efficient and can reduce health impacts of buildings throughout their lifecycle. This is creating new business drivers for construction materials entities, with an opportunity to increase revenue. Furthermore, some new products require less energy to produce, or use largely recycled inputs, reducing production costs. Therefore, sustainable construction materials can contribute to an entity's long-term growth and competitiveness.

Metrics

EM-CM-410a.1 Percentage of products that qualify for credits in sustainable building design and construction certifications

1 The entity shall calculate the percentage as the revenue during the reporting period from products that qualify for credits in recognised sustainable design and construction certifications divided by the total revenue from building products.

1.1 The scope of products excludes raw or intermediate materials that would require additional manufacturing before being incorporated into a building; the entity shall exclude these products from the numerator and denominator of the calculation.

2 Recognised sustainable building design and construction certifications and guidelines include BREEAM® (BRE Global), Green Globes® (Green Building Initiative), LEED® (US Green Building Council) and ICC-700 National Green Building Standard® (National Association of Home Builders).[9]

2.1 If the entity's products can be used to obtain credits in certifications other than those described above, it shall provide the name of the certification and evidence of why it is equal to or more rigorous than those standards listed here.

3 The entity may disclose and discuss which specific products contribute to sustainable building practices, as well as its plans to address market demand for these types of products.

EM-CM-410a.2. Total addressable market and share of market for products that reduce energy, water or material impacts during usage or production

1 The entity shall provide an estimate of the total addressable market for products that show reduced environmental impacts at various lifecycle stages, including during material sourcing, manufacturing and product usage (hereafter, 'reduced environmental impact products').

[9] The ISSB is not affiliated with any of the standards or organisations listed, and listing should not be taken as an endorsement of any standard or organisation. Listing of standards is not meant to imply that standards are identical in scope, underlying requirements or criteria, or that standards are interchangeable.

1.1 Total addressable market is defined as potential revenue should the entity capture 100% of the market share of the product category (for example, the global market for reduced environmental impact products).

2 The scope of products includes those:

2.1 With product attributes that reduce energy consumption or increase energy efficiency for users, such as by providing improved insulation compared to typical products

2.2 With process or product attributes that reduce the amount of water required in manufacturing, during product assembly or product usage

2.3 That use secondary or recycled materials in place of virgin materials such that upstream impacts are reduced

2.4 Made with design innovations that reduce carbon emissions during manufacturing, such as use of renewable fuels, energy efficiency improvements or the use of materials requiring less processing

3 If a significant difference exists between the total addressable market and the market that the entity can serve through its existing or planned capabilities, sales channels or products (the serviceable available market), then the entity should disclose this information.

4 The entity shall disclose the share of the total addressable market for reduced environmental impact products it currently captures with its products.

4.1 Market share shall be calculated as revenue from these products divided by the size of the total addressable market.

5 The entity may provide a projection of growth of this market, where the projected addressable market is represented—based on a reasonable set of assumptions about changes in market conditions—as a percentage of year-on-year growth or as an estimate of the market size after a defined period (the market size in 10 years).

5.1 The entity may disclose its target three-year market share as a measurement of targeted growth, where the target is the percentage of the total addressable market the entity plans to address over a three-year time horizon.

Volume 9—Iron & Steel Producers

Industry Description

The Iron & Steel Producers industry primarily consists of entities producing iron and steel in mills and foundries. The steel producers segment produces iron and steel products from its own mills. These products include flat-rolled sheets, tin plates, pipes, tubes, and products made of stainless steel, titanium and high alloy steels. Iron and steel foundries, which cast various products, typically purchase iron and steel from other entities. The industry also includes metal service centres and other metal merchant wholesalers, which distribute, import or export ferrous products. Though entities are developing alternative processes, steel production primarily relies on two primary methods: the basic oxygen furnace (BOF), which uses iron ore as an input, and the electric arc furnace (EAF), which uses scrap steel. Many entities in the industry operate on an international scale. Note: With a few exceptions, most entities do not mine their own ore to manufacture steel and iron products. There exists a separate standard for the Metals & Mining (EM-MM) industry.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	Quantitative	Metric tons (t) CO_2-e, Percentage (%)	EM-IS-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	EM-IS-110a.2
Energy Management	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	EM-IS-130a.1
	(1) Total fuel consumed, (2) percentage coal, (3) percentage natural gas and (4) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	EM-IS-130a.2
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	EM-IS-140a.1
Supply Chain Management	Discussion of the process for managing iron ore or coking coal sourcing risks arising from environmental and social issues	Discussion and Analysis	n/a	EM-IS-430a.1

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Raw steel production, percentage from: (1) basic oxygen furnace processes, (2) electric arc furnace processes	Quantitative	Metric tons (t), Percentage (%)	EM-IS-000.A
Total iron ore production [10]	Quantitative	Metric tons (t)	EM-IS-000.B
Total coking coal production [11]	Quantitative	Metric tons (t)	EM-IS-000.C

Greenhouse Gas Emissions

Topic Summary

Iron and steel production generates significant direct greenhouse gas (GHG) emissions, primarily carbon dioxide and methane, from production processes and on-site fuel combustion. Although technological improvements have reduced the GHG emissions per ton of steel produced, steel production remains carbon-intensive compared to other industries. Regulatory efforts to reduce GHG emissions in response to the risks posed by climate change may result in additional regulatory compliance costs and risks for iron and steel entities because of climate change mitigation policies. Entities can achieve operational efficiencies through the cost-effective reduction of GHG emissions. Capturing such efficiencies can mitigate the potential financial effects of increased fuel costs from regulations that limit—or put a price on—GHG emissions.

Metrics

EM-IS-110a.1. Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalent (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 These emissions include direct emissions of GHGs from stationary or mobile sources that include production facilities, office buildings and product transportation (marine, road and rail).

[10] Note to **EM-IS-000.B –** The scope of production includes iron ore consumed internally and that which is made available for sale.

[11] Note to **EM-IS-000.C –** The scope of production includes coking coal consumed internally and that which is made available for sale.

2.2 Acceptable calculation methodologies include those that conform to the GHG Protocol as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples include:

2.2.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)

2.2.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the U.S. Environmental Protection Agency (EPA)

2.2.3 India GHG Inventory Program

2.2.4 ISO 14064-1

2.2.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.2.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.3 GHG emission data shall be consolidated according to the approach with which the entity consolidates its financial reporting data, which is generally aligned with the 'financial control' approach defined by the GHG Protocol and the approach provided by the Climate Disclosure Standards Board (CDSB) that is described in REQ-07, 'Organisational boundary,' of the *CDSB Framework for reporting environmental and social information*.

3 The entity shall disclose the percentage of its gross global Scope 1 GHG emissions covered under an emissions-limiting regulation or programme intended to limit or reduce emissions directly, such as cap-and-trade schemes, carbon tax/fee systems, and other emissions control (for example, command-and-control approach) and permit-based mechanisms.

3.1 Examples of emissions-limiting regulations include:

3.1.1 California Cap-and-Trade (California Global Warming Solutions Act)

3.1.2 European Union Emissions Trading Scheme (EU ETS)

3.1.3 Quebec Cap-and-Trade (Quebec Environment Quality Act)

3.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO_2-e) covered under emissions-limiting regulations divided by the total amount of gross global Scope 1 GHG emissions (CO_2-e).

3.2.1 For emissions subject to more than one emissions-limiting regulation, the entity shall not account for those emissions more than once.

3.3 The scope of emissions-limiting regulations excludes emissions covered under voluntary emissions-limiting regulations (for example, voluntary trading systems), as well as reporting-based regulations.

4 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

5 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

6 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

EM-IS-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting*

Standard (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

5 The entity shall discuss whether its strategies, plans, or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Energy Management

Topic Summary

The production of steel requires significant energy, sourced primarily from the direct fossil fuel combustion as well as energy purchased from the grid. Energy-intense production has implications for climate change, and electricity purchases from the grid can result in indirect Scope 2 emissions. The choice between various production processes—electric arc furnaces and integrated basic oxygen furnaces—can influence whether an entity uses fossil fuels or purchases electricity. This decision, together with the choice between using coal versus natural gas or on-site versus grid-sourced electricity, may influence both the costs and reliability of energy supply. Affordable, easily accessible and reliable energy is an important industry competitive factor. Energy costs account for a substantial portion of iron and steel manufacturing costs. How an iron and steel entity manages its energy efficiency, its reliance on various types of energy and associated sustainability risks, and its ability to access alternative sources of energy can influence its profitability.

Metrics

EM-IS-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable state renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

EM-IS-130a.2. (1) Total fuel consumed, (2) percentage coal, (3) percentage natural gas and (4) percentage renewable

1 The entity shall disclose (1) the total amount of energy consumed as an aggregate figure, in gigajoules (GJ).

1.1 The calculation methodology for fuel consumed shall be based on actual fuel consumed as opposed to design parameters.

1.2 Acceptable calculation methodologies for fuel consumed may include methodologies based on:

1.2.1 Adding fuel purchases made during the reporting period to beginning inventory at the start of the reporting period, less any fuel inventory at the end of the reporting period

1.2.2 Tracking fuel consumed by vehicles

1.2.3 Tracking fuel expenses

2 The entity shall disclose (2) the percentage of fuel consumed that was coal.

2.1 The percentage shall be calculated as the amount of coal consumed (in GJ) divided by the total amount of fuel consumed (in GJ).

2.2 The scope of coal consumed may include thermal coal, metallurgical coal, coke and coke breeze.

3 The entity shall disclose (3) the percentage of fuel consumed that was natural gas.

3.1 The percentage shall be calculated as the amount of natural gas consumed (in GJ) divided by the total amount of fuel consumed (in GJ).

4 The entity shall disclose (4) the percentage of fuel consumed that was renewable fuel.

4.1 Renewable fuel generally is defined as fuel that meets all the following requirements:

4.1.1 Produced from renewable biomass;

4.1.2 Used to replace or reduce the quantity of fossil fuel present in a transportation fuel, heating oil or jet fuel; and

4.1.3 Achieved net greenhouse gas (GHG) emissions reduction on a lifecycle basis.

4.2 The entity shall disclose the standard or regulation used to determine if a fuel is renewable.

4.3 The percentage shall be calculated as the amount of renewable fuel consumed (in GJ) divided by the total amount of fuel consumed (in GJ).

5 In calculating energy consumption from fuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are directly measured or taken from the Intergovernmental Panel on Climate Change.

6 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage.

Water Management

Topic Summary

Steel production requires substantial volumes of water. Entities face increasing operational, regulatory and reputational risks associated with water scarcity, costs of water acquisition, regulations on effluents or amount of water used, and competition with local communities and other industries for limited water resources. These risks are particularly likely to affect regions where water is scarce, resulting in water availability constraints and price volatility. Entities unable to secure a stable water supply could face production disruptions, while rising water prices could directly increase production costs. Consequently, entities adopting technologies and processes to decrease reduce water consumption may reduce operating risks and costs by mitigating the operational impacts of regulatory changes, water supply shortages and community-related disruptions.

Metrics

EM-IS-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

Supply Chain Management

Topic Summary

Iron ore and coal are critical raw material inputs to the steel production process. Iron ore mining and coal production are resource-intensive processes. Mineral extraction often has substantial environmental and social impacts adversely affecting local communities, workers and ecosystems. Community protests, legal or regulatory action, or increased regulatory compliance costs or penalties can disrupt mining operations. Iron and steel entities could face supply disruptions as a result, or in some cases, also may be subject to regulatory penalties associated with the environmental or social impact of the mining entity supplier. Minimising such risks through appropriate supplier screening, monitoring and engagement, iron and steel producers may manage their direct critical raw materials suppliers proactively to ensure they are not engaged in illegal or otherwise environmentally or socially damaging practices.

Metrics

EM-IS-430a.1. Discussion of the process for managing iron ore or coking coal sourcing risks arising from environmental and social issues

1 The entity shall discuss its policies and procedures for managing environmental and social risks that may affect sourcing that are present in its iron ore or coking coal supply chain.

1.1 Discussion shall include any existing or projected risks or constraints in obtaining raw materials (for example, iron ore or coking coal) within the supply chain, including those related to restricted/limited availability, political situations, local labour conditions, natural disasters, climate change or regulations.

1.2 The scope of disclosure may include description of the use of screening, codes of conduct, audits and certifications.

2 If audits are discussed, the entity may disclose whether audits are internal (first party), independent (third party) or administered by peers (for example, trade organisations).

Volume 10—Metals & Mining

Industry Description

The Metals & Mining industry is involved in extracting metals and minerals, producing ores, quarrying stones, smelting and manufacturing metals, refining metals, and providing mining support activities. Entities also produce iron ores, rare earth metals, and precious metals and stones. Larger entities in this industry are integrated vertically – from mining across global operations to wholesaling metals to customers.

Note: There exists a separate standard for the Iron & Steel Producers (EM-IS) industry.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	Quantitative	Metric tons (t) CO_2-e, Percentage (%)	EM-MM-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	EM-MM-110a.2
Energy Management	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	EM-MM-130a.1
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	EM-MM-140a.1
	Number of incidents of non-compliance associated with water quality permits, standards and regulations	Quantitative	Number	EM-MM-140a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Production of (1) metal ores and (2) finished metal products	Quantitative	Metric tons (t) saleable	EM-MM-000.A
Total number of employees, percentage contractors	Quantitative	Number, Percentage (%)	EM-MM-000.B

Greenhouse Gas Emissions

Topic Summary

Mining operations are energy-intensive and generate significant direct greenhouse gas (GHG) emissions, including carbon dioxide from fuel use during mining, ore processing and smelting activities. The extent and type of GHG emissions can vary depending on the metal mined and processed. Regulatory efforts to reduce GHG emissions in response to climate change- related risks may result in additional regulatory compliance costs and risks for metals and mining entities. Entities can achieve operational efficiencies through the cost-effective reduction of GHG emissions. Such efficiencies can mitigate the potential financial effect of increased fuel costs from regulations to limit—or put a price on—GHG emissions.

Metrics

EM-MM-110a.1. Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalent (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 These emissions include direct emissions of GHGs from stationary or mobile sources that may include equipment at mine sites, refineries and smelting facilities, and office buildings, and equipment used in metal transportation (marine, road and rail).

2.2 Acceptable calculation methodologies include those that conform to the GHG Protocol as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples include:

2.2.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)

2.2.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the U.S. Environmental Protection Agency (EPA)

2.2.3 India GHG Inventory Program

2.2.4 ISO 14064-1

2.2.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.2.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.3 GHG emission data shall be consolidated according to the approach with which the entity consolidates its financial reporting data, which is generally aligned with the 'financial control' approach defined by the GHG Protocol and the approach provided by the Climate Disclosure Standards Board (CDSB) that is described in REQ-07, 'Organisational boundary,' of the *CDSB Framework for reporting environmental and social information*.

3 The entity shall disclose the percentage of its gross global Scope 1 GHG emissions covered under an emissions-limiting regulation or programme intended to limit or reduce emissions directly, such as cap-and-trade schemes, carbon tax/fee systems, and other emissions control (for example, command-and-control approach) and permit-based mechanisms.

3.1 Examples of emissions-limiting regulations include:

3.1.1 California Cap-and-Trade (California Global Warming Solutions Act)

3.1.2 European Union Emissions Trading Scheme (EU ETS)

3.1.3 Quebec Cap-and-Trade (Quebec Environment Quality Act)

3.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO_2-e) covered under emissions-limiting regulations divided by the total amount of gross global Scope 1 GHG emissions (CO_2-e).

3.2.1 For emissions subject to more than one emissions-limiting regulation, the entity shall not account for those emissions more than once.

3.3 The scope of emissions-limiting regulations excludes emissions covered under voluntary emissions-limiting regulations (for example, voluntary trading systems), as well as reporting-based regulations.

4 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

5 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

6 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

7 The entity may, where relevant, provide a breakdown of its emissions by mineral or business unit.

7.1 Minerals or business units may include: aluminium, copper, zinc, iron ore, precious metals or diamonds.

EM-MM-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

5 The entity shall discuss whether its strategies, plans, or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Energy Management

Topic Summary

Mining and metals production is often energy-intensive, with a significant proportion of energy consumption in the industry accounted for by purchased electricity. Although fuel combustion on-site contributes to the industry's direct (Scope 1) GHG emissions, electricity purchases from the grid can result in indirect, Scope 2 emissions. The energy intensity of operations may increase with decreasing grades of deposits and increasing depth and scale of mining operations. The choice between on-site versus grid-sourced electricity and the use of alternative energy can be important in influencing both the costs and reliability of energy supply. Affordable and easily accessible energy is an important competitive factor in a commodity market driven by global competition, and purchased fuels and electricity can account for a significant proportion of total production costs. The way in which an entity manages its overall energy efficiency and intensity, its reliance on different types of energy, and its ability to access alternative sources of energy, can therefore be a material factor.

Metrics

EM-MM-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs must be retained (not sold) and retired or cancelled on behalf of the entity in order for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Water Management

Topic Summary

Mining and metals production can affect both the availability and the quality of local water resources. Metals and mining entities face operational, regulatory and reputational risks because of water scarcity, costs of water acquisition, regulations on effluents or the amount of water used, and competition with local communities and other industries for limited water resources. Effects associated with water management may include higher costs, liabilities and lost revenues because of curtailment or suspension of operations. The severity of these risks may vary depending on the region’s water availability and the regulatory environment. Entities in the industry may deploy new technologies to manage risks related to water risk, including desalination, water recirculation and innovative waste-disposal solutions. Reducing water use and contamination can create operational efficiencies for entities and reduce their operating costs.

Metrics

EM-MM-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

4.1 The entity shall list its facilities or operations which are located in areas of High or Extremely High Baseline Water Stress.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

EM-MM-140a.2. Number of incidents of non-compliance associated with water quality permits, standards and regulations

1 The entity shall disclose the total number of incidents of non-compliance, including violations of a technology-based standard and exceedances of quantity or quality-based standards.

2 The scope of disclosure includes incidents governed by applicable jurisdictional statutory permits and regulations, which include the discharge of a hazardous substance, violation of pre-treatment requirements or total maximum daily load (TMDL) exceedances.

2.1 Typical parameters of concern include arsenic, copper, lead, nickel, zinc, cyanide, radium-226, total suspended solids, pH and toxicity.

3 The scope of disclosure shall only include incidents of non-compliance that resulted in a formal enforcement action(s).

3.1 Formal enforcement actions are defined as governmental recognised actions that address a violation or threatened violation of water quantity or quality laws, regulations, policies or orders, and can result in administrative penalty orders, administrative orders and judicial actions, among others.

4 Violations shall be disclosed, regardless of their measurement methodology or frequency. These include violations for:

4.1 Continuous discharges, limitations, standards and prohibitions that are generally expressed as maximum daily, weekly and monthly averages; and

4.2 Non-continuous discharges, limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge and mass or concentration of specified pollutants.

Volume 11—Oil & Gas – Exploration & Production

Industry Description

Oil & Gas - Exploration & Production (E&P) entities explore for, extract or produce energy products such as crude oil and natural gas, which comprise the upstream operations of the oil and gas value chain. Entities in the industry develop conventional and unconventional oil and gas reserves; these include shale oil or gas reserves, oil sands and gas hydrates. Activities covered by this standard include the development of both on-shore and off-shore reserves. The E&P industry creates contracts with the Oil and Gas Services industry to conduct several E&P activities and to obtain equipment and oilfield services.

Note: These discolosure topics are for ‘pure-play’ E&P activities or independent E&P entities. Integrated oil and gas entities conduct upstream operations but also may distribute, refine or market crude oil, natural gas or refined products. Separate standards exist for the Oil and Gas Midstream (EM-MD) and Refining & Marketing (EM-RM) industries. As such, integrated entities should also consider the disclosure topics and metrics from these Standards. A separate standard also exists for the Oil and Gas Services industry (EM-SV).

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage methane, percentage covered under emissions-limiting regulations	Quantitative	Metric tons CO_2-e (t), Percentage (%)	EM-EP-110a.1
	Amount of gross global Scope 1 emissions from: (1) flared hydrocarbons, (2) other combustion, (3) process emissions, (4) other vented emissions and (5) fugitive emissions	Quantitative	Metric tons CO_2-e	EM-EP-110a.2
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	EM-EP-110a.3

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TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	EM-EP-140a.1
	Volume of produced water and flowback generated; percentage (1) discharged, (2) injected, (3) recycled; hydrocarbon content in discharged water	Quantitative	Thousand cubic metres (m^3), Percentage (%), Metric tons (t)	EM-EP-140a.2
	Percentage of hydraulically fractured wells for which there is public disclosure of all fracturing fluid chemicals used	Quantitative	Percentage (%)	EM-EP-140a.3
	Percentage of hydraulic fracturing sites where ground or surface water quality deteriorated compared to a baseline [12]	Quantitative	Percentage (%)	EM-EP-140a.4
Reserves Valuation & Capital Expenditures	Sensitivity of hydrocarbon reserve levels to future price projection scenarios that account for a price on carbon emissions	Quantitative	Million barrels (MMbbls), Million standard cubic feet (MMscf)	EM-EP-420a.1
	Estimated carbon dioxide emissions embedded in proved hydrocarbon reserves	Quantitative	Metric tons (t) CO_2-e	EM-EP-420a.2
	Amount invested in renewable energy, revenue generated by renewable energy sales	Quantitative	Presentation currency	EM-EP-420a.3
	Discussion of how price and demand for hydrocarbons or climate regulation influence the capital expenditure strategy for exploration, acquisition and development of assets	Discussion and Analysis	n/a	EM-EP-420a.4

[12] Note to **EM-EP-140a.4** – The entity shall disclose its policies and practices related to ground and surface water quality management.

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Production of: (1) oil, (2) natural gas, (3) synthetic oil, and (4) synthetic gas	Quantitative	Thousand barrels per day (Mbbl/day); Million standard cubic feet per day (MMscf/day)	EM-EP-000.A
Number of offshore sites	Quantitative	Number	EM-EP-000.B
Number of terrestrial sites	Quantitative	Number	EM-EP-000.C

Greenhouse Gas Emissions

Topic Summary

Exploration & Production (E&P) activities generate significant direct greenhouse gas (GHG) emissions from a variety of sources. Emissions may be combusted, including those arising from flaring or power generation equipment, or uncombusted, including those emissions arising from gas processing equipment, venting, flaring and fugitive methane. Regulatory efforts to reduce GHG emissions in response to climate change related risks may result in additional regulatory compliance costs and risks for E&P entities. With natural gas production from shale resources expanding, the management of the emission of methane, a highly potent GHG, from oil and gas E&P systems has emerged as a major operational, reputational and regulatory risk for entities. Furthermore, the development of unconventional hydrocarbon resources may be more or less GHG-intensive than conventional oil and gas, with associated effects on regulatory risk. Energy efficiency, use of less carbon-intensive fuels, or process improvements to reduce fugitive emissions, venting and flaring, can provide direct benefits to E&P entities in the form of reduced costs or increased revenue.

Metrics

EM-EP-110a.1. Gross global Scope 1 emissions, percentage methane, percentage covered under emissions-limiting regulations

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalent (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 These emissions include direct emissions of GHGs from stationary or mobile sources; these sources may include: equipment at well sites, production facilities, refineries, chemical plants, terminals, fixed site drilling rigs, office buildings, marine vessels transporting products, tank truck fleets, mobile drilling rigs, and moveable equipment at drilling and production facilities.

2.2 Acceptable calculation methodologies include those that conform to the GHG Protocol as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples include:

2.2.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)

2.2.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the U.S. Environmental Protection Agency (EPA)

2.2.3 India GHG Inventory Program

2.2.4 ISO 14064-1

2.2.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.2.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.3 GHG emission data shall be consolidated according to the approach with which the entity consolidates its financial reporting data, which is generally aligned with the 'financial control' approach defined by the GHG Protocol as well as:

2.3.1 The financial approach detailed in Chapter 3 of the IPIECA/API/OGP *Petroleum Industry Guidelines for Reporting Greenhouse Gas Emissions*, 2nd Edition, 2011 (hereafter, the 'IPIECA GHG Guidelines')

2.3.2 The approach provided by the Climate Disclosure Standards Board (CDSB) that is described in REQ-07, 'Organisational boundary,' of the *CDSB Framework for reporting environmental and social information*

3 The entity shall disclose the percentage of gross global Scope 1 emissions from methane emissions.

3.1 The percentage of gross global Scope 1 GHG emissions from methane emissions shall be calculated as the methane emissions in metric tons of carbon dioxide equivalents (CO_2-e) divided by the gross global Scope 1 GHG emissions in metric tons of carbon dioxide equivalents (CO_2-e).

4 The entity shall disclose the percentage of its gross global Scope 1 GHG emissions covered under an emissions-limiting regulation or programme intended to limit or reduce emissions directly, such as cap-and-trade schemes, carbon tax/fee systems, and other emissions control (for example, command-and-control approach) and permit-based mechanisms.

4.1 Examples of emissions-limiting regulations include:

4.1.1 California Cap-and-Trade (California Global Warming Solutions Act)

4.1.2 European Union Emissions Trading Scheme (EU ETS)

4.1.3 Quebec Cap-and-Trade (Quebec Environment Quality Act)

4.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO_2-e) covered under emissions-limiting regulations divided by the total amount of gross global Scope 1 GHG emissions (CO_2-e).

4.2.1 For emissions subject to more than one emissions-limiting regulation, the entity shall not account for those emissions more than once.

4.3 The scope of emissions-limiting regulations excludes emissions covered under voluntary emissions-limiting regulations (for example, voluntary trading systems), as well as reporting-based regulations.

5 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

6 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach

used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

7 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

EM-EP-110a.2. Amount of gross global Scope 1 emissions from: (1) flared hydrocarbons, (2) other combustion, (3) process emissions, (4) other vented emissions and (5) fugitive emissions

1 The entity shall disclose the amount of direct greenhouse gas (GHG) emissions in CO_2-e from the following sources (1) flared hydrocarbons, (2) other combustion, (3) process emissions, (4) other vented emissions and (5) fugitive emissions from operations.

1.1 Flared hydrocarbons shall include all emissions emitted from flares and which are associated with the management and disposal of unrecoverable natural gas via combustion of hydrocarbon products from routine operations, upsets or emergencies.

1.2 Other combusted emissions shall include:

1.2.1 Emissions from stationary devices, which may include boilers, heaters, furnaces, reciprocating internal combustion engines and turbines, incinerators, and thermal/catalytic oxidisers

1.2.2 Emissions from mobile sources, which may include barges, ships, railcars and trucks for material transport; planes/helicopters and other entity vehicles for personnel transport; forklifts, all-terrain vehicles, construction equipment and other off-road mobile equipment

1.3 Other combusted emissions shall exclude those emissions disclosed as flared hydrocarbons.

1.4 Process emissions shall include those emissions that are not combusted and are intentional or designed into the process or technology to occur during normal operations and are a result of some form of chemical transformation or processing step. Such emissions may include emissions from hydrogen plants, amine units, glycol dehydrators, fluid catalytic cracking unit and reformer generation, and flexi-coker coke burn.

1.5 Vented emissions shall include those emissions that are not combusted and are intentional or designed into the process or technology to occur during normal operations, and which include:

1.5.1 Venting from crude oil, condensate or natural gas product storage tanks, gas-driven pneumatic devices, gas samplers, chemical injection pumps, exploratory drilling, loading/ballasting/transit and loading racks

1.5.2 Venting resulting from maintenance/turn-arounds, which may include decoking of furnace tubes, well unloading, vessel and gas compressor depressurising, compressor starts, gas sampling, and pipeline blowdowns

1.5.3 Venting from non-routine activities, which may include pressure relief valves, pressure control valves, fuel supply unloading valves and emergency shut-down devices

1.6 Vented emissions shall exclude those emissions disclosed as process emissions.

1.7 Fugitive emissions shall include those emissions that can be individually found and fixed to reduce emissions rates to near zero and which may include emissions from valves, flanges, connectors, pumps, compressor seal leaks, Cata-Dyne® heaters, and wastewater treatment and surface impoundments.

EM-EP-110a.3. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively, or the target or base year has been reset, which may include energy efficiency efforts, energy source diversification, carbon capture and storage, or the implementation of leak detection and repair processes.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

4.1 Categories of emissions sources include:

4.1.1 Flared hydrocarbons, including all emissions emitted from flares and which are associated with the management and disposal of unrecoverable natural gas via combustion of hydrocarbon products from routine operations, upsets or emergencies

4.1.2 Other combusted emissions, which may include: (1) emissions from stationary devices, which may include boilers, heaters, furnaces, reciprocating internal combustion engines and turbines, incinerators, and thermal/catalytic oxidisers, (2) emissions from mobile sources, which may include barges, ships, railcars and trucks for material transport; planes/helicopters and other entity vehicles for staff transport; forklifts, all-terrain vehicles, construction equipment and other off-road mobile equipment, and (3) other combusted emissions shall exclude those emissions disclosed as flared hydrocarbons

4.1.3 Process emissions, which include those emissions that are not combusted and are intentional or designed into the process or technology to occur during normal operations and are a result of some form of chemical transformation or processing step. Such emissions may include those from hydrogen plants, amine units, glycol dehydrators, fluid catalytic cracking unit and reformer generation, and flexi-coker coke burn

4.1.4 Vented emissions, including those emissions that are not combusted and are intentional or designed into the process or technology to occur during normal operations, and which may include: (1) venting from crude oil, condensate or natural gas product storage tanks, gas-driven pneumatic devices, gas samplers, chemical injection pumps, exploratory drilling, loading/ballasting/transit and loading racks, (2) venting resulting from maintenance/turn-arounds, which may include decoking of furnace tubes, well unloading, vessel and gas compressor depressurising, compressor starts, gas sampling, and pipeline blowdowns, and (3) venting from non-routine activities, which may include pressure relief valves, pressure control valves, fuel supply unloading valves and emergency shut-down devices

4.1.5 Fugitive emissions, which may include those emissions which can be individually found and "fixed" to make emissions 'near zero' and which may include emissions from valves, flanges, connectors, pumps, compressor seal leaks, catadyne heaters, and wastewater treatment and surface impoundments

5 The entity shall discuss whether its strategies, plans, or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Water Management

Topic Summary

Depending on the extraction technique, exploration and production operations may consume significant quantities of water, which may expose entities to the risk of reduced water availability, regulations limiting use, or related cost increases, particularly in water-stressed regions. Contamination of local water resources can result from incidents involving produced water, flowback water, hydraulic fracturing fluids and other well fluids. Historically, the possible impacts of hydraulic fracturing operations and the risk of groundwater supply contamination have raised concerns. Reducing water use and contamination through recycling, other water management strategies, and use of non-toxic fracturing fluids could create operational efficiency for entities and reduce their operating costs. Such strategies could also minimise the effects that regulations, water supply shortages and community-related disruptions have on operations.

Metrics

EM-EP-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea.

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

EM-EP-140a.2. Volume of produced water and flowback generated; percentage (1) discharged, (2) injected, (3) recycled; hydrocarbon content in discharged water

1 The entity shall disclose the volume, in thousands of cubic metres, of produced water and flowback fluid generated during its activities.

2 Produced water is defined as water (brine) obtained from the hydrocarbon bearing formation strata during the extraction of oil and gas. Produced water can include formation water, injection water, and any chemicals added downhole or during the oil/water separation process.

3 Flowback is defined as the recovered hydraulic fracturing fluid that returns to the surface during a hydraulic fracturing operation that may often be mixed with produced water.

4 The entity shall calculate the percentage of produced water and flowback fluid that was:

4.1 Discharged directly to the environment or indirectly discharged through a third party, such as a local wastewater treatment plant

4.2 Injected

4.3 Recycled for use in other wells, in fracturing fluids or in other drilling and production processes

5 The entity shall disclose the amount, in metric tons, of hydrocarbons water discharged to the environment.

5.1 The scope of disclosure includes produced water, flowback, process water, storm water or other water discharged to the environment.

5.2 Measurements of hydrocarbon content should be made using test methods required or approved by applicable legal or regulatory authorities (or equivalent applicable standards).

EM-EP-140a.3. Percentage of hydraulically fractured wells for which there is public disclosure of all fracturing fluid chemicals used

1 The entity shall disclose the percentage of hydraulically fractured wells for which there is public disclosure of all fracturing fluid chemicals used.

1.1 The percentage shall be calculated as the number of hydraulically fractured wells for which it provides public disclosure of all the chemical content of fracturing fluid, divided by the total number of hydraulically fractured wells.

1.2 The entity shall include in the percentage only those wells for which all fluid chemicals are publicly disclosed, including the chemicals that meet the definition of a trade secret.

2 Public disclosure may include posting to a publicly accessible corporate website.

EM-EP-140a.4. Percentage of hydraulic fracturing sites where ground or surface water quality deteriorated compared to a baseline

1 The entity shall calculate the percentage as: the total number of hydraulic fracturing well sites for which it detected a deterioration in the ground or surface water surrounding the well site as compared to a baseline measurement, divided by the total number of hydraulic fracturing well sites.

2 Deterioration in water quality is, at a minimum, defined as occurring when testing indicates:

2.1 Presence of thermogenic gas or a mixture of thermogenic and biogenic gas not present in baseline testing.

2.2 An increase in methane concentration by more than 5.0 mg/l between sampling periods.

2.3 Benzene, toluene, ethylbenzene, xylenes (BTEX compounds) or total petroleum hydrocarbons (TPH) are present in higher concentrations as compared to the baseline.

3 The entity shall determine whether water quality deteriorated against a baseline through monitoring of ground and surface water surrounding hydraulically fractured well sites.

3.1 Determinations shall be consistent with Chapter 3 of the Wyoming Oil and Gas Conservation Commission (WOGCC) Rules and Regulations, the Colorado Oil and Gas Conservation Commission's (COGCC) Rule 609 — Statewide Groundwater Baseline Sampling and Monitoring, or a jurisdictional equivalent.

3.2 The entity shall disclose the jurisdictional standard, guideline or regulation used for its calculation.

4 The initial baseline sample shall occur:

4.1 Prior to drilling or before installation of a surface oil and gas facility on a location

4.2 Prior to re-stimulation of a well, if more than 12 months have passed since the initial pre-drilling sampling event or the most recent re-stimulation sampling event

5 Ongoing monitoring shall occur with at least the following frequency:

5.1 One subsequent sampling between 12 and 18 months after well completion or facility installation

5.2 A second subsequent sampling between 60 and 78 months after the previous sampling event. Dry holes are exempt from this requirement

6 The entity shall collect initial baseline samples and subsequent monitoring samples from all available water sources within a one-half mile radius of a proposed well, multi-well site, or dedicated injection well.

6.1 The entity shall follow sampling guidance from the WOGCC and COGCC or jurisdictional equivalent for the collection of samples, including for instances when few or no sampling sites exist or are accessible.

7 If the entity does not conduct baseline water quality assessments and ongoing monitoring for any of its well sites, then it shall disclose the percentage of wells for which there is no baseline or ongoing monitoring.

8 The entity may disclose whether results of baseline groundwater quality tests and ongoing monitoring are communicated to applicable jurisdictional legal or regulatory authorities (where not required by local law) or residents and business owners in proximity to hydraulic fracturing sites.

Note to **EM-EP-140a.4**

1 The entity shall describe its policies and practices related to its management of ground and surface water quality.

2 Applicable policies and practices may include:

2.1 Well design and well integrity management

2.2 Hydraulic fracturing procedures

2.3 Surface facility design, including the use of backflow preventers, storage tank design and impoundment design

2.4 Surface and groundwater quality and testing

2.5 Chemicals management

2.6 Water reuse, processing and disposal

Reserves Valuation & Capital Expenditures

Topic Summary

Exploration and production (E&P) entities may be unable to extract a significant proportion of their proved and probable oil and gas reserves if greenhouse gas (GHG) emissions are controlled to limit global temperature increases. Entities with more carbon-intensive reserves and production and higher capital costs may face greater risks. Regulatory limits on GHG emissions, together with improved competitiveness of alternative energy technologies, could reduce global demand growth, and therefore reduce prices for oil and gas products. Extraction costs could increase with regulations that put a price on GHG emissions. These factors could affect the economic viability of oil and gas reserves. Regulatory actions that are more abrupt than anticipated, or those focusing on industries with high emissions, could impair asset values over a short period. Stewardship of capital resources and production decisions that consider near- and long-term trends related to climate change may mitigate potential asset impairment and maintain profitability and creditworthiness.

Metrics

EM-EP-420a.1. Sensitivity of hydrocarbon reserve levels to future price projection scenarios that account for a price on carbon emissions

1 The entity shall perform a sensitivity analysis of its reserves to determine how several future scenarios may affect the determination of whether the reserves are proved or probable.

2 The entity shall analyse the sensitivity of its current proven and probable reserves using the price trajectories published by the International Energy Agency (IEA) in its *World Energy Outlook* (WEO) publication, including:

2.1 Current Policies Scenario, which assumes no changes in policies from the mid-point of the year of publication of the WEO.

2.2 New Policies Scenario, which assumes that broad policy commitments and plans that have been announced by countries (including national pledges to reduce greenhouse gas emissions and plans to phase out fossil-energy subsidies), occur even if the measures to implement these commitments have yet to be identified or announced. This broadly serves as the IEA baseline scenario.

2.3 Sustainable Development Scenario, which assumes that an energy pathway occurs that is consistent with the goal of limiting the global increase in temperature to 1.5°C by limiting concentration of greenhouse gases in the atmosphere.

2.4 The entity shall consider the WEO scenarios as a normative reference; thus, any updates to the WEO made year-on-year shall be considered updates to this guidance.

3 The entity shall follow the applicable jurisdictional guidance for the following:

3.1 Classifying reserves as proved and probable

3.2 Conducting a reserves sensitivity analysis and disclosing, in the aggregate, an estimate of reserves for each product type based on various price and cost criteria, such as a range of prices and costs that may reasonably be achieved, including standardised futures prices or management's own forecasts

3.2.1 The entity shall disclose the price and cost schedules and assumptions on which disclosed values are based

3.3 Determining current (or base) case of reserve levels

4 The entity may use the following table format to summarise its findings:

Table 3. Sensitivity of reserves to prices by principal product type and price scenario

PRICE CASE	PROVED RESERVES			PROBABLE RESERVES		
(Scenario)	Oil (MMbbls)	Gas (MSm^3)	Product:A (measure)	Oil (MMbbls)	Gas (MSm^3)	Product:A (measure)
Current Policies Scenario (base)						
New Policies Scenario						
Sustainable Development Scenario						

5 The entity may disclose the sensitivity of its reserve levels in other price and demand scenarios in addition to those described above, particularly if these scenarios vary depending on the type of hydrocarbon reserves, regulatory environment in the countries or regions where exploration occurs, end-use of the entity's products, or other factors.

6 For additional sensitivity analyses, the entity should consider disclosing the following, per the Task Force on Climate- Related Financial Disclosures (TCFD) Recommendations Report Figure 8 as well as the Implementing the Recommendations of the TCFD Report, Section E:

6.1 The alternative scenarios used, including other 2°C or lower scenarios

6.2 Critical input parameters, assumptions and analytical choices for the climate-related scenarios used, particularly as they relate to key areas such as policy assumptions, energy deployment pathways, technology pathways and related timing assumptions

6.3 Time frames used for scenarios, including short-, medium- and long-term milestones (for example, how organisations consider timing of potential future implications under the scenarios used)

EM-EP-420a.2. Estimated carbon dioxide emissions embedded in proved hydrocarbon reserves

1 The entity shall calculate and disclose an estimate of the carbon dioxide emissions embedded in its proved hydrocarbon reserves.

1.1 Nota bene — this estimate applies a factor for potential CO_2 only and does not include an estimate for all potential greenhouse gas emissions, as these are dependent on downstream use (for example, utility electricity generation, industrial heating and electricity generation, residential heating and cooling, transportation, or use in petrochemicals, agrochemicals, asphalt and lubricants).

2 Estimated potential carbon dioxide emissions from proved hydrocarbon reserves shall be calculated according to the following formula, derived from Meinshausen et al.:

2.1 $E = R \times V \times C$, where:

2.1.1 E are the potential emissions in kilogrammes of carbon dioxide (kg CO_2);

2.1.2 R are the proved reserves in gigagrams (Gg);

2.1.3 V is the net calorific value in terajoules per gigagram (TJ/Gg); and

2.1.4 C is the effective carbon dioxide emission factor in kilogrammes CO_2 per terajoule (kg/TJ).

3 In the absence of data specific to the entity's hydrocarbon reserves, carbon content shall be calculated using default data for each major hydrocarbon resource published by the Intergovernmental Panel on Climate Change (IPCC) in its *2006 IPCC Guidelines for National Greenhouse Gas Inventories*.

3.1 The entity shall use default carbon content values per unit of energy listed in IPCC Table 1.3 Default Values of Carbon Content, Volume 2: Energy, Chapter 1.

3.2 The entity shall use calorific values per weight of hydrocarbon contained in IPCC Table 1.2 Default Net Calorific Values (NCVs) and Lower and Upper Limit of the 95% Confidence Intervals, Volume 2: Energy, Chapter 1.

4 The entity shall use engineering estimates to determine the weight of its hydrocarbon reserves in gigagrams.

5 For other assumptions required to estimate the carbon content of hydrocarbon reserves, the entity shall rely on guidance from the IPCC, the Greenhouse Gas Protocol or the International Energy Agency (IEA).

EM-EP-420a.3. Amount invested in renewable energy, revenue generated by renewable energy sales

1 The entity shall disclose the total amount spent, including capital and research and development expenditures, on renewable or alternative energy sources.

1.1 Such disclosure generally corresponds to the renewable energy technology areas per C-OG 9.6 of the CDP Climate Change Questionnaire.

2 The entity shall disclose the sales generated from renewable energy sources.

2.1 Such disclosure generally corresponds to the renewable energy strategic development areas Section C4.5a of the CDP Climate Change Questionnaire

3 Renewable energy is defined as energy from sources that are capable of being replenished quickly through ecological cycles, such as geothermal, wind, solar, hydro and biomass.

3.1 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered 'eligible renewables' according to the Green-e Energy National Standard.

3.1.1 The entity shall consider the Green-e Energy National Standard as a normative reference; thus, any updates to the Standard made year-on-year shall be considered updates to this guidance.

4 The entity shall consider the CDP Climate Change Questionnaire a normative reference; thus, any updates made year-on-year shall be considered updates to the guidance.

EM-EP-420a.4. Discussion of how price and demand for hydrocarbons or climate regulation influence the capital expenditure strategy for exploration, acquisition and development of assets

1 The entity shall discuss how projections for price and demand for hydrocarbon products and the path of climate regulation influence the entity's capital expenditure (CAPEX) investment strategy.

1.1 This discussion should include the entity's projections and assumptions about future hydrocarbon prices and the likelihood that various price and demand scenarios occur.

2 The entity shall discuss the implications of how price and demand scenario planning (EM-EP-420a.1) may affect decisions to explore, acquire and develop new reserves.

3 The entity may discuss factors that materially influence its CAPEX decision making, which may include:

3.1 How the scope of climate change regulation—such as which countries, regions or industries are likely to be affected—may influence the type of hydrocarbon on which the entity focuses its exploration and development

3.2 Its view of the alignment between the time horizon over which price and demand for hydrocarbons may be affected by climate regulation and time horizons for returns on capital expenditures on reserves

3.3 How the structure of climate regulation—a carbon tax versus cap-and-trade—may differently affect price and demand, and thus the entity's capital expenditure decision making

4 The entity may discuss how these trends affect decision-making in the context of various types of reserve expenditures, including development of assets, acquisition of properties with proved reserves, acquisition of properties with unproved reserves, and exploration activities.

4.1 The entity shall discuss capital expenditures, regardless of the accounting method it uses (full cost or successful efforts).

Volume 12—Oil & Gas – Midstream

Industry Description

Oil & Gas - Midstream industry entities transport or store natural gas, crude oil and refined petroleum products. Midstream natural gas activities involve gathering, transporting and processing natural gas from the wellhead, such as the removal of impurities, production of natural gas liquids, storage, pipeline transport and shipping, liquefaction, or regasification of liquefied natural gas. Midstream oil activities mainly involve transporting crude oil and refined products using pipeline networks, truck and rail, and marine transport on tankers or barges. Entities that operate storage and distribution terminals, as well as those that manufacture and install storage tanks and pipelines, are also part of this industry.

Note: The standards discussed below are for 'pure-play' midstream activities or independent midstream entities. Integrated oil and gas entities may own or operate midstream operations, but they also are involved in the upstream operations of the oil and gas value chain and in the refining or marketing of products. Separate standards exist for the Oil and Gas Exploration & Production (EM-EP) and Refining & Marketing (EM-RM) industries. As such, integrated entities also should consider the disclosure topics and metrics from these standards.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage methane, percentage covered under emissions-limiting regulations	Quantitative	Metric tons (t) CO_2-e, Percentage (%)	EM-MD-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	EM-MD-110a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Total metric ton-kilometres of: (1) natural gas, (2) crude oil, and (3) refined petroleum products transported, by mode of transport [13]	Quantitative	Metric ton (t) kilometres	EM-MD-000.A

[13] Note to **EM-MD-000.A** – Relevant modes of transport include: pipeline, tanker, truck, etc.

Greenhouse Gas Emissions

Topic Summary

The midstream industry generates significant greenhouse gases and other air emissions from compressor engine exhausts, oil and condensate tank vents, natural gas processing, and fugitive emissions, in addition to emissions from mobile sources. GHG emissions contribute to climate change and create incremental regulatory compliance costs and risks for midstream entities. At the same time, the management of methane fugitive emissions has emerged as a significant operational, reputational and regulatory risk. Financial effects on entities will vary depending on the specific location of operations and prevailing emissions regulations, and they include increased operating or capital expenditures and regulatory or legal penalties. Entities that capture and monetise emissions, or cost-effectively reduce emissions by implementing innovative monitoring and mitigation efforts and fuel efficiency measures, may enjoy substantial financial benefits. Entities can reduce regulatory risks and realise operational efficiencies as regulatory and public concerns about air quality and climate change increase.

Metrics

EM-MD-110a.1. Gross global Scope 1 emissions, percentage methane, percentage covered under emissions-limiting regulations

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalent (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 These emissions include direct emissions of GHGs from stationary or mobile sources; these sources include: equipment at well sites, production facilities, refineries, chemical plants, terminals, fixed site drilling rigs, office buildings, marine vessels transporting products, tank truck fleets, mobile drilling rigs, and moveable equipment at drilling and production facilities.

2.2 Acceptable calculation methodologies include those that conform with the GHG Protocol as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples include:

2.2.1 *GHG Reporting Guidance for the Aerospace Industry* provided by the International Aerospace Environmental Group (IAEG)

2.2.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the US Environmental Protection Agency (EPA)

2.2.3 India GHG Inventory Program

2.2.4 ISO 14064-1

2.2.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.2.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* provided by Entreprises pour l'Environnement (EpE)

2.3 GHG emission data shall be consolidated according to the approach with which the entity consolidates its financial reporting data, which generally is aligned with the 'financial control' approach defined by the *GHG Protocol* as well as:

2.3.1 The financial approach detailed in Chapter 3 of the IPIECA/API/OGP *Petroleum Industry Guidelines for Reporting Greenhouse Gas Emissions*, 2nd Edition, 2011 (hereafter, the "IPIECA GHG Guidelines")

2.3.2 The approach provided by the Climate Disclosure Standards Board (CDSB) that is described in REQ-07, 'Organisational boundary', of the *CDSB Framework for reporting environmental and social information*

3 The entity shall disclose the percentage of gross global Scope 1 emissions from methane emissions.

3.1 The percentage of gross global Scope 1 GHG emissions from methane emissions shall be calculated as the methane emissions in metric tons of carbon dioxide equivalents (CO_2-e) divided by the gross global Scope 1 GHG emissions in metric tons of carbon dioxide equivalents (CO_2-e).

4 The entity shall disclose the percentage of its gross global Scope 1 GHG emissions covered under an emissions-limiting regulation or programme intended to limit or reduce emissions directly, such as cap-and-trade schemes, carbon tax/fee systems, and other emissions control (for example, command-and-control approach) and permit-based mechanisms.

4.1 Examples of emissions-limiting regulations include:

4.1.1 California Cap-and-Trade (California Global Warming Solutions Act)

4.1.2 European Union Emissions Trading Scheme (EU ETS)

4.1.3 Quebec Cap-and-Trade (Quebec Environment Quality Act)

4.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO_2-e) covered under emissions-limiting regulations divided by the total amount of gross global Scope 1 GHG emissions (CO_2-e).

4.2.1 For emissions subject to more than one emissions-limiting regulation, the entity shall not account for those emissions more than once.

4.3 The scope of emissions-limiting regulations excludes emissions covered under voluntary emissions-limiting regulations (for example, voluntary trading systems), as well as reporting-based regulations.

5 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

6 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

7 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

EM-MD-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons

(HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset, which may include energy efficiency efforts, energy source diversification, carbon capture and storage, or the implementation of leak detection and repair processes.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

4.1 Categories of emissions may include:

4.1.1 Flared hydrocarbons, including all emissions emitted from flares and associated with the management and disposal of unrecoverable natural gas via combustion of hydrocarbon products from routine operations, upsets or emergencies

4.1.2 Other combusted emissions, which may include: (1) emissions from stationary devices, which may include boilers, heaters, furnaces, reciprocating internal combustion engines and turbines, incinerators, and thermal/catalytic oxidisers, (2) emissions from mobile sources, which may include barges, ships, railcars and trucks for material transport; planes/helicopters and other entity vehicles for staff transport; forklifts, all-terrain vehicles, construction equipment and other off-road mobile equipment, and (3) other combusted emissions shall exclude those emissions disclosed as flared hydrocarbons

4.1.3 Process emissions, which include those emissions not combusted and are intentional or designed into the process or technology to occur during normal operations and result from some form of chemical transformation or processing step. Such emissions may include those from hydrogen plants, amine units, glycol dehydrators, fluid catalytic cracking unit and reformer generation, and flexi-coker coke burn

4.1.4 Vented emissions, including those emissions not combusted and are intentional or designed into the process or technology to occur during normal operations, and which may include: (1) venting from crude oil, condensate or natural gas product storage tanks, gas-driven pneumatic devices, gas samplers, chemical injection pumps, exploratory drilling, loading/ballasting/transit, and loading racks, (2) venting resulting from maintenance/turn-arounds, which may include decoking of furnace tubes, well unloading, vessel and gas compressor depressurising, compressor starts, gas sampling, and pipeline blowdowns, and (3) venting from non-routine activities, which may include pressure relief valves, pressure control valves, fuel supply unloading valves and emergency shut-down devices

4.1.5 Fugitive emissions, including those emissions which can be individually found and "fixed" to make emissions 'near zero' and which may include emissions from valves, flanges, connectors, pumps, compressor seal leaks, Cata-Dyne® heaters, and wastewater treatment and surface impoundments

5 The entity shall discuss whether its strategies, plans, or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Volume 13—Oil & Gas – Refining & Marketing

Industry Description

Oil & Gas - Refining & Marketing (R&M) entities refine petroleum products, market oil and gas products, or operate gas stations, all of which comprise the downstream operations of the oil and gas value chain. The types of refinery products and crude oil inputs influence the complexity of the refining process used, with varied expenditure needs and intensity of environmental and social impacts.

Note: The topics and metrics below are for 'pure-play' R&M activities or independent R&M entities. Integrated oil & gas entities conduct upstream operations and also are involved in the distribution, refining or marketing of products. Separate standards exist for the Oil & Gas - Exploration & Production (EM-EP) and Midstream (EM-MD) industries. As such, integrated entities also should consider the disclosure topics and metrics from those industries.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	Quantitative	Metric tons (t) CO_2-e, Percentage (%)	EM-RM-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	EM-RM-110a.2
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	EM-RM-140a.1
Product Specifications & Clean Fuel Blends	Total addressable market and share of market for advanced biofuels and associated infrastructure	Quantitative	Presentation currency, Percentage (%)	EM-RM-410a.2
	Volumes of renewable fuels for fuel blending: (1) net amount produced, (2) net amount purchased	Quantitative	Barrels of oil equivalent (BOE)	EM-RM-410a.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Refining throughput of crude oil and other feedstocks [14]	Quantitative	Barrels of oil equivalent (BOE)	EM-RM-000.A
Refining operating capacity [15]	Quantitative	Million barrels per calendar day (MBPD)	EM-RM-000.B

Greenhouse Gas Emissions

Topic Summary

Oil and Gas R&M operations generate significant direct greenhouse gas (GHG) emissions from a variety of sources. Emissions primarily consist of carbon dioxide and methane from stationary fossil fuel combustion for energy supply. Energy costs are a significant share of refinery operating costs. GHGs also are released from process emissions, fugitive emissions resulting from leaks, emissions from venting and flaring, and from non-routine events such as equipment maintenance. The energy intensity of production, and therefore the GHG emissions intensity, can vary significantly depending on the type of crude oil feedstock used and refined product specifications. Entities that cost-effectively reduce GHG emissions from their operations may capture operational efficiencies. Such reductions also may mitigate the effects of increased fuel costs from regulations that limit—or put a price on—GHG emissions.

Metrics

EM-RM-110a.1. Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalent (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 These emissions include direct emissions of GHGs from stationary or mobile sources; these sources include equipment at well sites, production facilities, refineries, chemical plants, terminals, fixed site drilling rigs, office buildings, marine vessels transporting

[14] Note to **EM-RM-000.A** – The total volume of crude oil and other feedstocks processed in the refinery system during the reporting period.

[15] Note to **EM-RM-000.B**– Operating (or operable) capacity is: the amount of capacity that, at the beginning of the period, is in operation; not in operation and not under active repair, but capable of being placed in operation within 30 days; or not in operation but under active repair that can be completed within 90 days. Operable capacity is the sum of the operating and idle capacity and is measured in barrels per calendar day.

products, tank truck fleets, mobile drilling rigs, and moveable equipment at drilling and production facilities.

2.2 Acceptable calculation methodologies include those that conform to the GHG Protocol as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples include:

2.2.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)

2.2.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the U.S. Environmental Protection Agency (EPA)

2.2.3 India GHG Inventory Program

2.2.4 ISO 14064-1

2.2.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.2.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.3 GHG emission data shall be consolidated according to the approach with which the entity consolidates its financial reporting data, which is generally aligned with the 'financial control' approach defined by the GHG Protocol as well as:

2.3.1 The financial approach detailed in Chapter 3 of the IPIECA/API/OGP *Petroleum Industry Guidelines for Reporting Greenhouse Gas Emissions*, 2nd Edition, 2011 (hereafter, the 'IPIECA GHG Guidelines')

2.3.2 The approach provided by the Climate Disclosure Standards Board (CDSB) that is described in REQ-07, 'Organisational boundary,' of the *CDSB Framework for reporting environmental and social information*

3 The entity shall disclose the percentage of its gross global Scope 1 GHG emissions covered under an emissions-limiting regulation or programme intended to limit or reduce emissions directly, such as cap-and-trade schemes, carbon tax/fee systems, and other emissions control (for example, command-and-control approach) and permit-based mechanisms.

3.1 Examples of emissions-limiting regulations include:

3.1.1 California Cap-and-Trade (California Global Warming Solutions Act)

3.1.2 European Union Emissions Trading Scheme (EU ETS)

3.1.3 Quebec Cap-and-Trade (Quebec Environment Quality Act)

3.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO_2-e) covered under emissions-limiting regulations divided by the total amount of gross global Scope 1 GHG emissions (CO_2-e).

3.2.1 For emissions subject to more than one emissions-limiting regulation, the entity shall not account for those emissions more than once.

3.3 The scope of emissions-limiting regulations excludes emissions covered under voluntary emissions-limiting regulations (for example, voluntary trading systems), as well as reporting-based regulations.

4 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

5 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

6 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

EM-RM-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset, which may include energy efficiency efforts, energy source diversification, carbon capture and storage, or the implementation of leak detection and repair processes.

3 The entity shall discuss activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

4.1 Categories of emissions sources may include:

4.1.1 Flared hydrocarbons, including all emissions emitted from flares and which are associated with the management and disposal of unrecoverable natural gas via combustion of hydrocarbon products from routine operations, upsets, or emergencies

4.1.2 Other combusted emissions, including, but not limited to: (1) emissions from stationary devices, including, but not limited to boilers, heaters, furnaces, reciprocating internal combustion engines and turbines, incinerators, and thermal/catalytic oxidisers, (2) emissions from mobile sources, including, but not limited to barges, ships, railcars, and trucks for material transport; planes/helicopters and other entity vehicles for staff transport; forklifts, all terrain vehicles, construction equipment, and other off-road mobile equipment, and (3) other combusted emissions shall exclude those emissions disclosed as flared hydrocarbons

4.1.3 Process emissions, including, but not limited to those emissions that are not combusted and are intentional or designed into the process or technology to occur during normal operations and are a result of some form of chemical transformation or processing step. Such emissions include, but are not limited to those from hydrogen plants, amine units, glycol dehydrators, fluid catalytic cracking unit and reformer generation, and flexi-coker coke burn

4.1.4 Vented emissions, including those emissions that are not combusted and are intentional or designed into the process or technology to occur during normal operations, and which include, but are not limited to: (1) venting from crude oil, condensate, or natural gas product storage tanks, gas-driven pneumatic devices, gas samplers, chemical injection pumps, exploratory drilling, loading/ballasting/transit, and loading racks, (2) venting resulting from maintenance/turn-arounds, including, but not limited to decoking of furnace tubes, well unloading, vessel and gas compressor depressurising, compressor starts, gas sampling, and pipeline blowdowns, and (3) venting from non-routine activities, including but not limited to pressure relief valves, pressure control valves, fuel supply unloading valves, and emergency shut-down devices

4.1.5 Fugitive emissions, including those emissions which can be individually found and 'fixed' to make emissions 'near zero' and which include, but are not limited to emissions from valves, flanges, connectors, pumps, compressor seal leaks, Cata-Dyne® heaters, and wastewater treatment and surface impoundments

5 The entity shall discuss whether its strategies, plans, or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Water Management

Topic Summary

Refineries can use large quantities of water depending on their size and refining process complexity. This water use exposes them to the risk of water scarcity, depending on their location, and related costs. Extraction of water from water-stressed regions or water contamination also may create tensions with local communities. Refinery operations require wastewater treatment and disposal, often via on-site wastewater treatment plants before discharge. Reducing water use and contamination through recycling and other water management strategies may permit entities to capture operational efficiencies and reduce operating costs. They also could minimise regulatory, water supply shortages and community-related disruptions on operations.

Metrics

EM-RM-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

Product Specifications & Clean Fuel Blends

Topic Summary

Some regulatory jurisdictions have implemented product specifications and renewable fuel blends, which pose significant compliance and operational risks for Refining & Marketing entities. Entities may face long-term reductions in revenue from fossil fuel-based products and services because of GHG mitigation policies such as renewable fuel mandates or standards, as well as competition from non-fossil fuel products. To ensure regulatory compliance and position themselves for long-term competitiveness, some entities are investing in clean fuel production or purchasing ethanol and other renewable biofuels. Advanced biofuels and fuel technologies have lower lifecycle impacts than traditional biofuels, and they can be used to minimise future regulatory risks and public pressure. Although short-term costs to find commercially viable technologies can be significant, investments in R&D for such technologies could serve to support R&M entities' long-term profitability.

Metrics

EM-RM-410a.2. Total addressable market and share of market for advanced biofuels and associated infrastructure

1 The entity shall provide an estimation of the total addressable market for advanced biofuels and associated infrastructure.

1.1 Total addressable market is defined as potential revenue should the entity capture 100% of the market share of the product category (for example, the global market for advanced biofuels and advanced biofuel infrastructure).

2 The entity shall disclose the share of the total addressable market for advanced biofuels or associated infrastructure it currently captures with its products.

2.1 Market share shall be calculated as revenue from these products divided by the size of the total addressable market.

3 Advanced biofuels are defined as biofuels other than ethanol derived from corn starch (kernels) and having 50% lower lifecycle greenhouse gas emissions relative to gasoline.

4 Revenue from advanced biofuel infrastructure includes that from the entity's retail operations (fuel stations), joint ventures with primary producers, or technologies that enable the production of advanced biofuels.

5 If a significant difference exists between the total addressable market and the market the entity can serve through its existing or planned capabilities, sales channels or products (the serviceable available market), then the entity may disclose this information.

6 The entity may provide a projection of growth of this market, where the projected addressable market is represented—based on a reasonable set of assumptions about changes in market conditions— as a percentage of year-on-year growth or as an estimate of the market size after a defined period (the market size in 10 years).

6.1 The entity may disclose its target three-year market share as a measurement of targeted growth, where the target is the percentage of the total addressable market that the entity plans to address over a three-year time horizon.

7 The entity may discuss other non-revenue generating initiatives it has undertaken to commercialise biofuels, such as partnerships (for example, pilot projects, research and development projects) with fleet operators (air, ground or marine transportation), airlines, vehicle manufacturers and governmental agencies.

EM-RM-410a.3. Volumes of renewable fuels for fuel blending: (1) net amount produced, (2) net amount purchased

1 The entity shall disclose the net volumes in barrels of oil equivalent of renewable fuels produced, including biofuel, cellulosic biofuel, ethanol, advanced biofuels, and other renewable fuels for use in fuel blending.

2 The entity shall disclose the net amounts of renewable fuels purchased.

3 Net amounts are defined as volumes produced or purchased for use in fuel blending, less amounts sold to independent third parties in arms-length transactions during the reporting period, either directly or indirectly.

4 Some jurisdictions permit volume ‘double-counting’ based on types of advanced renewable fuels used or alternative methods of production. For the purposes of this disclosure, an entity shall not double-count renewable fuel volumes.

5 The entity shall disclose the conversion factors and assumptions used to convert renewable fuel volumes to barrels of oil equivalent (BOE).

6 The entity may include an analysis of its biofuel production capacity and total renewable fuel production of: (1) renewable fuel, (2) advanced biofuel, (3) biomass-based diesel and (4) cellulosic biofuel in barrels of oil equivalent (BOE).

Volume 14—Oil & Gas – Services

Industry Description

Oil and gas services entities drill under contract, manufacture equipment, or provide support services. Drilling and drilling-support entities drill for oil and natural gas on-shore and off-shore on a contract basis for oil and natural gas exploration and production (E&P) entities. For on-shore exploration and production, entities in the oilfield services segment manufacture equipment used in the extraction, storage and transportation of oil and natural gas. For off-shore, entities in this segment may manufacture jack-up rigs, semisubmersible rigs, drill ships and a range of other exploration equipment. They also provide support services such as seismic surveying, equipment rental, well cementing and well monitoring. These services commonly are provided on a contractual basis, and the customer purchases or leases the materials and equipment from the service provider. Service entities also may provide personnel or subject matter expertise as part of their scope of service. The contractual relationship between oil and gas services entities and their customers plays a significant role in determining the material impacts of their sustainability performance. Besides the rates charged, entities compete based on their operational and safety performance, technology and process offerings, project management performance, and reputation.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Emissions Reduction Services & Fuels Management	Total fuel consumed, percentage renewable, percentage used in: (1) on-road equipment and vehicles and (2) off-road equipment	Quantitative	Gigajoules (GJ), Percentage (%)	EM-SV-110a.1
	Discussion of strategy or plans to address air emissions-related risks, opportunities and impacts	Discussion and Analysis	n/a	EM-SV-110a.2
	Percentage of engines in service that comply with the highest level of emissions standards for non-road diesel engine emissions	Quantitative	Percentage (%)	EM-SV-110a.3
Water Management Services	(1) Total volume of water handled in operations, (2) percentage recycled	Quantitative	Thousand cubic metres (m^3), Percentage (%)	EM-SV-140a.1
	Discussion of strategy or plans to address water consumption and disposal-related risks, opportunities and impacts	Discussion and Analysis	n/a	EM-SV-140a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of active rig sites [16]	Quantitative	Number	EM-SV-000.A
Number of active well sites [17]	Quantitative	Number	EM-SV-000.B
Total amount of drilling performed	Quantitative	Metres (m)	EM-SV-000.C
Total number of hours worked by all employees	Quantitative	Hours	EM-SV-000.D

Emissions Reduction Services & Fuels Management

Topic Summary

Although direct greenhouse gas (GHG) emissions and associated regulatory risks are relatively low for oil and gas services providers relative to other industries, emissions from the operations of their customers—the oil and gas exploration and production (E&P) entities—can be significant. Emissions include GHGs that can contribute to climate change as well as other air pollutants that can have significant localised human health and environmental impacts. Increasing regulation and high costs of fuels associated with these emissions present substantial risk to E&P entities. Entities are seeking ways to lower their emissions, including converting pumps and engines to run on natural gas and electricity instead of diesel fuel. Oil and gas services entities compete for contracts partly based on providing innovative, efficient technologies that can help E&P entities reduce operating costs and improve process efficiencies. Services entities can gain a competitive advantage, grow revenue and secure market share by providing customers with services and equipment to reduce GHG, fugitive and flared emissions and fuel consumption.

Metrics

EM-SV-110a.1. Total fuel consumed, percentage renewable, percentage used in: (1) on-road equipment and vehicles and (2) off-road equipment

1 The entity shall disclose total fuel consumed from all sources as an aggregate figure, in gigajoules (GJ).

1.1 The calculation methodology for fuel consumed shall be based on actual fuel consumed as opposed to design parameters.

1.2 Acceptable calculation methodologies for fuel consumed may include methodologies based on:

1.2.1 Adding fuel purchases made during the reporting period to beginning inventory at the start of the reporting period, less any fuel inventory at the end of the reporting period

1.2.2 Tracking fuel consumed by vehicles

1.2.3 Tracking fuel expenses

2 The entity shall disclose the percentage of the total amount of fuel consumed from all sources that is renewable.

2.1 Renewable fuel generally is defined as fuel that meets all these requirements:

2.1.1 Produced from renewable biomass

[16] Note to **EM-SV-000.A** – Rigs that are on location and involved in drilling, completions, cementing, fracturing, decommissioning etc., are considered active. Rigs that are in transit from one location to another, or are otherwise idled, are inactive.

[17] Note to **EM-SV-000.B** – The number of well sites for which the entity has provided or is providing (on an ongoing basis) drilling, completion, fracturing, and/or decommissioning services.

2.1.2 Used to replace or reduce the quantity of fossil fuel present in a transportation fuel, heating oil or jet fuel

2.1.3 Achieved net greenhouse gas (GHG) emissions reduction on a lifecycle basis

2.2 The entity shall disclose the standard or regulation used to determine if a fuel is renewable.

2.3 The percentage shall be calculated as the amount of renewable fuel consumed by the entity's fleet vehicles (in GJ) divided by the total amount of fuel consumed by the entity's fleet vehicles (in GJ).

3 The entity shall disclose the percentage of total fuel consumed by (1) on-road, mobile equipment and vehicles and (2) off-road equipment, including stationary rigs, generators and mounted equipment.

4 The scope of disclosure includes only fuel consumed by entities owned or controlled by the entity.

4.1 The scope excludes non-fuel energy sources such as purchased electricity and purchased steam.

4.2 The scope of disclosure includes combustion sources owned or operated by the entity, regardless of which entity bears the cost of fuel or considers greenhouse gas (GHG) emissions from these sources to be part of its Scope 1 inventory.

5 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are directly measured or taken from the Intergovernmental Panel on Climate Change (IPCC).

6 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels).

EM-SV-110a.2. Discussion of strategy or plans to address air emissions-related risks, opportunities and impacts

1 The entity shall discuss its strategies or plans to address air-emissions-related risks, opportunities and impacts.

1.1 The scope of disclosure includes the entity's strategies, plans or emissions-reduction activities, such as how they relate to various business units, geographies or emissions sources.

1.2 The scope of disclosure includes activities and investments required to achieve the plans, and any risks or limiting factors that might affect achievement of the plans or targets.

1.3 The scope of disclosure includes the discussion of the demand for specific products, services and technologies that reduce well and field operators' fuel consumption, emissions, or create other efficiencies, and its ability to meet this demand.

2 The entity shall discuss its short- and long-term plans related to air quality management, where:

2.1 Short-term strategies may include fuel substitution (for example, drop-in biodiesel), use of dual fuel equipment or engine maintenance.

2.2 Long-term strategies may include alternative fuel equipment, process or equipment redesigns and innovations, and carbon capture and storage.

3 The scope of disclosure shall include, at a minimum, emissions from these specific sources:

3.1 Combustion emissions (for example, fuel use in gas compression, power generation)

3.2 Flaring of hydrocarbons (for example, in depressurising, start-up/shut-down, well testing and well work-over)

3.3 Process emissions (for example, vessel loading, tank storage and flushing)

3.4 Venting of hydrocarbons, defined as the intentional (or designed), controlled release of gas to the atmosphere during normal operations

3.5 Fugitive emissions of greenhouse gases (including equipment leaks)

3.6 Other non-routine events (for example, gas releases or equipment maintenance)

4 The entity shall discuss risks and opportunities relating to its ability to offer customers services, technologies or solutions that enhance energy efficiency and reduce air emissions, including of greenhouse gases.

EM-SV-110a.3. Percentage of engines in service that comply with the highest level of emissions standards for non-road diesel engine emissions

1 The entity shall disclose the percentage of its non-road diesel engines that comply with the highest level of jurisdictional emissions standards.

1.1 The scope of disclosure shall include new and in-use non-road diesel engines, which may include those used in equipment, pumps, compressors and generators.

2 The entity shall calculate the percentage as the new and in-use number of non-road diesel engines in full compliance with the highest level of jurisdictional emissions standards during the reporting period, divided by the total number of non-road diesel engines active during the reporting period, where:

2.1 An engine is considered in compliance with the standards if (1) it belongs to an engine family which has test results showing official emission results and deteriorated emission levels at or below these standards, and (2) the engine family has received confirmation from a relevant certifying or regulatory body indicating alignment with the standard used.

2.2 Engine families are defined as engine product lines expected to have similar emissions characteristics.

2.3 The highest level of jurisdictional emissions standards represent the most stringent emissions requirements applicable to the jurisdiction in which its non-road diesel engines operate.

3 Engines exempt from the jurisdictional standard, such as some marine engines, shall be exempt for the purposes of this disclosure.

4 The scope of disclosure includes all operations, regardless of jurisdiction.

5 The scope of disclosure includes non-road diesel engines manufactured, owned or operated by the entity, regardless of which entity bears the compliance obligation.

6 The entity shall disclose the jurisdictional emission standard used in its disclosure, based on the jurisdiction in which its non-road diesel engines operate.

Water Management Services

Topic Summary

Oil and gas development often requires large quantities of water, exposing producers to the risks of water scarcity, water use regulations and related cost increases, particularly in water-stressed regions. Producers also must manage wastewater disposal risks and costs. As such, service entities that develop superior technologies and processes, such as closed-loop water recycling systems to reduce customers' water consumption and disposal costs, may gain market share and increase revenue, because drilling and wastewater management can be a significant competitive factor for their customers.

Metrics

EM-SV-140a.1. (1) Total volume of water handled in operations, (2) percentage recycled

1 The entity shall disclose the volume of water, in thousands of cubic metres, handled in operations from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

1.2 Handled water is transferred to the entity from a third party as part of an entity's contractual scope of service or is obtained directly and used by the entity in its operations.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local statutes and regulations where the entity operates. Where no regulatory definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the percentage of water recycled as the volume recycled divided by the volume of water handled.

4 Recycled water shall include the amount recycled in closed-loop and open-loop systems as well as recycled produced water or flowback.

4.1 Any volume of water used more than once shall be counted as recycled each time it was recycled and reused.

5 Produced water is defined as water (brine) brought up from the hydrocarbon- bearing formation strata during the extraction of oil and gas and can include formation water, injection water, and any chemicals added downhole or during the oil/water separation process.

6 Flowback is defined as the process of allowing fluids (including water) and entrained solids to flow from a well following a treatment, either in preparation for a subsequent phase of treatment or in preparation for clean-up and returning the well to production.

6.1 The term flowback also means the fluids and entrained solids that emerge from a well during the flowback process. The flowback period begins when material introduced into the well during the treatment returns to the surface following hydraulic fracturing or refracturing.

6.2 The flowback period ends when either the well is shut in and permanently disconnected from the flowback equipment or at production start-up.

6.3 The flowback period includes the initial flowback stage and the separation flowback stage.

7 The scope is limited to operations for which the entity provides hydraulic fracturing, completion, drilling or water management services (for example, water treatment for reuse in drilling or hydraulic fracturing, and reduction of unwanted water in subsurface areas).

7.1 The scope may include water used in hydraulic fracturing fluids, drilling fluids, dust control and drilling cement production.

EM-SV-140a.2. Discussion of strategy or plans to address water consumption and disposal-related risks, opportunities and impacts

1 The entity shall discuss its strategy or plans to address water consumption and disposal-related risks, opportunities and impacts.

1.1 The scope of disclosure shall include the entity’s strategies, plans or reduction activities, including whether they pertain differently to different business units, geographies or water sources.

1.2 The scope of disclosure includes the activities and investments by the entity required to achieve the plans and any risks or limiting factors that might affect achievement of the plans or targets.

2 The entity shall discuss demand for specific products, services and technologies that offer well and field operators reduced water consumption, water recycling or other water impact reductions, and its ability to meet this demand.

3 The entity shall discuss its short- and long-term plans related to water management, where:

3.1 Short-term strategies may include adopting best practices in water recycling or water efficiency initiatives.

3.2 Long-term strategies may include process redesigns or technological innovations that reduce fresh water withdrawal in water constrained regions, reduce excess water production from wells, and provide water treatment or recycling systems.

4 The scope of impact reductions may relate to the following specific areas of water consumption or disposal:

4.1 Hydraulic fracturing fluids

4.2 Drilling fluids

4.3 Dust control

4.4 Cement production

4.5 Produced water or flowback

5 The entity shall discuss risks and opportunities relating to: being able to offer customers services, technologies or solutions that enhance water use efficiency, treatment and reuse, and reduce water consumption or wastewater production.

Volume 15—Asset Management & Custody Activities

Industry Description

Asset Management & Custody Activities industry entities manage investment portfolios on a commission or fee basis for institutional, retail and high net-worth investors. In addition, entities in this industry provide wealth management, private banking, financial planning, and investment advisory and retail securities brokerage services. Investment portfolios and strategies may be diversified across multiple asset classes, which may include equities, fixed income and hedge fund investments. Specific entities are engaged in venture capital and private equity investments. The industry provides essential services to a range of customers from individual retail investors to large, institutional asset owners to meet specified investment goals. Entities in the industry range from large multi-jurisdictional asset managers with a wide range of investable products, strategies and asset classes to small boutique entities providing services to specific market niches. While large entities generally compete based on management fees charged for their services as well as their potential to generate superior investment performance, the smaller entities generally compete on their ability to provide products and services customised to satisfy the diversification needs of individual clients. The global 2008 financial crisis and subsequent regulatory regime developments highlight the industry’s importance in providing fair advice to customers and managing risks at the entity, portfolio and macroeconomic levels.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Incorporation of Environmental, Social, and Governance Factors in Investment Management & Advisory	Amount of assets under management, by asset class, that employ (1) integration of environmental, social, and governance (ESG) issues, (2) sustainability themed investing and (3) screening	Quantitative	Presentation currency	FN-AC-410a.1
	Description of approach to incorporation of environmental, social and governance (ESG) factors in investment or wealth management processes and strategies	Discussion and Analysis	n/a	FN-AC-410a.2
	Description of proxy voting and investee engagement policies and procedures	Discussion and Analysis	n/a	FN-AC-410a.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Total assets under management (AUM)	Quantitative	Presentation currency	FN-AC-000.A
Total assets under custody and supervision	Quantitative	Presentation currency	FN-AC-000.B

Incorporation of Environmental, Social, and Governance Factors in Investment Management & Advisory

Topic Summary

Asset Management & Custody Activities entities maintain a fiduciary responsibility to their clients. These entities must consider and incorporate an analysis of all material information into investment decisions, including environmental, social and governance (ESG) factors. The process of ESG investment involves consideration of ESG factors in valuation, modelling, portfolio construction, proxy voting and engagement with investees and, as a result, in investment decision-making by asset and wealth managers. As the management and use of non-financial forms of capital increasingly contribute to market value, incorporation of ESG factors in the analysis of investees has become more relevant. Research has established that an entity's management of some ESG factors may impact materially both its accounting and market returns. Therefore, deep understanding of investees' ESG performance, integration of ESG factors in valuation and modelling, as well as engagement with investees on sustainability issues allows asset managers to generate superior returns. On the other hand, asset management and custody activities industry entities that fail to consider these risks and opportunities in their investment management activities may witness diminished investment portfolio returns that may result in reduced performance fees. Over the long term, these failures could result in an outflow of assets under management (AUM), the loss of market share and lower management fees.

Metrics

FN-AC-410a.1. Amount of assets under management, by asset class, that employ (1) integration of environmental, social, and governance (ESG) issues, (2) sustainability themed investing and (3) screening

1 The entity shall disclose the amount of assets under management (AUM) that employ (1) integration of environmental, social and governance (ESG) issues, (2) sustainability themed investing, and (3) screening.

1.1 AUM shall be defined broadly as the total market value, expressed in the entity's presentation currency, of the assets managed by a financial institution on behalf of clients.

1.2 Integration of ESG issues is defined as the systematic and explicit inclusion of material ESG factors into investment analysis and investment decisions, as aligned with the *PRI Reporting Framework – Main definitions 2018*.

1.3 Sustainability themed investing is defined as investment in themes or assets specifically related to sustainability (for example, clean energy, green technology or sustainable agriculture), as aligned with the *PRI Reporting Framework—Main definitions 2018*.

1.4 Screening, including (a) negative/exclusionary, (b) positive/best-in-class and (c) norms-based, is defined by the *PRI Reporting Framework—Main definitions 2018*.

1.5 The scope of disclosure includes both passive and active strategies.

2 The entity shall disaggregate its disclosure by asset class: (a) equities, (b) fixed income, (c) cash equivalents/money market instruments and (d) other (for example, real estate and commodities).

3 The entity shall identify and disclose the amount of any AUM managed using more than one ESG integration strategy (for example, screening and integration).

FN-AC-410a.2. Description of approach to incorporation of environmental, social and governance (ESG) factors in investment or wealth management processes and strategies

1 The entity shall describe its approach to the incorporation of environmental, social and governance (ESG) factors in its investment or wealth management processes and strategies.

1.1 The definition of incorporation of ESG factors is aligned with that of the Global Sustainable Investment Alliance (GSIA) and includes the use of ESG information in investment decision-making processes.

1.2 Examples of ESG factors and issues are provided in the *PRI Reporting Framework—Main definitions 2018*, section 'ESG issues'.

1.3 Incorporation of ESG factors includes the following approaches, consistent with the *PRI Reporting Framework—Main definitions 2018*:

1.3.1 Screening, including (a) negative/exclusionary, (b) positive/best-in-class and (c) norms-based

1.3.2 Sustainability themed investment, defined as investment in themes or assets specifically related to sustainability (for example, clean energy, green technology or sustainable agriculture)

1.3.3 Integration of ESG, defined as the systematic and explicit inclusion of material ESG factors into investment analysis and investment decisions

1.3.4 A combination of the above

2 The entity shall describe the policies that determine its approach to the incorporation of ESG factors in its investment or wealth management processes and strategies.

3 The scope of disclosure shall exclude discussion of the entity's proxy voting and investee engagement policies and procedures, which is included in metric FN-AC-410a.3, 'Description of proxy voting and investee engagement policies and procedures'.

4 The entity shall describe its approach to implementation of the aspects of the entity's ESG incorporation practices.

4.1 The discussion shall include, but is not limited to:

4.1.1 Parties responsible for the day-to-day incorporation of ESG factors

4.1.2 Roles and responsibilities of employees involved

4.1.3 Approach to conducting ESG-related research

4.1.4 Approach to incorporating ESG factors into investment strategies

5 The entity shall describe its oversight/accountability approach to the incorporation of ESG factors.

5.1 The discussion shall include:

5.1.1 Formal oversight individuals or bodies involved

5.1.2 Roles and responsibilities of employees involved

5.1.3 Criteria used in assessing the quality of ESG incorporation

6 The entity shall discuss whether it conducts scenario analysis or modelling in which the risk profile of future ESG trends is calculated at the portfolio level.

6.1 ESG trends may include climate change, natural resource constraints, human capital risks and opportunities, and cybersecurity risks.

6.2 The entity shall describe the types of portfolios or strategies in which it executes scenario analysis or modelling.

6.2.1 The entity is not required to provide such disclosure at the individual portfolio or strategy level.

7 The entity shall discuss ESG trends it considers apply broadly in terms of their effect on sectors and industries, as well as the trends it deems as sector- or industry-specific.

8 The entity shall describe whether it incorporates ESG factors in strategic asset allocation or allocation of assets between sectors or geographical markets.

8.1 The entity shall describe the types of portfolios or strategies in which it incorporates ESG factors in strategic asset allocation or allocation of assets between sectors or geographical markets.

8.1.1 The entity is not required to provide such disclosure at the individual portfolio or strategy level.

9 The entity shall describe how ESG factors are incorporated in the assessment of and how it influences the entity's views on:

9.1 Time horizon of investments

9.2 Risk and return profiles of investments

9.3 Traditional fundamental factors such as economic conditions, central bank policy, industry trends and geopolitical risks

10 When relevant, the entity shall discuss its approach to incorporation of ESG factors in selecting external fund managers and fiduciary managers.

10.1 The entity shall describe its oversight/accountability approach to assessing the quality of incorporation of ESG factors by external fund managers and fiduciary managers, which may include:

10.1.1 Formal oversight individuals or bodies involved

10.1.2 Roles and responsibilities of employees involved

10.1.3 Criteria used in assessing the quality of ESG incorporation

11 The scope of disclosure shall include investment or wealth management services in which the entity maintains decision-making power, regardless of strategy and asset class.

12 The scope of disclosure shall exclude execution or advisory services in which investment decision-making power remains with clients.

13 When relevant, the description of the entity's approach to incorporation of ESG factors in its investment or wealth management activities shall be broken down by asset class or by style employed.

13.1 The discussion shall include the differences in the entity's approaches to incorporation of ESG factors in:

13.1.1 Public equity, fixed income, private equity or alternative asset classes

13.1.2 Passive versus active investment strategies

13.1.3 Fundamental, quantitative and technical analyses of investments

FN-AC-410a.3. Description of proxy voting and investee engagement policies and procedures

1 The entity shall describe its approach to proxy voting, which may include its process for making proxy voting decisions, including its approach to defining materiality.

1.1 The discussion shall include, but is not limited to, elements highlighted in *PRI Reporting Framework 2019 Direct—Listed Equity Active Ownership*:

1.1.1 The scope of the entity's voting activities

1.1.2 The objectives of the entity's voting activities

1.1.3 How, if at all, the entity's voting approach differs among markets

1.1.4 Whether the entity has a default position of voting in favour of management in particular markets or on particular issues

1.1.5 Whether and how local regulatory or other requirements influence the entity's approach to voting

1.1.6 Whether the entity votes by proxy or in person by attending annual general meetings (AGMs) (or a combination of both)

1.2 The entity shall describe its approach to determining support for proposals, including its approach to defining materiality.

1.2.1 The scope of disclosure includes proposals addressing environmental and social (ES) issues.

1.3 The entity shall describe how it communicates its proxy voting policy to clients and to the public.

1.3.1 The entity may provide the link to its formal proxy voting policy.

2 The entity shall describe its process of making proxy voting decisions.

2.1 The discussion shall include the elements highlighted in *PRI Reporting Framework 2019 Direct—Listed Equity Active Ownership*, which include:

2.1.1 Use of internal research team or third-party service providers

2.1.2 Review and monitoring process for service provider recommendations

3 The entity shall describe its approach to communicating voting decisions to entity management, including the rationale for voting for/against management's recommendations.

4 The entity shall describe its approach to engagement on ES issues.

4.1 The discussion shall include:

4.1.1 The entity's objectives for undertaking engagement activities

4.1.2 Whether the entity's engagements related to ES issues are primarily proactive to ensure that ES issues are well-managed in a preventive manner or reactive to address issues that may have already occurred

4.1.3 The outcomes the entity seeks from engaging with entities on ES issues (for example, influencing corporate practice; improving the quality of ES disclosure)

4.1.4 The entity's staff that carries out the engagement (for example, specialised in-house engagement teams, fund managers or equity/credit analysts, more senior-level roles)

4.1.5 The roles of individuals at the portfolio entities the entity seeks to engage with (for example, board members, board chair, CEO, corporate secretary, investor relations managers)

4.2 The entity shall describe how it communicates its engagement policy to clients and to the public.

4.2.1 The entity may provide the link to its formal engagement policy.

4.3 The scope of disclosure includes all asset classes, portfolios or strategies in which the entity engages on ES issues.

5 The entity shall describe how the outcomes of its proxy voting and engagement activities inform its investment decision-making process.

5.1 The discussion shall include:

5.1.1 How the entity decides what information to pass on to investment decision-makers

5.1.2 How the entity monitors the use of the information passed on in investment decision-making

6 The entity shall describe its escalation process for engagements when entity dialogue is failing.

6.1 The escalation process may include tactics highlighted in the *International Corporate Governance Network (ICGN) Global Stewardship Principles*:

6.1.1 Expressing concerns to corporate representatives or non-executive directors, either directly or in a shareholder meeting

6.1.2 Expressing the entity's concerns collectively with other investors

6.1.3 Making a public statement

6.1.4 Submitting shareholder resolutions

6.1.5 Speaking at general meetings

6.1.6 Submitting one or more nominations for election to the board as appropriate and convening a shareholder meeting

6.1.7 Seeking governance improvements or damages through legal remedies or arbitration

6.1.8 Exit or threat to exit from the investment

7 The entity shall describe how its ES engagement strategy fits into its overall engagement strategy.

8 The entity may disclose additional quantitative measures related to its proxy voting and engagement activities, such as:

8.1 Number of engagements and percentage of those in-person

8.2 Number of staff involved in proxy voting and engagement activities

Volume 16—Commercial Banks

Industry Description

Commercial banks accept deposits and make loans to individuals and corporations, and engage in lending to infrastructure, real estate and other projects. By providing these services, the industry serves an essential role in the functioning of global economies and in facilitating the transfer of financial resources to their most productive capacity. The industry is driven by the volume of deposits, quality of loans made, the economic environment and interest rates. The risk from mismatched assets and liabilities further characterises the industry. The regulatory environment governing the commercial banking industry witnessed significant changes in the wake of the 2008 global financial crisis and continues to evolve today. These and other regulatory trends may affect performance. Commercial banks with global operations must manage new regulations in many jurisdictions that are creating regulatory uncertainty, particularly regarding the consistent application of new rules.

Note: This standard addresses ‘pure play’ commercial banking services, which may not include all the activities of integrated financial institutions, such as investment banking and brokerage services, mortgage finance, consumer finance, asset management and custody services, and insurance. Separate standards address the sustainability issues for activities in those industries.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Incorporation of Environmental, Social, and Governance Factors in Credit Analysis	Description of approach to incorporation of environmental, social and governance (ESG) factors in credit analysis	Discussion and Analysis	n/a	FN-CB-410a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
(1) Number and (2) value of checking and savings accounts by segment: (a) personal and (b) small business	Quantitative	Number, Presentation currency	FN-CB-000.A
(1) Number and (2) value of loans by segment: (a) personal, (b) small business, and (c) corporate [18]	Quantitative	Number, Presentation currency	FN-CB-000.B

[18] Note to **FN-CB-000.B** – Mortgage loans as well as revolving credit loans shall be excluded from the scope of disclosure.

Incorporation of Environmental, Social, and Governance Factors in Credit Analysis

Topic Summary

As financial intermediaries, commercial banks contribute to significant positive and negative environmental and social externalities through their lending practices. Environmental, social and governance (ESG) factors can have material implications for the underlying entities, assets and projects to which commercial banks lend across a range of industries. Therefore, entities increasingly must examine ESG factors when determining the quality of collateral. Commercial banks also may enable positive environmental and social externalities to generate significant revenue streams through their lending practices. Commercial banks that fail to address these risks and opportunities could face diminished returns and reduced value for shareholders. Commercial banks should subsequently disclose how ESG factors are integrated into lending processes and the current level of portfolio risk associated with specific sustainability trends. Specifically, investor and regulatory pressure is mounting for banks to disclose how they address climate change related risks.

Metrics

FN-CB-410a.2. Description of approach to incorporation of environmental, social and governance (ESG) factors in credit analysis

1 The entity shall describe its approach to the incorporation of environmental, social and governance (ESG) factors in its credit analysis.

1.1 The definition of incorporation of ESG factors is aligned with that of the Global Sustainable Investment Alliance (GSIA) and includes the use of ESG information in the investment decision-making processes.

1.2 Examples of ESG factors and issues are provided in the *PRI Reporting Framework—Main definitions 2018*, section 'ESG issues'.

1.3 Credit analysis is defined as a method to calculate the creditworthiness of a business or organisation to honour debt obligations. This method seeks to identify the appropriate level of default risk associated with financing such business, organisation or project.

2 The scope of disclosure shall include commercial and industrial lending as well as project finance.

3 The entity shall describe the policies that determine its approach to the incorporation of ESG factors in its credit analysis.

4 The entity shall discuss how it incorporates ESG factors when estimating credit losses over the contractual term of the entity's financial assets.

5 The entity shall describe its approach to implementation of the aspects of the entity's ESG incorporation practices.

5.1 The description shall include:

5.1.1 Parties responsible for the day-to-day incorporation of ESG factors

5.1.2 Roles and responsibilities of employees involved

5.1.3 Approach to ESG-related research

5.1.4 Approach to incorporating ESG factors into assessing creditworthiness of borrowers

6 The entity shall describe its oversight and accountability approach to the incorporation of ESG factors.

6.1 The description shall include:

6.1.1 Formal oversight individuals or bodies involved

6.1.2 Roles and responsibilities of employees involved

6.1.3 Criteria used in assessing the quality of ESG incorporation

7 The entity shall discuss whether it conducts scenario analysis or modelling in which the risk profile of future ESG trends is calculated at the portfolio level of commercial and industrial credit exposure.

7.1 ESG trends may include climate change, natural resource constraints, human capital risks and opportunities, and cybersecurity risks.

8 The entity shall discuss ESG trends it considers apply broadly in terms of their effect on sectors and industries, as well as the trends it deems as sector- or industry-specific.

8.1 The entity may further provide the discussion in the context of geographical exposure of its commercial and industrial credit portfolio.

9 The entity shall describe significant concentrations of credit exposure to ESG factors, which may include carbon-related assets, water-stressed regions and cybersecurity risks.

10 The entity shall describe how ESG factors are incorporated in the assessment of and influence the entity's views on:

10.1 Traditional macroeconomic factors such as the economic conditions, central bank monetary policy, industry trends, and geopolitical risks that affect creditworthiness of borrowers

10.2 Traditional microeconomic factors such as supply and demand for products or services that affect financial conditions and operational results of borrowers as well as their creditworthiness

10.3 Overall creditworthiness of a borrower

10.4 Maturity or tenor of a loan

10.5 Expected loss, including probability of default, exposure at default and loss given default

10.6 Value of posted collateral

11 The entity may disclose additional quantitative measures related to its approach to the incorporation of ESG factors in credit analysis, such as:

11.1 Number of commercial and industrial loans and project finance screened according to the Equator Principles (EP III) (or equivalent) by EP Category

11.2 Number of loans for which a review of environmental or social risks was performed, for example, by the entity's Environmental and Social Risk Management (ESRM) group

Volume 17—Insurance

Industry Description

The Insurance industry provides both traditional and non-traditional insurance-related products. Traditional policy lines include property, life, casualty and reinsurance. Non-traditional products include annuities, alternative risk transfers and financial guarantees. Entities in the insurance industry also engage in proprietary investments. Insurance entities generally operate within a single segment in the industry, for example, property and casualty, although some large insurance entities have diversified operations. Similarly, entities may vary based on the level of their geographical segmentation. Whereas large entities may underwrite insurance premiums in many countries, smaller entities generally operate in a single country or jurisdiction. Insurance premiums, underwriting revenue and investment income drive industry growth, while insurance claim payments present the most significant cost and source of uncertainty for profits. Insurance entities provide products and services that enable the transfer, pooling and sharing of risk necessary for a well-functioning economy. Insurance entities, through their products, can also create a form of moral hazard, reducing incentives to improve underlying behaviour and performance, and thus contributing to sustainability-related impacts. Like other financial institutions, insurance entities face risks associated with credit and financial markets. Within the industry, regulators have identified entities that engage in non-traditional or non-insurance activities, including credit default swaps (CDS) protection and debt securities insurance, as being more vulnerable to financial market developments, and therefore more likely to amplify or contribute to systemic risk. As a result, some insurance entities may be designated as Systemically Important Financial Institutions, thus exposing them to increased regulation and oversight.

Note: Topics and metrics regarding sustainability issues associated with the provision of health insurance are outlined in the Managed Care (HC-MC) industry.

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Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Incorporation of Environmental, Social and Governance Factors in Investment Management	Description of approach to incorporation of environmental, social and governance (ESG) factors in investment management processes and strategies	Discussion and Analysis	n/a	FN-IN-410a.2
Policies Designed to Incentivise Responsible Behaviour	Net premiums written related to energy efficiency and low carbon technology	Quantitative	Presentation currency	FN-IN-410b.1
	Discussion of products or product features that incentivise health, safety or environmentally responsible actions or behaviours	Discussion and Analysis	n/a	FN-IN-410b.2

continued…

…continued

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Physical Risk Exposure	Probable Maximum Loss (PML) of insured products from weather-related natural catastrophes [19]	Quantitative	Presentation currency	FN-IN-450a.1
	Total amount of monetary losses attributable to insurance pay-outs from (1) modelled natural catastrophes and (2) non-modelled natural catastrophes, by type of event and geographical segment (net and gross of reinsurance) [20]	Quantitative	Presentation currency	FN-IN-450a.2
	Description of approach to incorporation of environmental risks into (1) the underwriting process for individual contracts and (2) the management of entity-level risks and capital adequacy	Discussion and Analysis	n/a	FN-IN-450a.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of policies in force, by segment: (1) property and casualty, (2) life, (3) assumed reinsurance [21]	Quantitative	Number	FN-IN-000.A

Incorporation of Environmental, Social and Governance Factors in Investment Management

Topic Summary

Insurance entities must invest capital to preserve accumulated premium revenues equivalent to expected policy claim pay-outs and maintain long-term asset-liability parity. Because environmental, social and governance (ESG) factors increasingly have a material impact on the performance of corporations and other assets, insurance entities increasingly must incorporate these factors into their investment management. Failure to address these issues may diminish risk-adjusted portfolio returns and limit an entity's ability to issue claim payments. Entities, therefore, should enhance disclosure on how they incorporate ESG factors, including climate change and natural resource constraints, into the investment of policy premiums and how they affect the portfolio risk.

Metrics

FN-IN-410a.2. Description of approach to incorporation of environmental, social and governance (ESG) factors in investment management processes and strategies

1 The entity shall describe its approach to incorporation of environmental, social and governance (ESG) factors in its investment management processes and strategies.

[19] Note to **FN-IN-450a.1** – The entity shall describe climate-related scenarios used, including the critical input parameters, assumptions and considerations, analytical choices, and time frames, in calculation of the PML.

[20] Note to **FN-IN-450a.2** – The entity shall discuss how climate change-related impacts and variability of weather-related losses impact the cost of reinsurance and the entity's approach to transferring risk through reinsurance.

[21] Note to **FN-IN-000.A** – The entity additionally may disaggregate the number of policies in force by product line.

1.1 The definition of incorporation of ESG factors is aligned with that of the Global Sustainable Investment Alliance (GSIA) and includes the use of ESG information in the investment decision-making processes.

1.2 The *PRI Reporting Framework—Main definitions 2018*, section ‘ESG issues’, provides examples of ESG factors/issues.

1.3 Incorporation of ESG factors includes the following approaches, consistent with the *PRI Reporting Framework—Main definitions 2018*:

1.3.1 Screening, including a) negative/exclusionary, b) positive/best-in-class and c) norms-based

1.3.2 Sustainability-themed investment, defined as investment in themes or assets specifically related to sustainability (for example, clean energy, green technology or sustainable agriculture)

1.3.3 Integration of ESG, defined as the systematic and explicit inclusion of material ESG factors into investment analysis and investment decisions

1.3.4 A combination of the approaches.

2 The entity shall describe regulatory requirements to which it is subject that limit the types of allowable investments the entity may make, as well as the allowable credit and equity risk to which the entity may be exposed.

2.1 The description of the entity’s approach to incorporation of ESG factors in its investment management processes and strategies shall be provided in the context of the regulatory environment to which the entity is subject.

3 The entity shall describe policies that determine its approach to incorporation of ESG factors in its investment management processes and strategies.

4 The entity shall describe how it implements ESG incorporation practices.

4.1 The discussion shall include:

4.1.1 Parties responsible for day-to-day incorporation of ESG factors

4.1.2 Roles and responsibilities of employees involved

4.1.3 Approach to conducting ESG-related research

4.1.4 Approach to incorporating ESG factors into investment strategies

5 The entity shall describe its oversight/accountability approach to the incorporation of ESG factors.

5.1 The discussion shall include:

5.1.1 Formal oversight individuals or bodies involved

5.1.2 Roles and responsibilities of employees involved

5.1.3 Criteria used in assessing the quality of ESG incorporation

6 The entity shall discuss whether it conducts scenario analysis or modelling in which the risk profile of future ESG factors at the portfolio level is calculated.

6.1 ESG factors may include climate change, natural resource constraints, human capital risks and opportunities, and cybersecurity risks.

7 The entity shall discuss ESG factors that it considers apply broadly in terms of their impact on sectors and industries, as well as the factors it deems as sector- or industry-specific.

8 The entity shall describe whether it incorporates ESG factors in strategic asset allocation or allocation of assets between sectors or geographical markets.

9 The entity shall describe how it incorporates ESG factors into the assessment of and influence the entity’s perspectives on:

9.1 Time horizon of investments

9.2 Risk and return profiles of investments

9.3 Traditional fundamental factors such as economic conditions, central bank policy, industry factors, and geopolitical risks

10 Where relevant, the entity shall discuss how it incorporates ESG factors in selecting external fund managers and fiduciary managers.

10.1 The entity shall describe its oversight/accountability approach to assessing the quality of the incorporation of ESG factors by external fund managers and fiduciary managers, which includes:

10.1.1 Formal oversight individuals or bodies involved

10.1.2 Roles and responsibilities of employees involved

10.1.3 Criteria used in assessing the quality of ESG incorporation

11 Where relevant, the description of the entity's approach to incorporation of ESG factors in its investment management activities shall be disaggregated by asset class or by style employed.

11.1 The discussion shall include, but is not limited to, the differences in the entity's approaches to incorporation of ESG factors in:

11.1.1 Public equity, fixed income, private equity or alternative asset classes

11.1.2 Passive versus active investment strategies

11.1.3 Fundamental, quantitative and technical analyses of investments

Policies Designed to Incentivise Responsible Behaviour

Topic Summary

Advances in technology and the development of new policy products have allowed insurance entities to limit claim payments while encouraging responsible behaviour. The industry is subsequently in a unique position to generate positive social and environmental externalities. Insurance entities can incentivise healthy lifestyles and safe behaviour as well as develop sustainability-related projects and technologies, such as those focused on renewable energy, energy efficiency and carbon capture. As the renewable energy industry continues to grow, insurance entities may seek related growth opportunities by underwriting insurance in this area. Additionally, policy clauses may encourage customers to incorporate environmental, social and governance (ESG) factors to mitigate overall underwriting portfolio risk, which may reduce insurance pay-outs over the long term. Therefore, disclosure on products related to energy efficiency and low carbon technology, as well as discussion of how entities incentivise health, safety or environmentally responsible actions or behaviours, may assist investors in assessing how insurance entities incentivise responsible behaviour.

Metrics

FN-IN-410b.1. Net premiums written related to energy efficiency and low carbon technology

1 The entity shall disclose the net premiums written for policies related to energy efficiency and low carbon technology, including renewable energy insurance, energy savings warranties, and carbon capture and storage insurance.

1.1 The disclosure scope includes policies that can be demonstrated to absorb environmental risks, thereby enabling sustainability-related projects, technologies and activities.

1.2 Renewable energy insurance may range from specialised protection against natural hazards or mechanical breakdowns to insurance against fluctuations in the availability of wind or solar radiation.

1.3 Energy savings warranties insure the energy savings guaranteed by Energy Services Entities (ESCOs) for building retrofitting and other energy efficiency projects.

2 The disclosure scope shall include policies in which the insurer has priced and identified separately such net premiums in its customer billing.

FN-IN-410b.2. Discussion of products or product features that incentivise health, safety or environmentally responsible actions or behaviours

1 The entity shall describe how it incentivises health, safety or environmentally responsible actions or behaviours through incorporation of clauses in the insurance policies sold to clients and through pricing structure of the policies.

1.1 The scope of disclosure includes policies underwritten in the Property & Casualty (P&C) and Life segments and excludes Health Insurance policies.

1.2 The scope of disclosure includes the consumer insurance segment and the commercial insurance segment:

1.2.1 The consumer segment includes homeowners, automotive, supplemental health and accident, and other personal insurance.

1.2.2 The commercial segment includes casualty (for example, liability, workers' compensation), property, specialty (for example, crop, marine, political risk) and financial (for example, errors and omissions, fiduciary liability) insurance.

2 Disclosure shall include a description of the aspects of traditional products that incentivise health, safety or environmentally responsible actions or behaviour. Such aspects may include:

2.1 Premium discounts for green buildings

2.2 Premium discounts for improving resource efficiency of properties

2.3 Actuarially adjusted premiums for the use of low-emission vehicles, fuel-efficient non-hybrid vehicles or alternative-fuel vehicles

2.4 Premium discounts for safer driving and lower use of personal vehicles

2.5 Premium discounts for healthy behaviour (healthy diet, routine exercise, weight loss, giving up smoking/drinking).

3 The entity may disclose quantitative measures related to performance on underwriting of products with clauses incentivising healthy, safe or environmentally responsible actions or behaviour, such as:

3.1 Number of policies incorporating such clauses

3.2 Amount of premiums generated from the relevant products

3.3 Quantitative measures of the associated social and environmental factors influenced through products (reduction in the amount of car accidents involving policyholders, amount of exercise hours per week, average amount of weight lost by a policyholder).

Physical Risk Exposure

Topic Summary

Catastrophic losses associated with extreme weather events will continue to have a material, adverse effect on the Insurance industry. The extent of this effect may evolve as climate change increases the frequency and severity of both modelled and non-modelled natural catastrophes, including hurricanes, floods and droughts. Failure to appropriately understand environmental risks, and price them into the underwritten insurance products, may result in higher-than-expected claims on policies. Therefore, insurance entities that incorporate climate change considerations into their underwriting process for individual contracts, and well as the management of entity-level risks and capital adequacy, may be better positioned to create value over the long-term. Enhanced disclosure of an entity's approach to incorporating these factors, in addition to quantitative data such as the probable maximum loss and total losses attributable to insurance pay-outs, may provide investors with the information necessary to assess current and future performance on this issue.

Metrics

FN-IN-450a.1. Probable Maximum Loss (PML) of insured products from weather-related natural catastrophes

1 The entity shall disclose the Probable Maximum Loss (PML) of insured products from natural peril catastrophe events.

1.1 PML is defined as the anticipated value of the largest monetary loss affecting the entity's insurance portfolio that could result from weather-related natural catastrophes and is based on catastrophe modelling and exceedance probability (EP).

1.2 The disclosure scope of natural peril catastrophic events includes: hurricanes (typhoons), tornadoes, tsunamis, floods, droughts, extreme heat and winter weather.

2 The entity shall disclose the PML using, at a minimum, three likelihood of exceedance scenarios: (1) 2% (1-in-50); (2) 1% (1-in-100); (3) 0.4% (1-in-250).

2.1 The entity may disclose additional likelihood of exceedance scenarios.

3 The entity shall disaggregate the PML by geographical location.

4 The entity shall report the PML amount on gross and net of catastrophe reinsurance bases.

4.1 The gross PML is the gross probable maximum loss for natural peril catastrophic events (prior to reinsurance) for annual aggregate exposure to all risks, including reinstatement premiums for the year following the relevant year based upon the entity's catastrophe model.

4.2 The net PML is the net probable maximum loss for natural peril catastrophic events (after reinsurance) for annual aggregate exposure to all risks, including reinstatement premiums for the year following the relevant year based upon the entity's catastrophe model.

5 Disclosure shall be provided for relevant geographical regions.

6 The entity may summarise the disaggregation of the PML in the following tables:

Table 3. Gross PML

	1-IN-50	1-IN-100	1-IN-250
Hurricanes (Typhoons)			
Tornadoes			
Tsunamis			
Floods			
Droughts			
Extreme Heat			
Winter Weather			

Table 4. Net PML

	1-IN-50	1-IN-100	1-IN-250
Hurricanes (Typhoons)			
Tornadoes			
Tsunamis			
Floods			
Droughts			
Extreme Heat			
Winter Weather			

Note to **FN-IN-450a.1**

1 The entity shall describe climate-related scenarios used, including the critical input parameters, assumptions and considerations, analytical choices, and time frames, in calculation of the PML, as aligned with the *Task Force on Climate-related Financial Disclosures (TCFD) Supplemental Guidance for Insurance Companies*.

FN-IN-450a.2. Total amount of monetary losses attributable to insurance pay-outs from (1) modelled natural catastrophes and (2) non-modelled natural catastrophes, by type of event and geographical segment (net and gross of reinsurance)

1 The entity shall disclose the amount of policyholder benefits paid and claims incurred during the reporting period resulting from policy losses and benefits expenses related to modelled and non-modelled natural peril catastrophe events.

1.1 The disclosure scope of natural peril catastrophic events includes: hurricanes (typhoons), tornadoes, tsunamis, floods, droughts, extreme heat and winter weather.

2 Benefits and claims incurred shall be disclosed in accordance with IFRS 17 *Insurance Contracts*.

3 The entity shall disaggregate policy losses and benefits expenses for modelled and non-modelled natural peril catastrophe events.

3.1 Modelled natural catastrophes are typically large-scale events, such as hurricanes and earthquakes, that the entity has analysed using a catastrophic risk model.

3.2 Non-modelled events are typically smaller-scale events, such as floods, droughts, snowstorms and tornadoes, that the entity has not analysed using a catastrophic model (CAT model).

3.2.1 CAT models are probabilistic mathematical models that simulate hazardous events and estimate the associated potential damages and insured losses. They may be conducted by the entity or by a third party on behalf of the entity.

4 The entity shall disaggregate policy losses and benefits expenses by geographical segment.

5 The entity shall disaggregate policy losses and benefits expenses by natural peril catastrophic events.

5.1 Where relevant, natural peril catastrophic events include: hurricanes (typhoons), tornadoes, tsunamis, floods, droughts, extreme heat and winter weather.

6 The entity shall report the policy losses and benefits expenses on a gross and net of catastrophe reinsurance base.

6.1 The net amount shall be calculated as the gross amount of policy losses and benefits expenses from natural peril catastrophe events minus the recoverables from ceded reinsurance.

7 The entity shall consider IFRS 17 *Insurance Contracts* a normative reference, thus any future updates made to it shall be considered updates to this guidance.

Note to **FN-IN-450a.2**

1 The entity shall discuss its strategy around enhancing catastrophe modelling.

2 The entity shall discuss how climate change-related impacts and variability of weather-related losses effect the cost of reinsurance and the entity’s approach to transferring risk through reinsurance.

FN-IN-450a.3. Description of approach to incorporation of environmental risks into (1) the underwriting process for individual contracts and (2) the management of entity-level risks and capital adequacy

1 The entity shall describe its approach to incorporation of environmental risks into both individual policyholder contracts and entity-wide assessments of risk.

2 The entity shall describe the processes for identifying and assessing climate-related risks on insurance and reinsurance portfolios by geography, business division or product segments.

2.1 Climate-related risks are defined by the Task Force on Climate-related Financial Disclosures (TCFD) as:

2.1.1 Physical risks from changing frequencies and intensities of weather-related perils

2.1.2 Transition risks resulting from a reduction in insurable interest because of a decline in value, changing energy costs or implementation of carbon regulation

2.1.3 Liability risks that could intensify due to a possible increase in litigation

3 The entity shall describe what it considers to be the relevant short-, medium- and long-term horizons in the context of the underwriting process for individual contracts as well as the management of entity-level risks and capital adequacy.

4 The entity shall describe specific climate-related risks for each time horizon (short, medium and long term) that the entity considers in the underwriting process for individual contracts as well as in the management of entity-level risks and capital adequacy.

5 The entity shall describe the process for integration of climate-related risks in probabilistic mathematical models (catastrophic models).

5.1 Discussion shall include:

5.1.1 The use of new and emerging datasets (for example, for dam burst risk)

5.1.2 The use of the critical input parameters, assumptions and considerations, and analytical choices

5.2 Discussion shall be provided in the context of the relevant short-, medium- and long-term horizons.

6 The entity shall describe how outputs of catastrophe models inform its underwriting decisions.

6.1 Discussion shall include:

6.1.1 Development of insurance and reinsurance products which account for climate-related risks

6.1.2 Pricing of insurance and reinsurance policies

6.1.3 Client selection (for example, the type of events the entity chooses to cover or not, or geographical markets in which the entity chooses not to underwrite policies)

6.1.4 Cedent selection (for example, decisions on the amount of risk the entity chooses to transfer through reinsurance).

6.2 Discussion shall be provided in the context of the relevant short-, medium- and long-term horizons.

7 The entity shall describe the process for incorporation of clauses in the insurance policies sold to clients that incentivise reduction of exposure to climate-related risks of insured assets through pricing structure of the policies.

7.1 Discussion shall include incentives such as:

7.1.1 The use of sustainable building materials

7.1.2 Enhancement of the weather resiliency of properties

7.1.3 Coverage of properties in communities with building codes requiring climate-risk adaptations

8 The entity shall discuss the process for integration of environmental risks into entity-wide assessments.

8.1 Discussion shall include:

8.1.1 Consideration of risks by segment (for example, life versus property and casualty)

8.1.2 Capital adequacy

8.1.3 Contingency planning for market failure (from many disaster-related claims)

8.1.4 Use of alternative risk transfer (for example, catastrophe bonds, weather derivatives).

8.2 Discussion shall be provided in the context of the relevant short-, medium- and long-term horizons.

9 The entity may discuss how sustainability risks are integrated into its use of an enterprise risk management (ERM) framework, such as the Committee of Sponsoring Organisations of the Treadway Commission (COSO) Enterprise Risk Management–Integrated Framework.

Volume 18—Investment Banking & Brokerage

Industry Description

Investment Banking & Brokerage industry entities perform a wide range of functions in the capital markets, including raising and allocating capital and providing market-making and advisory services for corporations, financial institutions, governments and high net-worth individuals. Specific activities include financial advisory and securities underwriting services conducted on a fee basis; securities and commodities brokerage activities, which involve buying and selling securities or commodities contracts and options on a commission or fee basis; and trading and principal investment activities, which involve the buying and selling of equities, fixed income, currencies, commodities and other securities for client-driven and proprietary trading. Investment banks also originate and securitise loans for infrastructure and other projects. Entities in the industry generate revenues from global markets and, therefore, are exposed to various regulatory regimes. The industry continues to face regulatory pressure to reform and disclose aspects of operations that present systemic risks. Specifically, entities are facing new capital requirements, stress testing, limits on proprietary trading and increased scrutiny over compensation practices.

Note: This standard addresses 'pure play' investment banking and brokerage services. Separate standards exist for the Mortgage Finance (FN-MF), Commercial Banking (FN-CB), Consumer Finance (FN-CF), Asset Management & Custody Services (FN-AM), and Insurance (FN-IN) industries.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Incorporation of Environmental, Social, and Governance Factors in Investment Banking & Brokerage Activities	Revenue from (1) underwriting, (2) advisory and (3) securitisation transactions incorporating integration of environmental, social and governance (ESG) factors, by industry	Quantitative	Presentation currency	FN-IB-410a.1
	(1) Number and (2) total value of investments and loans incorporating integration of environmental, social and governance (ESG) factors, by industry	Quantitative	Number, Presentation currency	FN-IB-410a.2
	Description of approach to incorporation of environmental, social and governance (ESG) factors in investment banking and brokerage activities	Discussion and Analysis	n/a	FN-IB-410a.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
(1) Number and (2) value of (a) underwriting, (b) advisory, and (c) securitisation transactions [22]	Quantitative	Number, Presentation currency	FN-IB-000.A
(1) Number and (2) value of proprietary investments and loans by sector [23]	Quantitative	Number, Presentation currency	FN-IB-000.B
(1) Number and (2) value of market making transactions in (a) fixed income, (b) equity, (c) currency, (d) derivatives, and (e) commodity products	Quantitative	Number, Presentation currency	FN-IB-000.C

Incorporation of Environmental, Social, and Governance Factors in Investment Banking & Brokerage Activities

Topic Summary

Environmental, social and governance (ESG) factors may have material impacts on the entities assets and projects across a range of industries to which investment banks provide services or in which they invest. Therefore, by accounting for these factors in underwriting, advisory, investing and lending activities, investment banks may manage significant positive and negative environmental and social externalities effectively. The potential for both value creation and loss associated with ESG factors suggests that investment banking and brokerage entities have a responsibility to shareholders and clients to consider these factors when analysing and valuing core products, including sell-side research, advisory services, origination, underwriting and principal transactions. Investment banking and brokerage entities that fail to manage these risks and opportunities effectively may expose themselves to increased reputational and financial risks. Appropriately pricing ESG risks may reduce investment banks' financial risk exposure, help generate additional revenue or open new market opportunities. To help investors better understand how entities in the industry manage these issues, investment banks should disclose how they incorporate ESG factors in their core products and services.

Metrics

FN-IB-410a.1. Revenue from (1) underwriting, (2) advisory and (3) securitisation transactions incorporating integration of environmental, social and governance (ESG) factors, by industry

1 The entity shall report the total revenue earned from transactions in which the entity incorporates integration of environmental, social and governance (ESG) factors.

1.1 Integration of ESG factors is defined as the systematic and explicit inclusion of material ESG factors into underwriting, advisory and securitisation activities and may include review of transactions by the entity's Environmental and Social Risk Management (ESRM) group or screening (exclusionary, inclusionary or benchmarked).

1.1.1 The entity shall describe how ESG factors are integrated in the aforementioned activities.

2 The entity shall disaggregate the revenue from transactions by important business activities including (a) underwriting, (b) advisory and (c) securitisation.

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22 Note to **FN-IB-000.A** – For syndicate transactions, the entity shall include only the value for which it was accountable.

23 Note to **FN-IB-000.B** – The entity shall use the Global Industry Classification Standard (GICS) for classifying investees and borrowers.

2.1 Underwriting is defined as activities in which the entity raises investment capital from investors on behalf of corporations and governments that are issuing either equity or debt securities. It includes public offerings and private placements, including local and cross-border transactions and acquisition financing of a wide range of securities and other financial instruments, including loans. Underwriting also includes derivative transactions entered into with public and private sector clients in connection with the entity's underwriting activities.

2.2 Advisory is defined as activities in which the entity provides financial advice to institutional clients on a fee basis. It excludes wealth management and asset management activities.

2.3 Securitisation is defined as the process through which the entity creates a financial instrument by combining other financial assets and then marketing different tiers of the repackaged instruments to investors. It may include securitisation of residential and commercial mortgages, corporate bonds, loans and other types of financial assets by selling these assets to securitisation vehicles (for example, trusts, corporate entities and limited liability entities) or through a re-securitisation.

3 The entity shall disaggregate the revenue from transactions by industry.

3.1 The entity shall use the Global Industry Classification Standard (GICS) six-digit industry-level code for classifying transactions.

3.1.1 The entity shall use the latest version of the classification system available at the date of reporting.

3.1.2 The entity shall disclose the classification standard used if different from GICS.

4 The entity shall provide disclosure for at least the 10 largest industries by monetary amount of exposure or to industries representing at least 2% of the overall monetary amount of exposure.

FN-IB-410a.2. (1) Number and (2) total value of investments and loans incorporating integration of environmental, social and governance (ESG) factors, by industry

1 The entity shall report the number of proprietary investments and loans incorporating integration of environmental, social and governance (ESG) factors.

2 The entity shall report the value of proprietary investments and loans incorporating integration of ESG factors.

3 The disclosure scope includes the entity's investing and relationship lending activities across asset classes, including debt securities and loans, public and private equity securities, infrastructure, and real estate. These activities include investing directly in publicly and privately traded securities and in loans, and also investing through some investment funds that the entity manages and through funds managed by external parties.

3.1 The scope of disclosure excludes commercial, consumer and mortgage-lending activities.

4 Integration of ESG factors is defined as the systematic and explicit inclusion of material ESG factors into traditional fundamental financial analysis through the consideration of qualitative risks and opportunities, quantitative metrics, and the incorporation of ESG variables into models to inform the entity 's decision-making processes involved in proprietary investing and lending.

5 The entity shall break down the number and value of investments and loans by industry.

5.1 The entity shall use the Global Industry Classification Standard (GICS) six-digit industry-level code for classifying investees and borrowers.

5.1.1 The entity shall use the latest version of the classification system available at the date of reporting.

5.1.2 The entity shall disclose the classification standard used if different from GICS.

5.2 The entity shall disclose its exposure to at least the 10 largest industries by monetary amount of exposure or to industries representing at least 2% of the overall portfolio monetary exposure.

FN-IB-410a.3. Description of approach to incorporation of environmental, social and governance (ESG) factors in investment banking and brokerage activities

1 The entity shall describe its approach to incorporation of environmental, social and governance (ESG) factors in its investment banking and brokerage activities.

1.1 The definition of incorporation of ESG factors is aligned with that of the Global Sustainable Investment Alliance (GSIA) and includes the use of ESG information in the investment decision-making processes.

1.2 Examples of ESG factors/issues are provided in the *PRI Reporting Framework—Main definitions 2018*, section 'ESG issues'.

1.3 The scope of investment banking and brokerage activities may include (a) underwriting, (b) advisory, (c) securitisation, (d) investing and lending and (e) securities services.

1.3.1 Underwriting is defined as activities in which the entity raises investment capital from investors on behalf of entities that are issuing either equity or debt securities. It includes public offerings and private placements, including local and cross-border transactions and acquisition financing of a wide range of securities and other financial instruments, including loans. Underwriting also includes derivative transactions entered into with public and private sector clients in connection with the entity's underwriting activities.

1.3.2 Advisory is defined as activities in which the entity provides financial advice to institutional clients on a fee basis.

1.3.3 Securitisation is defined as the process through which the entity creates a financial instrument by combining other financial assets and then marketing various tiers of the repackaged instruments to investors. It may include securitisation of residential and commercial mortgages, corporate bonds, loans and other types of financial assets by selling these assets to securitisation vehicles (for example, trusts, corporate entities and limited liability entities) or through a re-securitisation.

1.3.4 Investing and lending includes short-term and long-term investing and relationship lending activities across asset classes such as debt securities and loans, public and private equity securities, infrastructure, and real estate.

1.3.5 Securities services include (i) financing services (for the entity's clients' securities trading activities through margin loans that are collateralised by securities), (ii) securities lending services (borrowing and lending securities to cover institutional clients' short sales, borrowing securities to cover the entity's short sales, otherwise to making deliveries into the market, broker-to-broker securities lending, and third-party agency lending activities), and (iii) other prime brokerage services (clearing and settlement services).

2 The entity shall describe its approach to implementation of the aspects of the entity's ESG incorporation practices.

2.1 The discussion shall include:

2.1.1 Parties responsible for day-to-day incorporation of ESG factors

2.1.2 Roles and responsibilities of employees involved

2.1.3 Approach to conducting ESG-related research

2.1.4 Approach to incorporating ESG factors into products and services

3 The entity shall describe its oversight/accountability approach to the incorporation of ESG factors.

3.1 The discussion shall include:

3.1.1 Formal oversight individuals or bodies involved

3.1.2 Roles and responsibilities of employees involved

3.1.3 Criteria used in assessing the quality of ESG incorporation

4 The entity shall discuss whether it conducts scenario analysis or modelling in which the risk profile of future ESG trends is calculated across its investment banking and brokerage activities.

4.1 Where relevant, the entity shall disclose whether such scenario analysis is performed for specific business activities, including (a) underwriting, (b) advisory, (c) securitisation, (d) investing and lending and (e) securities services lines of business.

4.2 ESG trends may include climate change, natural resource constraints, human capital risks and opportunities, and cybersecurity risks.

5 The entity shall discuss ESG trends that it considers apply broadly in terms of their effect on sectors and industries, as well as trends it deems as sector- or industry-specific.

5.1 The entity may further provide the discussion in the context of geographical exposure of its portfolio, by line of business.

6 The entity shall describe significant concentrations of exposure to ESG factors, which may include carbon-related assets, water-stressed regions and cybersecurity risks.

7 The entity shall describe how it incorporates ESG factors in the assessment of, and the entity's perspectives on:

7.1 Traditional macroeconomic factors such as the economic conditions, central bank monetary policy, industry trends and geopolitical risks that affect risk profile of clients or individual transactions

7.2 Traditional microeconomic factors such as supply of and demand for products or services which affect financial conditions and operational results of clients as well as their creditworthiness

7.3 Time horizon of investments and loans

7.4 Risk and return profiles of investments and loans

7.5 Risk profiles of (a) underwritten debt and equity securities, (b) advisory transactions (for example, mergers and acquisitions) and (c) securitised assets.

8 The entity may disclose additional quantitative measures related to the incorporation of ESG factors in investment banking and brokerage activities, such as:

8.1 Number of investment banking and brokerage transactions screened according to Equator Principles (EP III) (or equivalent) by EP Category

8.2 Number of investment banking and brokerage transactions for which a review of environmental or social risks was performed, for example, by the entity's Environmental and Social Risk Management (ESRM) group.

Volume 19—Mortgage Finance

Industry Description

The Mortgage Finance industry provides an essential public good by enabling consumers to purchase homes and contributing to the overall home ownership rate. Entities in the industry lend capital to individual and commercial customers using property as collateral. The primary products are residential and commercial mortgages, while other services offered include mortgage servicing, title insurance, closing and settlement services, and valuation. In addition, mortgage finance entities own, manage and finance real estate-related investments such as mortgage pass-through certificates and collateralised mortgage obligations. Recent trends in the regulatory environment indicate a significant shift towards consumer protection, disclosure and accountability. Regulatory changes made in response to the global 2008 financial crisis demonstrate the potential for further alignment between the interests of society and those of long-term investors.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Environmental Risk to Mortgaged Properties	(1) Number and (2) value of mortgage loans in 100-year flood zones	Quantitative	Number, Presentation currency	FN-MF-450a.1
	(1) Total expected loss and (2) Loss Given Default (LGD) attributable to mortgage loan default and delinquency because of weather-related natural catastrophes, by geographical region	Quantitative	Presentation currency, Percentage (%)	FN-MF-450a.2
	Description of how climate change and other environmental risks are incorporated into mortgage origination and underwriting	Discussion and Analysis	n/a	FN-MF-450a.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
(1) Number and (2) value of mortgages originated by category: (a) residential and (b) commercial	Quantitative	Number, Presentation currency	FN-MF-000.A
(1) Number and (2) value of mortgages purchased by category: (a) residential and (b) commercial	Quantitative	Number, Presentation currency	FN-MF-000.B

Environmental Risk to Mortgaged Properties

Topic Summary

An increase in the frequency of extreme weather events associated with climate change may have an adverse impact on the Mortgage Finance industry. Specifically, hurricanes, floods and other climate change-related events have the potential to result in missed payments and loan defaults, while also decreasing the value of underlying assets. Entities which incorporate climate-related risks into lending analysis may be better positioned to create value over the long-term.

Metrics

FN-MF-450a.1. (1) Number and (2) value of mortgage loans in 100-year flood zones

1 The entity shall disclose the (1) number and (2) value of mortgage loans in the entity's portfolio underwritten on properties located in 100-year flood zones.

1.1 100-year flood zones are defined as land areas subject to a 1% or greater chance of flooding in any given year. Such areas also may be referred to as being subject to the 1% annual chance flood, the 1% annual exceedance probability flood or the 100-year flood.

1.1.1 Examples of 100-year flood zones may include coastal flood plains, flood plains along major rivers and areas subject to flooding from ponding in low-lying areas.

2 The scope of disclosure shall include all the entity's mortgage loans underwritten on properties located in 100-year flood zones, regardless of the country of their location.

2.1 The scope of mortgage loans shall include those first mortgages (1–4 family) and junior lien (1–4 family second mortgages or home equity lines of credit) loans that the entity holds as loan assets.

2.2 The scope of mortgage loans shall exclude mortgages held for sale, mortgage-backed securities and mortgages serviced by the entity.

FN-MF-450a.2. (1) Total expected loss and (2) Loss Given Default (LGD) attributable to mortgage loan default and delinquency because of weather-related natural catastrophes, by geographical region

1 The entity shall disclose the (1) total expected loss and (2) Loss Given Default (LGD), as a percentage, attributable to mortgage loan default and delinquency because of weather-related natural catastrophes.

1.1 Expected loss is defined and calculated as the sum of the values of all the possible losses for the entity's mortgage loans, each multiplied by the probability of that loss occurring.

1.2 LGD is defined as the share of an asset lost in the situation of default.

1.3 Weather-related natural catastrophes include:

1.3.1 Meteorological events (for example, hurricanes and storms)

1.3.2 Hydrological events (floods)

1.3.3 Climatological events (for example, heat waves, cold waves, droughts, and wildfires)

1.4 Weather-related natural catastrophes exclude geophysical events (for example, earthquakes and volcanic eruptions).

2 The entity shall break down its disclosure by geographical region.

2.1 Applicable regions are determined by the entity.

FN-MF-450a.3. Description of how climate change and other environmental risks are incorporated into mortgage origination and underwriting

1 The entity shall describe how it has incorporated climate change and other environmental risks into its mortgage origination and underwriting processes.

1.1 The mortgage origination process is defined broadly as all the steps in a mortgage transaction between a lender and a borrower, which may include application, processing and underwriting.

1.2 The scope of climate change and other environmental risks may include:

1.2.1 The increased frequency and severity of weather-related natural catastrophes, including meteorological events (for example, hurricanes and storms), hydrological events (floods) and climatological events (for example, heat waves, cold waves, droughts and wildfires)

1.2.2 The occurrence of geophysical events (for example, earthquakes and volcanic eruptions)

2 The entity shall disclose how and if these risks affect its origination models and decisions.

2.1 The scope of disclosure may include:

2.1.1 How the risk impacts the valuation of collateral, such as accounting for inherent risks resulting from location or assessing for the implementation of basic adaptive measures (for example, reinforcement or hurricane shutters)

2.1.2 How natural disaster risks affect credit risk analysis, including if the entity assumes that increases in natural disaster frequency and severity will increase the likelihood of default because of properties being un-insured or under-insured

Volume 20—Agricultural Products

Industry Description

The Agricultural Products industry is engaged in processing, trading and distributing vegetables and fruits, and producing and milling agricultural commodities such as grains, sugar, consumable oils, maize, soybeans and animal feed. Entities sell products directly to consumers and businesses for use in consumer and industrial products. Entities in the industry typically purchase agricultural products from entities that grow such products (either directly or indirectly) to then conduct value-adding activities (for example, processing, trading, distributing and milling). Agricultural products entities also are involved in wholesale and distribution. Entities in the industry may source a substantial portion of agricultural commodities from third-party growers in various countries. Therefore, managing sustainability risks within the supply chain is critical to securing a reliable raw materials supply and reducing the risk of price increases and volatility over the long term.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions	Quantitative	Metric tons (t) CO_2-e	FB-AG-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	FB-AG-110a.2
	Fleet fuel consumed, percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	FB-AG-110a.3
Energy Management	(1) Operational energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	FB-AG-130a.1
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	FB-AG-140a.1
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	FB-AG-140a.2
	Number of incidents of non-compliance associated with water quality permits, standards and regulations	Quantitative	Number	FB-AG-140a.3
Ingredient Sourcing	Identification of principal crops and description of risks and opportunities presented by climate change	Discussion and Analysis	n/a	FB-AG-440a.1
	Percentage of agricultural products sourced from regions with High or Extremely High Baseline Water Stress	Quantitative	Percentage (%) by cost	FB-AG-440a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Production by principal crop [24]	Quantitative	Metric tons (t)	FB-AG-000.A
Number of processing facilities [25]	Quantitative	Number	FB-AG-000.B
Total land area under active production	Quantitative	Hectares	FB-AG-000.C
Cost of agricultural products sourced externally [26]	Quantitative	Presentation currency	FB-AG-000.D

Greenhouse Gas Emissions

Topic Summary

Entities in the Agricultural Products industry generate direct greenhouse gas (GHG) emissions from processing and transporting goods via land and sea freight operations. Emissions regulations may increase the cost of capital, operational costs and affect the operational efficiency of entities without strategies to manage GHG emissions. Employing innovative technologies that use alternative fuels and energy inputs—including biomass waste generated from internal processes—and improving fuel efficiency are ways entities can limit exposure to volatile fuel pricing, supply disruptions, future regulatory costs and other potential consequences of GHG emissions.

Metrics

FB-AG-110a.1. Gross global Scope 1 emissions

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalents (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 Acceptable calculation methodologies include those that conform to the *GHG Protocol* as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples may include:

[24] Note to **FB-AG-000.A** – Principal crops are those crops that accounted for 10 percent or more of consolidated revenue in any of the last three fiscal years.

[25] Note to **FB-AG-000.B** – Processing facilities include those facilities that are involved in the manufacturing, processing, packing, or holding of agricultural products and exclude administrative offices.

[26] Note to **FB-AG-000.C** – Agricultural products are defined as food, feed, and biofuel ingredients that are sourced for use in the entity's operations. The scope of agricultural products sourced externally excludes agricultural products grown on land that is owned or operated by the entity.

2.1.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)

2.1.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the US Environmental Protection Agency (EPA)

2.1.3 India GHG Inventory Program

2.1.4 ISO 14064-1

2.1.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.1.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE).

2.2 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which generally is aligned with the 'financial control' approach defined by the *GHG Protocol*, and the approach published by the Climate Disclosure Standards Board (CDSB) described in REQ-07, 'Organisational boundary', of the *CDSB Framework for reporting environmental and social information*.

3 The entity may discuss any change in its emissions from the previous reporting period including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

4 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

5 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

FB-AG-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined according to *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

5 The entity shall discuss whether its strategies, plans or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

FB-AG-110a.3. Fleet fuel consumed, percentage renewable

1 The entity shall disclose the total amount of fuel consumed by its fleet vehicles as an aggregate figure, in gigajoules (GJ).

1.1 The calculation methodology for fuel consumed shall be based on actual fuel consumed as opposed to design parameters.

1.2 Acceptable calculation methodologies for fuel consumed may include methodologies based on:

1.2.1 Adding fuel purchases made during the reporting period to beginning inventory at the start of the reporting period, less any fuel inventory at the end of the reporting period

1.2.2 Tracking fuel consumed by vehicles

1.2.3 Tracking fuel expenses.

2 The entity shall disclose the percentage of the total amount of fuel consumed by its fleet vehicles that is renewable fuel.

2.1 Renewable fuel generally is defined as fuel that meets all the following requirements:

2.1.1 Produced from renewable biomass

2.1.2 Used to replace or reduce the quantity of fossil fuel present in a transportation fuel, heating oil or jet fuel

2.1.3 Achieved net greenhouse gas (GHG) emissions reduction on a life cycle basis.

2.2 The entity shall disclose the Standard or regulation used to determine if a fuel is renewable.

3 The scope of disclosure includes fuel consumed by vehicles owned or operated by the entity.

4 The scope of disclosure excludes fuel consumed in the transportation of the entity's products by third parties.

Energy Management

Topic Summary

Processing and milling agricultural products require substantial energy input. While some agricultural products entities generate energy on-site through the direct combustion of fossil fuels or biomass, most energy is procured from the electrical grid. Energy consumption contributes to environmental impacts, including climate change and pollution. Energy management affects current and future costs of operation. Climate regulation and other sustainability factors could result in higher or more volatile electricity and fuel prices, increasing operating costs for agricultural products entities. Therefore, energy efficiency gained through process improvements can lower operating costs. The trade-off between on-site versus grid-sourced electricity as well as the use of alternative energy can play important roles in influencing both the long-term cost and reliability of an entity's energy supply and the extent of regulatory impact from direct versus indirect emissions.

Metrics

FB-AG-130a.1. (1) Operational energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed (excluding fleet vehicles) as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption excludes fuel consumed by fleet vehicles, but includes energy from all other sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, purchased electricity, heating, cooling and steam energy all are included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed (excluding fleet vehicles) that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed (excluding fleet vehicles) that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel use (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Water Management

Topic Summary

The Agricultural Products industry relies on water for processing activities, and entities in the industry also typically generate wastewater or effluent. The availability of water, because of physical availability or regulatory access, directly impacts the industry's ability to operate processing facilities efficiently. Entities in the industry increasingly are exposed to water-related risks and regulations, which may increase capital expenditure costs, operating costs, remediation costs or potential fines. Entities can manage water-related risks and opportunities and mitigate long-term costs through capital investments and assessment of facility locations relative to water scarcity risks, improvements to operational efficiency, and work with regulators and communities on issues related to water access and effluent. A separate supply chain-oriented topic, Ingredient Sourcing, addresses the risks related to crop production driven by water availability and access.

Metrics

FB-AG-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

FB-AG-140a.2. Description of water management risks and discussion of strategies and practices to mitigate those risks

1 The entity shall describe its water management risks associated with water withdrawals, water consumption and discharge of water or wastewater.

1.1 Risks associated with water withdrawals and water consumption include risks to the availability of adequate, clean water resources, which include:

1.1.1 Environmental constraints—such as operating in water-stressed regions, drought, concerns of aquatic impingement or entrainment, interannual or seasonal variability, and risks from the impact of climate change

1.1.2 Regulatory and financial constraints—such as volatility in water costs, stakeholder perceptions and concerns related to water withdrawals (for example, those from local communities, non-governmental organisations and regulatory agencies), direct competition with and impact from the actions of other users (for example, commercial and municipal users), restrictions to withdrawals because of regulations and constraints on the entity's ability to obtain and retain water rights or permits.

1.2 Risks associated with the discharge of water or wastewater include the ability to obtain rights or permits related to discharges, compliance with regulations related to discharges, restrictions to discharges, the ability to maintain control over the temperature of water discharges, liabilities, reputational risks and increased operating costs because of regulation, stakeholder perceptions and concerns related to water discharges (for example, those from local communities, non-governmental organisations and regulatory agencies).

2 The entity may describe water management risks in the context of:

2.1 How risks may vary by withdrawal source, including surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities

2.2 How risks may vary by discharge destinations, including surface water, groundwater or wastewater utilities.

3 The entity may discuss the potential effects that water management risks may have on its operations and the time line over which such risks are expected to manifest.

3.1 Effects include those associated with costs, revenue, liabilities, continuity of operations and reputation.

4 The entity shall discuss its short- and long-term strategies or plans to mitigate water management risks, which include:

4.1 The scope of its strategy, plans, goals or targets, such as how they relate to various business units, geographies or water-consuming operational processes.

4.2 Any water management goals or targets it has prioritised, and an analysis of performance against those goals or targets.

4.2.1 Goals and targets may include those associated with reducing water withdrawals, reducing water consumption, reducing water discharges, reducing aquatic impingements, improving the quality of water discharges and maintaining regulatory compliance.

4.3 The activities and investments required to achieve the plans, goals or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4.4 Disclosure of strategies, plans, goals or targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

5 For water management targets, the entity shall additionally disclose:

5.1 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target.

5.2 The time lines for the water management plans, including the start year, the target year and the base year.

5.3 The mechanism(s) for achieving the target, including:

5.3.1 Efficiency efforts, such as the use of water recycling or closed-loop systems

5.3.2 Product innovations, such as redesigning products or services to require less water

5.3.3 Process and equipment innovations, such as those that enable the reduction of aquatic impingements or entrainments

5.3.4 Use of tools and technologies (for example, the World Wildlife Fund Water Risk Filter, the Global Water Tool and Water Footprint Network Footprint Assessment Tool) to analyse water use, risks and opportunities

5.3.5 Collaborations or programmes in place with the community or other organisations.

5.4 The percentage reduction or improvement from the base year, in which the base year is the first year against which water management targets are evaluated towards the achievement of the target.

6 The entity shall discuss whether its water management practices result in any additional life cycle effects or trade-offs in its organisation, including trade-offs in land use, energy production and greenhouse gas (GHG) emissions, and why the entity chose these practices despite life cycle trade-offs.

FB-AG-140a.3. Number of incidents of non-compliance associated with water quality permits, standards and regulations

1 The entity shall disclose the total number of incidents of non-compliance, including violations of a technology-based standard and exceedances of quantity or quality-based standards.

2 The scope of disclosure includes incidents governed by applicable jurisdictional statutory permits and regulations, which include the discharge of a hazardous substance, violation of pre-treatment requirements or total maximum daily load (TMDL) exceedances.

3 The scope of disclosure shall only include incidents of non-compliance that resulted in a formal enforcement action(s).

3.1 Formal enforcement actions are defined as governmental recognised actions that address a violation or threatened violation of water quantity or quality laws, regulations, policies or orders, and can result in administrative penalty orders, administrative orders and judicial actions, among others.

4 Violations shall be disclosed, regardless of their measurement methodology or frequency. These include violations for:

4.1 Continuous discharges, limitations, standards and prohibitions that are generally expressed as maximum daily, weekly and monthly averages; and

4.2 Non-continuous discharges or limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge and mass or concentration of specified pollutants.

Ingredient Sourcing

Topic Summary

Agricultural products entities source a wide variety of commodities and ingredients from farmers or intermediary distributors. The industry's ability to reliably source ingredients at desired price points fluctuates with crop yield, which may be affected by climate change, water scarcity, land management and other resource scarcity considerations. Entities that source more productive and less resource-intensive crops, or those that work closely with suppliers to increase their adaptability to climate change and other resource scarcity risks, may reduce crop price volatility and crop supply disruptions. Additionally, entities may improve their brand reputation and develop new market opportunities. Failure to effectively manage sourcing risks can result in higher costs of capital, reduced margins and constrained revenue growth.

Metrics

FB-AG-440a.1. Identification of principal crops and description of risks and opportunities presented by climate change

1 The entity shall identify any principal crops that are a priority to its business.

1.1 Principal crops are those crops that accounted for 10% or more of consolidated revenue in any of the last three reporting periods, as disclosed in FB-AG-000.A.

2 The scope of disclosure shall include crops cultivated directly by the entity, grown on a contract basis or sourced as a commodity.

2.1 Crops cultivated directly by the entity include those grown on farms owned or operated by the entity.

2.2 Crops grown on a contract basis include those for which the entity has contracted directly for the conditions of crop production and the quality of crops with the farmer, consistent with the Food and Agriculture Organisation of the United Nations (FAO) 'Contract Farming Resource Centre'.

2.3 Crops sourced as a commodity include those bought through the spot market, to-arrive bids, grain elevators or other measures by which the entity is unable to control the production process.

3 The entity shall describe the risks or opportunities that are presented to its principal crops by climate change scenarios, including, where relevant:

3.1 Identification of the risks presented by climate change, which may include availability of water, shifts in crop regions, pest migration and extreme weather events

3.2 Discussion of the scenarios used to determine the risks and opportunities presented by climate change

3.3 Discussion of how such scenarios will manifest (for example, effects directly on the entity or the entity's supply chain) and the potential implications that these would have on its priority crops

3.4 The timeline over which such risks and opportunities are expected to manifest.

4 The entity may discuss the methods or models used to develop these scenarios, including the use of global gridded crop models or scientific research provided by governmental and non-governmental organisations (for example, Intergovernmental Panel on Climate Change Climate Scenario Process).

5 The entity shall discuss efforts to assess and monitor the impacts of climate change and the related strategies to alleviate or adapt to any risks, and its efforts to recognise any opportunities (for example, FAO 'Climate-Smart Agriculture' approach).

5.1 Alleviation strategies may include use of crop insurance, investments in hedging instruments and supply chain diversification.

5.2 Adaptation strategies may include improving ecosystem management and biodiversity, development of tolerant crop varieties and optimising timing of planting and harvesting.

FB-AG-440a.2. Percentage of agricultural products sourced from regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the percentage of agricultural products sourced from regions with High or Extremely High Baseline Water Stress.

1.1 Agricultural products are defined as raw materials such as food, feed and biofuel ingredients sourced for use by the entity's operations.

2 The percentage shall be calculated as the cost of agricultural products purchased from Tier 1 suppliers that withdraw and consume water in regions with High or Extremely High Baseline Water Stress to produce the agricultural products divided by the total cost of agricultural products purchased from Tier 1 suppliers.

2.1 The entity shall identify Tier 1 suppliers that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) water risk atlas tool, Aqueduct.

3 The scope of disclosure is agricultural products purchased from Tier 1 suppliers, including those grown on a contract basis or sourced as a commodity.

3.1 Tier 1 suppliers are defined as suppliers that transact directly with the entity for agricultural products.

3.2 Agricultural products grown on a contract basis include those for which the entity has directly contracted the conditions of crop production and the quality of crops with the farmer, consistent with the Food and Agriculture Organisation of the United Nations (FAO) Contract Farming Resource Centre.

3.3 Agricultural products sourced as a commodity include those bought through the spot market, to-arrive bids, grain elevators or other measures by which the entity is not able to control the production process.

4 If the entity is unable to identify or collect data pertaining to all Tier 1 suppliers, the entity shall disclose the percentage of agricultural products for which the source region and water risks are unknown.

Volume 21—Alcoholic Beverages

Industry Description

Alcoholic Beverages industry entities brew, distil and manufacture various alcoholic beverages including beer, wine and liquor. Entities in this industry transform agricultural products including sugar, barley and corn, into finished alcoholic beverages. The largest entities have global operations with portfolios of man branded products. Levels of vertical integration within the industry vary because of regulation in different markets. Breweries generally have multiple manufacturing facilities to provide access to different markets, while vintners and distillers typically are located where they have a history of production.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	FB-AB-130a.1
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	FB-AB-140a.1
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	FB-AB-140a.2
Environmental & Social Impacts of Ingredient Supply Chain	Suppliers' social and environmental responsibility audit (1) non-conformance rate and (2) associated corrective action rate for (a) major and (b) minor non-conformances	Quantitative	Rate	FB-AB-430a.1
Ingredient Sourcing	Percentage of beverage ingredients sourced from regions with High or Extremely High Baseline Water Stress	Quantitative	Percentage (%) by cost	FB-AB-440a.1
	List of priority beverage ingredients and discussion of sourcing risks related to environmental and social considerations	Discussion and Analysis	n/a	FB-AB-440a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Volume of products sold	Quantitative	Millions of hectoliters (Mhl)	FB-AB-000.A
Number of production facilities	Quantitative	Number	FB-AB-000.B
Total fleet road kilometres travelled	Quantitative	Kilometres (km)	FB-AB-000.C

Energy Management

Topic Summary

Entities in the Alcoholic Beverages industry rely on both fuel and purchased electricity as critical inputs. Fossil fuel and electrical energy consumption can contribute to negative environmental impacts, including climate change and pollution. These impacts have the potential to affect the value of entities in this industry since greenhouse gas (GHG) emissions regulations and new incentives for energy efficiency and renewable energy could result in increased fossil fuels and conventional electricity price volatility, while making alternative sources more cost-competitive. Entities that manage for increased energy efficiency and use alternative energy sources may increase profitability by reducing both expenses and risks.

Metrics

FB-AB-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Water Management

Topic Summary

Water management includes an entity's direct water use, exposure to water scarcity and management of wastewater. Entities in the Alcoholic Beverages industry use a large amount of water in their operations, since water is a key input for their finished products. Given alcoholic beverage entities' heavy reliance on large volumes of clean water and water scarcity is increasing in different regions globally, entities may be exposed to supply disruptions that could significantly impact operations and increase costs. Entities operating in water-stressed regions that fail to address local water concerns may risk losing their social license to operate. Improving water management through increased efficiency and recycling, particularly in regions with baseline water stress, can result in lower operating costs, reduced risks and higher intangible asset value.

Metrics

FB-AB-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea.

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

FB-AB-140a.2. Description of water management risks and discussion of strategies and practices to mitigate those risks

1 The entity shall describe its water management risks associated with water withdrawals, water consumption and discharge of water or wastewater.

1.1 Risks associated with water withdrawals and water consumption include risks to the availability of adequate, clean water resources, which include:

1.1.1 Environmental constraints—such as operating in water-stressed regions, drought, concerns of aquatic impingement or entrainment, interannual or seasonal variability, and risks from the impact of climate change

1.1.2 Regulatory and financial constraints—such as volatility in water costs, stakeholder perceptions and concerns related to water withdrawals (for example, those from local communities, non-governmental organisations and regulatory agencies), direct competition with and impact from the actions of other users (for example, commercial and municipal users), restrictions to withdrawals because of regulations, and constraints on the entity's ability to obtain and retain water rights or permits

1.2 Risks associated with the discharge of water or wastewater include the ability to obtain rights or permits related to discharges, regulatory compliance related to discharges, restrictions to discharges, the ability to maintain control over the temperature of water discharges, liabilities, reputational risks and increased operating costs because of regulation, stakeholder perceptions and concerns related to water discharges (for example, those from local communities, non-governmental organisations and regulatory agencies).

2 The entity may describe water management risks in the context of:

2.1 How risks may vary by withdrawal source, including surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities; and

2.2 How risks may vary by discharge destinations, including surface water, groundwater or wastewater utilities.

3 The entity may discuss the potential effects that water management risks may have on its operations and the time line over which such risks are expected to manifest.

3.1 Effects include those associated with costs, revenue, liabilities, continuity of operations and reputation.

4 The entity shall discuss its short- and long-term strategies or plans to mitigate water management risks, which include:

4.1 The scope of its strategy, plans, goals or targets, such as how they relate to various business units, geographies or water-consuming operational processes.

4.2 Any water management goals or targets it has prioritised, and an analysis of performance against those goals or targets.

4.2.1 Goals and targets include those associated with reducing water withdrawals, reducing water consumption, reducing water discharges, reducing aquatic impingements, improving the quality of water discharges and regulatory compliance.

4.3 The activities and investments required to achieve the plans, goals or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4.4 Disclosure of strategies, plans, goals or targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

5 For water management targets, the entity shall additionally disclose:

5.1 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target.

5.2 The time lines for the water management activities, including the start year, the target year and the base year.

5.3 The mechanism(s) for achieving the target, including:

5.3.1 Efficiency efforts, such as the use of water recycling or closed-loop systems;

5.3.2 Product innovations, such as redesigning products or services to require less water;

5.3.3 Process and equipment innovations, such as those that enable the reduction of aquatic impingements or entrainments;

5.3.4 Use of tools and technologies (for example, the World Wildlife Fund Water Risk Filter, the Global Water Tool and Water Footprint Network Footprint Assessment Tool) to analyse water use, risks and opportunities; and

5.3.5 Collaborations or programmes in place with the community or other organisations.

5.4 The entity shall discuss whether its water management practices result in any additional life cycle impacts or trade-offs in its organisation, including trade-offs in land use, energy production and greenhouse gas (GHG) emissions, and why the entity chose these practices despite life cycle trade-offs.

6 The entity shall discuss whether its water management practices result in any additional lifecycle impacts or tradeoffs in its organisation, including trade-offs in land use, energy production and greenhouse gas (GHG) emissions, and why the entity chose these practices despite lifecycle tradeoffs.

Environmental & Social Impacts of Ingredient Supply Chain

Topic Summary

Entities in the Alcoholic Beverages industry manage global supply chains to source a wide range of ingredient inputs. How entities screen, monitor and engage with suppliers on environmental and social topics affects entities' ability to secure supply and manage price fluctuations. Supply chain interruption can cause loss of revenue and negatively impact market share if entities are unable to find alternatives for key suppliers or must source ingredients at a higher cost. Supply chain management issues related to labour practices, environmental responsibility, ethics or corruption may also result in regulatory fines or increased long-term operational costs. The consumer-facing nature of the industry increases the reputational risks associated with supplier actions. Managing an entity's exposure to environmental and social risks may improve supply chain resiliency and enhance an entity's reputation. Entities can engage with key suppliers to manage environmental and social risks to improve supply chain resiliency, mitigate reputational risks and potentially increase consumer demand or capture new market opportunities.

Metrics

FB-AB-430a.1. Suppliers' social and environmental responsibility audit (1) non-conformance rate and (2) associated corrective action rate for (a) major and (b) minor non-conformances

1 The entity shall disclose its supplier facilities' (1) non-conformance rate with external social and environmental audit standard(s) or internally developed supplier code(s) of conduct for (a) major non-conformances, and separately, (b) minor non-conformances.

1.1 A major non-conformance is defined as the highest severity of non-conformance and requires escalation by auditors. Major non-conformances include the presence of underage child workers (below the legal age for work or apprenticeship), forced labour, health and safety issues that can cause immediate danger to life or serious injury, or environmental practices that can cause serious and immediate harm to the community. Major non-conformance also includes material breach or systemic breaking of code requirements or laws. Major non-conformances also may be referred to as critical or priority non-conformances.

1.2 A minor non-conformance is defined as a non-conformance that by itself is not indicative of a systemic problem with the management system. Minor non-conformances typically are isolated or random incidents and represent minimal risk to workers or the environment.

1.3 The entity shall calculate the non-conformance rates as the total number of non-conformances identified (in each respective category) among its supplier facilities divided by the number of supplier facilities audited.

2 The entity shall disclose the (2) corrective action rates associated with its supplier facilities' (a) major non-conformances and separately (b) minor non-conformances.

2.1 A corrective action is defined as the completion of an action (generally identified in a corrective action plan) within 90 days for major non-conformances and 60 days for minor non-conformances, and is designed to eliminate the cause of a detected non-conformance. This includes the implementation of practices or systems to eliminate any non-conformance and to ensure against reoccurrence of the non-conformance, as well as verification that the action has taken place.

2.2 The entity shall calculate the corrective action rates as the number of corrective actions that address non-conformances (in each respective category) divided by the total number of non-conformances identified (in each respective category).

3 The entity shall disclose the standard(s) or code(s) of conduct to which it has measured social and environmental responsibility audit compliance.

3.1 For internally developed supplier code(s) of conduct, the entity shall disclose the public location where such code(s) can be viewed.

Ingredient Sourcing

Topic Summary

Entities in the Alcoholic Beverages industry source a wide range of ingredients, largely agricultural inputs, from suppliers worldwide. The industry's ability to source ingredients fluctuates with supply availability, which may be affected by climate change, water scarcity, land management and other resource scarcity considerations. This exposure can result in price volatility and can affect entity profitability. Ultimately, climate change, water scarcity and land-use restriction present risks to an entity's long-term ability to source key materials and ingredients. Entities that source ingredients that are more productive, effectively cultivated and less resource-intensive, or those that work closely with suppliers to increase their adaptability to climate change and manage exposure to other resource scarcity risks may reduce price volatility or supply disruptions.

Metrics

FB-AB-440a.1 Percentage of beverage ingredients sourced from regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the percentage of beverage ingredients sourced from regions with High or Extremely High Baseline Water Stress.

2 The percentage shall be calculated as the cost of beverage ingredients purchased from Tier 1 suppliers that withdraw and consume water in regions with High or Extremely High Baseline Water Stress to produce the beverage ingredients divided by the total cost of beverage ingredients purchased from Tier 1 suppliers.

2.1 Tier 1 suppliers are defined as suppliers that transact directly with the entity for agricultural products.

2.2 The entity shall identify Tier 1 suppliers that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

3 If the entity is unable to identify or collect data pertaining to all Tier 1 suppliers, the entity shall disclose the percentage of agricultural products for which the source region and water risks are unknown.

FB-AB-440a.2. List of priority beverage ingredients and discussion of sourcing risks related to environmental and social considerations

1 The entity shall identify the highest priority beverage ingredients to its business.

1.1 Priority beverage ingredients are defined as ingredients (excluding water) that constitute the largest beverage ingredient expense or those ingredients that have otherwise been identified by the entity as essential to its products or as having significant environmental or social risks.

1.2 The scope of disclosure includes priority beverage ingredients sourced by the entity, including those sourced directly from contract growers and from producer supply agreements.

2 The entity shall discuss its strategic approach to managing the environmental and social risks that arise from its highest priority beverage ingredients.

2.1 Environmental risks include effects of drought and climate change on ingredient prices, reputational damage because of deforestation and other risks resulting from the environmental impacts associated with the entity's supply chain.

2.2 Social risks include effects of workers' rights on productivity, reputational damage because of human rights issues and other risks resulting from the social impacts associated with the entity's supply chain.

3 The entity may identify which beverage ingredients present risks to its operations, the risks represented and the strategies the entity uses to mitigate such risks.

3.1 For environmental risks, relevant strategies to discuss may include the diversification of suppliers, supplier training programmes on best environmental management practices, expenditures on research and development for alternative and substitute crops, and audits or certifications of suppliers' environmental practices.

3.2 For social risks, relevant strategies to discuss include supplier training programmes on agrochemical application, engagement with suppliers on labour and human rights issues, and maintenance of a supply chain code of conduct.

Volume 22—Food Retailers & Distributors

Industry Description

The Food Retailers & Distributors industry consists of entities engaged in wholesale and retail sales of food, beverage and agricultural products. Store formats include retail supermarkets, convenience stores, warehouse supermarkets, liquor stores, bakeries, natural food stores, specialty food stores, seafood stores and distribution centres. Entities may specialise in one type of store format or have facilities that contain many formats. Products typically are sourced worldwide and include fresh meat and produce, prepared foods, processed foods, baked goods, frozen and canned foods, non-alcoholic and alcoholic beverages, and a wide selection of household goods and personal care products. Food retailers also may produce or sell private-label products.

Note: The standard discussed below is for 'pure-play' food retail and distribution entities. Many major food retailers also have pharmacy operations and other retail operations. There exist separate standards for the Drug Retailers (HC-DR) and Multiline and Specialty Retailers & Distributors (CG-MR) industries. Entities involved in multiple lines of business also should consider the disclosure topics and metrics outlined in these other standards.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Fleet Fuel Management	Fleet fuel consumed, percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	FB-FR-110a.1
Air Emissions from Refrigeration	Gross global Scope 1 emissions from refrigerants	Quantitative	Metric tons (t) CO_2-e	FB-FR-110b.1
	Percentage of refrigerants consumed with zero ozone-depleting potential	Quantitative	Percentage (%) by weight	FB-FR-110b.2
	Average refrigerant emissions rate	Quantitative	Percentage (%)	FB-FR-110b.3
Energy Management	(1) Operational energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	FB-FR-130a.1
Management of Environmental & Social Impacts in the Supply Chain	Revenue from products third-party certified to environmental or social sustainability sourcing standards	Quantitative	Presentation currency	FB-FR-430a.1
	Discussion of strategy to manage environmental and social risks within the supply chain, including animal welfare	Discussion and Analysis	n/a	FB-FR-430a.3
	Discussion of strategies to reduce the environmental impact of packaging	Discussion and Analysis	n/a	FB-FR-430a.4

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of (1) retail locations and (2) distribution centres	Quantitative	Number	FB-FR-000.A
Total area of (1) retail space and (2) distribution centres	Quantitative	Square metres (m^2)	FB-FR-000.B
Number of vehicles in commercial fleet	Quantitative	Number	FB-FR-000.C
Tonne-kilometres travelled	Quantitative	Tonne-kilometres	FB-FR-000.D

Fleet Fuel Management

Topic Summary

Entities in the Food Retailers & Distributors industry own and operate vehicle fleets to deliver products between its distribution and retail locations. The fuel consumption of vehicle fleets is a significant industry expense, both in terms of operating costs and associated capital expenditures. Fossil fuel consumption can contribute to environmental impacts, including climate change and pollution. These environmental impacts may affect food retailers and distributors through regulatory exposure. Efficiencies gained in fuel use can reduce costs, mitigate exposure to fossil fuel price volatility and limit the carbon footprint associated with storage and transportation. Short-term capital expenditures in fuel-efficient fleets and more energy efficient technologies may be outweighed by long-term operational savings and decreased exposure to regulatory risks.

Metrics

FB-FR-110a.1. Fleet fuel consumed, percentage renewable

1 The entity shall disclose the total amount of fuel consumed by its fleet vehicles as an aggregate figure, in gigajoules (GJ).

- 1.1 The calculation methodology for fuel consumed shall be based on actual fuel consumed as opposed to design parameters.
- 1.2 Acceptable calculation methodologies for fuel consumed may include methodologies based on:
  - 1.2.1 Adding fuel purchases made during the reporting period to beginning inventory at the start of the reporting period, less any fuel inventory at the end of the reporting period;
  - 1.2.2 Tracking fuel consumed by vehicles; and
  - 1.2.3 Tracking fuel expenses.

2 The entity shall disclose the percentage of the total amount of fuel consumed by its fleet vehicles that is renewable fuel.

- 2.1 Renewable fuel generally is defined as fuel that meets all the following requirements:
  - 2.1.1 Produced from renewable biomass;
  - 2.1.2 Used to replace or reduce the quantity of fossil fuel present in a transportation fuel, heating oil or jet fuel; and
  - 2.1.3 Achieved net greenhouse gas (GHG) emissions reduction on a life cycle basis.
- 2.2 The entity shall disclose the standard or regulation used to determine if a fuel is renewable.

2.3 The percentage shall be calculated as the amount of renewable fuel consumed by the entity's fleet vehicles (in GJ) divided by the total amount of fuel consumed by the entity's fleet vehicles (in GJ).

3 The scope of disclosure includes fuel consumed by vehicles owned or operated by the entity.

4 The scope of disclosure excludes fuel consumed in the transportation of the entity's products by third parties.

5 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

6 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels).

Air Emissions from Refrigeration

Topic Summary

Emissions of refrigeration chemicals from equipment used to store and display perishable foods pose unique regulatory risks for the Food Retailers & Distributors industry. International regulations on hydrochlorofluorocarbons (HCFCs) aim to mitigate damage by HCFCs to the earth's ozone layer. Additionally, many common HCFCs and hydrofluorocarbons (HFCs) are highly potent greenhouse gases (GHGs), which increases the industry's exposure to climate change-related regulations. Regulators can assess penalties on entities that violate emissions standards. Entities may be required to upgrade or replace equipment, making capital expenditures to reduce emissions or replace existing refrigerants with potentially costlier but less environmentally-damaging alternatives.

Metrics

FB-FR-110b.1. Gross global Scope 1 emissions from refrigerants

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3)—that originated from the use of refrigerants.

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalents (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

1.3 Refrigerants are defined as substances or mixtures used in a heat pump or refrigeration cycle for the purpose of absorbing and releasing heat.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 The scope of emissions includes all direct emissions of GHGs resulting from the entity's use of commercial stationary and mobile refrigerants in retail locations, distribution centres and its transportation fleet.

2.2 For the purpose of this disclosure, the scope of emissions excludes direct emissions of GHGs from the combustion of fossil fuels, non-refrigerant process emissions and other sources unrelated to refrigerants.

2.3 Acceptable calculation methodologies include those that conform to the GHG Protocol as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples include:

2.3.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG);

2.3.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the US Environmental Protection Agency (EPA);

2.3.3 India GHG Inventory Program;

2.3.4 ISO 14064-1;

2.3.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA; and

2.3.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE).

2.4 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which generally is aligned with the 'financial control' approach defined by the *GHG Protocol*, and the approach published by the Climate Disclosure Standards Board (CDSB) that is described in REQ-07, 'Organisational boundary', of the *CDSB Framework for reporting environmental and social information*.

3 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

4 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

5 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

FB-FR-110b.2. Percentage of refrigerants consumed with zero ozone-depleting potential

1 The entity shall disclose the percentage of the refrigerants consumed in its operations that have zero ozone-depleting potential (ODP).

1.1 ODP is defined as the amount of ozone depletion caused by a substance. Ozone depletion is defined as a chemical destruction of the stratospheric ozone layer beyond natural reactions.

1.2 A refrigerant with zero ODP is defined as a substance that has a published ODP value of zero, has no impact on the stratospheric ozone layer beyond natural reactions, and does not contain chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons, methyl bromide, carbon tetrachloride, hydrobromofluorocarbons, chlorobromomethane or methyl chloroform.

2 A list of compounds recognised as ozone-depleting substances (ODS) and their respective ODPs, under the Montreal Protocol, is available through the United Nations website.

2.1 Consumption of refrigerants is defined as the amount of refrigerant charged into the entity's commercial refrigeration equipment during the reporting period.

2.2 The percentage shall be calculated as the amount (by weight) of refrigerants consumed in the entity's operations that have zero ODP, divided by the total amount (by weight) of refrigerants consumed in the entity's operations.

3 The scope of disclosure includes all commercial stationary and mobile refrigerants the entity uses in retail locations, distribution centres and its transportation fleet.

FB-FR-110b.3. Average refrigerant emissions rate

1 The entity shall disclose its average refrigerant emissions rate as a percentage.

1.1 Refrigerant emissions rate is defined as the rate of refrigerant loss from commercial refrigeration equipment or systems.

1.2 The entity shall calculate the average refrigerant emissions rate as the total amount, in pounds, of refrigerant emitted over the reporting period, divided by the total weight, in pounds, of refrigerant charged into commercial refrigeration equipment over the reporting period.

2 The scope of disclosure includes all commercial stationary and mobile refrigerant sources the entity uses in its retail locations, distribution centres and its transportation fleet.

Energy Management

Topic Summary

Food retail and distribution facilities are typically more energy-intensive than other types of commercial spaces. These facilities use energy predominately for refrigeration, heating, ventilation and air conditioning (HVAC), as well as lighting. Entities in the industry generally purchase the majority of consumed electricity, while some are beginning to generate energy on-site or add renewable energy into their energy mix. Energy production and consumption contribute to environmental impacts, including climate change and pollution, which have the potential to indirectly, yet materially, impact the operations of food retailers and distributors. Entities that manage to increase energy efficiency and use alternative energy sources may increase profitability by reducing expenses and decreasing risk.

Metrics

FB-FR-130a.1. (1) Operational energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed (excluding fleet vehicles) as an aggregate figure in gigajoules (GJ).

1.1 The scope of energy consumption excludes fuel consumed by fleet vehicles, but includes energy from all other sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, purchased electricity, and heating, cooling and steam energy all are included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed (excluding fleet vehicles) that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed (excluding fleet vehicles) that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purpose of this disclosure, the scope of renewable energy from and biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel use (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Management of Environmental & Social Impacts in the Supply Chain

Topic Summary

Food retailers and distributors source merchandise from a wide range of manufacturers. These suppliers face a myriad of sustainability-related challenges that include resource conservation, water scarcity, animal welfare, fair labour practices and climate change. When poorly managed, these issues can affect the price and availability of food. Additionally, consumers increasingly are concerned with the production methods, origins and externalities associated with the foods they purchase, which may affect an entity’s reputation. Food retailers and distributors also can work with suppliers on packaging design to generate cost savings in transport, improve brand reputation and reduce environmental impact. Entities that can manage effectively product supply risks by assessing and engaging with suppliers, implementing sustainable sourcing guidelines and enhancing supply chain transparency positioned more advantageously to improve supply chain resiliency, mitigate reputational risks, and potentially increase consumer demand or capture new market opportunities.

Metrics

FB-FR-430a.1. Revenue from products third-party certified to environmental or social sustainability sourcing standards

1 The entity shall disclose its revenue from products third-party certified to an environmental or social sustainability standard.

1.1 Environmental standards are defined as standards that address environmental impacts related to the production of agricultural products such as protection of primary forests, maintenance of surface water and groundwater quality, and implementation of integrated pest management (IPM) solutions or an Organic System Plan.

1.2 Social standards are defined as standards that address social impacts related to the production of agricultural products such as compensation of the workforce, training and continual monitoring of health and safety risks associated with applications of agrochemicals, and child-labour practices.

1.3 Examples of certifications to third-party environmental and social standards may include:

1.3.1 Bonsucro;

1.3.2 Fairtrade International;

1.3.3 Fair Trade USA;

1.3.4 Roundtable on Sustainable Palm Oil (RSPO);

1.3.5 Roundtable on Responsible Soy (RTRS);

1.3.6 Rainforest Alliance;

1.3.7 SA8000;

1.3.8 U.S. Department of Agriculture (USDA) Organic; and

1.3.9 UTZ Certified.

2 The entity may additionally break down the disclosure by product category and certification type.

2.1 A product category is defined as a group of related products that offer a similar general functionality (for example, meat, produce, packaged goods).

2.2 Certification types may be grouped based on the topic or scope of the standard, and can include animal welfare, working conditions, organic, sustainable fishing or harvesting.

FB-FR-430a.3. Discussion of strategy to manage environmental and social risks within the supply chain, including animal welfare

1 The entity shall discuss its strategic approach to managing its environmental and social risks present within, or which may arise out of, its food and food products supply chain.

1.1 Environmental and social risks may include:

1.1.1 Impacts on crop and livestock production because of climate change (for example, changing average temperatures and water stress) that may affect cost and availability of produce, meat, poultry, dairy and processed food products;

1.1.2 Animal feed price increases resulting from environmental and social factors or tightening environmental regulations that may have price impacts on meat, poultry and dairy;

1.1.3 Fuel economy regulations that affect transportation costs;

1.1.4 Labour rights and immigration reforms that affect food prices and availability;

1.1.5 International trade barriers or varying levels of food safety oversight in a global market;

1.1.6 Commercial catch limits that could affect the supply of seafood products; and

1.1.7 Animal welfare, human rights or related supply chain incidents that may result in reputational damage.

1.2 Relevant strategies to discuss may include supplier screening, diversification of suppliers, supplier training programmes on best environmental management practices, supplier engagement on labour and human rights issues, and maintenance of a supply chain code of conduct, supply chain audits and certifications.

2 The entity shall identify which products or product lines present risks to its operations, the risks represented and the strategies the entity uses to mitigate such risks.

3 The entity shall discuss its animal welfare standards applicable to its supply chain.

3.1 Animal welfare standards are defined as policies for beef, pork, poultry or dairy production conditions, including:

3.1.1 Animal treatment and handling;

3.1.2 Housing and transportation conditions;

3.1.3 Slaughter facilities and procedures; and

3.1.4 Use of antibiotics and hormones.

3.2 Discussion shall include, but is not limited to:

3.2.1 Any targets the entity has related to animal welfare standards and its progress towards those targets;

3.2.2 Any requirements for suppliers related to animal welfare standards; and

3.2.3 How, if in any way, animal welfare standards are addressed in supplier contracts.

4 The entity shall describe its use of animal welfare certifications, where certifications may include: Animal Welfare Approved, Certified Humane Program, Food Alliance Certified and Global Animal Partnership 5-Step Animal Welfare Rating Program.

5 The entity may disclose the percentage of animal protein sold, by animal protein type, that is produced without medically important antibiotics.

5.1 The percentage is calculated as the carcass (or dressed) weight of animal protein purchased that did not receive medically important antibiotics at any stage of its life divided by the total carcass (or dressed) weight of animal protein purchased.

FB-FR-430a.4. Discussion of strategies to reduce the environmental impact of packaging

1 The entity shall discuss its strategies to reduce the environmental impact of packaging, such as optimising packaging weight and volume for a given application, or using alternative materials, including those that are renewable, recycled, recyclable or compostable.

2 Relevant disclosures may include the following:

2.1 Design innovations, including strategies to optimise the amount of material used; packaging weight, shape and size; product-to-package ratio; cube utilisation and void fill.

2.2 Implementation of the ‘Essential Requirements’ in Article 9, Annex II of the EU Directive on Packaging and Packaging Waste (94/62/EC), which includes minimisation of packaging weight and volume to the amount needed for safety, hygiene and consumer acceptance of the packed product; minimisation of noxious or hazardous constituents; and suitability for reuse, material recycling, energy recovery or composting.

2.3 Performance on the Global Protocol on Packaging Sustainability 2.0 metrics for Packaging Weight and Optimization or Assessment and Minimization of Substances Hazardous to the Environment.

3 The entity may discuss its strategies as they relate to primary, secondary and tertiary packaging of its private-label products as well as the packaging of products from its vendors.

3.1 Primary packaging is designed to come into direct contact with the product.

3.2 Secondary packaging is designed to contain one or more primary packages together with any protective materials, where required.

3.3 Tertiary packaging is designed to contain one or more articles or packages, or bulk material, for the purposes of transport, handling or distribution. Tertiary packaging is also known as ‘distribution’ or ‘transport’ packaging.

3.4 A private-label product is a store-brand product packaged for sale with a retailer’s brand name, whether manufactured by the retailer or by another manufacturer.

4 The entity may discuss its use of Life Cycle Assessment (LCA) analysis in the context of its approach to environmental impact reduction and maximisation of product efficiency, including weight reduction and transportation efficiency.

4.1 When discussing improvements to the environmental efficiency of packaging products, improvements may be discussed in terms of LCA functional unit service parameters (time, extent and quality of function).

Volume 23—Meat, Poultry & Dairy

Industry Description

The Meat, Poultry & Dairy industry produces raw and processed animal products, including meats, eggs and dairy products, for human and animal consumption. Important activities include animal raising, slaughtering, processing and packaging. The industry's largest entities have international operations, and entities are integrated vertically to varying degrees, depending on the type of animal produced. Large industry operators typically rely on contract or independent farmers to supply animals and may have varying degrees of control over their operations. The industry sells products primarily to the Processed Foods industry and to retail distributors that distribute finished products to key end markets including restaurants, livestock and pet feed consumers, and grocery retailers.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions	Quantitative	Metric tons (t) CO_2-e	FB-MP-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	FB-MP-110a.2
Energy Management	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	FB-MP-130a.1
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	FB-MP-140a.1
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	FB-MP-140a.2
	Number of incidents of non-compliance associated with water quality permits, standards and regulations	Quantitative	Number	FB-MP-140a.3

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TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Land Use & Ecological Impacts	Amount of animal litter and manure generated, percentage managed according to a nutrient management plan	Quantitative	Metric tons (t), Percentage (%)	FB-MP-160a.1
	Percentage of pasture and grazing land managed to conservation plan criteria	Quantitative	Percentage (%) by hectares	FB-MP-160a.2
	Animal protein production from confined animal feeding operations	Quantitative	Metric tons (t)	FB-MP-160a.3
Animal & Feed Sourcing	Percentage of animal feed sourced from regions with High or Extremely High Baseline Water Stress	Quantitative	Percentage (%) by weight	FB-MP-440a.1
	Percentage of contracts with producers located in regions with High or Extremely High Baseline Water Stress	Quantitative	Percentage (%) by contract value	FB-MP-440a.2
	Discussion of strategy to manage opportunities and risks to feed sourcing and livestock supply presented by climate change	Discussion and Analysis	n/a	FB-MP-440a.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of processing and manufacturing facilities	Quantitative	Number	FB-MP-000.A
Animal protein production, by category; percentage outsourced [27]	Quantitative	Various, Percentage (%)	FB-MP-000.B

Greenhouse Gas Emissions

Topic Summary

The Meat, Poultry & Dairy industry generates significant Scope 1 greenhouse gas (GHG) emissions from both livestock and energy-intensive industrial processes. GHG emissions contribute to climate change and create additional regulatory compliance costs and risks for meat, poultry and dairy entities because of climate change mitigation policies. The majority of the industry's emissions stem directly from the animals themselves through the release of methane during enteric fermentation, and from manure storage and processing. The direct emissions from raising and producing livestock represent a significant portion of total GHG emissions released among all sources. Currently, these emissions sources are not regulated widely, which presents uncertainties regarding the future of GHG regulations for the industry. Entities in this industry also use large quantities of fossil fuels to meet energy needs, generating additional direct GHG emissions and increasing exposure to regulatory risks. Future emission regulations could result in additional operating

[27] Note to **FB-MP-000.B** – Categories of animal protein production may be based on animal (e.g., chicken, pork, beef) and/or product type (e.g., milk, shell eggs). Units of measure shall be appropriate to the animal or product category (e.g., metric tons, number/head, gallons).

or compliance costs. By implementing new technologies to capture animal emissions and focusing on energy efficiency, entities may mitigate regulatory risk and volatile energy costs while also limiting GHG emissions.

Metrics

FB-MP-110a.1. Gross global Scope 1 emissions

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalents (CO_2-e), and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 Acceptable calculation methodologies include those that conform to the *GHG Protocol* as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples may include:

2.1.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG);

2.1.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the US Environmental Protection Agency (EPA);

2.1.3 India GHG Inventory Program;

2.1.4 ISO 14064-1;

2.1.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA; and

2.1.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE).

2.2 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which generally is aligned with the 'financial control' approach defined by the *GHG Protocol*, and the approach published by the Climate Disclosure Standards Board (CDSB) described in REQ-07, 'Organisational boundary', of the *CDSB Framework for reporting environmental and social information*.

3 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

4 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

5 The entity may discuss the calculation methodology for its emissions disclosure, such as if data is from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

FB-MP-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined according to *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD.

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

5 The entity shall discuss whether its strategies, plans or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Energy Management

Topic Summary

The Meat, Poultry & Dairy industry relies heavily on purchased electricity and fuel as critical inputs for value creation. Entities' use of electricity and fossil fuels in their operations results in indirect and direct greenhouse gas (GHG) emissions, which contribute to environmental impacts, including climate change and pollution. Purchased electricity is a significant operating cost for meat, poultry and dairy entities. Efficient energy usage is essential to maintain a competitive advantage in this industry, as purchased fuels and electricity account for a significant portion of total production costs. Decisions regarding alternative fuels use, renewable energy and on-site electricity generation versus purchasing from the grid can influence both the costs and the reliability of the energy supply.

Metrics

FB-MP-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy all are included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or guarantees of origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel use (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Water Management

Topic Summary

The Meat, Poultry & Dairy industry is water-intensive both in raising livestock and industrial processing. Additionally, entities in the industry typically generate wastewater or effluent, from both animal production and processing activities. As water scarcity becomes an issue of growing importance because of population growth, increasing consumption per capita, poor water management and climate change, entities in the industry may face higher operational costs or lost revenues because of water shortages or regulations resulting in production reduction. Entities can manage water-related risks and opportunities through capital investments and assessment of facility locations relative to water scarcity risks, improvements to operational efficiency, and partnerships with regulators and communities on issues related to water access and effluent.

Metrics

FB-MP-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

FB-MP-140a.2. Description of water management risks and discussion of strategies and practices to mitigate those risks

1 The entity shall describe its water management risks associated with water withdrawals, water consumption and discharge of water or wastewater.

1.1 Risks associated with water withdrawals and water consumption include risks to the availability of adequate, clean water resources, which include:

1.1.1 Environmental constraints—such as operating in water-stressed regions, drought, concerns of aquatic impingement or entrainment, interannual or seasonal variability, and risks from the impacts of climate change; and

1.1.2 Regulatory and financial constraints—such as volatility in water costs, stakeholder perceptions and concerns related to water withdrawals (for example, those from local communities, non-governmental organisations and regulatory agencies), direct competition with and impact from the actions of other users (for example, commercial and municipal users), restrictions to withdrawals because of regulations, and constraints on the entity's ability to obtain and retain water rights or permits.

1.2 Risks associated with the discharge of water or wastewater include the ability to obtain rights or permits related to discharges, regulatory compliance related to discharges, restrictions to discharges, the ability to maintain control over the temperature of water discharges, liabilities, reputational risks and increased operating costs because of regulation, stakeholder perceptions and concerns related to water discharges (for example, those from local communities, non-governmental organisations and regulatory agencies).

2 The entity may describe water management risks in the context of:

2.1 How risks may vary by withdrawal source, including surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities; and

2.2 How risks may vary by discharge destinations, including surface water, groundwater or wastewater utilities.

3 The entity may discuss the potential effects that water management risks may have on its operations and the time line over which such risks are expected to manifest.

3.1 Effects include those associated with costs, revenue, liabilities, continuity of operations and reputation.

4 The entity shall discuss its short- and long-term strategies or plan to mitigate water management risks, which may include:

4.1 The scope of its strategy, plans, goals or targets, such as how they relate to various business units, geographies or water-consuming operational processes;

4.2 Any water management goals or targets it has prioritised, and an analysis of performance against those goals or targets;

4.2.1 Goals and targets include those associated with reducing water withdrawals, reducing water consumption, reducing water discharges, reducing aquatic impingements, improving the quality of water discharges and maintaining regulatory compliance.

4.3 The activities and investments required to achieve the plans, goals or targets, and any risks or limiting factors that might affect achievement of the plans or targets; and

4.4 Disclosure of strategies, plans, goals or targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

5 For water management targets, the entity shall additionally disclose:

5.1 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

5.2 The time lines for the water management plans, including the start year, the target year and the base year; and

5.3 The mechanism(s) for achieving the target, including:

5.3.1 Efficiency efforts, such as the use of water recycling or closed-loop systems;

5.3.2 Product innovations such as redesigning products or services to require less water;

5.3.3 Process and equipment innovations, such as those that enable the reduction of aquatic impingements or entrainments;

5.3.4 Use of tools and technologies (for example, the World Wildlife Fund Water Risk Filter, The Global Water Tool and Water Footprint Network Footprint Assessment Tool) to analyse water use, risk and opportunities;

5.3.5 Collaborations or programmes in place with the community or other organisations.

5.4 The percentage reduction or improvement from the base year, in which the base year is the first year against which water management targets are evaluated towards the achievement of the target.

6 The entity shall discuss whether its water management practices result in any additional life cycle effects or trade-offs in its organisation, including trade-offs in land use, energy production and greenhouse gas (GHG) emissions, and why the entity chose these practices despite life cycle trade-offs.

FB-MP-140a.3. Number of incidents of non-compliance associated with water quality permits, standards and regulations

1 The entity shall disclose the total number of incidents of non-compliance, including violations of a technology-based standard and exceedances of quantity or quality-based standards.

2 The scope of disclosure includes incidents governed by applicable jurisdictional statutory permits and regulations, which include the discharge of a hazardous substance, violation of pre-treatment requirements or total maximum daily load (TMDL) exceedances.

3 The scope of disclosure shall only include incidents of non-compliance that resulted in a formal enforcement action(s).

3.1 Formal enforcement actions are defined as governmental recognised actions that address a violation or threatened violation of water quantity or quality laws, regulations, policies or orders, and can result in administrative penalty orders, administrative orders and judicial actions, among others.

4 Violations shall be disclosed, regardless of their measurement methodology or frequency. These include violations for:

4.1 Continuous discharges, limitations, standards and prohibitions that are generally expressed as maximum daily, weekly and monthly averages; and

4.2 Non-continuous discharges or limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge and mass or concentration of specified pollutants.

Land Use & Ecological Impacts

Topic Summary

Meat, Poultry & Dairy industry operations have diverse ecological impacts, primarily because of significant land-use requirements to raise livestock and the contamination of the air, land and groundwater by animal waste. While the impacts are varied, both traditional and confined animal feeding operations may result in significant ecological impacts. The primary concern from confined animal feeding operations and animal-product processing facilities is the generation of large and concentrated amounts of waste and pollutants. Treating effluent and waste from facilities involves significant costs. Non-confined animal feeding operations require large tracts of pastureland and may result in the physical degradation of land resources. Land use and ecological impacts pose legal and regulatory risks in the form of fines, litigation and difficulties obtaining permits for facility expansions or waste discharges.

Metrics

FB-MP-160a.1. Amount of animal litter and manure generated, percentage managed according to a nutrient management plan

1 The entity shall disclose the total amount, in metric tons, of animal litter and manure generated at its facilities.

1.1 The scope of animal litter and manure includes both dry and liquid manures and litter.

2 The entity shall disclose the percentage of animal litter and manure generated from facilities that implement a nutrient management plan divided by the total amount of animal litter and manure generated.

2.1 A nutrient management plan is defined as a documented management practice that addresses the generation, collection, treatment, storage and agronomic use of all manure.

2.2 At a minimum, the nutrient management plan shall meet these minimum specific elements:

2.2.1 Background and site information;

2.2.2 Manure and wastewater handling and storage;

2.2.3 Farmstead safety and security;

2.2.4 Land treatment practices;

2.2.5 Soil and risk assessment analyses;

2.2.6 Nutrient management;

2.2.7 Recordkeeping; and

2.2.8 References.

3 The scope of disclosure includes facilities that the entity owns and operates, facilities from which it contracts animal production (for example, independent producers) and facilities that otherwise supply animal protein to the entity (for example, for processing by the entity).

4 The scope of disclosure includes production areas and land treatment areas.

4.1 Production area includes the animal confinement area, storage areas for feed and other raw materials, animal mortality facilities and manure-handling containment or storage areas.

4.2 Land treatment area includes land under control of the entity or its contracted suppliers (for example, independent producers), whether it is owned, rented or leased, and to which manure or process wastewater is, or might be, applied for crop, hay or pasture production or other uses.

FB-MP-160a.2. Percentage of pasture and grazing land managed to conservation plan criteria

1 The entity shall disclose the percentage of pasture and grazing land that is managed to applicable jurisdictional conservation plan criteria.

1.1 The percentage shall be calculated as the area of pasture and grazing land managed to applicable conservation plan criteria divided by the total area of pasture and grazing land.

1.2 Conservation plans are jurisdictional standards or regulations intended to promote sustainable management of natural resources, which may include soil, water, air, and related plant and animal resources.

2 The scope of disclosure includes land defined as rangeland, which is land on which the historic climax plant community is predominantly grasses, grass-like plants, forbs or shrubs, includes lands revegetated naturally or artificially when routine management of that vegetation is accomplished mainly through manipulation of grazing, and includes grazed forest, naturalised pasture, pastureland, hayland, and grazed and hayed cropland.

2.1 The scope of disclosure includes land from operations that the entity owns and operates, operations with which it contracts animal production (for example, independent producers) and operations that otherwise supply animal protein to the entity (for example, for processing by the entity).

3 The entity shall disclose the jurisdictional standard or regulation used for its calculation.

FB-MP-160a.3. Animal protein production from confined animal feeding operations

1 The entity shall disclose the amount, in metric tons, of animal protein production from confined animal feeding operations.

1.1 Confined animal feeding operations are defined as animal feeding practices in dense population or limited spaces. They require high resource inputs, such as chemicals, for maximum livestock production, which can lead to environmental impacts such as pollution and waste.

1.1.1 Confined animal feeding operations also could be referred to as intensive farming, resource-intensive animal production or concentrated animal feeding operations.

1.2 The amount shall be calculated as the carcass (or dressed) weight of animal protein.

1.2.1 Carcass is defined as all parts, including viscera, of any slaughtered livestock.

1.3 The entity may use applicable jurisdictional definitions of confined animal feeding operations.

1.3.1 If the entity uses a jurisdictional definition of confined animal feeding operations, the entity shall disclose the definition used.

2 The scope includes animal protein from operations that the entity owns and operates, operations with which it contracts animal production (for example, independent producers) and operations that otherwise supply animal protein to the entity (for example, for processing by the entity).

Animal & Feed Sourcing

Topic Summary

Meat, poultry and dairy entities source animal and animal feed from a range of suppliers depending on animal species. The industry's ability to reliably source animals and animal feed at desired price points may be affected by climate change, water scarcity, land management and other resource scarcity considerations. Entities that select and work with suppliers who are less resource-intensive and who actively manage adaptation to climate change and other resource scarcity risks, may reduce price volatility and supply disruptions. Additionally, such entities may improve their brand reputation and develop new market opportunities. Failure to effectively manage sourcing risks may result in higher costs of capital, reduced margins and constrained revenue growth.

Metrics

FB-MP-440a.1. Percentage of animal feed sourced from regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the percentage of animal feed sourced from regions with High or Extremely High Baseline Water Stress.

1.1 Animal feed includes soybean meal, cornmeal and other grains, and other fodder provided to livestock, but excludes forage.

2 The scope of disclosure shall include feed grown or manufactured by the entity and feed purchased by the entity.

3 The percentage shall be calculated as the weight of animal feed sourced from regions with High or Extremely High Baseline Water Stress divided by the total weight of animal feed sourced by the entity.

3.1 The entity shall identify animal feed sourced from locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

FB-MP-440a.2. Percentage of contracts with producers located in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the percentage of contracts with producers located in regions with High or Extremely High Baseline Water Stress.

1.1 A contract producer (or grower) is a party with which the entity has an agreement under which the party typically agrees to provide facilities, labour, utilities and care for livestock owned by the entity in return for payment.

2 The percentage shall be calculated as the value of contracts associated with entities located in water-stressed regions divided by the total value of contracts associated with contract production of animal protein.

2.1 The entity shall identify contract producers that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

FB-MP-440a.3 Discussion of strategy to manage opportunities and risks to feed sourcing and livestock supply presented by climate change

1 The entity shall discuss the risks or opportunities presented by climate change scenarios to its feed sourcing and livestock supply.

1.1 Feed-sourcing risks and opportunities include those at the cultivation, milling and other processing and transportation phases of animal feed production.

1.2 Livestock production risks and opportunities include those affecting all life cycle phases of bringing animal protein to market, including breeding, grazing, feedlot, slaughter, processing and distribution/transportation of live animals and processed animal protein products.

2 The entity may identify the risks presented by climate change, which may include availability of water, shifts in rangeland quality, disease migration and more frequent extreme weather events.

3 The entity may discuss how climate change scenarios will manifest (for example, at the point they will affect the entity's supply chain), how each type of feed (for example, soybean meal, cornmeal and other grains, or hay) or livestock (for example, beef cattle, dairy cattle, pigs or poultry) may be affected, and how other operating conditions (for example, transportation and logistics or physical infrastructure) will be affected.

4 The entity shall discuss efforts to assess and monitor the impacts of climate change and the related strategies to adapt to any risks or recognise any opportunities.

4.1 For feed, strategies may include use of insurance, investments in hedging instruments, supply chain diversification, and ecosystem and biodiversity management.

4.2 For livestock, strategies may include use of insurance, investments in hedging instruments, supply chain diversification, ecosystem and biodiversity management, and development of tolerant livestock breeds.

5 The entity may discuss the probability that risks and opportunities will come to fruition, the likely magnitude of the effect on financial results and operating conditions, and the time frame over which such risks and opportunities are expected to manifest.

6 The entity may include discussion of the methods or models used to develop the climate change scenario(s) it uses, including the use of global gridded crop models or scientific research provided by governmental and non-governmental organisations (for example, Intergovernmental Panel on Climate Change Climate Scenario Process).

7 The scope of disclosure includes the impact of climate change on the entity's operations, but it excludes the entity's strategy and risks and opportunities related to the mitigation of greenhouse gas (GHG) emissions generated through its operations (addressed in FB-MP.110a.2).

Volume 24—Non-Alcoholic Beverages

Industry Description

The Non-Alcoholic Beverages industry produces a broad range of beverage products, including various carbonated soft drinks, syrup concentrates, juices, energy and sport drinks, teas, coffee and water products. The industry is dominated by large, international entities. Entities conduct syrup manufacturing, marketing, bottling operations and distribution, with larger entities typically being more vertically integrated into operations that bottle, sell and distribute the finished products.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Fleet Fuel Management	Fleet fuel consumed, percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	FB-NB-110a.1
Energy Management	(1) Operational energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	FB-NB-130a.1
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	FB-NB-140a.1
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	FB-NB-140a.2
Environmental & Social Impacts of Ingredient Supply Chain	Suppliers' social and environmental responsibility audit (1) non-conformance rate and (2) associated corrective action rate for (a) major and (b) minor non-conformances	Quantitative	Rate	FB-NB-430a.1
Ingredient Sourcing	Percentage of beverage ingredients sourced from regions with High or Extremely High Baseline Water Stress	Quantitative	Percentage (%) by cost	FB-NB-440a.1
	List of priority beverage ingredients and discussion of sourcing risks related to environmental and social considerations	Discussion and Analysis	n/a	FB-NB-440a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Volume of products sold	Quantitative	Millions of hectoliters (Mhl)	FB-NB-000.A
Number of production facilities	Quantitative	Number	FB-NB-000.B
Total fleet road kilometres travelled	Quantitative	Kilometres (km)	FB-NB-000.C

Fleet Fuel Management

Topic Summary

Non-alcoholic beverages entities generate direct Scope 1 greenhouse gas (GHG) emissions from large vehicle fleets used for distribution and from manufacturing facilities. Specifically, refrigeration used in manufacturing facilities and in transport vehicles contributes a significant proportion of overall industry emissions. Efficiencies gained in fuel use can reduce costs, mitigate exposure to fossil fuel price volatility and limit emissions from production, storage and transportation of products. Long-term operational savings and regulatory risk mitigation may outweigh short-term capital expenditures in fuel efficient fleets and more energy-efficient technologies.

Metrics

FB-NB-110a.1. Fleet fuel consumed, percentage renewable

1 The entity shall disclose the total amount of fuel consumed by its fleet vehicles as an aggregate figure, in gigajoules (GJ).

1.1 The calculation methodology for fuel consumed shall be based on actual fuel consumed as opposed to design parameters.

1.2 Acceptable calculation methodologies for fuel consumed may include methodologies based on:

1.2.1 Adding fuel purchases made during the reporting period to beginning inventory at the start of the reporting period, less any fuel inventory at the end of the reporting period;

1.2.2 Tracking fuel consumed by vehicles; and

1.2.3 Tracking fuel expenses.

2 The entity shall disclose the percentage of the total amount of fuel consumed by its fleet vehicles that is renewable fuel.

2.1 Renewable fuel is generally defined as fuel that meets all of these requirements:

2.1.1 Produced from renewable biomass;

2.1.2 Used to replace or reduce the quantity of fossil fuel present in a transportation fuel, heating oil or jet fuel; and

2.1.3 Achieved net greenhouse gas (GHG) emissions reduction on a life cycle basis.

2.2 The entity shall disclose the Standard or regulation used to determine if a fuel is renewable.

2.3 The percentage shall be calculated as the amount of renewable fuel consumed by the entity's fleet vehicles (in GJ) divided by the total amount of fuel consumed by the entity's fleet vehicles (in GJ).

3 The scope of disclosure includes fuel consumed by vehicles owned or operated by the entity.

4 The scope of disclosure excludes fuel consumed in the transportation of the entity's products by third parties.

5 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

6 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels).

Energy Management

Topic Summary

Entities in the Non-Alcoholic Beverages industry use significant energy to operate manufacturing facilities, distribution centres and warehouses. Entities in the industry generally buy electricity from the grid. Energy generation contributes to environmental impacts, including climate change and pollution, which have the potential to indirectly, yet materially, affect the operations of non-alcoholic beverages entities. Entities can reduce energy consumption and associated greenhouse gas (GHG) emissions from their operations by implementing more efficient technologies and processes. Decisions regarding alternative fuels use, renewable energy and on-site generation of electricity, versus purchasing from the grid, can be important in influencing both the costs and reliability of the energy supply.

Metrics

FB-NB-130a.1. (1) Operational energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed (excluding fleet vehicles) as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption excludes fuel consumed by fleet vehicles, but includes energy from all other sources, including energy purchased from external sources and energy produced by the organisation itself (self-generated). For example, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed (excluding fleet vehicles) that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed (excluding fleet vehicles) that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel use (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Water Management

Topic Summary

Water management relates to an entity’s direct water use, operations in water-stressed regions, and wastewater management. Entities in the Non-Alcoholic Beverages industry use a large amount of water in their operations, because water is an essential input to finished products. Given non-alcoholic beverage entities’ heavy reliance on large volumes of clean water, and increasing global water scarcity, entities may be exposed to supply disruptions that could significantly affect operations and add to costs. Entities operating in water-stressed regions that fail to address local water concerns may face further risk of losing their social licence to operate. Additionally, proper wastewater treatment is an important element of managing water issues in operations, because bottling plants release large quantities of effluents. Improving water management through increased efficiency, recycling and proper disposal, particularly in regions with baseline water stress, may result in reduced operating costs, decreased risks and higher intangible asset value.

Metrics

FB-NB-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea.

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

FB-NB-140a.2. Description of water management risks and discussion of strategies and practices to mitigate those risks

1 The entity shall describe its water management risks associated with water withdrawals, water consumption, and discharge of water or wastewater.

1.1 Risks associated with water withdrawals and water consumption include risks to the availability of adequate, clean water resources, which include:

1.1.1 Environmental constraints—such as operating in water-stressed regions, drought, concerns of aquatic impingement or entrainment, interannual or seasonal variability, and risks from the impact of climate change

1.1.2 Regulatory and financial constraints—such as volatility in water costs, stakeholder perceptions and concerns related to water withdrawals (for example, those from local communities, non-governmental organisations and regulatory agencies), direct competition with and impact from the actions of other users (for example, commercial and municipal users), restrictions to withdrawals because of regulations, and constraints on the entity's ability to obtain and retain water rights or permits

1.2 Risks associated with the discharge of water or wastewater include the ability to obtain rights or permits related to discharges, regulatory compliance related to discharges, restrictions to discharges, the ability to maintain control over the temperature of water discharges, liabilities, reputational risks and increased operating costs because of regulation, stakeholder perceptions and concerns related to water discharges (for example, those from local communities, non-governmental organisations and regulatory agencies).

2 The entity may describe water management risks in the context of:

2.1 How risks may vary by withdrawal source, including surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities; and

2.2 How risks may vary by discharge destinations, including surface water, groundwater or wastewater utilities.

3 The entity may discuss the potential effects that water management risks may have on its operations and the time line over which such risks are expected to manifest.

3.1 Effects include those associated with costs, revenue, liabilities, continuity of operations and reputation.

4 The entity shall discuss its short- and long-term strategies or plans to mitigate water management risks, which include:

4.1 The scope of its strategy, plans, goals or targets, such as how they relate to various business units, geographies or water-consuming operational processes.

4.2 Any water management goals or targets it has prioritised, and an analysis of performance against those goals or targets.

4.2.1 Goals and targets include those associated with reducing water withdrawals, reducing water consumption, reducing water discharges, reducing aquatic impingements, improving the quality of water discharges and regulatory compliance.

4.3 The activities and investments required to achieve the plans, goals or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4.4 Disclosure of strategies, plans, goals or targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

5 For water management targets, the entity shall additionally disclose:

5.1 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target.

5.2 The time lines for the water management activities, including the start year, the target year and the base year.

5.3 The mechanism(s) for achieving the target, including:

5.3.1 Efficiency efforts, such as the use of water recycling or closed-loop systems;

5.3.2 Product innovations, such as redesigning products or services to require less water;

5.3.3 Process and equipment innovations, such as those that enable the reduction of aquatic impingements or entrainments;

5.3.4 Use of tools and technologies (for example, the World Wildlife Fund Water Risk Filter, the Global Water Tool and Water Footprint Network Footprint Assessment Tool) to analyse water use, risks and opportunities; and

5.3.5 Collaborations or programmes in place with the community or other organisations

5.4 The percentage reduction or improvement from the base year, in which the base year is the first year against which water management targets are evaluated towards the achievement of the target.

6 The entity shall discuss whether its water management practices result in any additional lifecycle impacts or trade-offs in its organisation, including trade-offs in land use, energy production and greenhouse gas (GHG) emissions, and why the entity chose these practices despite lifecycle trade-offs.

Environmental & Social Impacts of Ingredient Supply Chain

Topic Summary

Entities in the Non-Alcoholic Beverages industry manage global supply chains to source a wide range of ingredient inputs. How entities screen, monitor and engage with suppliers on environmental and social topics affects the ability of entities to secure supplies and manage price fluctuations. Supply chain interruption can reduce revenue and negatively affect market share if entities are unable to find alternatives for important suppliers or must source ingredients at higher cost. Supply chain management issues related to labour practices, environmental responsibility, ethics or corruption also may result in regulatory fines or increased long-term operational costs for entities. The consumer-facing nature of the industry increases the reputational risks associated with supplier actions. Managing an entity’s exposure to environmental and social risks may result in improved supply chain resiliency and enhanced reputation, which provide value to shareholders. Entities can engage with important suppliers to manage environmental and social risks to improve supply chain resiliency, mitigate reputational risks, and potentially increase consumer demand or capture new market opportunities.

Metrics

FB-NB-430a.1. Suppliers' social and environmental responsibility audit (1) non-conformance rate and (2) associated corrective action rate for (a) major and (b) minor non-conformances

1 The entity shall disclose its supplier facilities' (1) non-conformance rate with external social and environmental audit standard(s) or internally developed supplier code(s) of conduct for (a) major non-conformances, and separately, (b) minor non-conformances.

1.1 A major non-conformance is defined as the highest severity of non-conformance and requires escalation by auditors. Major non-conformances confirm the presence of underage child workers (below the legal age for work or apprenticeship), forced labour, health and safety issues that can cause immediate danger to life or serious injury, or environmental practices that can cause serious and immediate harm to the community. Major non-conformance includes material breach or systemic breaking of code requirement or law. Major non-conformances may also be referred to as critical or priority non-conformances.

1.2 A minor non-conformance is defined as a non-conformance that, by itself, is not indicative of a systemic problem with the management system. Minor non-conformances are typically isolated or random incidents and represent a low risk to workers or the environment.

1.3 The entity shall calculate the non-conformance rates as the total number of non-conformances identified (in each respective category) among its supplier facilities divided by the number of supplier facilities audited.

2 The entity shall disclose the (2) corrective action rates associated with its supplier facilities' (a) major non-conformances, and separately, (b) minor non-conformances.

2.1 A corrective action is defined as the completion of an action (generally identified in a corrective action plan) within 90 days for major non-conformances and 60 days for minor non-conformances, designed to eliminate the cause of a detected non-conformance, including the implementation of practices or systems to eliminate any non-conformance and ensure no reoccurrence of the non-conformance, as well as provide verification that the action has taken place.

2.2 The entity shall calculate the corrective action rates as the number of corrective actions that address non-conformances (in each respective category) divided by the total number of non-conformances identified (in each respective category).

3 The entity shall disclose the standards or code(s) of conduct to which it has measured social and environmental responsibility audit compliance.

3.1 For internally developed supplier code(s) of conduct, the entity shall disclose the public location where such code(s) can be viewed.

Ingredient Sourcing

Topic Summary

Entities in the Non-Alcoholic Beverages industry source a wide range of ingredients from suppliers worldwide. The industry's ability to source ingredients fluctuates with supply availability, which may be affected by climate change, water scarcity, land management and other resource scarcity considerations. This exposure may result in price volatility which may affect entity profitability. Ultimately, climate change, water scarcity and land-use restrictions present risks to an entity's long-term ability to source essential materials and ingredients. Entities that source ingredients which are more productive and less resource intensive, or work closely with suppliers to increase their adaptability to climate change and other resource scarcity risks, may reduce price volatility or supply disruptions.

Metrics

FB-NB-440a.1. Percentage of beverage ingredients sourced from regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the percentage of beverage ingredients sourced from regions with High or Extremely High Baseline Water Stress.

2 The percentage shall be calculated as the cost of beverage ingredients purchased from Tier 1 suppliers that withdraw and consume water in regions with High or Extremely High Baseline Water Stress to produce the beverage ingredients, divided by the total cost of agricultural products purchased from Tier 1 suppliers.

2.1 Tier 1 suppliers are defined as suppliers that transact directly with the entity for agricultural products.

2.2 The entity shall identify Tier 1 suppliers that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute’s (WRI) Water Risk Atlas tool, Aqueduct.

3 If the entity is unable to identify or collect data pertaining to all Tier 1 suppliers, the entity shall disclose the percentage of agricultural products for which the source region and water risks are unknown.

FB-NB-440a.2. List of priority beverage ingredients and discussion of sourcing risks related to environmental and social considerations

1 The entity shall identify the highest priority beverage ingredients to its business.

1.1 Priority beverage ingredients are defined as ingredients (excluding water) that constitute the largest beverage ingredient expense, or those ingredients that have otherwise been identified by the entity as essential to its products or as having significant environmental or social risks.

1.2 The scope of disclosure includes priority beverage ingredients sourced by the entity, which may include those sourced directly from contract growers and from producer supply agreements.

2 The entity shall discuss its strategic approach to managing the environmental and social risks that arise from its highest priority beverage ingredients.

2.1 Environmental risks include effects of drought and climate change on ingredient prices, reputational damage because of deforestation, and other risks resulting from the environmental impacts associated with the entity’s supply chain.

2.2 Social risks may include the effects of workers’ rights on productivity, reputational damage because of human rights issues and other risks resulting from the social impacts associated with the entity’s supply chain.

3 The entity may identify which beverage ingredients present risks to its operations, the risks represented and the strategies the entity uses to mitigate such risks.

3.1 For environmental risks, relevant strategies to discuss may include the diversification of suppliers, supplier training programmes on environmental best management practices, expenditures on research and development for alternative and substitute crops, and audits or certifications of suppliers’ environmental practices.

3.2 For social risks, relevant strategies to discuss include supplier training programmes on agrochemical application, engagement with suppliers on labour and human rights issues, and maintenance of a supply chain code of conduct.

Volume 25—Processed Foods

Industry Description

Processed Foods industry entities process and package foods such as bread, frozen foods, snack foods, pet foods and condiments for retail consumer consumption. Typically, these products are made ready to consume, are marketed for retail consumers and can be found on food retailers' shelves. The industry is characterised by large and complex ingredient supply chains, because many entities source ingredients from around the world. Large entities operate globally, and international opportunities are driving growth.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	FB-PF-130a.1
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	FB-PF-140a.1
	Number of incidents of non-compliance associated with water quality permits, standards and regulations	Quantitative	Number	FB-PF-140a.2
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	FB-PF-140a.3
Environmental & Social Impacts of Ingredient Supply Chain	Percentage of food ingredients sourced that are certified to third-party environmental or social standards, and percentages by standard	Quantitative	Percentage (%) by cost	FB-PF-430a.1
	Suppliers' social and environmental responsibility audit (1) non-conformance rate and (2) associated corrective action rate for (a) major and (b) minor non-conformances	Quantitative	Rate	FB-PF-430a.2
Ingredient Sourcing	Percentage of food ingredients sourced from regions with High or Extremely High Baseline Water Stress	Quantitative	Percentage (%) by cost	FB-PF-440a.1
	List of priority food ingredients and discussion of sourcing risks related to environmental and social considerations	Discussion and Analysis	n/a	FB-PF-440a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Weight of products sold	Quantitative	Metric tons (t)	FB-PF-000.A
Number of production facilities	Quantitative	Number	FB-PF-000.B

Energy Management

Topic Summary

The Processed Foods industry is reliant on energy and fuel as primary inputs for value creation in manufacturing food products. Energy is needed to operate large manufacturing facilities for cooking, refrigeration and packaging. Energy production and consumption contributes to significant environmental impacts, including climate change and pollution, which have the potential indirectly, yet materially, to affect processed food entity operations. Energy efficiency in production and distribution can mitigate exposure to volatile energy costs and limit an entity's contribution to direct and indirect greenhouse gas (GHG) emissions. Producers may be able to reduce the risk posed by volatile fossil fuel energy costs—particularly natural gas, which the industry uses heavily—by diversifying their energy portfolio across a range of sources. Decisions regarding alternative fuels use, renewable energy and on-site generation of electricity versus purchasing from the grid, may influence both the costs and reliability of the energy supply.

Metrics

FB-PF-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy all are included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel use (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Water Management

Topic Summary

Processed Foods entities rely on a reliable water supply for cooking, processing and cleaning finished goods. Additionally, entities in the industry generate and must manage the wastewater discharge from processing activities. As water scarcity becomes an issue of increasing importance, processed foods entities—operating in water-stressed regions—may face increasing operational risks. Entities in the industry may face higher operational costs as well as water shortages because of the physical availability or more stringent regulations. Entities can manage water-related risks and opportunities through capital investments and assessment of facility locations relative to water scarcity risks, improvements to operational efficiency, and partnerships with regulators and communities on issues related to water access and effluent.

Metrics

FB-PF-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose its water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

FB-PF-140a.2. Number of incidents of non-compliance associated with water quality permits, standards and regulations

1 The entity shall disclose the total number of incidents of non-compliance, including violations of a technology-based standard and exceedances of quantity or quality-based standards.

2 The scope of disclosure includes incidents governed by applicable jurisdictional statutory permits and regulations, which include the discharge of a hazardous substance, violation of pre-treatment requirements or total maximum daily load (TMDL) exceedances.

3 The scope of disclosure shall only include incidents of non-compliance that resulted in a formal enforcement action(s).

3.1 Formal enforcement actions are defined as governmental recognised actions that address a violation or threatened violation of water quantity or quality laws, regulations, policies or orders, and can result in administrative penalty orders, administrative orders and judicial actions, among others.

4 Violations shall be disclosed, regardless of their measurement methodology or frequency. These include violations for:

4.1 Continuous discharges, limitations, standards and prohibitions that are generally expressed as maximum daily, weekly and monthly averages; and

4.2 Non-continuous discharges or limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge and mass or concentration of specified pollutants.

FB-PF-140a.3. Description of water management risks and discussion of strategies and practices to mitigate those risks

1 The entity shall describe its water management risks associated with water withdrawals, water consumption and discharge of water or wastewater.

1.1 Risks associated with water withdrawals and water consumption include risks to the availability of adequate, clean water resources, which include:

1.1.1 Environmental constraints—such as operating in water-stressed regions, drought, concerns of aquatic impingement or entrainment, interannual or seasonal variability, and risks from the impact of climate change

1.1.2 Regulatory and financial constraints—such as volatility in water costs, stakeholder perceptions and concerns related to water withdrawals (for example, those from local communities, non-governmental organisations and regulatory agencies), direct competition with and impact from the actions of other users (for example, commercial and municipal users), restrictions to withdrawals because of regulations, and constraints on the entity's ability to obtain and retain water rights or permits

1.2 Risks associated with the discharge of water or wastewater include the ability to obtain rights or permits related to discharges, regulatory compliance related to discharges, restrictions to discharges, the ability to maintain control over the temperature of water discharges, liabilities, reputational risks and increased operating costs because of regulation, stakeholder perceptions and concerns related to water discharges (for example, those from local communities, non-governmental organisations and regulatory agencies).

2 The entity may describe water management risks in the context of:

2.1 How risks may vary by withdrawal source, including surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities; and

2.2 How risks may vary by discharge destinations, including surface water, groundwater or wastewater utilities.

3 The entity may discuss the potential effects that water management risks may have on its operations and the time line over which such risks are expected to manifest.

3.1 Effects include those associated with costs, revenue, liabilities, continuity of operations and reputation.

4 The entity shall discuss its short- and long-term strategies or plans to mitigate water management risks, which include:

4.1 The scope of its strategy, plans, goals or targets, such as how they relate to various business units, geographies or water-consuming operational processes.

4.2 Any water management goals or targets it has prioritised, and an analysis of performance against those goals or targets.

4.2.1 Goals and targets include those associated with reducing water withdrawals, reducing water consumption, reducing water discharges, reducing aquatic impingements, improving the quality of water discharges and regulatory compliance.

4.3 The activities and investments required to achieve the plans, goals or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4.4 Disclosure of strategies, plans, goals or targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

5 For water management targets, the entity shall additionally disclose:

5.1 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target.

5.2 The time lines for the water management activities, including the start year, the target year and the base year.

5.3 The mechanism(s) for achieving the target, including:

5.3.1 Efficiency efforts, such as the use of water recycling or closed-loop systems;

5.3.2 Product innovations, such as redesigning products or services to require less water;

5.3.3 Process and equipment innovations, such as those that enable the reduction of aquatic impingements or entrainments;

5.3.4 Use of tools and technologies (for example, the World Wildlife Fund Water Risk Filter, the Global Water Tool and Water Footprint Network Footprint Assessment Tool) to analyse water use, risks and opportunities; and

5.3.5 Collaborations or programmes in place with the community or other organisations.

5.4 The percentage reduction or improvement from the base year, in which the base year is the first year against which water management targets are evaluated towards the achievement of the target.

6 The entity shall discuss whether its water management practices result in any additional lifecycle impacts or trade-offs in its organisation, including trade-offs in land use, energy production and greenhouse gas (GHG) emissions, and why the entity chose these practices despite lifecycle trade-offs.

Environmental & Social Impacts of Ingredient Supply Chain

Topic Summary

Entities in the Processed Foods industry manage global supply chains to source a wide range of ingredient inputs. How entities screen, monitor and engage with suppliers on environmental and social topics affects the ability of entities to maintain steady supplies and manage price fluctuations. Supply chain management issues related to labour and environmental practices, ethics or corruption also may result in regulatory fines or increased long-term operational costs for entities. The consumer-facing nature of the industry increases the reputational risks associated with supplier performance. Entities can engage with important suppliers to manage environmental and social risks to improve supply chain resiliency, mitigate reputational risks, potentially increase consumer demand, or capture new market opportunities.

Metrics

FB-PF-430a.1. Percentage of food ingredients sourced that are certified to third-party environmental or social standards, and percentages by standard

1 The entity shall disclose the percentage of food ingredients sourced that are certified to a third-party environmental or social standard.

1.1 Environmental standards are defined as standards that address environmental impacts related to the production of food ingredients, such as protection of primary forests, maintenance of surface water and groundwater quality, and implementation of integrated pest management solutions or an Organic System Plan.

1.2 Social standards are defined as standards that address social impacts related to the production of food ingredients, such as compensation of workforce, training and continual monitoring of health and safety risks associated with the application of agrochemicals and child-labour practices.

1.3 The percentage shall be calculated as the cost of food ingredients purchased from Tier 1 suppliers certified to a third-party environmental or social standard divided by the total cost of food ingredients purchased from Tier 1 suppliers.

1.4 Examples of certifications to third-party environmental and social standards include:

1.4.1 Bonsucro

1.4.2 Fairtrade International

1.4.3 Fair Trade USA

1.4.4 Roundtable on Sustainable Palm Oil (RSPO)

1.4.5 Roundtable on Responsible Soy (RTRS)

1.4.6 Rainforest Alliance

1.4.7 SA8000

1.4.8 U.S. Department of Agriculture (USDA) Organic

1.4.9 UTZ Certified

2 The entity shall disclose the percentage of food ingredients it sourced that are certified to a third-party environmental or social standard, by standard.

2.1 The entity shall calculate the percentage as the cost of food ingredients purchased from Tier 1 suppliers certified to each respective third-party environmental or social standard divided by the total cost of agricultural products purchased from Tier 1 suppliers.

2.1.1 For Bonsucro certification, the entity shall disclose whether the food ingredients are certified to the Bonsucro Production Standard or the Bonsucro Chain of Custody Standard.

2.1.2 For Fairtrade International and Fair Trade USA, the entity shall disclose whether the food ingredients are certified to the standards for small producer organisations, hired labour, contract production, traders, independent small holders or capture fisheries.

2.1.3 For RSPO certification, the entity shall disclose which of the RSPO supply chain models the food ingredients are certified to: Identity Preserved (IP); Segregated (SG); Mass Balance (MB); or Book & Claim (B&C).

2.1.4 For RTRS certification, the entity shall disclose whether the food ingredients are certified to the RTRS Production standard or the RTRS Chain of Custody Standard and whether traceability in the chain of custody standard is kept through segregation or mass balance.

2.1.5 For other third-party certifications, the entity may specify the type of certification if there is more than one type.

2.2 The entity may aggregate the percentages of numerous third-party certifications into one aggregate percentage, if the certifications are for the same food ingredient and deliver similar environmental or social criteria.

3 The disclosure scope includes food ingredients purchased from Tier 1 suppliers.

3.1 Tier 1 suppliers are defined as suppliers that transact directly with the entity for food ingredients.

FB-PF-430a.2. Suppliers' social and environmental responsibility audit (1) non-conformance rate and (2) associated corrective action rate for (a) major and (b) minor non-conformances

1 The entity shall disclose its supplier facilities' (1) non-conformance rate with external social and environmental audit standard(s) or internally developed supplier code(s) of conduct for (a) major non-conformances, and separately, (b) minor non-conformances.

1.1 A major non-conformance is defined as the highest severity of non-conformance and requires escalation by auditors. Major non-conformances confirm the presence of underage child workers (below the legal age for work or apprenticeship), forced labour, health and safety issues that can cause immediate danger to life or serious injury, or environmental practices that can cause serious and immediate harm to the community. Major non-conformance includes material breach or systemic breaking of code requirement or law. Major non-conformances may also be referred to as critical or priority non-conformances.

1.2 A minor non-conformance is defined as a non-conformance that, by itself, is not indicative of a systemic problem with the management system. Minor non-conformances are typically isolated or random incidents and represent a low risk to workers or the environment.

1.3 The entity shall calculate the non-conformance rates as the total number of non-conformances identified (in each respective category) among its supplier facilities divided by the number of supplier facilities audited.

2 The entity shall disclose the (2) corrective action rates associated with its supplier facilities' (a) major non-conformances, and separately, (b) minor non-conformances.

2.1 A corrective action is defined as the completion of an action (generally identified in a corrective action plan) within 90 days, designed to eliminate the cause of a detected non-conformance, including the implementation of practices or systems to eliminate any non-conformance and ensure no reoccurrence of the non-conformance, as well as verification that the action has taken place.

2.2 The entity shall calculate the corrective action rates as the number of corrective actions that address non-conformances (in each respective category) divided by the total number of non-conformances identified (in each respective category).

3 The entity shall disclose the standards or code(s) of conduct to which it has measured social and environmental responsibility audit compliance.

3.1 For internally developed supplier code(s) of conduct, the entity shall disclose the public location where such code(s) can be viewed.

Ingredient Sourcing

Topic Summary

Entities in the Processed Foods industry source a wide range of ingredients, largely agricultural inputs, from global suppliers. The industry's ability to source ingredients, and at some price points, fluctuates with supply availability, which may be affected by climate change, water scarcity, land management and other resource scarcity considerations. This exposure may cause price volatility which may affect entity profitability. Climate change, water scarcity and land-use restrictions present risks to an entity's long-term ability to source essential materials and ingredients. Entities that source ingredients which are more productive and less resource-intensive, or coordinate with suppliers to increase their adaptability to climate change and other resource scarcity risks, may reduce price volatility and supply disruptions.

Metrics

FB-PF-440a.1. Percentage of food ingredients sourced from regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the percentage of food ingredients sourced from regions with High or Extremely High Baseline Water Stress.

2 The percentage shall be calculated as the cost of food ingredients purchased from Tier 1 suppliers that withdraw and consume water in regions with High or Extremely High Baseline Water Stress to produce the agricultural products, divided by the total cost of food ingredients purchased from Tier 1 suppliers.

2.1 Tier 1 suppliers are defined as suppliers that transact directly with the entity for food ingredients.

2.2 The entity shall identify Tier 1 suppliers that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

3 If the entity is unable to identify or collect data pertaining to all Tier 1 suppliers, the entity shall disclose the percentage of agricultural products for which the source region and water risks are unknown.

FB-PF-440a.2. List of priority food ingredients and discussion of sourcing risks related to environmental and social considerations

1 The entity shall identify the highest priority food ingredients to its business.

1.1 Priority food ingredients are defined as ingredients (excluding water) that constitute the largest food ingredient expense, or those ingredients identified by the entity as essential to its products or as having significant environmental or social risks.

1.2 The scope of disclosure includes priority food ingredients sourced by the entity, which may include those sourced directly from contract growers and from producer supply agreements.

2 The entity shall discuss its strategic approach to managing the environmental and social risks that arise from its highest priority food ingredients.

2.1 Environmental risks may include effects of drought and climate change on ingredient prices, reputational damage because of deforestation and other risks resulting from the environmental impacts associated with the entity's supply chain.

2.2 Social risks may include the effects of workers' rights on productivity, reputational damage because of human rights issues and other risks resulting from the social impacts associated with the entity's supply chain.

3 The entity may identify which food ingredients present risks to its operations, the risks represented and the strategies the entity uses to mitigate such risks.

3.1 For environmental risks, relevant strategies to discuss may include the diversification of suppliers, supplier training programmes on environmental best management practices, expenditures on research and development for alternative and substitute crops, and audits or certifications of suppliers' environmental practices.

3.2 For social risks, relevant strategies to discuss may include supplier training programmes on agrochemical application, engagement with suppliers on labour and human rights issues and maintenance of a supply chain code of conduct.

Volume 26—Restaurants

Industry Description

Entities in the Restaurants industry prepare meals, snacks and beverages to customers' orders for immediate on- and off-premises consumption. Broadly divided into three sub-categories, the restaurant industry includes limited-service eating places, casual full-service eating places and upscale full-service eating places. Limited-service restaurants provide services to customers who order and pay before eating. Fast-food restaurants represent the largest share of the limited-service restaurants segment. Full-service restaurants offer more service, food for consumption primarily on-premises, and typically reflect higher quality food and prices.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	FB-RN-130a.1
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	FB-RN-140a.1
Supply Chain Management & Food Sourcing	Percentage of food purchased that (1) meets environmental and social sourcing standards, and (2) is certified to third-party environmental or social standards	Quantitative	Percentage (%) by cost	FB-RN-430a.1
	Discussion of strategy to manage environmental and social risks within the supply chain, including animal welfare	Discussion and Analysis	n/a	FB-RN-430a.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of (1) entity-owned and (2) franchise restaurants	Quantitative	Number	FB-RN-000.A
Number of employees at (1) entity-owned and (2) franchise locations	Quantitative	Number	FB-RN-000.B

Energy Management

Topic Summary

Restaurant operations have high energy intensity compared with other commercial building operations. Commercial kitchen appliances are energy intensive, and dining areas typically are temperature-controlled for customers. Fossil fuel-based energy production and consumption contribute to significant environmental impacts, including climate change and air pollution, which have the potential indirectly, yet materially, to affect restaurant operations. Regulations on greenhouse gas (GHG) emissions pricing or regulatory incentives for energy efficiency improvements and renewable energy affect conventional and renewable energy prices. Entities that manage energy consumption at entity-owned and franchise locations can decrease operational costs through energy efficiency upgrades and limit exposure to GHG emissions regulations by using renewable energy resources.

Metrics

FB-RN-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that is renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel use (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Water Management

Topic Summary

Water is used in restaurant operations, from cooking and dishwashing to cleaning. The restaurant type, size and equipment all affect water use. Restaurants located in water-stressed regions may be exposed to water usage restrictions or face high water costs. Long-term historical increases in the costs of water, and expectations around continued increases because of overconsumption and constrained supplies resulting from population growth, pollution and climate change, indicate the increasing importance of effective water management. Entities can reduce water use and associated operational costs by implementing water-efficient practices and using water-efficient commercial kitchen equipment.

Metrics

FB-RN-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly included in the entity’s product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea.

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute’s (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

Supply Chain Management & Food Sourcing

Topic Summary

Restaurants source ingredients and products from a wide range of suppliers. Supply chain management is crucial for restaurants to ensure food safety, to protect their reputations and increase revenue. Sourcing quality ingredients to maintain a consistent level of quality across different locations can be operationally challenging and exacerbated by the global nature of the industry. Demand from the food and beverage industry, including restaurants, drives and shapes agricultural production, indicating that actions by industry players have a larger impact on society. Therefore, sustainable and ethical sourcing by industry entities may be necessary to ensure future supply and to minimise lifecycle impacts of entity operations. Sourcing from suppliers that have high quality standards, employ environmentally sustainable farming methods, and honour labour rights may better create value over the long-term. By increasing the amount of food supply sourced in conformance with environmental and social standards, as well as conformance with animal welfare standards and best practices, restaurant operators may be able to maintain food quality, manage food safety issues, enhance their reputation and expand their market share.

Metrics

FB-RN-430a.1. Percentage of food purchased that (1) meets environmental and social sourcing standards, and (2) is certified to third-party environmental or social standards

1 The entity shall disclose (1) the percentage of food purchased that meets both environmental and social sourcing standards.

1.1 Environmental standards are defined as standards that address environmental impacts related to food production, such as protection of natural resources and improvements in resource efficiency.

1.2 Social standards are defined as standards that address social impacts related to food production, such as treatment of workers and community, animal health and welfare, and food quality and safety.

1.3 The percentage shall be calculated as the cost of food (and food products) purchased that meets environmental and social standards divided by the total cost of food (and food products) purchased.

1.4 The scope of environmental or social standards includes programmes, guidelines, best practices, criteria, codes of conduct and certifications developed internally, through industry initiatives or by third-parties.

1.5 Examples of environmental and social sourcing standards include:

1.5.1 Global Roundtable for Sustainable Beef Principles & Criteria for Defining Global Sustainable Beef

1.5.2 IDH Sustainability Initiative Fruits and Vegetables (SIFAV)

1.5.3 Sustainable Agriculture Initiative (SAI) Platform, Principles & Practices for Dairy Farming, Sustainable Fruit Production, Sustainable Green Coffee Production, and Sustainable Production of Arable & Vegetable Crops

2 The entity shall disclose (2) the percentage of food purchased that has been certified to a third-party environmental or social standard.

2.1 The percentage shall be calculated as the cost of food (and food products) purchased that has been certified to a third-party environmental or social standard divided by the total cost of food (and food products) purchased.

2.2 Examples of certifications to third-party environmental and social standards include:

2.2.1 Fairtrade International

2.2.2 Fair Trade USA

2.2.3 Marine Stewardship Council

2.2.4 Rainforest Alliance Certified

2.2.5 Roundtable on Responsible Soy Association (RTRS)

2.2.6 Roundtable on Sustainable Palm Oil (RSPO)

3 The entity shall generally indicate which third-party environmental and social standards it uses.

FB-RN-430a.3 Discussion of strategy to manage environmental and social risks within the supply chain, including animal welfare

1 The entity shall discuss its strategic approach to managing its environmental and social risks present within, or which may arise out of, its food and food products supply chain.

1.1 Environmental and social risks may include:

1.1.1 Impacts on crop and livestock production because of climate change (for example, changing average temperatures and water stress) that may affect cost and availability of produce, meat, poultry, dairy and processed food products

1.1.2 Animal feed price increases resulting from environmental and social factors or tightening environmental regulations that may have price impacts on meat, poultry and dairy

1.1.3 Fuel economy regulations that affect transportation costs

1.1.4 Labour rights and immigration reforms that affect food prices and availability

1.1.5 International trade barriers and/or varying levels of food safety oversight in a global market

1.1.6 Commercial catch limits that could affect the supply of seafood products

1.1.7 Animal welfare, human rights or related supply chain incidents that may result in reputational damage

1.2 Relevant strategies to discuss may include supplier screening, diversification of suppliers, supplier training programmes on best environmental management practices, supplier engagement on labour and human rights issues, and maintenance of a supply chain code of conduct, supply chain audits and certifications.

2 The entity may identify which products or product lines present risks to its operations, the risks represented, and the strategies the entity uses to mitigate such risks.

3 The entity shall discuss its animal welfare standards applicable to its supply chain.

3.1 Animal welfare standards are defined as policies for beef, pork, poultry or dairy production conditions, including:

3.1.1 Animal treatment and handling

3.1.2 Housing and transportation conditions

3.1.3 Slaughter facilities and procedures

3.1.4 Use of antibiotics and hormones

3.2 Discussion shall include, but is not limited to:

3.2.1 Any targets the entity has related to animal welfare standards and its progress toward those targets

3.2.2 Any requirements for suppliers related to animal welfare standards

3.2.3 How, if in any way, animal welfare standards are addressed in supplier contracts

4 The entity shall describe its use of animal welfare certifications. Certifications may include: Animal Welfare Approved, Certified Humane Program, Food Alliance Certified and Global Animal Partnership 5-Step Animal Welfare Rating Program.

5 The entity may disclose the percentage of animal protein sold, by animal protein type, that is produced without medically important antibiotics.

5.1 The percentage is calculated as the carcass (or dressed) weight of animal protein purchased that did not receive medically important antibiotics at any stage of its life divided by the total carcass (or dressed) weight of animal protein purchased.

Volume 27—Drug Retailers

Industry Description

Drug Retailers industry entities operate retail pharmacies and distribution centres that supply retail stores. Stores may be entity-owned or franchised. Large entities source drugs and other merchandise through wholesalers and distributors. Consumer sales of prescription and over-the-counter pharmaceutical products generate a majority of the industry's revenue; other goods sold include household goods, personal care products and a limited selection of groceries. Additionally, the pharmacy retailer segment is expanding its health-focused services by offering clinics at various retail locations, which may add to the industry's shifting sustainability landscape.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management in Retail	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	HC-DR-130a.1

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of pharmacy locations	Quantitative	Number	HC-DR-000.A
Total area of retail space	Quantitative	Square metres (m^2)	HC-DR-000.B
Number of prescriptions filled, percentage for controlled substances	Quantitative	Number, Percentage (%)	HC-DR-000.C
Number of pharmacists [28]	Quantitative	Number	HC-DR-000.D

Energy Management in Retail

Topic Summary

Chain drug retailers operate thousands of locations that consume large quantities of energy. Electricity is used primarily for lighting and refrigeration. Many retail locations may operate 24 hours a day, thereby

[28] Pharmacists are employees who dispense drugs prescribed by physicians and other health practitioners and provide information to patients about medications and their use. Pharmacists may advise physicians and other health practitioners on the selection, dosage, interactions, and side effects of medications.

increasing energy demand. Operational energy efficiency and diversification among a range of energy supply sources may mitigate exposure to rising energy costs and limit an entity's indirect greenhouse gas emissions.

Metrics

HC-DR-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable state renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Volume 28—Health Care Delivery

Industry Description

The Health Care Delivery industry owns and manages hospitals, clinics and other health care related facilities. Entities provide a range of services, including inpatient and outpatient care, surgery, mental health, rehabilitation and clinical laboratory services. Demand for health care delivery services is driven largely by insurance coverage rates, demographics, illness and injury rates. The industry is characterised by high fixed labour and facilities costs, and an increased regulatory focus on reduced costs of care and improved outcomes. Health care delivery entities also face significant competition for patients and resources from private, non-profit and religious health care systems.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	HC-DY-130a.1
Waste Management	Total amount of medical waste: percentage (a) incinerated, (b) recycled or treated and (c) landfilled	Quantitative	Metric tons (t)	HC-DY-150a.1
	Total amount of: (1) hazardous and (2) non-hazardous pharmaceutical waste, percentage (a) incinerated, (b) recycled or treated and (c) landfilled	Quantitative	Metric tons (t), Percentage (%)	HC-DY-150a.2
Climate Change Impacts on Human Health & Infrastructure	Description of policies and practices to address: (1) the physical risks because of an increased frequency and intensity of extreme weather events, (2) changes in the morbidity and mortality rates of illnesses and diseases associated with climate change and (3) emergency preparedness and response	Discussion and Analysis	n/a	HC-DY-450a.1

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of (1) facilities and (2) beds, by type	Quantitative	Number	HC-DY-000.A
Number of (1) inpatient admissions and (2) outpatient visits	Quantitative	Number	HC-DY-000.B

Energy Management

Topic Summary

Health Care Delivery entities operate energy-intensive facilities and rely on both purchased electricity and fuel. The consumption of both can contribute to environmental impacts, including climate change and pollution. Legislative attempts to limit these impacts and to incentivise energy efficiency and renewable energy may result in price volatility associated with fossil fuels and conventional electricity. Entities that improve energy efficiency may decrease costs and limit exposure to energy price fluctuations.

Metrics

HC-DY-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification, or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, and/or materials that are eligible for an applicable state renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Waste Management

Topic Summary

Health Care Delivery entities generate a significant amount of regulated medical and pharmaceutical waste. Disposal fees for these types of waste are typically higher than that of conventional waste and may present a significant cost for the industry. Entities that reduce the amount of waste generated by enhanced waste segregation strategies, recycling and reuse may limit their exposure to these costs.

Metrics

HC-DY-150a.1. Total amount of medical waste: percentage (a) incinerated, (b) recycled or treated and (c) landfilled

1 The entity shall disclose the total amount of medical waste generated, in metric tons, aggregated for all facilities it owns and operates, and the percentage (a) incinerated, (b) recycled or treated and (c) landfilled.

2 Medical waste (also known as regulated medical waste, infectious waste, biomedical waste or biohazardous waste) that may be subject to applicable jurisdictional laws or regulations includes:

2.1 Cultures and stocks—cultures and stocks of infection agents and associated biological cultures, including cultures from medical and pathological laboratories, and stocks of infectious agents from research and industrial laboratories, waste from the production of biological, discarded, live and attenuated vaccines, and culture dishes and devices used to transfer, inoculate and mix cultures.

2.2 Pathological wastes—human pathological wastes, including tissues, organs, body parts and body fluids removed during surgery and autopsy, or other medical procedures, and specimens of body fluids and their containers.

2.3 Human blood and blood products—(1) liquid waste human blood; (2) blood products; (3) items saturated or dripping with human blood; or (4) items saturated or dripping with human blood now caked with dried human blood, including serum, plasma and other blood components, and their containers used or intended for use in patient care, testing and laboratory analysis, or the development of pharmaceuticals. Intravenous bags also are included in this category.

2.4 Sharps—sharps used in animal or human patient care or treatment, or in medical research or industrial laboratories, including hypodermic needles, syringes (with or without the attached needle), Pasteur pipettes, scalpel blades, blood vials, needles with attached tubing and culture dishes (regardless of presence of infectious agents). Also included are other types of broken or unbroken glassware that were in contact with infectious agents, such as used slide and cover slips.

2.5 Animal waste—contaminated animal carcasses, body parts and bedding of animals known to have been exposed to infectious agents during research (including research in veterinary hospitals), production of biologicals or testing of pharmaceuticals.

2.6 Isolation wastes—biological waste and discarded materials contaminated with blood, excretion, exudates or secretions from humans who are isolated to protect others from specific highly communicable diseases, or isolated animals known to be infected with highly communicable diseases.

2.7 Unused sharps—unused, discarded sharps including hypodermic needles, suture needles, syringes and scalpel blades.

3 The entity shall calculate the percentages of medical waste by their final disposition method as the total weight of medical waste generated that was (a) incinerated, (b) recycled or treated and (c) landfilled, divided by the total weight of medical waste generated.

3.1 Recycling or treatment shall include disposal via recycling facility, treatment facility or other (for example, return to a supplier or commercial composting).

4 If the entity uses a waste transport service, broker or intermediary to handle its medical waste, the entity shall make a good faith effort to determine the final disposition method.

HC-DY-150a.2. Total amount of: (1) hazardous and (2) non-hazardous pharmaceutical waste, percentage (a) incinerated, (b) recycled or treated and (c) landfilled

1 The entity shall disclose (1) the total amount of hazardous pharmaceutical waste generated, in metric tons, aggregated for all facilities it owns and operates, and the percentage (a) incinerated, (b) recycled or treated and (c) landfilled.

1.1 Hazardous pharmaceutical waste is defined in accordance with applicable jurisdictional legal or regulatory framework(s) where the waste was generated.

1.2 Hazardous pharmaceutical waste generally displays these characteristics: ignitibility, corrosivity, reactivity or toxicity.

1.3 The entity shall calculate the percentage of hazardous pharmaceutical waste by the final disposition method as the total weight of hazardous pharmaceutical waste generated that was (a) incinerated, (b) recycled or treated and (c) landfilled, divided by the total weight of hazardous pharmaceutical waste generated.

1.3.1 Recycling or treatment shall include disposal via recycling facility, treatment facility or other (for example, return to a supplier or commercial composting).

1.4 The entity may use the United Nations Environmental Programme (UNEP) Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal for the purposes of defining hazardous pharmaceutical waste for operations located in jurisdictions that lack applicable legal or regulatory definitions.

1.5 The entity shall disclose the applicable jurisdictional standard or regulation used to define hazardous pharmaceutical waste.

2 The entity shall disclose (2) the total amount of non-hazardous pharmaceutical waste generated, in metric tons, aggregated for all facilities it owns and operates, and the percentage (a) incinerated, (b) recycled or treated and (c) landfilled.

2.1 Non-hazardous (solid) waste is defined as any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining and agricultural operations, and from community activities. It may require special handling because it is a controlled substance or poses an environmental or human health threat.

2.2 The entity shall calculate the percentages of non-hazardous pharmaceutical waste by their final disposition method as the total weight of non-hazardous pharmaceutical waste generated that was (a) incinerated, (b) recycled or treated and (c) landfilled, divided by the total weight of non-hazardous pharmaceutical waste generated.

2.2.1 Recycling or treatment shall include disposal via recycling facility, treatment facility or other (for example, return to a supplier or commercial composting).

3 If other disposition methods for hazardous or non-hazardous pharmaceutical waste exist (for example, composting or permanent long-term storage), then the entity should disclose these.

4 If the entity uses a waste transport service, broker or intermediary to handle its pharmaceutical waste, the entity shall make a good faith effort to determine the final disposition method.

Climate Change Impacts on Human Health & Infrastructure

Topic Summary

An increase in extreme weather events associated with climate change may present physical threats to health care delivery facilities and create challenges in serving affected populations. Coupled with the potential spread of infectious diseases and food and water scarcity, these events may present material implications for the Health Care Delivery industry.

Metrics

HC-DY-450a.1. Description of policies and practices to address: (1) the physical risks because of an increased frequency and intensity of extreme weather events, (2) changes in the morbidity and mortality rates of illnesses and diseases associated with climate change and (3) emergency preparedness and response

1 The entity shall describe the nature, scope and implementation of its policies and practices related to addressing the risks to physical infrastructure and assets presented by changes in the frequency, severity, type and geographical location of extreme weather events such as:

1.1 Risks to physical infrastructure located in flood prone low-lying or hurricane-prone areas

1.2 Risks to physical infrastructure based on facility design, such as having important medical equipment in basements or the availability of backup power

2 The entity shall describe the nature, scope and implementation of its policies and practices related to addressing the risks presented by the changes in prevalence, geography and severity of some diseases likely to be impacted by climate change, such as:

2.1 The need for added or flexible capacity because of an influx of patients suffering from heat-related illness

2.2 Obtaining the necessary facilities and expertise to identify and treat changing disease profiles in patients, including:

2.2.1 Malaria, dengue fever and other vector borne diseases that affect tropical populations, but, because of climate change, may target non-tropical regions in the future

2.2.2 Heat-related diseases (for example, lung diseases such as asthma caused by increases in ground level ozone)

2.2.3 Waterborne diseases (for example, cholera because of increased flooding incidence)

2.2.4 Human developmental disorders (for example, malnutrition because of decreased food availability)

3 The entity shall describe the nature, scope and implementation of its policies and practices related to emergency preparedness and response.

3.1 The discussion shall include the regulatory environment in which the entity operates and whether it requires specific emergency preparedness and response plans.

3.2 The entity may disclose whether it has implemented external policies or best practices voluntarily, such as those outlined in the World Health Organization's Hospital Emergency Response Checklist.

Volume 29—Health Care Distributors

Industry Description

Health care distributors purchase, inventory and sell pharmaceutical products and medical equipment to hospitals, pharmacies and physicians. Demand for the industry's services is driven largely by insurance rates, pharmaceutical spending, illness and demographics. The health care sector continues to face an emphasis on reduced costs and improved efficiencies, which also will affect the Health Care Distributors industry. Entities in this industry face challenges from consolidation and partnerships between pharmacies, payers and manufacturers.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Fleet Fuel Management	Payload fuel economy	Quantitative	Litres/RTK	HC-DI-110a.1
	Description of efforts to reduce the environmental impact of logistics	Discussion and Analysis	n/a	HC-DI-110a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of pharmaceutical units sold by product category	Quantitative	Number	HC-DI-000.A
Number of medical devices sold by product category	Quantitative	Number	HC-DI-000.B

Fleet Fuel Management

Topic Summary

The distribution of health care products and supplies requires significant transportation networks. Concern over climate change and dwindling natural resources may affect fuel pricing, and it may expose health care distributors to cost fluctuations. Entities that improve transportation efficiencies may be better positioned to create value over the long-term.

Metrics

HC-DI-110a.1. Payload fuel economy

1 The entity shall disclose its aggregate payload fuel economy for its transportation fleet.

2 The entity shall calculate payload fuel economy among its delivery fleet, limited to vehicles used for the delivery of products (excluding vehicles used primarily for the transportation of passengers).

2.1 The entity shall disclose payload fuel economy for vehicles it operates (for example, those it owns or leases long-term) and specify if all or a portion of its logistics operations are outsourced.

3 Payload fuel economy shall be calculated as: total litres of fuel consumed/revenue tonne-kilometres (RTK).

3.1 Payload includes the total weight of paid tonnage transported and excludes the vehicle weight.

3.2 Revenue tonne-kilometres (RTK) is computed by multiplying the vehicle-kilometres travelled on each leg (distance goods were transported) by the number of metric tons of revenue traffic (payload) carried on that leg.

4 The entity shall aggregate payload fuel economy for types of transportation, which include:

4.1 Air transportation

4.2 Marine transportation

4.3 Rail transportation

4.4 Road transportation

HC-DI-110a.2. Description of efforts to reduce the environmental impact of logistics

1 The entity shall describe the nature, scope and implementation of its programmes and initiatives to reduce the environmental impact of its logistics operations.

2 Relevant efforts to describe may include fleet upgrades (fuel efficiency), alternative or renewable fuels use, optimised logistics routes, and idling reduction programmes.

Volume 30—Managed Care

Industry Description

The Managed Care industry offers health insurance products for individual, commercial, Medicare and Medicaid members. Entities also provide administrative services and network access for self-funded insurance plans and manage pharmacy benefits. Enrolment in managed care traditionally has been correlated with employment rates, whereas revenue is driven by medical cost inflation. Legislative uncertainty and a focus on reducing health care costs may create downward pricing pressure and continue to drive industry consolidation. In addition, a focus on patient outcomes and plan performance continues to shape the industry's sustainability risks and opportunities.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Climate Change Impacts on Human Health	Discussion of the strategy to address the effects of climate change on business operations and how specific risks presented by changes in the geographical incidence, morbidity and mortality of illnesses and diseases are incorporated into risk models	Discussion and Analysis	n/a	HC-MC-450a.1

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of enrollees by plan type	Quantitative	Number	HC-MC-000.A

Climate Change Impacts on Human Health

Topic Summary

An increase in extreme weather events associated with climate change could have significant health impacts. These events, coupled with the potential spread of infectious diseases and food and water scarcity, may present material implications for the Managed Care industry through an increase in encounters with the health care system. Entities that manage the risks posed by extreme weather events and potential changes in the incidence, morbidity and mortality of illnesses and diseases may protect shareholder value better.

Metrics

HC-MC-450a.1. Discussion of the strategy to address the effects of climate change on business operations and how specific risks presented by changes in the geographical incidence, morbidity and mortality of illnesses and diseases are incorporated into risk models

1 The entity shall discuss its strategic business approach to addressing significant risks related to the effects of climate change, which may include changes in the following aspects of illnesses and diseases:

- 1.1 Geographical incidence
- 1.2 Morbidity
- 1.3 Mortality

2 Relevant disclosure may include discussion of:

- 2.1 Increases in allergic responses, asthma rates and heat-induced illness
- 2.2 Migration of tropical diseases such as malaria, dengue fever and other vector-borne tropical diseases to non-tropical regions
- 2.3 Increases in waterborne diseases, such as cholera, because of increased natural disaster incidence
- 2.4 Increased rates of human developmental diseases such as malnutrition because of decreased food availability

3 The entity shall discuss any projected impacts on revenue, costs or plan affordability.

4 The entity may discuss how it incorporates the effects of climate change into its risk assessment and risk adjustment activities.

Volume 31—Medical Equipment & Supplies

Industry Description

The Medical Equipment & Supplies industry researches, develops and produces medical, surgical, dental, ophthalmic and veterinary instruments and devices. Hospitals, clinics and laboratories use these products, which range from disposable items to highly specialised equipment. The increased prevalence of diseases associated with unhealthy lifestyles and an ageing population are important factors that may encourage growth in this industry. Emerging markets and the expansion of health insurance may contribute to further growth. However, the extension of government insurance programmes, provider and payer consolidation, and regulatory emphasis on reduced costs in all markets may result in downward pricing pressure.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Product Design & Lifecycle Management	Discussion of process to assess and manage environmental and human health considerations associated with chemicals in products, and meet demand for sustainable products	Discussion and Analysis	n/a	HC-MS-410a.1
	Total amount of products accepted for take-back and reused, recycled or donated, broken down by: (1) devices and equipment and (2) supplies	Quantitative	Metric tons (t)	HC-MS-410a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of units sold by product category	Quantitative	Number	HC-MS-000.A

Product Design & Lifecycle Management

Topic Summary

Medical equipment and supplies entities face increasing challenges associated with the human and environmental impact of the industry’s products. Entities may face consumer and regulatory pressure to limit the use of material inputs associated with health concerns, while also addressing issues such as the energy efficiency and end-of-life disposal of specific products. Entities that address these concerns while engaging in efforts to enhance product take-back may satisfy consumer demand and reduce future liabilities better.

Metrics

HC-MS-410a.1. Discussion of process to assess and manage environmental and human health considerations associated with chemicals in products, and meet demand for sustainable products

1 The entity shall describe its strategic approach to addressing specific environmental and human health impacts of its products, including:

1.1 Energy efficiency of products during use

1.2 Disposal of the products

1.3 Material efficiency

1.4 Product packaging

1.5 Toxicity of materials

2 The entity shall only describe design considerations that it can determine will deliver a specific, demonstrable environmental benefit.

2.1 Environmental benefits shall be taken to mean those related to:

2.1.1 Energy consumption

2.1.2 Environmental health

2.1.3 Human health

2.1.4 Waste generation

2.1.5 Water use

3 The entity shall provide an indication of how central the environmental benefit imparted is to functionality of products.

4 The entity shall make the environmental benefit determination in good faith and clarify whether the benefit relates to the product, package or service, avoiding a general statement of environmental benefits and following guidance from applicable laws and statutes.

5 The entity shall specify during which lifecycle stage(s) it assesses the environmental impacts associated with its products.

6 The entity shall reference the mechanism through which it implements efforts, including:

6.1 Use of design protocols

6.2 Procurement policies

6.3 Restricted substances lists (RSLs)

6.4 Certifications

6.5 Product take-back programmes

6.6 Packaging take-back

7 For efforts related to the end-of-life of product management, the entity shall discuss only design-related considerations.

8 The entity shall disclose the percentage of products, by revenue, for which it has integrated environmental considerations into the design.

HC-MS-410a.2. Total amount of products accepted for take-back and reused, recycled or donated, broken down by: (1) devices and equipment and (2) supplies

1 The entity shall disclose the amount, in metric tons, of its products that it recovered and reused (refurbished), recycled or donated.

1.1 This figure shall be broken down into: (1) devices and equipment and (2) supplies.

1.1.1 Devices and equipment include high-value machines and advanced devices.

1.1.2 Supplies include simple supplies and low-cost equipment (for example, scalpels, gloves and thermometers).

1.2 This figure shall exclude products accepted for take-back but ultimately discarded as waste.

1.2.1 The entity may disclose if it reclaimed any products it was unable to reuse or recycle because proper, safe disposal was necessary.

2 The entity shall describe programmes and initiatives it implements, funds or participates in that are related to product take-back for end-of-life management of its products.

Volume 32—Electric Utilities & Power Generators

Industry Description

Electric Utilities & Power Generators industry entities generate electricity; build, own and operate transmission and distribution (T&D) lines; and sell electricity. Utilities generate electricity from many different sources, commonly including coal, natural gas, nuclear energy, hydropower, solar, wind and other renewable and fossil fuel energy sources. The industry comprises entities operating in both regulated and unregulated business structures. Regulated utilities face comprehensive regulatory oversight of their pricing mechanisms and their allowed return on equity, among other types of regulation, to maintain their licence to operate as a monopoly. Unregulated entities or merchant power entities are often independent power producers (IPPs) that generate electricity to sell to the wholesale market, which includes regulated utility buyers and other end users. Furthermore, entities in the industry may operate across both regulated and deregulated power markets depending on their operational span. Regulated markets typically contain vertically integrated utilities that own and operate everything from the generation of power to its retail distribution. Deregulated markets commonly split generation from distribution to encourage wholesale power generation competition. Overall, the complex task of providing reliable, accessible, low-cost power while balancing the protection of human life and the environment remains a challenge.

Note: The Electric Utilities & Power Generators industry covers activities related only to electricity provision, not to natural gas provision. Some utilities may operate in both electricity and natural gas markets. Utilities undertaking activities related to natural gas sourcing and distribution also should consider the topics and metrics in the Gas Utilities & Distributors (IF-GU) industry.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions & Energy Resource Planning	(1) Gross global Scope 1 emissions, percentage covered under (2) emissions-limiting regulations and (3) emissions-reporting regulations	Quantitative	Metric tons (t) CO_2-e, Percentage (%)	IF-EU-110a.1
	Greenhouse gas (GHG) emissions associated with power deliveries	Quantitative	Metric tons (t) CO_2-e	IF-EU-110a.2
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	IF-EU-110a.3
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	IF-EU-140a.1
	Number of incidents of non-compliance associated with water quality permits, standards and regulations	Quantitative	Number	IF-EU-140a.2
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	IF-EU-140a.3

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TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
End-Use Efficiency & Demand	Percentage of electric load served by smart grid technology [29]	Quantitative	Percentage (%) by megawatt hours (MWh)	IF-EU-420a.2
	Customer electricity savings from efficiency measures, by market [30]	Quantitative	Megawatt hours (MWh)	IF-EU-420a.3
Nuclear Safety & Emergency Management	Total number of nuclear power units, broken down by results of most recent independent safety review	Quantitative	Number	IF-EU-540a.1
	Description of efforts to manage nuclear safety and emergency preparedness	Discussion and Analysis	n/a	IF-EU-540a.2
Grid Resiliency	Number of incidents of non-compliance with physical or cybersecurity standards or regulations	Quantitative	Number	IF-EU-550a.1
	(1) System Average Interruption Duration Index (SAIDI), (2) System Average Interruption Frequency Index (SAIFI), and (3) Customer Average Interruption Duration Index (CAIDI), inclusive of major event days [31]	Quantitative	Minutes, Number	IF-EU-550a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of: (1) residential, (2) commercial, and (3) industrial customers served [32]	Quantitative	Number	IF-EU-000.A
Total electricity delivered to: (1) residential, (2) commercial, (3) industrial, (4) all other retail customers, and (5) wholesale customers	Quantitative	Megawatt hours (MWh)	IF-EU-000.B
Length of transmission and distribution lines [33]	Quantitative	Kilometres (km)	IF-EU-000.C
Total electricity generated, percentage by major energy source, percentage in regulated markets [34]	Quantitative	Megawatt hours (MWh), Percentage (%)	IF-EU-000.D
Total wholesale electricity purchased [35]	Quantitative	Megawatt hours (MWh)	IF-EU-000.E

[29] Note to **IF-EU-420a.2** – The entity shall discuss the opportunities and challenges associated with the development and operations of a smart grid.

[30] Note to **IF-EU-420a.3** – The entity shall discuss customer efficiency regulations relevant to each market in which it operates.

[31] Note to **IF-EU-550a.2** – The entity shall discuss notable service disruptions such as those that affected a significant number of customers or disruptions of extended duration.

[32] Note to **IF-EU-000.A** – The number of customers served for each category shall be considered as the number of meters billed for residential, commercial, and industrial customers.

[33] Note to **IF-EU-000.C** – The length of transmission and distribution lines shall be calculated on a circuit kilometre basis, where a circuit-kilometre is defined as the total length of circuits, regardless of conductors used per circuit.

[34] Note to **IF-EU-000.D** – Generation shall be disclosed by each of the following major energy sources: coal, natural gas, nuclear, petroleum, hydropower, solar, wind, other renewables, and other gases. The scope includes owned and/or operated assets. The scope excludes electricity consumed at the generating facilities.

[35] Note to **IF-EU-000.E** – The scope excludes electricity consumed at the generating facilities.

Greenhouse Gas Emissions & Energy Resource Planning

Topic Summary

Electricity generation represents the largest source of greenhouse gas (GHG) emissions in the world. Mainly carbon dioxide, methane and nitrous oxide, these emissions are mostly by-products of fossil fuel combustion. The transmission or distribution (T&D) segments of the industry produce negligible emissions. Electric utility entities could face significant operating costs and capital expenditures for mitigating GHG emissions as environmental regulations become increasingly stringent. Although many of these costs may be passed to a utility's customers, some power generators, especially in deregulated markets, may be unable to recoup these costs. Entities may reduce GHG emissions from electricity generation through careful infrastructure investment planning by ensuring the delivery of an energy mix capable of meeting the emissions requirements set forth by regulations, and by implementing industry-leading technologies and processes. Being proactive in cost-effectively reducing GHG emissions may create a competitive advantage for entities and mitigate unanticipated regulatory compliance costs. Failure to properly estimate capital-expenditure needs and permitting costs, or other difficulties in reducing GHG emissions, may result in significant negative effects on returns in the form of asset write-downs, the costs to obtain carbon credits, or unexpected increases in operating and capital expenditures. Regulatory emphasis on this issue may increase in the coming decades, as exemplified by the international emissions-reduction agreement made at the 21st session of the United Nations Conference of the Parties in 2015.

Metrics

IF-EU-110a.1. (1) Gross global Scope 1 emissions, percentage covered under (2) emissions-limiting regulations and (3) emissions-reporting regulations

1 The entity shall disclose its (1) gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalent (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 These emissions include direct emissions of GHGs from stationary or mobile sources that include production facilities, office buildings and product transportation (marine, road and rail).

2.2 Acceptable calculation methodologies include those that conform to the GHG Protocol as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples include:

2.2.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)

2.2.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the U.S. Environmental Protection Agency (EPA)

2.2.3 India GHG Inventory Program

2.2.4 ISO 14064-1

2.2.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.2.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.3 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which generally is aligned with the 'financial control' approach defined by the GHG Protocol, and the approach published by the Climate Disclosure Standards Board (CDSB) that is described in REQ-07, 'Organisational boundary', of the *CDSB Framework for reporting environmental and social information*.

3 The entity shall disclose (2) the percentage of its gross global Scope 1 GHG emissions covered under an emissions-limiting regulation or programme intended to limit or reduce emissions directly, such as cap-and-trade schemes, carbon tax/fee systems, and other emissions control (for example, command-and-control approach) and permit-based mechanisms.

3.1 Examples of emissions-limiting regulations include:

3.1.1 California Cap-and-Trade (California Global Warming Solutions Act)

3.1.2 European Union Emissions Trading Scheme (EU ETS)

3.1.3 Quebec Cap-and-Trade (Quebec Environment Quality Act)

3.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO_2-e) covered under emissions-limiting regulations divided by the total amount of gross global Scope 1 GHG emissions (CO_2-e).

3.2.1 For emissions subject to more than one emissions-limiting regulation, the entity shall not account for those emissions more than once.

3.3 The scope of emissions-limiting regulations excludes emissions covered under voluntary emissions-limiting regulations (for example, voluntary trading systems), as well as reporting-based regulations.

4 The entity shall disclose (3) the percentage of its gross global Scope 1 GHG emissions that are covered under emissions reporting-based regulations.

4.1 Emissions reporting-based regulations are defined as regulations that demand the disclosure of GHG emissions data to regulators and/or the public, but for which there is no limit, cost, target, or controls on the amount of emissions generated.

4.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO_2-e) that are covered under emissions reporting-based regulations divided by the total amount of gross global Scope 1 GHG emissions (CO_2-e).

4.2.1 For emissions that are subject to more than one emissions reporting-based regulation, the entity shall not account for those emissions more than once.

4.3 The scope of emissions reporting-based regulations does not exclude emissions covered under emissions-limiting regulations.

5 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

6 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

7 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

IF-EU-110a.2. Greenhouse gas (GHG) emissions associated with power deliveries

1 The entity shall disclose gross global greenhouse gas (GHG) emissions associated with electric power delivered to retail customers, resulting from owned power generation and purchased power.

1.1 GHG emissions are defined as emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalents (CO_2-e), calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP factors is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets or credits.

2 GHG emissions associated with electric power delivered to retail customers are defined by, and shall be calculated according to, the methodology established by the numerator in 'EPS Metric D-3: Retail Electric Deliveries', contained in the Electric Power Sector Protocol for the Voluntary Reporting Program, June 2009, Version 1.0, provided by The Climate Registry, including 2010 Updates and Clarifications (which clarified that 'EPS Metric D-3: Retail Electric Deliveries' was mislabelled as 'EPS Metric D-1' in Version 1.0).

2.1 These emissions generally are calculated as the sum of emissions from power generation facilities owned by the entity, and those from power purchased from a third-party, subtracted by the emissions from power that was resold at the wholesale level.

2.2 The scope of GHG emissions shall include all emissions associated with power delivered to retail customers, including emissions associated with power lost in transmission and distribution.

2.3 Emissions factors for power purchased from third-parties are based on the most relevant and accurate method, which will depend on the type of power purchased. The Electric Power Sector Protocol for the Voluntary Reporting Program establishes potential methods.

3 Disclosure corresponds to the numerator in the metric contained in the Electric Power Research Institute's 2018 *Metrics to Benchmark Electric Power Company Sustainability Performance*, 'Total CO_2 emissions rate for power deliveries', except for the scope of emissions including all seven GHGs covered under the Kyoto Protocol.

IF-EU-110a.3. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss its strategy to manage risks and opportunities associated with the GHG emissions regulatory environment, which may include:

3.1 Any changes it has made or plans to make to its business structure or model

3.2 The development of new technologies or services

3.3 Any changes it has made or plans to make to its operational process, control or organisational structures

3.4 Influencing the regulatory or legislative process and outcomes, which may include interactions with regulators, regulatory agencies, utility commissions, legislators and policymakers

4 The entity may discuss its involvement in green power markets, including the number of customers served (by customer category) and the corresponding electricity generated.

4.1 Green power markets are defined as an optional utility service that allows customers the opportunity to support a greater level of utility entity investment in renewable energy technologies.

4.2 The entity may disclose instances in which the provision of green power markets is required by state renewable portfolio standards.

5 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

6 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

7 The entity shall discuss whether its strategies, plans, or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

8 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Water Management

Topic Summary

Electricity generation is one of the most water-intensive industries in the world in terms of water withdrawals. Thermoelectric power plants—typically coal, nuclear and natural gas—use large quantities of water for cooling purposes. The industry is facing increasing water-related supply and regulatory risks, potentially requiring capital investment in technology or even creating stranded assets. As water supplies tighten in many regions—and electricity generation, agriculture and community use compete for water supplies—power plants increasingly may be unable to operate at full capacity, or at all, because of region-specific water constraints. The availability of water is an important factor to consider when calculating the future value of many electricity-generating assets and for evaluating proposals for new generation sources. Increased water scarcity—because of factors such as increasing consumption and reduced supplies resulting from climate change, which could result in more frequent or intense droughts—could prompt regulatory authorities to limit entities' ability to withdraw necessary amounts of water, especially in regions with high baseline water stress. Furthermore, entities must manage the growing number of regulations related to the significant biodiversity impacts that such large withdrawals may cause. To mitigate these risks, entities can invest both in more efficient water-usage systems for plants, and place strategic priority on assessing long-term water availability, as well as water-related biodiversity risks, when siting new power plants.

Metrics

IF-EU-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

IF-EU-140a.2. Number of incidents of non-compliance associated with water quality permits, standards and regulations

1 The entity shall disclose the total number of incidents of non-compliance, including violations of a technology-based standard and exceedances of quantity or quality-based standards.

2 The scope of disclosure includes incidents governed by applicable jurisdictional statutory permits and regulations, which include the discharge of a hazardous substance, violation of pre-treatment requirements or total maximum daily load (TMDL) exceedances.

3 The scope of disclosure shall only include incidents of non-compliance that resulted in a formal enforcement action(s).

3.1 Formal enforcement actions are defined as governmental recognised actions that address a violation or threatened violation of water quantity or quality laws, regulations, policies or orders, and can result in administrative penalty orders, administrative orders and judicial actions, among others.

4 Violations shall be disclosed, regardless of their measurement methodology or frequency. These include violations for:

4.1 Continuous discharges, limitations, standards and prohibitions that are generally expressed as maximum daily, weekly and monthly averages; and

4.2 Non-continuous discharges, limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge and mass or concentration of specified pollutants.

IF-EU-140a.3. Description of water management risks and discussion of strategies and practices to mitigate those risks

1 The entity shall describe its water management risks associated with water withdrawals, water consumption and discharge of water or wastewater.

1.1 Risks associated with water withdrawals and water consumption include risks to the availability of adequate, clean water resources, which include:

1.1.1 Environmental constraints—such as operating in water-stressed regions, drought, concerns of aquatic impingement or entrainment, interannual or seasonal variability, and risks from the impact of climate change

1.1.2 Regulatory and financial constraints—such as volatility in water costs, stakeholder perceptions and concerns related to water withdrawals (for example, those from local communities, non-governmental organisations and regulatory agencies), direct competition with and impact from the actions of other users (for example, commercial and municipal users), restrictions to withdrawals because of regulations, and constraints on the entity’s ability to obtain and retain water rights or permits

1.2 Risks associated with the discharge of water or wastewater include the ability to obtain rights or permits related to discharges, regulatory compliance related to discharges, restrictions to discharges, the ability to maintain control over the temperature of water discharges, liabilities, reputational risks and increased operating costs because of regulation, stakeholder perceptions and concerns related to water discharges (for example, those from local communities, non-governmental organisations and regulatory agencies).

2 The entity may describe water management risks in the context of:

2.1 How risks may vary by withdrawal source, including surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities; and

2.2 How risks may vary by discharge destinations, including surface water, groundwater or wastewater utilities.

3 The entity may discuss the potential effects that water management risks may have on its operations and the time line over which such risks are expected to manifest.

3.1 Effects include those associated with costs, revenue, liabilities, continuity of operations and reputation.

4 The entity shall discuss its short- and long-term strategies or plans to mitigate water management risks, which include:

4.1 The scope of its strategy, plans, goals or targets, such as how they relate to various business units, geographies or water-consuming operational processes.

4.2 Any water management goals or targets it has prioritised, and an analysis of performance against those goals or targets.

4.2.1 Goals and targets include those associated with reducing water withdrawals, reducing water consumption, reducing water discharges, reducing aquatic impingements, improving the quality of water discharges and regulatory compliance.

4.3 The activities and investments required to achieve the plans, goals or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4.4 Disclosure of strategies, plans, goals or targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

5 For water management targets, the entity shall additionally disclose:

5.1 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target.

5.2 The time lines for the water management activities, including the start year, the target year and the base year.

5.3 The mechanism(s) for achieving the target, including:

5.3.1 Efficiency efforts, such as the use of water recycling or closed-loop systems;

5.3.2 Product innovations, such as redesigning products or services to require less water;

5.3.3 Process and equipment innovations, such as those that enable the reduction of aquatic impingements or entrainments;

5.3.4 Use of tools and technologies (for example, the World Wildlife Fund Water Risk Filter, the Global Water Tool and Water Footprint Network Footprint Assessment Tool) to analyse water use, risks and opportunities; and

5.3.5 Collaborations or programmes in place with the community or other organisations.

5.4 The percentage reduction or improvement from the base year, in which the base year is the first year against which water management targets are evaluated towards the achievement of the target.

6 The entity shall discuss whether its water management practices result in any additional lifecycle impacts or trade-offs in its organisation, including trade-offs in land use, energy production and greenhouse gas (GHG) emissions, and why the entity chose these practices despite lifecycle trade-offs.

End-Use Efficiency & Demand

Topic Summary

Energy efficiency is a low-lifecycle-cost method to reduce greenhouse gas (GHG) emissions, because less electricity needs to be generated to provide the same end-use energy services. Utilities can promote energy efficiency and conservation among their customers. Such strategies may include offering rebates for energy-efficient appliances, weatherising customers' homes, educating customers on energy-saving methods, offering incentives to customers to curb electricity use during times of peak demand ('demand response'), or investing in technology such as smart meters, which allow customers to track their energy use. While saving consumers money, these efforts also may reduce operating costs for electric utilities by decreasing peak demand. Furthermore, depending on the utility regulatory framework, local jurisdictions may mandate that entities develop energy efficiency plans before permitting new builds. Companies with effective strategies to reduce the downside risks from demand fluctuations, may gain adequate and timely returns on needed investments. Furthermore, reducing costs through efficiency initiatives may earn higher, long-term risk-adjusted returns.

Metrics

IF-EU-420a.2. Percentage of electric load served by smart grid technology

1 The entity shall disclose the percentage of its electric load, in megawatt hours, served by smart grid technology.

1.1 The electric load served by smart grid technology is defined as the amount of electricity delivered to the entity's customers that incorporates the use of smart grid technologies to meet the electricity demand of the consumer.

1.2 A smart grid is defined, consistent with the International Energy Agency (IEA), as an electricity network that uses digital and other advanced technologies to monitor and manage the transport of electricity from all generation sources to meet the varying electricity demands of end users. Smart grids coordinate the needs and capabilities of all generators, grid operators, end users and electricity market stakeholders to operate all parts of the system as efficiently as possible, minimising costs and environmental impacts while maximising system reliability, resilience and stability.

1.3 An electric load is considered to be served by smart grid technology when the technology enables one or more of the distinguishing characteristics defined by the IEA:

1.3.1 Enables informed participation by customers

1.3.2 Accommodates all generation and storage options

1.3.3 Enables new products, services and markets

1.3.4 Provides the power quality for the range of needs

1.3.5 Optimises asset utilisation and operation efficiency

1.3.6 Provides resiliency to disturbances, attacks and natural disasters

1.4 Examples of smart grid technologies may include wide-area monitoring and control, information and communication technology integration, renewable and distributed generation integration, transmission enhancement, distribution grid management, advanced metering infrastructure, electric vehicle charging infrastructure, and customer-side systems.

2 The percentage of load served by smart grid technology shall be calculated as the total amount of energy load, in megawatt hours, served by smart grid technology divided by the total amount of energy load, in megawatt hours.

3 The entity may discuss the type of smart grid technology through which its electric load is served, the customer types using the technology (for example, residential, commercial or industrial), whether technologies are owned by the utility or the customer, and any plans for further integration of smart grid capabilities.

Note to **IF-EU-420a.2**

1 The entity shall discuss the opportunities and challenges associated with the development and operation of a smart grid, including, if relevant:

1.1 Demand-response and end-user efficiency opportunities (for example, smoothing of the demand curve, increased cost-effective electric generation, improved incorporation of distributed generation, and increased generation and transmission efficiency)

1.2 Political and deployment challenges (for example, opposition to smart grid development, disparate degrees of technology deployment and economic disincentives)

IF-EU-420a.3. Customer electricity savings from efficiency measures, by market

1 The entity shall disclose the total amount of electricity savings delivered to customers, in megawatt hours, from energy efficiency measures during the reporting period, for each of its markets.

1.1 Markets are defined as those operations subject to distinct public utility regulatory oversight.

1.2 Electricity savings are defined according to the gross savings approach as the changes in energy consumption or demand that result from programme-related actions taken by participants in an efficiency programme, regardless of why they participated.

1.2.1 The entity may list those markets where it reports electricity savings on a net electricity savings basis, and thus, may be different from the figures disclosed here. Net electricity savings are defined as changes in consumption specifically attributable to an energy efficiency programme, and that would not have occurred in the absence of the programme.

2 Electricity savings shall be calculated on a gross basis but consistent with the methodology set forth in applicable jurisdictional evaluation, measurement and verification (EM&V) regulations where such savings occur.

3 The scope of electricity savings from efficiency measures includes savings delivered directly by the entity and, where regulations provide, savings substantiated through purchases of efficiency savings credits.

3.1 For any savings from efficiency measures delivered directly by the entity, any efficiency savings credits shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as delivered electricity savings.

3.2 For efficiency savings credits purchased, the agreement shall explicitly include and convey that credits be retained and retired on behalf of the entity for the entity to claim them.

Note to **IF-EU-420a.3**

1 The entity shall discuss regulations related to customer efficiency measures for each of its relevant markets, including:

1.1 The amount or percentage of electricity savings from efficiency measures required by regulations for each market.

1.2 Instances of non-compliance with electricity savings obligations.

1.3 In such instances, the entity shall disclose the difference between the energy savings delivered and the amount required by the regulation.

1.4 Electricity savings delivered that exceed those required by regulations and that resulted in the entity receiving energy efficiency performance incentives, including the value of any such incentives.

2 The entity shall discuss the forms of policy, by each market, that allow for, or incentivise, energy efficiency, including a discussion of the benefits, challenges and financial effects associated with such regulations.

3 Relevant policy mechanisms to discuss may include:

3.1 Deferral decoupling

3.2 Current period decoupling

3.3 Single fixed variable rates

3.4 Lost revenue adjustments

3.5 Energy efficiency feebates

4 For markets lacking regulations that allow for, or incentivise, energy efficiency, the entity shall discuss its stance on and efforts to manage risks and opportunities relating to such regulation.

5 The entity may discuss any efforts to meet regulations through incentives it has developed for its customers that promote end-use efficiency, including dynamic pricing, energy efficiency rebates and other measures to subsidise customer energy efficiency.

Nuclear Safety & Emergency Management

Topic Summary

Although rare, nuclear accidents can have significant human health and environmental consequences because of their severity. Owners of nuclear power plants in many regions have operated for decades without any major public safety incidents, but the occurrence of infrequent but large-magnitude incidents anywhere in the world can have major effects on the entire nuclear power industry. Entities that own and operate nuclear plants may lose their licence to operate, as well as face many other financial consequences in the event of an accident—though entities carry insurance and may have legal protections from some liabilities. Failure to comply with the safety regulations can be expensive to nuclear power operators; in extreme circumstances it may make the continued operation of the plant uneconomical. Facing potentially significant financial repercussions, both from ongoing safety compliance as well as tail risk incidents, entities that own or operate nuclear plants must be vigilant in the safety compliance, best practices and upgrades of their facilities. They also must maintain robust emergency preparedness training for their staff and a strong safety culture. These measures can reduce the probability that accidents will occur and enable an entity to effectively detect and respond to such incidents.

Metrics

IF-EU-540a.1. Total number of nuclear power units, broken down by results of most recent independent safety review

1 The entity shall disclose the total number of nuclear power units that it owns or operates, where:

1.1 A nuclear power unit is defined as a nuclear reactor and associated equipment necessary for electric power generation, including those structures, systems and components required to provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public.

2 The entity shall provide a breakdown of nuclear power units that it owns or operates by results of the most recent independent safety review.

2.1 A review is considered independent when conducted by third parties who are not and have not been directly involved with the design or operation of the nuclear power unit.

2.2 For applicable jurisdictions, the entity shall disclose the results of the most recent independent safety review for both regulatory and peer reviews.

2.3 The entity shall disclose the applicable jurisdictional regulation, guideline or standard under which the safety review was conducted.

IF-EU-540a.2. Description of efforts to manage nuclear safety and emergency preparedness

1 The entity shall describe its efforts to manage nuclear safety and emergency preparedness, including its efforts to identify, report and assess initiating events and event sequences relating to nuclear safety and emergency preparedness.

1.1 Initiating events are defined as natural or human-induced events that cause an event sequence.

1.2 An event sequence is defined as a series of actions or occurrences within the natural and engineered components of a geologic repository operations area that potentially could lead to exposure of individuals to radiation. An event sequence includes one or more initiating events and associated combinations of repository system component failures, including those produced by the action or inaction of operating staff.

1.3 Disclosure may focus broadly on nuclear safety and emergency management systems, but it specifically shall address the systems in place to avoid and manage initiating events, accidents, emergencies and incidents that could have catastrophic impacts on human health, the local community and the environment.

2 The entity shall discuss how it manages nuclear safety and emergency preparedness, such as through training, rules and guidelines (and their enforcement), implementation of emergency plans and use of technology.

3 The entity shall discuss its efforts to create and maintain a culture of nuclear safety and emergency preparedness, including efforts to institute the traits of a positive safety culture, where the traits of a positive safety culture include:

3.1 Leadership safety values and actions

3.2 Problem identification and resolution

3.3 Personal accountability

3.4 Work process

3.5 Continuous learning

3.6 Environment for raising concerns

3.7 Effective safety communications

3.8 Respectful work environment

3.9 Questioning attitude

4 The entity may discuss implementation of the Institute of Nuclear Power Operations' (INPO) Principles for a Strong Nuclear Safety Culture or the International Atomic Energy Agency's (IAEA) Best Practices in the Utilization and Dissemination of Operating Experience at Nuclear Power Plants.

Grid Resiliency

Topic Summary

Electricity is critical for the continued function of most elements of modern life, from medicine to finance, creating a societal reliance on continuous service. Major disruptions to electricity infrastructure may result in potentially high societal costs. Disruptions can be caused by extreme weather events, natural disasters and cyberattacks. As the frequency and severity of extreme weather events associated with climate change continues to increase, all segments of electric utilities entities—and especially major transmission and distribution (T&D) operations—will face increasing physical threats to their infrastructure. Extreme weather events could result in frequent or significant service disruptions, outages and require upgrade or repair of damaged or compromised equipment, all of which may add substantial costs and damage brand reputation among regulators and customers. The increased use of smart grid technology has several benefits, including strengthening the resiliency of the grid to extreme weather events. However, this technology may make the grid more vulnerable to cyberattacks, because it provides hackers more entryways into infrastructure systems. Entities must implement strategies that minimise the probability and magnitude of impacts from extreme weather events and cyberattacks. To remain competitive in the face of increasing external competition, entities must improve the reliability, resilience and quality of their infrastructure.

Metrics

IF-EU-550a.1. Number of incidents of non-compliance with physical or cybersecurity standards or regulations

1 The entity shall disclose the total number of instances of non-compliance with physical or cybersecurity standards or regulations applicable to electricity infrastructure owned or operated by the entity.

1.1 The scope of physical or cybersecurity standards or regulations includes mandatory, enforceable standards and regulations intended to mitigate physical or cybersecurity risks related to the reliability or resiliency of electricity infrastructure, including the electricity grid.

1.1.1 The entity may disclose instances of non-compliance with voluntary physical or cybersecurity standards or regulations.

IF-EU-550a.2. (1) System Average Interruption Duration Index (SAIDI), (2) System Average Interruption Frequency Index (SAIFI), and (3) Customer Average Interruption Duration Index (CAIDI), inclusive of major event days

1 The entity shall disclose its (1) System Average Interruption Duration Index (SAIDI), in minutes.

1.1 The SAIDI is defined as the total duration of an interruption for the average customer during the period under reporting.

1.2 The entity shall calculate its SAIDI as the total number of customers interrupted multiplied by the duration of interruptions (restoration time) divided by the total number of customers served, written as $\sum(r_i \times N_i) / N_T$

1.2.1 $\sum$ = Summation function

1.2.2 r_i = Restoration time, in minutes

1.2.3 N_i = Total number of customers interrupted

1.2.4 N_T = Total number of customers served

2 The entity shall disclose its (2) System Average Interruption Frequency Index (SAIFI).

2.1 SAIFI is defined as the average number of times that a system customer experiences an outage during the period under reporting.

2.2 The entity shall calculate its SAIFI as the total number of customers interrupted divided by the total number of customers served, written as $\sum(Ni) / N_T$

2.2.1 $\sum$ = Summation function

2.2.2 N_i= Total number of customers interrupted

2.2.3 N_T = Total number of customers served

3 The entity shall disclose its (3) Customer Average Interruption Duration Index (CAIDI).

3.1 The CAIDI is defined as the average amount of time required to restore service once an outage has occurred.

3.2 The entity shall calculate its CAIDI as the total number of customers interrupted multiplied by the duration of interruptions (restoration time in minutes) divided by the sum of the number of customers interrupted, written as $\sum(N_i \times r_i) / \sum(N_i)$

3.2.1 $\sum$ = Summation function

3.2.2 r_i = Restoration time, in minutes

3.2.3 N_i = Total number of customers interrupted

4 The entity shall disclose its SAIDI, SAIFI and CAIDI inclusive of major event days, where:

4.1 Major event days are defined, according to IEEE Std 1366, as days in which the daily SAIDI exceeds a threshold value, T_{MED}, where T_{MED} is calculated as follows:

4.1.1 The entity should collect values of daily SAIDI for five sequential years, ending on the last day of the last complete reporting period. If fewer than five years of historical data are available, use all the available historical data.

4.1.2 If any day in the data set has a value of zero for SAIDI, replace it with the lowest non-zero SAIDI value in the data set—this permits taking the logarithm of every day.

4.1.3 Take the natural logarithm (ln) of each daily SAIDI value in the data set.

4.1.4 Find α (Alpha), the average of the logarithms (also known as the logaverage) of the data set.

4.1.5 Find β (Beta), the standard deviation of the logarithms (also known as the log-average) of the data set.

4.1.6 Compute the major event day threshold, T_{MED}, using the equation: $T_{MED} = e^{(\alpha+\beta)}$.

4.1.7 Any day with daily SAIDI greater than the threshold value T_{MED} that occurs during the subsequent reporting period is a major event day.

Note to **IF-EU-550a.2**

1 The entity shall discuss notable service disruptions such as those that affected a significant number of customers, or disruptions of extended duration.

2 For such disruptions, the entity should provide:

2.1 Description and cause of the service disruption

2.2 The total generation or transmission capacity, in megawatts, and population affected by the disruption

2.3 The costs associated with the service disruption

2.4 Actions taken to mitigate the potential for future service interruptions

2.5 Any other significant outcomes (for example, legal proceedings or related fatalities).

Volume 33—Engineering & Construction Services

Industry Description

The Engineering & Construction Services industry provides engineering, construction, design, consulting, contracting and other related services that support various building and infrastructure projects. The industry has four major segments: engineering services, infrastructure construction, non-residential building construction, and building subcontractors and construction-related professional services. The infrastructure construction segment includes entities that design or build infrastructure projects such as power plants, dams, oil and gas pipelines, refineries, highways, bridges, tunnels, railways, ports, airports, waste treatment plants, water networks and stadiums. The non-residential building construction segment includes entities that design or build industrial and commercial facilities such as factories, warehouses, data centres, offices, hotels, hospitals, universities and retail spaces such as shopping centres. The engineering services segment includes entities that provide specialised architectural and engineering services such as design and development of feasibility studies for many of the project types listed above. Finally, the building subcontractors and other construction-related professional services segment includes smaller entities that provide ancillary services such as carpentry, electrical, plumbing, painting, waterproofing, landscaping, interior design and building inspection. The industry's customers include infrastructure owners and developers in the public and private sectors. Large entities in this industry operate and generate revenue globally and typically operate in more than one segment.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Environmental Impacts of Project Development	Number of incidents of non-compliance with environmental permits, standards and regulations	Quantitative	Number	IF-EN-160a.1
	Discussion of processes to assess and manage environmental risks associated with project design, siting and construction	Discussion and Analysis	n/a	IF-EN-160a.2
Structural Integrity & Safety	Amount of defect- and safety-related rework costs	Quantitative	Presentation currency	IF-EN-250a.1
	Total amount of monetary losses as a result of legal proceedings associated with defect- and safety-related incidents [36]	Quantitative	Presentation currency	IF-EN-250a.2
Lifecycle Impacts of Buildings & Infrastructure	Number of (1) commissioned projects certified to a third-party multi-attribute sustainability standard and (2) active projects seeking such certification	Quantitative	Number	IF-EN-410a.1
	Discussion of process to incorporate operational-phase energy and water efficiency considerations into project planning and design	Discussion and Analysis	n/a	IF-EN-410a.2

continued…

[36] Note to **IF-EN-250a.2** – The entity shall briefly describe the nature, context, and any corrective actions taken as a result of the monetary losses.

…continued

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Climate Impacts of Business Mix	Amount of backlog for (1) hydrocarbon-related projects and (2) renewable energy projects	Quantitative	Presentation currency	IF-EN-410b.1
	Amount of backlog cancellations associated with hydrocarbon-related projects	Quantitative	Presentation currency	IF-EN-410b.2
	Amount of backlog for non-energy projects associated with climate change mitigation	Quantitative	Presentation currency	IF-EN-410b.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of active projects [37]	Quantitative	Number	IF-EN-000.A
Number of commissioned projects [38]	Quantitative	Number	IF-EN-000.B
Total backlog [39]	Quantitative	Presentation currency	IF-EN-000.C

Environmental Impacts of Project Development

Topic Summary

Infrastructure construction projects improve economic and social development; however, they also may pose risks to the local environment and surrounding communities. Industry activities can disrupt local ecosystems through biodiversity impacts, air emissions, water discharges, natural resource consumption, waste generation and hazardous chemicals use. Construction entities perform clearing, grading and excavation activities and may generate harmful waste during project construction. Effectively assessing environmental impacts before construction may mitigate unforeseen issues that may increase operational expenses and capital costs. In some cases, environmental concerns or local community pushback may result in project delays and, in extreme cases, project cancellations, which may affect an entity's profitability and growth opportunities. Failure to comply with environmental regulations during construction may result in costly fines and remediation costs, and it can damage an entity's reputation. Environmental impact assessments can provide an understanding of a project's potential environmental impacts and necessary mitigation activities before it begins. Likewise, proper management of environmental risks during project construction may reduce regulatory oversight or community pushback. By assessing environmental considerations before

37 Note to **IF-EN-000.A** – Active projects are defined as buildings and infrastructure projects under development that the entity was actively providing services to as of the close of the reporting period, including, but not limited to, both the design and construction stages. Active projects exclude projects that were commissioned during the reporting period.

38 Note to **IF-EN-000.B** – Commissioned projects are defined as projects that were completed and deemed ready for service during the reporting period. The scope of commissioned projects shall only include projects that the entity provided construction services to.

39 Note to **IF-EN-000.C** – Backlog is defined as the value of projects not completed as of the close of the reporting period (i.e., revenue contractually expected in the future but that has not been recognised), or is defined by the entity, consistent with its existing disclosure of backlog. Backlog may also be referred to as revenue backlog or unsatisfied performance obligations. The scope of disclosure is limited to buildings and infrastructure projects where the entity provides engineering, construction, architecture, design, installation, planning, consulting, repair, and/or maintenance services, or other similar services.

project initiation, as well as continuing to evaluate them during project development, engineering and construction entities may be prepared to mitigate potential environmental issues and the associated financial risks that may occur, while also establishing a competitive advantage for obtaining new contracts with prospective clients.

Metrics

IF-EN-160a.1. Number of incidents of non-compliance with environmental permits, standards and regulations

1 The entity shall disclose the total number of incidents of non-compliance associated with the environment, including violations of permits, standards or regulations associated with waste, air quality or emissions, water discharges, water withdrawal exceedances, effluent limit exceedances (such as waste load allocation), violation of wastewater pre-treatment requirements, oil or hazardous substance spills, land use, and endangered species.

2 The scope of disclosure includes incidents governed by applicable jurisdictional statutory permits and regulations.

3 The scope of disclosure includes incidents of non-compliance received by the entity and by subcontractors under the entity's direct supervision.

4 An incident of non-compliance shall be disclosed regardless of whether it resulted in an enforcement action (for example, fine or warning letter).

5 An incident of non-compliance, regardless of the measurement method or frequency, shall be disclosed. These include one-time violations, continuous discharges and non-continuous discharges.

IF-EN-160a.2. Discussion of processes to assess and manage environmental risks associated with project design, siting and construction

1 The entity shall discuss the processes employed to assess and manage the environmental risks associated with project siting, design and construction.

1.1 Environmental risks may include ecological impacts, biodiversity impacts, emissions to air, discharges to water, slope disturbance, soil disturbance and erosion, storm water management, waste management, natural resource consumption and hazardous chemical usage.

2 The entity shall discuss the due diligence practices employed to assess project environmental risks in which relevant due diligence practices include environmental impact assessments and stakeholder engagement practices.

2.1 Relevant items to discuss include: practices to assess the baseline environmental considerations of the project site; feasible, environmentally preferable alternatives for the project; local legal requirements; biodiversity protection; renewable natural resources use; hazardous substances use; and efficient energy production, delivery and use.

3 The entity shall discuss the operational practices employed to minimise environmental impacts during project siting, design and construction, which may include: waste management, reducing biodiversity impacts, emissions to air, discharges to water, natural resource consumption and hazardous chemical use.

4 The entity shall describe how it operates in compliance with all applicable environmental regulations and permits.

4.1 Relevant items to include: employee training on relevant regulations and clean up procedures, quality control processes on project sites, internal mechanisms for reporting and following up on environmental incidents, and maintenance and reporting of accurate data.

5 The entity shall discuss the use of codes, guidelines and standards to assess and minimise environmental impacts of project siting, design and construction, when applicable. Relevant codes, guidelines and standards may include:

5.1 BREEAM®

5.2 The Equator Principles

5.3 International Finance Corporation's Environmental and Social Performance Standards and Guidance Notes

5.4 Institute for Sustainable Infrastructure's (ISI) Envision® rating system

5.5 International Organization for Standardisation (ISO) environmental standards

5.6 United Nations Development Programme's Performance Standards on Environmental and Social Sustainability

5.7 United Nations Global Compact's Environmental Principles

5.8 U.S. Green Building Council's LEED® certification

6 The entity shall describe how it manages projects that have increased environmental or social due diligence requirements or are expected to have significant adverse environmental or social impacts, including additional measures or policies it employs.

6.1 An example of a project type that has increased environmental or social impacts are 'Category A' projects categorised by the International Finance Corporation (IFC).

6.2 The entity may describe how it categorises the environmental risk severity of its projects, including how it determines if a project has increased environmental risk.

7 When applicable and relevant, the entity shall describe differences between policies and practices for its various operating regions, project types and business segments.

8 The scope of disclosure includes project stages associated with siting, design and construction with which the entity is involved through contractual responsibility, which may include feasibility studies, proposals, design and planning, subcontractor procurement, and construction.

Structural Integrity & Safety

Topic Summary

Whether providing engineering, design, architectural, consulting, inspection, construction or maintenance services, entities in this industry have a professional responsibility to ensure the safety and integrity of their work. Errors or inadequate quality in the project design phase and construction of buildings or infrastructure may result in significant personal injury, loss of property value and economic harm. Entities that manage structural integrity and safety poorly may incur incremental costs because of redesign or repair work and legal liabilities, as well as reputational damage that could hurt growth prospects. Moreover, when designing and constructing buildings or infrastructure, entities in the industry increasingly must contemplate potential climate change impacts, which may affect the project's structural integrity and public safety. Compliance with minimum applicable codes and standards may not be enough to maintain and grow reputational value (or even mitigate legal liabilities) in some circumstances, especially if the frequency and severity of climate-change-related events increases as expected. Meeting or exceeding new industry quality standards, and setting up internal control procedures to identify and fix potential design issues, including those resulting from climate risks, are practices that may help entities reduce these risks.

Metrics

IF-EN-250a.1 Amount of defect- and safety-related rework costs

1 The entity shall disclose the total amount of defect- and safety-related rework costs incurred.

1.1 Rework is defined as activities in the field that must be done more than once, or activities that remove work previously installed as part of the project.

1.2 For the purposes of this disclosure, the scope of rework costs excludes costs resulting from client- or project-owner-driven modifications including change orders, revisions to scope or revisions to design.

1.3 The scope of rework costs includes costs associated with labour, materials, design, equipment and subcontractors.

2 The entity may discuss projects with significant rework costs relative to actual or projected total project costs. Relevant context to provide may include:

2.1 Root causes of rework

2.2 Corrective actions implemented

2.3 Financial impacts to entity

IF-EN-250a.2. Total amount of monetary losses as a result of legal proceedings associated with defect- and safety-related incidents

1 The entity shall disclose the total amount of monetary losses incurred during the reporting period resulting from legal proceedings associated with defect- and safety-related incidents and allegations.

2 The legal proceedings shall include any adjudicative proceeding involving the entity, whether before a court, a regulator, an arbitrator or otherwise.

3 The losses shall include all monetary liabilities to the opposing party or to others (whether because of settlement or verdict after trial or otherwise), including fines and other monetary liabilities incurred during the reporting period as a result of civil actions (for example, civil judgments or settlements), regulatory proceedings (for example, penalties, disgorgement or restitution) and criminal actions (for example, criminal judgement, penalties or restitution) brought by any entity (for example, governmental, business or individual).

4 The scope of monetary losses shall exclude legal and other fees and expenses incurred by the entity in its defence.

Note to **IF-EN-250a.2**

1 The entity shall briefly describe the nature (for example, judgement or order issued after trial, settlement, guilty plea, deferred prosecution agreement or non-prosecution agreement) and context (for example, negligence) of all monetary losses resulting from legal proceedings.

2 The entity shall describe any corrective actions implemented in response to the legal proceedings. These corrective actions may include specific changes in operations, management, processes, products, business partners, training or technology.

Lifecycle Impacts of Buildings & Infrastructure

Topic Summary

Buildings and major infrastructure projects are among the largest users of natural resources in the economy; during construction, these materials include iron and steel products, cement, concrete, bricks, drywall, wallboards, glass, insulation, fixtures, doors, and cabinetry, among others. Once completed, and during their daily use, these projects often consume significant amounts of resources in the form of energy and water (for a discussion on direct environmental impacts from project construction see the Environmental Impacts of Project Development topic). Therefore, the sourcing of construction materials and the everyday use of buildings and infrastructure may contribute to direct and indirect greenhouse gas (GHG) emissions, global or local resource constraints, water stress and negative human health outcomes. Client and regulatory pressures to develop a sustainable built environment are contributing to the growth of markets intended to reduce the lifecycle impacts of buildings and infrastructure projects. In response, various international sustainable building and infrastructure certification schemes assess, among other aspects, a project’s use-phase energy and water efficiency, impacts on human health, and the use of sustainable construction and building materials. As a result, various opportunities are being created for industries in the value chain—from suppliers that can provide such materials, to entities in the Engineering & Construction Services industry that can provide sustainability-oriented project design, consulting and construction services. Such services can provide a competitive advantage and revenue growth opportunities as client demand for economically advantageous sustainable projects increases and related regulations evolve. Entities unable to effectively integrate such considerations into their services may lose market share in the long term.

Metrics

IF-EN-410a.1. Number of (1) commissioned projects certified to a third-party multi-attribute sustainability standard and (2) active projects seeking such certification

1 The entity shall disclose (1) the number of projects commissioned during the reporting period certified to a third-party multi-attribute sustainability standard.

1.1 The scope of third-party multi-attribute sustainability standards is limited to standards or certifications that, at a minimum, address the following aspects of building or infrastructure design and construction:

1.1.1 Energy efficiency;

1.1.2 Water conservation;

1.1.3 Material and resource efficiency; and

1.1.4 Indoor environmental quality.

1.2 Examples of third-party multi-attribute sustainability standards include:

1.2.1 BREEAM®

1.2.2 Green Globes®

1.2.3 Institute for Sustainable Infrastructure's (ISI) Envision®

1.2.4 LEED®

2 The entity shall disclose (2) the number of active projects that sought certification to a third-party multi-attribute sustainability standard during the reporting period.

2.1 The scope of active projects includes all buildings and infrastructure projects actively under development at the close of the reporting period, which may include those in the design and construction stages.

2.2 The scope of active projects excludes projects commissioned during the reporting period.

3 The entity shall disclose the third-party multi-attribute sustainability standard(s) to which projects are certified or seeking certification.

4 The scope of disclosure is limited to projects in which the entity had a direct role in design, engineering, procurement or construction of the building or infrastructure project.

5 The scope of disclosure includes buildings (such as residential, commercial and retail, government, healthcare and offices) and other infrastructure projects (such as transportation, oil and gas, electrical grid, renewable energy, water supply distribution and water treatment).

6 The entity may discuss sustainability standards or guidelines implemented during its building or infrastructure design and construction projects that are not third-party verified.

IF-EN-410a.2. Discussion of process to incorporate operational-phase energy and water efficiency considerations into project planning and design

1 The entity shall provide a discussion of the process used to incorporate operational-phase energy and water efficiency considerations into project planning and design.

1.1 Operational-phase energy and water efficiency considerations to reduce and optimise operational use of energy and water may include water collection and reuse designs, repair and retrofits, improved insulation and material use, shading devices, energy procurement, and the use of energy- and water-efficient devices and lighting.

1.2 Relevant information to disclose may include:

1.2.1 The actions taken to incorporate such considerations, such as design solutions, technological solutions, material use, modelling of energy and water use

1.2.2 The geographical markets where the entity operates, including current and expected future energy and water efficiency regulations, potential constraints on water or energy resources, and stakeholder demands in those markets

1.2.3 Whether these energy and water efficiency solutions serve as competitive advantages in project bids and proposals, and how the entity communicates performance—including any perceived competitive advantages—to project owners

1.2.4 How the entity communicates long-term cost-benefit analyses to project owners or developers, including the potential savings from energy efficiency projects based on past performance of energy efficiency projects

2 The entity shall describe how it assesses the risks associated with operational-phase energy and water efficiency considerations, including internal policies, practices and procedures.

3 The entity shall describe its use of codes, guidelines and standards that address operational-phase energy and water efficiency, when applicable.

3.1 The entity may discuss how its energy and water efficiency efforts exceed building code requirements.

4 The scope of disclosure excludes environmental impacts associated with project construction, as well as codes, guidelines and standards associated with project construction, both of which are included within the scope of IF-EN-160a.2.

Climate Impacts of Business Mix

Topic Summary

Engineering & Construction Services industry clients may be exposed to potentially disruptive climate regulation as well as those that mitigate climate change. Some types of construction projects are significant climate change contributors because of the greenhouse gases (GHGs) emitted during their use phase. Projects that may contribute to global GHG emissions include those in extractive industries, as well as large buildings. Whereas some infrastructure projects, such as renewable energy projects, are designed to reduce GHG emissions, many types of projects present trade-offs. Mass transit systems, for example, may contribute to GHG emissions while reducing net emissions once the benefits offered by the system are factored. Several entities in the industry generate a substantial share of revenue and profits from clients in carbon-intensive industries and whose future capital investments may be at risk because of evolving climate regulations. Downside risks may manifest through project delays, cancellations and diminished long-term revenue growth opportunities. On the other hand, entities that specialise in infrastructure projects that contribute to GHG mitigation could develop competitive advantages as they continue to focus on these growing markets. As the industry and its customers continue to operate within an uncertain business environment and face increasing environmental and regulatory requirements, assessing and communicating the risks and opportunities stemming from climate change that are embedded in an entity's backlog and future business prospects may help investors in assessing the overall business impact of climate change.

Metrics

IF-EN-410b.1. Amount of backlog for (1) hydrocarbon-related projects and (2) renewable energy projects

1 The entity shall disclose the amount of its backlog associated with (1) hydrocarbon-related projects.

1.1 Backlog is defined as the value of projects not completed as of the close of the reporting period (revenue contractually expected in the future but that has not been recognised), or is defined by the entity, consistent with its existing disclosure of backlog. Backlog also may be referenced as revenue backlog or unsatisfied performance obligations.

1.2 Hydrocarbon-related projects are defined as any type of project directly associated with the hydrocarbon value chain, which may include: hydrocarbon exploration, extraction, development, production or transportation; hydrocarbon infrastructure services and maintenance; hydrocarbon power generation; and hydrocarbon-related downstream services.

1.2.1 Examples of hydrocarbon-related projects include any project directly associated with oil, gas or coal production, transportation, refining, and fossil fuel-based electricity generation.

2 If a significant portion of the entity's backlog in hydrocarbon-related projects is associated with natural gas power generation projects, the entity may provide supplementary disclosures describing this proportion of backlog and the sustainability impacts of such projects relative to alternatives or baseline scenarios.

3 The entity may provide a description of the sustainability implications of hydrocarbon-related projects, which may include project descriptions, categorisations by resource type, expected sustainability impacts, and risks related to project completion or conversion to revenue.

4 The entity shall disclose the amount of its backlog associated with (2) renewable energy projects.

4.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

5 The entity shall exclude from its calculations and disclosures of backlog any amount of an order backlog cancellation that re-enters order backlog during the same reporting period because of a project owner's successful re-planning of the project.

6 The scope of disclosure is limited to projects in which the entity provided engineering, architecture, design, construction, installation, planning, consulting, repair or maintenance services, or other similar services.

IF-EN-410b.2. Amount of backlog cancellations associated with hydrocarbon-related projects

1 The entity shall disclose the amount of its total backlog associated with hydrocarbon-related projects of any type cancelled during the reporting period for any reason.

1.1 Backlog is defined as the value of projects not completed as of the close of the reporting period (revenue contractually expected in the future but that has not been recognised), or is defined by the entity, consistent with its existing disclosure of backlog. Backlog also may be referenced as revenue backlog or unsatisfied performance obligations.

1.2 Backlog cancellations are defined as the amount of backlog cancelled, reduced, terminated or deferred such that it no longer meets the definition of backlog, or that which is removed from the backlog for any reason other than conversion to revenue or currency exchange rate fluctuations.

1.2.1 Backlog cancellations include cancellations that occur for any reason, which may include a customer's failure to obtain necessary project permitting or financing, a customer's voluntary project cancellation, and reduction in project scope because of financial constraints.

1.2.2 The scope of backlog cancellations excludes cancellations associated with decommissioning projects.

1.3 Hydrocarbon-related projects are defined as any type of project directly associated with the hydrocarbon value chain, which may include: hydrocarbon exploration, extraction, development, production or transportation; hydrocarbon infrastructure services and maintenance; hydrocarbon power generation; and hydrocarbon-related downstream services.

1.3.1 Examples of hydrocarbon-related projects include any project directly associated with oil, gas or coal production, transportation, refining, and fossil fuel-based electricity generation.

2 The scope of disclosure is limited to projects in which the entity provided engineering, architecture, design, construction, installation, planning, consulting, repair or maintenance services, or other similar services.

3 The entity may discuss specific backlog cancellations, including the root cause and corrective actions taken to prevent future backlog cancellations.

IF-EN-410b.3. Amount of backlog for non-energy projects associated with climate change mitigation

1 The entity shall disclose the amount of its backlog for non-energy projects associated with climate change mitigation.

1.1 Backlog is defined as the value of projects not completed as of the close of the reporting period (revenue contractually expected in the future but that has not been recognised), or is defined by the entity, consistent with its existing disclosure of backlog. Backlog also may be referenced as revenue backlog or unsatisfied performance obligations.

1.2 Non-energy projects are defined as projects not directly associated with the energy value chain, such that the energy value chain may include: hydrocarbon exploration, extraction, development, production and transportation; power generation projects (hydrocarbon and renewable); and energy infrastructure services and maintenance.

1.3 Climate change mitigation is defined by the Intergovernmental Panel on Climate Change (IPCC) as an anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases (GHG).

2 The scope of disclosure shall only include projects that are significantly motivated by, or undertaken in response to, climate change mitigation. Such climate change mitigation is not required to be the primary project motivation, but it shall be a significant motivating factor for project development and implementation.

2.1 Examples of projects that may be associated with climate change mitigation include: mass transportation systems; alternative, low-carbon transportation systems; carbon capture and storage; hydrocarbon-related decommissioning projects; and energy efficiency infrastructure retrocommissioning.

3 The scope of disclosure shall only include projects that provide significant climate change mitigation relative to a baseline scenario, or baseline emissions, defined as the GHG emissions that may occur without project implementation.

3.1 The entity may use jurisdictional or proprietary methodologies for assessing climate change mitigation relative to a baseline scenario or baseline emissions.

4 The scope of disclosure shall exclude all backlog directly associated with the energy value chain, which may be equivalent to backlog included in IF-EN-410b.1, except for hydrocarbon-related decommissioning projects.

5 The entity may exclude backlog associated with decommissioning projects.

6 The scope of disclosure is limited to buildings and infrastructure projects in which the entity provided engineering, architecture, design, construction, installation, planning, consulting, repair or maintenance services, or other similar services.

Volume 34—Gas Utilities & Distributors

Industry Description

The Gas Utilities & Distributors industry consists of gas distribution and marketing entities. Gas distribution involves operating local, low-pressure pipes to transfer natural gas from larger transmission pipes to end users. Gas marketing entities are gas brokers that aggregate and deliver natural gas in quantities that meet the needs of various customers, generally through other entities' transmission and distribution lines. A relatively smaller portion of this industry is involved in propane gas distribution; therefore, this standard is focused on natural gas distribution. Both types of gas are used for heating and cooking by residential, commercial and industrial customers. In regulated markets, the utility is granted a full monopoly over the distribution and sale of natural gas. A regulator must approve the rates utilities charge to prevent the abuse of their monopoly position. In deregulated markets, distribution and marketing are separated legally, and customers have a choice of which entity from which to buy their gas. In this case, a common carrier utility is guaranteed a monopoly only over distribution and is required legally to transmit all gas equitably along its pipes for a fixed fee. Overall, entities must provide safe, reliable, low-cost gas, while effectively managing their social and environmental impacts, such as community safety and methane emissions.

Note: The Gas Utilities & Distributors industry does not include gas transmission entities that transport high pressure natural gas over long distances from the wellhead. Gas transmission entities are included in the Oil & Gas—Midstream (EM-MD) industry. Furthermore, the Gas Utilities & Distributors industry covers activities related only to gas provision and not to electricity provision. Some utilities may operate in both gas and electricity markets. Entities undertaking activities related to electricity generation or distribution also should consider the topics and metrics in the Electric Utilities & Power Generators (IF-EU) industry.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
End-Use Efficiency	Customer gas savings from efficiency measures, by market [40]	Quantitative	Million British Thermal Units (MMBtu)	IF-GU-420a.2
Integrity of Gas Delivery Infrastructure	Number of (1) reportable pipeline incidents, (2) corrective actions received and (3) violations of pipeline safety statutes [41]	Quantitative	Number	IF-GU-540a.1
	Percentage of distribution pipeline that is (1) cast or wrought iron and (2) unprotected steel	Quantitative	Percentage (%) by length	IF-GU-540a.2
	Percentage of gas (1) transmission and (2) distribution pipelines inspected	Quantitative	Percentage (%) by length	IF-GU-540a.3
	Description of efforts to manage the integrity of gas delivery infrastructure, including risks related to safety and emissions	Discussion and Analysis	n/a	IF-GU-540a.4

[40] Note to **IF-GU-420a.2** – The entity shall discuss customer efficiency measures that are required by regulations for each of its relevant markets.

[41] Note to **IF-GU-540a.1** – The entity shall discuss notable incidents such as those that affected a significant number of customers, created extended disruptions to service, or resulted in serious injury or death.

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of: (1) residential, (2) commercial, and (3) industrial customers served [42]	Quantitative	Number	IF-GU-000.A
Amount of natural gas delivered to: (1) residential customers, (2) commercial customers, (3) industrial customers, and (4) transferred to a third party [43]	Quantitative	Million British Thermal Units (MMBtu)	IF-GU-000.B
Length of gas (1) transmission and (2) distribution pipelines [44]	Quantitative	Kilometres (km)	IF-GU-000.C

End-Use Efficiency

Topic Summary

Natural gas produces fewer greenhouse gas (GHG) emissions than other fossil fuels. Expanding its use in the economy may be an important strategy for many governments and regulators striving to reduce GHG emissions. However, despite the relatively lower emissions, the natural gas value chain still produces meaningful levels of GHG emissions overall. As policymakers and regulators seek to mitigate climate change, the efficient consumption of natural gas will be an important long-term theme. Energy efficiency is a low-lifecycle-cost method to reduce greenhouse gas (GHG) emissions. Utilities can offer customers a wide range of options to promote energy efficiency, including providing rebates for energy-efficient appliances, weatherising customers' homes and educating customers on energy saving methods. Overall, entities that sponsor efficiency initiatives may reduce the downside risks from demand fluctuations, gain returns on needed investments, decrease operating costs and earn higher risk-adjusted returns over the long term.

Metrics

IF-GU-420a.2. Customer gas savings from efficiency measures, by market

1 The entity shall disclose the total amount of gas savings delivered to customers, in million British thermal units (MMBtu), from energy efficiency measures during the reporting period for each of its markets.

1.1 Markets are defined as operations that are subject to distinct public utility regulatory oversight.

1.2 Gas savings are defined according to the gross savings approach as the changes in energy consumption or demand that result from programme-related actions taken by participants in an efficiency programme, regardless of why they participated.

1.2.1 The entity may list those markets where it reports gas savings on a net savings basis, and thus may be different from the figures disclosed here.

1.2.2 Net gas savings are defined as changes in consumption specifically attributable to an energy efficiency programme and would not have happened otherwise in the absence of the programme.

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[42] Note to **IF-GU-000.A** – The number of customers served for each category shall be considered as the number of meters billed for residential, commercial, and industrial customers.

[43] Note to **IF-GU-000.B** – The amount of natural gas delivered to residential, commercial, and industrial customers shall be disclosed by bundled gas and transportation service only.

[44] Note to **IF-GU-000.C** – Transmission pipeline is defined as a pipeline, other than a gathering line, that: transports gas from a gathering line or storage facility to a distribution centre, storage facility, or large volume customer that is not down-stream from a distribution centre; (2) operates at a hoop stress of 20 percent or more of SMYS; or (3) transports gas within a storage field. A distribution pipeline is defined as a pipeline other than a gathering or transmission line.

2 Gas savings shall be calculated on a gross basis but consistent with the methodology set forth in jurisdictional evaluation, measurement and verification (EM&V) regulations in which such savings occur.

3 The scope of gas savings from efficiency measures includes savings delivered directly by the entity and, when regulations provide, savings substantiated by purchases of efficiency savings credits.

3.1 For any savings from efficiency measures delivered directly by the entity, any efficiency savings credits shall be retained (not sold) and retired on behalf of the entity for the entity to claim them as delivered gas savings.

3.2 For efficiency savings credits that are purchased, the agreement shall explicitly include and convey that credits be retained and retired on behalf of the entity for the entity to claim them.

4 The entity shall consider guidance on regulations as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

Note to **IF-GU-420a.2**

1 The entity shall discuss customer efficiency measures required by regulations for each of its relevant markets, including a discussion of:

1.1 The amount or percentage of gas savings from efficiency measures required by regulations for each market

1.2 Instances of noncompliance with gas savings obligations

1.2.1 In such instances, the entity shall disclose the difference between the gas savings delivered and the amount required by the regulation.

1.3 Gas savings delivered that exceed those required by regulations and that resulted in the entity receiving energy efficiency performance incentives, including the value of any such incentives

2 The entity shall discuss the policy mechanisms in place for each market that allows for or incentivises energy efficiency, including a discussion of the benefits, challenges and financial effects associated with such mechanisms.

3 Relevant policy mechanisms to discuss may include:

3.1 Deferral decoupling

3.2 Current period decoupling

3.3 Single fixed variable rates

3.4 Lost revenue adjustments

3.5 Energy efficiency feebates

4 The entity may discuss incentives developed for its customers that promote end-use efficiency, which may include energy efficiency rebates and other measures to subsidise customer energy efficiency.

Integrity of Gas Delivery Infrastructure

Topic Summary

Operating a vast network of gas pipelines, equipment and storage facilities requires a multifaceted, long-term approach to ensuring infrastructure integrity and managing related risks. Although customers depend on reliable gas supplies, entities manage substantial risks—including those related to human health, property and greenhouse gas (GHG) emissions—that result from operating gas distribution networks and related infrastructure. Ageing infrastructure, inadequate monitoring and maintenance, and other operational factors may result in gas leaks. Gas leak safety-related risks, such as losses of containment, may result in fires or explosions that can be particularly dangerous in urban areas where entities often operate. Furthermore, gas leaks also result in fugitive emissions (methane), causing adverse environmental impacts. Regulated gas utilities generally incur no direct costs for gas leaks, because the cost of gas typically is passed on to customers (though this may vary by region). However, gas leaks that result in safety-related risks or fugitive emissions may affect entities financially through a variety of regulatory, legal and product demand channels. Accidents, particularly fatal accidents, may result in negligence claims against entities, leading to costly court battles and fines. GHG emissions may result in increased regulatory scrutiny—a critical element directly connected to financial performance, given the importance of regulatory relations—and potential fines and penalties. Importantly, regulated gas utilities can financially benefit from capital investment opportunities to improve performance and mitigate risks related to safety and emissions, which can be factored into their rate base. Entities manage such risks through pipeline replacements, regular inspections and monitoring, employee training and emergency preparedness, investments in technology, and other strategies such as working closely with regulators. In response to concerns about ageing infrastructure, many entities are seeking ways to expedite the replacement permitting and approval process, especially in cases where pipelines are located near densely populated areas.

Metrics

IF-GU-540a.1. Number of (1) reportable pipeline incidents, (2) corrective actions received and (3) violations of pipeline safety statutes

1 The entity shall disclose the number of reportable pipeline incidents, where:

1.1 Reportable incidents are defined as events that involve a release of gas from a pipeline and result in one or more of the following consequences: a death or personal injury necessitating in-patient hospitalisation; estimated property damage equivalent to US$50,000 or more or the equivalent in the entity's presentation currency, including losses to the operator, losses to others, or both, but excluding the cost of gas lost; an unintentional estimated gas loss of three million cubic feet or more; or an event that is significant in the judgement of the operator.

2 The entity shall disclose the number of violations of pipeline safety statutes where:

2.1 A corrective action is issued when a particular pipeline facility is found to be hazardous to life, property or the environment. A corrective action may include suspended or restricted use of the facility, physical inspection, testing, repair, replacement or other appropriate action.

2.2 If corrective actions are not issued by applicable jurisdictional legal or regulatory authorities, the entity shall disclose the number that contain a statement of the provisions of the laws, regulations, or orders the entity is alleged to have violated and a statement of the evidence upon which the allegations are based.

3 The entity shall disclose the number of violations of pipeline safety statutes where:

3.1 A violation of pipeline safety statute is defined as a violation of jurisdictional pipeline safety protocol considered to be hazardous to life, property or the environment and that results in the receipt of a notice or warning.

4 The entity shall disclose the applicable jurisdictional law or regulation used to define reportable pipeline incidents, corrective actions and pipeline safety violations.

Note to **IF-GU-540a.1**

1 The entity shall discuss notable incidents such as those that affected a significant number of customers, created extended disruptions to service or resulted in a 'serious incident'.

1.1 Serious incidents are defined as incidents that resulted in a fatality or an injury requiring in-patient hospitalisation.

2 For such incidents, the entity may provide:

2.1 A description and cause of the incident

2.2 The total population affected by the incident

2.3 The costs associated with the incident

2.4 Actions taken to mitigate the potential for future service interruptions

2.5 Any other significant outcomes (for example, legal proceedings, serious injuries or fatalities)

IF-GU-540a.2. Percentage of distribution pipeline that is (1) cast or wrought iron and (2) unprotected steel

1 The entity shall disclose the percentage, by length, in kilometres, of its natural gas pipelines that are (1) cast or wrought iron, and separately, (2) unprotected steel.

1.1 A distribution pipeline is defined as a pipeline other than a gathering or transmission line, where:

1.1.1 A gathering line is defined as a pipeline that transports gas from a production facility to a transmission line or main line

1.1.2 A transmission line is defined as a pipeline, other than a gathering line, that (1) transports gas from a gathering line or storage facility to a distribution centre, storage facility or large-volume customer that is not downstream from a distribution centre; (2) operates at a hoop stress of 20% or more of the specified minimum yield strength (SMYS); or (3) transports gas within a storage field

1.2 Cast or wrought iron is defined as iron heated to its melting point and poured into moulds and cannot be moulded further or screwed.

1.3 Unprotected steel is defined as steel without corrosion protection.

2 The percentage of (1) cast or wrought iron distribution pipelines shall be calculated as the total length of cast or wrought iron pipelines the entity owns or operates divided by the total length of distribution pipelines the entity owns or operates.

3 The percentage of (2) unprotected steel distribution pipelines shall be calculated as the total length of unprotected steel pipelines the entity owns or operates divided by the total length of distribution pipelines the entity owns or operates.

4 The entity may discuss its pipeline replacement rates, its use of polyethylene pipes, or other efforts to reduce fugitive emissions and leaks and improve the safety of its distribution pipelines.

IF-GU-540a.3. Percentage of gas (1) transmission and (2) distribution pipelines inspected

1 The entity shall disclose the percentage, by length, of gas (1) transmission pipelines, and separately, (2) distribution pipelines inspected during the reporting period.

1.1 A transmission pipeline is defined as a pipeline, other than a gathering line, that (1) transports gas from a gathering line or storage facility to a distribution centre, storage facility or large-volume customer that is not downstream from a distribution centre; (2) operates at a hoop stress of 20% or more of the specified minimum yield strength (SMYS); or (3) transports gas within a storage field.

1.2 A distribution pipeline is defined as a pipeline other than a gathering or transmission line.

2 Inspection activities include:

2.1 Internal inspection tool(s) capable of detecting corrosion and any other threats to which the covered segment is susceptible

2.2 Pressure test(s)

2.3 Direct assessment to address threats of external corrosion, internal corrosion or stress corrosion cracking

2.4 Other technology that an operator demonstrates can provide an equivalent understanding of pipeline condition

2.4.1 If other technologies were used by the entity to conduct inspections, the entity shall disclose which technology was used.

3 The percentage is calculated as the length of gas pipelines inspected divided by the total length of gas pipelines.

IF-GU-540a.4. Description of efforts to manage the integrity of gas delivery infrastructure, including risks related to safety and emissions

1 The entity shall describe its efforts to manage the integrity of gas delivery infrastructure.

1.1 Gas delivery infrastructure may include transmission pipelines, distribution pipelines, storage facilities, compressor stations, metering and regulation stations, and liquid natural gas facilities.

1.2 Efforts may include those related to employee training, emergency preparedness, process safety and asset integrity management.

1.3 Relevant information to provide may include the use of standards, industry best practices, benchmarking and participation in third-party initiatives.

2 The entity shall describe how it integrates a culture of safety and emergency preparedness throughout its project lifecycles, such as through training, oversight of workforce, rules and guidelines for communicating risks, and use of technology.

2.1 The project lifecycle includes, at a minimum, pipeline design, construction, commissioning, operation, maintenance and decommissioning.

3 The entity shall describe its approach to ensuring pipeline operators are qualified or supervised when performing a covered task, including ongoing reviews of operator qualifications, assurance that unqualified workers are properly supervised, and efforts to maintain enough qualified pipeline operators, where:

3.1 Pipeline operators are defined as those people who engage in the transportation of gas.

3.2 A pipeline operator is considered qualified to perform covered tasks when the individual has been evaluated, can perform the assigned covered task, and can recognise and react to abnormal operating conditions.

3.2.1 A covered task is defined as an activity, identified by the operator, that is performed on a pipeline facility, is an operations or maintenance task, is performed as a requirement of maintaining regulatory compliance, and affects the operation or integrity of a pipeline.

4 The entity shall describe its efforts to mitigate risks and promote emergency preparedness, such as coordinating with third parties (for example, sewer line and buried power line developers), performing timely pipeline inspections, repairing ageing infrastructure and maintaining current pipeline operator certifications.

5 The entity shall describe its efforts to manage risks related to human health and safety, and emissions, including fugitive emissions and process emissions, that arise from the integrity of gas delivery infrastructure.

5.1 Fugitive emissions are defined as natural gas (primarily methane) emissions resulting from leaks or other types of unintended or irregular releases.

5.2 Process emissions are defined as natural gas emissions resulting from intentional releases.

5.3 Disclosure shall include relevant strategies, plans or targets related to reductions in fugitive emissions and process emissions, the entity’s ability to measure such emissions, the activities and investments required to achieve the plans, and any risks or limiting factors that might affect achievement of the plans or targets.

6 Disclosure may focus broadly on safety and emergency management systems, but it specifically shall address operations in high consequence areas and the systems to avoid and manage emergencies, accidents and incidents that could have catastrophic impacts on human health, the local community and the environment.

7 The entity shall discuss direct or indirect financial opportunities related to the integrity of gas delivery infrastructure, which may include improvements to stakeholder relations, opportunities for capital investments, reduction in customer rates through improved operational efficiency, and reduced risks of regulatory or civil fines or settlements.

8 The entity may disclose the following:

8.1 Pipeline replacement rates

8.2 Average response time for gas emergencies

8.3 Open Grade 2 and 2+ leaks

8.4 Fugitive emissions, including the technique(s) employed to measure leakage, the amount of leakage calculated according to each technique it employs, and the regulations to which its gas leakage is subject.

8.5 Process emissions

8.6 Other efforts designed to reduce emissions or improve the safety of its gas delivery infrastructure

Volume 35—Home Builders

Industry Description

Home Builders industry entities build new homes and develop residential communities. Development efforts generally include land acquisition, site preparation, home construction and home sales. The majority of the industry focuses on the development and sale of single-family homes, which are typically part of entity-designed residential communities. A smaller segment develops town homes, condominiums, multi-family housing and mixed-use development. Many entities in the industry offer financing services to individual homebuyers. The industry is fragmented, since many developers of all sizes exist, which vary in entity structure and geographical focus. Listed entities tend to be significantly larger and more integrated than the numerous privately held home builders.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Land Use & Ecological Impacts	Number of (1) lots and (2) homes delivered on redevelopment sites	Quantitative	Number	IF-HB-160a.1
	Number of (1) lots and (2) homes delivered in regions with High or Extremely High Baseline Water Stress	Quantitative	Number	IF-HB-160a.2
	Total amount of monetary losses as a result of legal proceedings associated with environmental regulations [45]	Quantitative	Presentation currency	IF-HB-160a.3
	Discussion of process to integrate environmental considerations into site selection, site design and site development and construction	Discussion and Analysis	n/a	IF-HB-160a.4
Design for Resource Efficiency	(1) Number of homes that obtained a certified residential energy efficiency rating and (2) average rating	Quantitative	Number, Rating	IF-HB-410a.1
	Percentage of installed water fixtures certified to a water efficiency standard	Quantitative	Percentage (%)	IF-HB-410a.2
	Number of homes delivered certified to a third-party multi-attribute green building standard	Quantitative	Number	IF-HB-410a.3
	Description of risks and opportunities related to incorporating resource efficiency into home design, and how benefits are communicated to customers	Discussion and Analysis	n/a	IF-HB-410a.4

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45 Note to **IF-HB-160a.3** – The entity shall briefly describe the nature, context, and any corrective actions taken as a result of the monetary losses.

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TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Climate Change Adaptation	Number of lots located in 100-year flood zones	Quantitative	Number	IF-HB-420a.1
	Description of climate change risk exposure analysis, degree of systematic portfolio exposure, and strategies for mitigating risks	Discussion and Analysis	n/a	IF-HB-420a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of controlled lots [46]	Quantitative	Number	IF-HB-000.A
Number of homes delivered [47]	Quantitative	Number	IF-HB-000.B
Number of active selling communities [48]	Quantitative	Number	IF-HB-000.C

Land Use & Ecological Impacts

Topic Summary

Home builders face risks associated with the ecological impacts of development activities. Developments often take place on previously undeveloped land, and entities must manage the ecosystem disruption of construction activities as well as the regulations and permitting processes that accompany 'greenfield' land development. Regardless of the siting decisions entities make, industry development activities generally carry risks related to land and water contamination, mismanagement of waste, and excessive strain on water resources during the construction and use phases. Violation of environmental regulations can result in costly fines and delays that decrease financial returns while potentially harming brand value. Entities with repeated violations or a history of negative ecological impacts may find seeking permits and approvals from local communities for new developments difficult, thereby decreasing future revenue and market share. Entities that concentrate development efforts in water-stressed regions may witness challenges to permitting approvals and increased land or home value depreciation because of water shortage concerns. Environmental quality control procedures, 'smart growth' strategies (including a focus on redevelopment sites) and conservation strategies may help ensure compliance with environmental laws, and therefore mitigate financial risks, while improving future growth opportunities.

Metrics

IF-HB-160a.1. Number of (1) lots and (2) homes delivered on redevelopment sites

1 The entity shall (1) disclose the number of controlled lots that are located on redevelopment sites.

[46] Note to **IF-HB-000.A** – The scope of controlled lots includes all lots owned or contractually available for ownership through option contracts or other equivalent types of contracts as of the last day of the reporting period.

[47] Note to **IF-HB-000.B** – The scope of homes shall include single-family dwelling units whether detached, attached, or part of multi-family residential buildings.

[48] Note to **IF-HB-000.C** – The scope of active selling communities includes those communities or developments open for sales with at least five homes or lots remaining to sell as of the last day of the reporting period.

1.1 The scope of controlled lots includes all lots owned or contractually available for ownership through option contracts or other equivalent types of contracts.

1.2 The scope of redevelopment sites shall include brownfield and greyfield sites, and shall include sites that meet jurisdictional designations for such terms. In the absence of jurisdictional definitions, the following definitions shall be used:

1.2.1 Redevelopment sites are defined as sites previously developed, including the replacement, remodelling or reuse of existing structures to accommodate new development.

1.2.2 Brownfield sites are defined as real property, the expansion, redevelopment or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant or contaminant.

1.2.3 Greyfield sites are defined as any site previously developed with at least 50% of the surface area covered with impervious material.

1.3 The scope of redevelopment sites excludes undeveloped infill sites but includes infill sites to the extent that such sites meet the above definitions of redevelopment, brownfield or greyfield sites.

2 The entity shall disclose (2) the number of homes delivered that were constructed on redevelopment sites.

2.1 The scope of homes shall include single-family dwelling units, whether detached, attached or part of multi-family residential buildings.

IF-HB-160a.2. Number of (1) lots and (2) homes delivered in regions with High or Extremely High Baseline Water Stress

1 The entity shall (1) disclose the number of controlled lots located in regions with High or Extremely High Baseline Water Stress.

1.1 The scope of controlled lots includes all lots owned or contractually available for ownership through option contracts or other equivalent types of contracts.

1.2 The entity shall identify controlled lots in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress with the World Resources Institute’s (WRI) Water Risk Atlas tool, Aqueduct.

2 The entity shall disclose (2) the number of homes delivered in regions with High or Extremely High Baseline Water Stress.

2.1 The scope of homes shall include single-family dwelling units whether detached, attached or part of multi-family residential buildings.

IF-HB-160a.3. Total amount of monetary losses as a result of legal proceedings associated with environmental regulations

1 The entity shall disclose the total amount of monetary losses incurred during the reporting period resulting from legal proceedings associated with environmental regulations, such as those related to: enforcement of laws and regulations on ground- and surface-water contamination; hazardous waste transport, containment or disposal; air emissions; and public disclosure of contamination events.

2 The legal proceedings shall include any adjudicative proceeding involving the entity, whether before a court, a regulator, an arbitrator or otherwise.

3 The losses shall include all monetary liabilities to the opposing party or to others (whether as the result of settlement or verdict after trial or otherwise), including fines and other monetary liabilities incurred during the reporting period as a result of civil actions (for example, civil judgment or settlements), regulatory proceedings (for example, penalties, disgorgement or restitution) and criminal actions (for example, criminal judgement, penalties or restitution) brought by any entity (for example, governmental, business or individual).

4 The scope of monetary losses shall exclude legal and other fees and expenses incurred by the entity in its defence.

5 The scope of disclosure shall include relevant enforcements related to activities adjudicated by applicable jurisdictional legal or regulatory authorities with an enforcement mandate broader than the home builders industry.

Note to **IF-HB-160a.3**

1 The entity shall briefly describe the nature (for example, judgement or order issued after trial, settlement, guilty plea, deferred prosecution agreement, non-prosecution agreement) and context (for example, permitting violation) of all monetary losses resulting from legal proceedings.

2 The entity shall describe any corrective actions implemented in response to the legal proceedings. This may include specific changes in operations, processes, products, business partners, training or technology.

IF-HB-160a.4. Discussion of process to integrate environmental considerations into site selection, site design and site development and construction

1 The entity shall provide a discussion of the process used to integrate environmental considerations into site selection, design and development and construction.

1.1 Environmental considerations may include ecological impacts, biodiversity impacts, emissions to air, discharges to water, slope disturbance, soil disturbance and erosion, storm water management, waste management, natural resource consumption and hazardous chemical usage.

2 The entity shall describe how it manages the following aspects of site selection:

2.1 The process used to assess the level of ecological sensitivity of sites under consideration for acquisition or development, and how such assessments are incorporated into acquisition and development decisions.

2.2 The use of site classifications (for example, greenfield, greyfield, brownfield or infill sites) in decision-making processes.

3 The entity shall describe how it manages the following aspects of site design:

3.1 The process used to design sites to minimise ecological impacts, including management of slope disturbance, soil disturbance and erosion, storm water, waste and wildlife habitat impacts.

4 The entity shall describe how it manages the following aspects of site development and construction:

4.1 The process used to minimise ecological impacts during construction, including management of construction and demolition waste, runoff, soil disturbance and erosion and hazardous materials.

5 The entity shall describe how it assesses risks associated with environmental considerations and related internal policies, practices and procedures for managing those risks.

6 The entity shall describe its use of codes, guidelines and standards that address site selection, design and development and construction, if applicable.

Design for Resource Efficiency

Topic Summary

Residential buildings, when occupied, consume significant amounts of energy and water. Entities in the Home Builders industry can improve home resource efficiency through sustainable design practices and choice of materials. Energy-saving products and techniques such as designing homes for efficient heating and cooling may reduce energy dependence, whether it comes from the electric grid or onsite fuel combustion. Intended to improve home resource efficiency, these measures may decrease home ownership costs through lower utility bills. Water-saving features such as low-flow faucets alleviate stress in water-scarce communities, while likely also reducing homeowner costs. Homebuyer awareness of energy and water efficiency creates an opportunity for entities to increase target market demand, thereby increasing revenue or margins. Effectively applying resource efficiency design principles in a cost-effective manner may be a competitive advantage, especially when entities are successful in systematically educating customers on the long-term benefits of these homes.

Metrics

IF-HB-410a.1. (1) Number of homes that obtained a certified residential energy efficiency rating and (2) average rating

1 The entity shall disclose (1) the number of homes that obtained a certified, standardised residential energy efficiency rating recognised by relevant industry associations or jurisdictional legal or regulatory authorities during the reporting period.

1.1 The scope of homes shall include single-family dwelling units, whether detached, attached or part of multi-family residential buildings.

1.2 The entity shall disclose the energy efficiency rating system used to calculate this metric.

2 The entity shall (2) disclose the simple average rating of all homes that obtained a certified, standardised residential energy efficiency rating during the reporting period.

2.1 The simple average shall be calculated as the sum of all ratings associated with homes that obtained a rating during the reporting period divided by the number of homes that obtained a rating during the reporting period.

3 An entity operating in multiple jurisdictions shall disclose separately the number of homes and the average ratings by individual jurisdiction in which they operate.

4 The scope of disclosure includes all homes that are or were controlled by the entity, regardless of the stage of construction and the stage within the sales cycle.

IF-HB-410a.2. Percentage of installed water fixtures certified to a water efficiency standard

1 The entity shall disclose the percentage of installed water fixtures certified to the jurisdictional water efficiency standard.

1.1 A water fixture is defined as a device used for the distribution of water or a device that consumes water.

1.2 The percentage shall be calculated as the number of water fixtures installed during the reporting period that were certified to the applicable jurisdictional water efficiency standard divided by the total number of water fixtures installed.

1.2.1 The scope of water fixtures includes those that are within an eligible jurisdictional water efficiency standard product category. Examples of product categories may include bathroom sink faucets and accessories, showerheads, toilets, urinals, irrigation controllers and pre-rinse spray valves.

2 The scope of disclosure includes all water fixtures installed in homes that are or were controlled by the entity, regardless of the stage of construction, the stage within the sales cycle or the entity that performed such installations.

3 The entity shall disclose the jurisdictional standard, guideline or regulation used for its calculation.

IF-HB-410a.3. Number of homes delivered certified to a third-party multi-attribute green building standard

1 The entity shall disclose the number of homes delivered certified to a third-party multi-attribute green building standard designed for homes.

1.1 The scope of third-party multi-attribute green building standards is limited to home standards or certifications that, at a minimum, judge important aspects of new home design and construction:

1.1.1 Energy efficiency

1.1.2 Water conservation

1.1.3 Material and resource efficiency

1.1.4 Indoor environmental quality

1.1.5 Owner education

1.2 Examples of third-party multi-attribute green building standards include:

1.2.1 Environments For Living Certified Green®

1.2.2 ICC 700 National Green Building Standard

1.2.3 LEED® for Homes.

2 The entity shall disclose the third-party multi-attribute green building standard(s) to which its homes are certified.

3 The scope of disclosure includes all homes delivered during the reporting period.

4 The entity may discuss other green building or sustainability standards or guidelines it implements in its home design and construction processes that are not third-party verified.

IF-HB-410a.4. Description of risks and opportunities related to incorporating resource efficiency into home design, and how benefits are communicated to customers

1 The entity shall describe the risks or opportunities associated with its approach to integrating environmental considerations into home design, including, where relevant:

1.1 Risks of failing to achieve adequate returns on technology investments and sufficient market demand to improve home sustainability performance or earn sustainability certifications

1.2 Risks to market demand associated with the entity's potential failure to advance its design approach at the same pace as its peers, resulting in the production of less sustainable and less energy- and water-efficient homes

1.3 Risks associated with cost-effectively building homes that meet evolving building codes

1.4 Opportunities to achieve sales price premiums, capture target market demand and create competitive advantages by producing homes with market-leading energy efficiency and water efficiency

2 The entity shall discuss its strategy to measure and communicate energy efficiency and water efficiency performance improvements to homes, including:

2.1 Measurement of homeowner benefits related to energy and water efficiency, including performance audits, certifications, standards, guidelines and use of projected energy and water costs and savings relative to a baseline

2.2 Communication of the benefits of resource efficiency to prospective home buyers, including the benefits of resource efficiency performance and certifications, projected energy and water costs and savings, and the integration of resource efficiency into sales and marketing

3 The entity may provide an analysis of such price increases relative to the cost of improvements in, and third-party certifications of, energy efficiency, water efficiency and indoor environmental quality. Analysis additionally may include target return rates compared to realised return rates of improvements.

Climate Change Adaptation

Topic Summary

The impacts of climate change, including extreme weather events and changing climate patterns, may affect the markets entities select to develop homes and residential communities. Entities with business models that incorporate ongoing assessments of climate change risks, and adapt to such risks, are likely to grow entity value more effectively over the long term, partially through reductions in risk. More specifically, strategies focused on home development activities in floodplains and coastal regions exposed to extreme weather events, such as flooding, have increased the need to adapt to climate change, especially considering long-term challenges like flood insurance rates, the financial stability of government-subsidised flood insurance programs, permitting approvals and financing stipulations. Rising climate risks may translate into reduced long-term demand, land value depreciation and concerns over understated long-term costs of home ownership. Additionally, entities that build developments in water-stressed regions risk losing land value and may have problems getting permitting approvals. The active assessment of climate change risks and a holistic view of long-term homebuyer demand may enable entities to successfully adapt to such risks.

Metrics

IF-HB-420a.1. Number of lots located in 100-year flood zones

1 The entity shall disclose the number of controlled lots in 100-year flood zones.

1.1 100-year flood zones are defined as land areas subject to a 1% or greater chance of flooding in any given year. Such areas also may be referenced as being subject to the 1% annual chance flood, the 1% annual exceedance probability flood, or the 100-year flood.

1.1.1 Examples of 100-year flood zones may include coastal flood plains, flood plains along major rivers and areas subject to flooding from ponding in low-lying areas.

1.2 The scope of controlled lots includes all lots owned or contractually available for ownership through option contracts or other equivalent types of contracts.

2 The scope of disclosure shall include all entity-controlled lots located in 100-year flood zones, regardless of the jurisdiction in which they are located.

3 The entity may disclose its risks, opportunities and potential impacts resulting from reclassifications of 100-year flood zones, including the risk of expansion of such areas into lots controlled by the entity or its active selling communities.

IF-HB-420a.2. Description of climate change risk exposure analysis, degree of systematic portfolio exposure, and strategies for mitigating risks

1 The entity shall describe the significant risks and opportunities presented to its business by climate change scenarios.

1.1 The entity shall identify each significant risk and opportunity.

1.1.1 Risks and opportunities may include water availability, extreme weather events, evolving regulation and legislation, home permitting processes, time lines and approvals and impacts to local economies and infrastructure.

1.2 The entity shall discuss the time line over which such risks and opportunities are expected to manifest.

1.3 The entity shall disclose the climate change scenarios used to determine the risks and opportunities presented by climate change, where scenarios may include the New Policies Scenario, Sustainable Development Scenario, and Current Policies Scenario, as established by the International Energy Agency in its annual World Energy Outlook.

2 The entity shall describe how it assesses and monitors climate change impacts and related strategies to alleviate or adapt to any risks or use any opportunities, where:

2.1 Alleviation strategies may include: site selection and the incorporation of climate or weather models into such analysis; site selection as it pertains to water scarcity; the strategy and timing of lot acquisitions, permitting, construction and sales; the use of sales and purchase agreement clauses addressing risks to the entity; and insurance.

2.2 Adaptation strategies may include: lot design; home design for physical resiliency; contingency plans; and maximising energy and water efficiency of homes.

3 The entity shall discuss its strategies related to the use of physical measures to manage climate change risk (for example, floodplain avoidance or home design for physical resiliency) or financial mechanisms to manage these risks (for example, the use of insurance or option contracts on lots).

Volume 36—Real Estate

Industry Description

Real Estate industry entities own, develop and operate income-producing real estate assets. Entities in this industry commonly are structured as real estate investment trusts (REITs) and operate in a wide range of real estate industry segments, including residential, retail, office, health care, industrial and hotel properties. REITs typically participate in direct real estate asset ownership, thereby providing investors with the opportunity to obtain real estate exposure without direct asset ownership and management. Although REITs often concentrate on individual Real Estate industry segments, many REITs diversify investments across multiple property types.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management	Energy consumption data coverage as a percentage of total floor area, by property sector	Quantitative	Percentage (%) by floor area	IF-RE-130a.1
	(1) Total energy consumed by portfolio area with data coverage, (2) percentage grid electricity and (3) percentage renewable, by property sector	Quantitative	Gigajoules (GJ), Percentage (%)	IF-RE-130a.2
	Like-for-like percentage change in energy consumption for the portfolio area with data coverage, by property sector	Quantitative	Percentage (%)	IF-RE-130a.3
	Percentage of eligible portfolio that (1) has an energy rating and (2) is certified to ENERGY STAR, by property sector	Quantitative	Percentage (%) by floor area	IF-RE-130a.4
	Description of how building energy management considerations are integrated into property investment analysis and operational strategy	Discussion and Analysis	n/a	IF-RE-130a.5

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TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Water Management	Water withdrawal data coverage as a percentage of (1) total floor area and (2) floor area in regions with High or Extremely High Baseline Water Stress, by property sector	Quantitative	Percentage (%) by floor area	IF-RE-140a.1
	(1) Total water withdrawn by portfolio area with data coverage and (2) percentage in regions with High or Extremely High Baseline Water Stress, by property sector	Quantitative	Thousand cubic metres (m^3), Percentage (%)	IF-RE-140a.2
	Like-for-like percentage change in water withdrawn for portfolio area with data coverage, by property sector	Quantitative	Percentage (%)	IF-RE-140a.3
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	IF-RE-140a.4
Management of Tenant Sustainability Impacts	(1) Percentage of new leases that contain a cost recovery clause for resource efficiency-related capital improvements and (2) associated leased floor area, by property sector	Quantitative	Percentage (%) by floor area, Square metres (m^2)	IF-RE-410a.1
	Percentage of tenants that are separately metered or submetered for (1) grid electricity consumption and (2) water withdrawals, by property sector	Quantitative	Percentage (%) by floor area	IF-RE-410a.2
	Discussion of approach to measuring, incentivising and improving sustainability impacts of tenants	Discussion and Analysis	n/a	IF-RE-410a.3
Climate Change Adaptation	Area of properties located in 100-year flood zones, by property sector	Quantitative	Square metres (m^2)	IF-RE-450a.1
	Description of climate change risk exposure analysis, degree of systematic portfolio exposure, and strategies for mitigating risks	Discussion and Analysis	n/a	IF-RE-450a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of assets, by property sector [49]	Quantitative	Number	IF-RE-000.A
Leasable floor area, by property sector [50]	Quantitative	Square metres (m^2)	IF-RE-000.B
Percentage of indirectly managed assets, by property sector [51]	Quantitative	Percentage (%) by floor area	IF-RE-000.C
Average occupancy rate, by property sector [52]	Quantitative	Percentage (%)	IF-RE-000.D

Energy Management

Topic Summary

Real estate assets consume significant amounts of energy for space heating, ventilating, air conditioning, water heating, lighting and using equipment and appliances. The type and magnitude of energy used and strategies for energy management are dependent upon the real estate asset class, among other factors. Generally, grid electricity is the predominant form of consumed energy, though on-site fuel combustion and renewable energy production also serve important roles. Energy costs may be borne by entities or property occupants; either way, energy management is a significant industry issue. To the extent that the real estate owner assumes direct responsibility for energy costs, such costs often represent significant operating costs, indicating the importance of energy management. Energy pricing volatility and a general trend of electricity price increases, energy-related regulations, potentially wide variations in energy performance in existing building stock, and opportunities for efficiency improvements through economically attractive capital investments all show the importance of energy management. Energy costs assumed by occupants, either in whole or in part, are nonetheless likely to affect entities through various channels. Building energy performance is a notable driver of tenant demand, because it allows them to control operating costs, mitigate potential environmental impacts, and, often just as importantly, maintain a reputation for resource conservation. Additionally, real estate owners may be exposed to energy-related regulations even if energy costs are the occupants' responsibility. Overall, entities that effectively manage asset energy performance may realise reduced operating costs and regulatory risks, as well as increased tenant demand, rental rates and occupancy rates—all of which drive revenue and asset value appreciation. Improving energy performance is dependent upon property type and location, target tenant market, local building codes, physical and legal opportunities to deploy distributed renewable energy, the ability to measure consumption, and existing building stock, among other factors.

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49 Note to **IF-RE-000.A** – Number of assets shall include the number of distinct real estate property or building assets and is aligned with the 2018 GRESB Real Estate Assessment Reference Guide. Number of assets shall be disclosed separately for each portion of the entity's portfolio where properties are classified into sectors that are aligned with the FTSE Nareit Classification Structure. The total number of assets reported across all sectors can exceed the actual number of assets due to the fact that mixed-use assets can be reported in multiple sectors.

50 Note to **IF-RE-000.B** – Leasable floor area shall be disclosed separately for each portion of the entity's portfolio where properties are classified into sectors that are aligned with the FTSE Nareit Classification Structure. Number of units may be used in place of floor area in the Apartments and Lodging/Resorts property sectors when floor area is not available.

51 Note to **IF-RE-000.C** –The definition of "indirectly managed assets" is solely based on the landlord/tenant relationship and is aligned with the 2018 GRESB Real Estate Assessment Reference Guide: "Where a single tenant has the sole authority to introduce and implement operating and/or environmental policies and measures, the tenant should be assumed to have operational control, so [the asset] should be considered to be an Indirectly Managed Asset." Percentage of indirectly managed assets shall be disclosed separately for each portion of the entity's portfolio where properties are classified into sectors that are aligned with the FTSE Nareit Classification Structure.

52 Note to **IF-RE-000.D** – Average occupancy rate shall be disclosed separately for each portion of the entity's portfolio where properties are classified into sectors that are aligned with the FTSE Nareit Classification Structure.

Metrics

IF-RE-130a.1. Energy consumption data coverage as a percentage of total floor area, by property sector

1 The entity shall disclose the percentage of its portfolio, based on total gross floor area, with complete energy consumption data coverage.

1.1 Gross floor area is defined as the total property area in square metres, measured between the principal exterior surfaces of the enclosing fixed walls of the building(s).

1.1.1 Leasable floor area may be used in place of gross floor area if gross floor area is not available for the relevant area of the portfolio (for example, a building with an unknown gross floor but a known leasable floor area).

1.1.2 Number of units may be used in place of floor area in the Apartments and Lodging/Resorts property sectors.

1.2 Floor area is considered to have complete energy consumption data coverage when the entity obtains energy consumption data (for example, energy types and amounts consumed) for all types of energy consumed in the relevant floor area during the reporting period, regardless of when such data was obtained.

1.2.1 If such data is unavailable for one or more types of energy consumed, the relevant floor area shall be considered to have incomplete energy consumption data coverage.

1.3 The percentage shall be calculated as the portfolio gross floor area with complete energy consumption data coverage divided by the total portfolio gross floor area for which energy is used.

1.4 The scope of energy consumption includes energy from all sources, including energy purchased from sources external to the entity and its tenants, and energy produced by the entity or its tenants (self-generated). For example, direct fuel use, purchased electricity and heating, cooling and steam energy are all included within the scope of energy consumption.

2 The entity shall disclose energy consumption data coverage separately for each property type in its portfolio, where properties are classified into sectors aligned with the FTSE EPRA Nareit Global Real Estate Index property sector classification system.

3 The entity may discuss the data coverage comprehensiveness if there are coverage variations by energy type. For example, if a portion of floor area consumes electricity and natural gas and the entity has energy consumption data coverage for electricity but not natural gas, the entity has incomplete energy consumption data coverage. However, the entity may disclose the portion of total portfolio gross floor area that has partial energy consumption data coverage.

4 The entity may describe energy consumption data coverage variations, including the factors that influence them.

4.1 Variations in energy consumption data coverage may occur based on distinctions which may include:

4.1.1 Base Building, Tenant Space and Whole Building

4.1.2 Energy Purchased by the Landlord and energy Purchased by Tenants

4.1.3 Managed Assets and Indirectly Managed Assets

4.1.4 Geographical markets

4.2 Relevant factors that influence energy consumption data coverage may include:

4.2.1 Geographical markets and the applicable enabling or inhibiting laws, regulations and policies within such markets, including utilities policies

4.2.2 Administrative or logistical barriers to obtaining energy consumption data (for example, lack of integration of utilities' data reporting systems)

4.2.3 Tenant demands around privacy or the proprietary nature of energy consumption data

4.2.4 Property sectors or other more nuanced classifications of property types

4.2.5 Lease structures, including the length of leases, access to energy consumption data by the entity, and the entity's ability to influence energy management performance of Tenant Spaces

4.2.6 The entity’s belief that obtaining Tenant Space energy consumption data may negatively impact tenant demand

5 The following terms are defined according to the 2018 GRESB Real Estate Assessment Reference Guide:

5.1 Base Building is defined as the energy consumed in supplying central building services to lettable/leasable areas and common areas.

5.2 Tenant Space is defined as the lettable floor area (both vacant and let/leased areas) that is, or can be, occupied by tenants.

5.3 Whole Building is defined as the energy used by tenants and Base Building services to lettable/leasable and common spaces. This should include all energy supplied to the building for the operation of the building and the tenant space.

5.4 Purchased by Landlord is defined as the energy purchased by the landlord but consumed by the tenant. This can include energy purchased by the landlord but used for vacant space.

5.5 Purchased by Tenant is defined as the energy purchased by the tenant. Typically, this is data outside the entity's immediate control.

5.6 Managed Assets and Indirectly Managed Assets are defined as follows: ‘This definition of Managed assets and the definition of Indirectly Managed assets are solely based on the landlord/tenant relationship. [Managed and Indirectly Managed Assets are] assets or buildings for which the landlord is determined to have ‘operational control’, where operational control is defined as having the ability to introduce and implement operating and/or environmental policies and measures. In case both the landlord and tenant have the authority to introduce and implement any or all the policies mentioned above, the asset or building should be reported as a Managed asset. Where a single tenant has the sole authority to introduce and implement operating and/or environmental policies and measures, the tenant should be assumed to have operational control, so it should be considered to be an Indirectly Managed asset.’

6 The entity shall consider the 2018 GRESB Real Estate Assessment Reference Guide as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

IF-RE-130a.2. (1) Total energy consumed by portfolio area with data coverage, (2) percentage grid electricity and (3) percentage renewable, by property sector

1 The entity shall disclose (1) total energy consumption by the portfolio area for which energy consumption data coverage is available as an aggregate figure, in gigajoules (GJ) or their multiples, where:

1.1 The scope of disclosure includes all property area in the entity’s portfolio for which energy consumption data coverage is available, regardless of whether the Tenant Space or Base Building consumes the energy (including outdoor, exterior and parking areas) and which party pays for energy expenses.

1.2 The scope of disclosure excludes the portion of energy consumed by the portfolio area for which energy consumption data is unavailable.

1.2.1 If energy consumption data is unavailable for Tenant Space or Whole Building for a property but is available for the Base Building, then the entity shall disclose this energy consumption data.

1.3 The scope of energy consumption includes energy from all sources, including energy purchased from sources external to the entity and its tenants, and energy produced by the entity or its tenants (self-generated). For example, direct fuel use, purchased electricity, and heating, cooling and steam energy all are included within the scope of energy consumption.

1.4 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are directly measured or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumed divided by total energy consumed.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier program, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs must be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement must explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to: materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification, or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data, including electricity from solar or wind energy).

5 Energy consumption data shall be disclosed by (a) Base Building and (b) Tenant Space, or (c) Whole Building, or a combination of these.

6 The entity shall disclose (1) total energy consumption, (2) percentage grid electricity, and (3) percentage renewable energy, separately for each property type in its portfolio where properties are classified into sectors aligned with the FTSE EPRA Nareit Global Real Estate Index property sector classification system.

7 The entity may describe the variations in energy consumption.

7.1 Variations in energy consumption data coverage may occur based on distinctions which may include:

7.1.1 Base Building, Tenant Space and Whole Building

7.1.2 Energy Purchased by the Landlord and energy Purchased by Tenants

7.1.3 Managed Assets and Indirectly Managed Assets

7.1.4 Geographical markets

8 The following terms are defined according to the 2018 GRESB Real Estate Assessment Reference Guide:

8.1 Base Building is defined as the energy consumed in supplying central building services to lettable/leasable areas and common areas.

8.2 Tenant Space is defined as the lettable floor area (both vacant and let/leased areas) that is, or can be, occupied by tenants.

8.3 Whole Building is defined as the energy used by tenants and Base Building services to lettable/leasable and common spaces. This should include all energy supplied to the building for the operation of the building and the tenant space.

8.4 Purchased by Landlord is defined as the energy purchased by the landlord but consumed by the tenant. This can include energy purchased by the landlord but used for vacant space.

8.5 Purchased by Tenant is defined as the energy purchased by the tenant. Typically, this is data outside the entity's immediate control.

8.6 Managed Assets and Indirectly Managed Assets are defined as follows: 'This definition of Managed assets and the definition of Indirectly Managed assets are solely based on the landlord/tenant relationship. [Managed and Indirectly Managed Assets are] assets or buildings for which the landlord is determined to have 'operational control', where operational control is defined as having the ability to introduce and implement operating and/or environmental policies and measures. In case both the landlord and tenant have the authority to introduce and implement any or all the policies mentioned above, the asset or building should be reported as a Managed asset. Where a single tenant has the sole authority to introduce and implement operating and/or environmental policies and measures, the tenant should be assumed to have operational control, so it should be considered to be an Indirectly Managed asset.'

9 The entity shall consider the 2018 GRESB Real Estate Assessment Reference Guide as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

IF-RE-130a.3. Like-for-like percentage change in energy consumption for the portfolio area with data coverage, by property sector

1 The entity shall disclose the like-for-like percentage change in energy consumption for the portfolio area with data coverage.

1.1 The percentage shall be calculated as energy consumed in the reporting period divided by the energy consumed in the immediately prior reporting period minus one.

1.2 The scope of energy consumption included in the calculation shall be aligned with the 2018 GRESB Real Estate Assessment Reference Guide ('Like-for-like Comparison') as including all energy consumed by properties in the entity's portfolio for both the full reporting period and the immediately prior full reporting period.

1.2.1 Energy consumed by properties acquired, sold, under development or have undergone a major renovation during the reporting period or the immediately prior reporting period shall be excluded.

1.2.2 No correction for changes in the occupancy rate is needed and properties with a high variation in vacancy rates shall be included.

1.2.3 If energy consumption data coverage is unavailable for either (or both) the reporting period or the immediately prior reporting period, the energy consumed by that relevant portfolio floor area is excluded from the numerator and the denominator in the calculation.

2 The scope, methodology and calculations of energy consumption shall be consistent with IF-RE-130a.2.

3 Like-for-like change in energy consumption shall be disclosed by (a) Base Building and (b) Tenant Space, or (c) Whole Building, or a combination of these.

3.1 If like-for-like change in energy consumption data is not available for Tenant Space or Whole Building for a property but is available for the Base Building, then the entity shall disclose this like-for-like change in energy consumption data.

4 The entity shall disclose like-for-like change in energy consumption separately for each property type in its portfolio where properties are classified into sectors aligned with the FTSE EPRA Nareit Global Real Estate Index property sector classification system.

5 The entity may disclose the floor area, in square metres, included in the scope of like-for-like percentage change in energy consumption if the scope significantly diverges from the floor area of energy consumption data coverage.

6 Like-for-like data collection, analysis and disclosure may be consistent with the approach with which the entity discloses its financial reporting data.

6.1 If the entity discloses its financial reporting data using a concept and methodology similar to 'Like-for-like Comparison', the entity shall describe divergences between the scope of assets or floor area used in financial reporting and like-for-like change in energy consumption. For example, if additional assets are excluded from the like-for-like change in energy consumption relative to like-for-like financial reporting because of data coverage limitations, such inconsistencies shall be described.

7 The entity may additionally present like-for-like percentage change in energy consumption on a normalised basis.

7.1 Normalisation factors and methodologies may include the following, which are presented in the 2018 GRESB Real Estate Assessment Reference Guide:

7.1.1 Air conditioning or natural ventilation

7.1.2 Building age

7.1.3 Degree days

7.1.4 Footfall

7.1.5 Occupancy rate

7.1.6 Operational hours

7.1.7 Weather conditions

7.1.8 Other

7.2 If the entity chooses to additionally disclose normalised like-for-like percentage change in energy consumption, the entity shall provide a brief description of the normalisation factor and methodology or its use of a third-party methodology.

8 The entity may describe the variations in like-for-like percentage change in energy consumption.

8.1 Variations in energy consumption may occur based on distinctions which may include:

8.1.1 Base Building, Tenant Space and Whole Building

8.1.2 Energy Purchased by the Landlord and energy Purchased by Tenant

8.1.3 Managed Assets and Indirectly Managed Assets

8.1.4 Geographical markets

9 The following terms are defined according to the 2018 GRESB Real Estate Assessment Reference Guide:

9.1 Base Building is defined as the energy consumed in supplying central building services to lettable/leasable areas and common areas.

9.2 Tenant Space is defined as the lettable floor area (both vacant and let/leased areas) that is, or can be, occupied by tenants.

9.3 Whole Building is defined as the energy used by tenants and base building services to lettable/leasable and common spaces. This should include all energy supplied to the building for the operation of the building and the tenant space.

9.4 Purchased by Landlord is defined as the energy purchased by the landlord but consumed by the tenant. This may include energy purchased by the landlord but used for vacant space.

9.5 Purchased by Tenant is defined as the energy purchased by the tenant. Typically, this is data outside the entity's immediate control.

9.6 Managed Assets and Indirectly Managed Assets are defined as follows: 'This definition of Managed assets and the definition of Indirectly Managed assets are solely based on the landlord/tenant relationship. [Managed and Indirectly Managed Assets are] assets or buildings for which the landlord is determined to have 'operational control' where operational control is defined as having the ability to introduce and implement operating and/or environmental policies and measures. In case both the landlord and tenant have the authority to introduce and implement any or all the policies mentioned above, the asset or building should be reported as a Managed asset. Where a single tenant has the sole authority to introduce and implement operating and/or environmental policies and measures, the tenant should be assumed to have operational control, so it should be considered to be an Indirectly Managed asset.'

10 The entity shall consider the 2018 GRESB Real Estate Assessment Reference Guide as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

IF-RE-130a.4. Percentage of eligible portfolio that (1) has an energy rating and (2) is certified to ENERGY STAR, by property sector

1 The entity shall disclose the percentage of the portfolio that has a valid or current energy rating, by gross floor area, where:

1.1 Gross floor area is defined as the total property square footage, measured between the principal exterior surfaces of the enclosing fixed walls of the building(s).

1.2 An energy rating is defined according to the 2018 GRESB Real Estate Assessment Reference Guide as a scheme that measures the energy performance of buildings, including schemes solely concerned with measuring energy efficiency performance as well as cases in which an energy rating is an element of a broader scheme measuring environmental performance.

1.3 The percentage shall be calculated as the portfolio gross floor area that has an energy rating divided by the total portfolio gross floor area.

1.3.1 The entity may exclude from the denominator the portfolio gross floor area that is ineligible to receive an energy rating based on the property sector, location (for example, located in a region in which energy ratings are unavailable), or other specific use characteristics that cause the property to be ineligible.

1.4 The scope of energy rating schemes includes:

1.4.1 ENERGY STAR® for operations in the U.S. and Canada

1.4.2 EU Energy Performance Certificates (EPC) for operations in the European Union

1.4.3 National Australian Built Environment Rating System (NABERS) Energy for operations in Australia

1.4.4 NABERSNZ for operations in New Zealand

1.4.5 Other energy rating schemes that can be demonstrated to have substantially equivalent criteria, methodology and presentation of results as those schemes stated above

1.5 The scope of energy rating schemes is aligned with the 2018 GRESB Real Estate Assessment Reference Guide in that it 'only include[s] energy ratings that were awarded before or during the reporting period (pre-assessments or other unofficial rating schemes are not valid). Some energy ratings are valid for a limited period only—the rating should be officially in effect during the reporting period.'

2 The entity may additionally disclose the percentage(s) by energy rating scheme.

3 The entity shall (2) disclose the percentage of its portfolio certified to ENERGY STAR®.

3.1 The percentage shall be calculated as the portfolio gross floor area certified to ENERGY STAR® in the US divided by the total portfolio gross floor area in the US.

3.1.1 For a property to qualify as certified to ENERGY STAR®, the certification must be officially in effect during the reporting period (as aligned with the 2018 GRESB Real Estate Assessment Reference Guide).

3.1.2 The entity may exclude from the denominator the portfolio gross floor area that is ineligible to be certified to ENERGY STAR® based on the property sector or other specific use characteristics that cause the property to be ineligible.

3.2 If property is located in Canada, the entity may separately disclose the percentage of the portfolio in Canada that is certified to ENERGY STAR®.

3.2.1 The percentage shall be calculated as the portfolio gross floor area that is certified to ENERGY STAR® in Canada divided by the total portfolio gross floor area in Canada.

4 The entity shall disclose (1) the percentage of its portfolio that has an energy rating, and (2) the percentage of its portfolio that is certified to ENERGY STAR®, separately for each property type in its portfolio where properties are classified into sectors aligned with the FTSE EPRA Nareit Global Real Estate Index property sector classification.

5 The entity shall consider the 2018 GRESB Real Estate Assessment Reference Guide as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

IF-RE-130a.5. Description of how building energy management considerations are integrated into property investment analysis and operational strategy

1 The entity shall describe its strategic approach and the operational processes used to integrate energy-related considerations into the analysis of current and future property investments.

2 The entity shall describe the following elements of its strategic approach, where relevant:

2.1 The use of energy-reduction targets and performance against those targets

2.2 The integration of property energy performance into the property acquisition due diligence process—for example, if these measures are qualitative (for example, whether the building has an energy rating) or quantitative (for example, the entity adjusts occupancy rate projections based on energy performance data)

2.3 Entity-level energy consumption and management policies, applicable across the entity's portfolio (aligned with 2018 GRESB Real Estate Assessment Q8)

3 The entity shall discuss the operational processes used, which may include:

3.1 Management of the technical energy performance of its portfolio

3.2 The integration of renewable energy into its portfolio.

4 Relevant elements of its technical approach may include:

4.1 Use of technical building assessments to identify energy efficiency opportunities—including whether such assessments are in-house or external and the general portfolio coverage of such assessments during the last four years (aligned with 2018 GRESB Real Estate Assessment Q16)

4.2 Measures implemented to improve the energy efficiency of the portfolio—including specific measures taken, general portfolio coverage of such measures and estimated energy savings (aligned with 2018 GRESB Real Estate Assessment Q17)

4.3 Approach to retrocommissioning—including applicability to the entity's portfolio, the comprehensiveness of retrocommissioning conducted, general portfolio coverage and estimated energy savings

4.4 Use of environmental management systems to measure, manage and improve the energy performance of buildings and such systems' alignment with third-party standards or verification (aligned with 2018 GRESB Real Estate Assessment Q21, 'Environmental Management Systems')

4.5 Use of data management systems to monitor, analyse and benchmark energy performance of individual buildings, and such systems' alignment with third-party standards or verification (aligned with 2018 GRESB Real Estate Assessment Q22, 'Data Management Systems')

5 The entity shall discuss its strategies relating to energy ratings, benchmarking and certifications, including:

5.1 Impact on tenant demand within the entity's target market(s)

5.2 Relevance to the property types in its portfolio, such as the sector(s), locations and construction (new versus existing stock)

5.3 Costs and benefits associated with obtaining and maintaining an energy rating, benchmark and certification

5.4 If applicable, whether the entity prefers certifications based on ongoing performance or performance-modelled design objectives

6 The entity shall describe its approach to renewable energy generation, which may include:

6.1 The relevance of on-site and off-site renewable energy generation to the portfolio and energy management strategy

6.2 Technical or legal limitations on the ability to incorporate renewable energy into its portfolio and energy management strategy

6.3 The energy generated from on-site and off-site renewable energy (aligned with 2018 GRESB Real Estate Assessment Q25.3)

7 If the entity participates in new construction or major renovations, it shall discuss whether and how it incorporates energy efficiency strategies into design and development.

8 The entity shall consider the 2018 GRESB Real Estate Assessment as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

Water Management

Topic Summary

Buildings consume significant amounts of water in their operations, through water fixtures, building equipment, appliances and irrigation. Water consumption operating costs may be significant depending on property type, tenant operations, geographical locations and other factors. Entities can be responsible for a building's water costs, or common area water costs, though entities commonly allocate all, or a portion, of these costs to occupants. In these arrangements, water management through tenant demand and regulatory exposure continues to be important. Tenants may assess real estate asset water efficiency to control operating costs, mitigate environmental impacts of operations, and, often just as importantly, develop a reputation for resource conservation. Additionally, real estate owners may comply with water-related regulations even if water costs are the occupants' responsibility. Overall, entities that effectively manage asset water efficiency, even if they bear no direct water costs, may realise reduced operating costs and regulatory exposure, as well as increased tenant demand, rental rates and occupancy rates—all of which drive revenue and asset value appreciation. Long-term historic water expense increases and expectations of continued increases because of overconsumption and constrained supplies resulting from population growth and shifts, pollution and climate change show the importance of water management. Improving asset water efficiency is dependent upon the property type, water availability, target tenant market, local building codes, the ability to measure consumption and the existing building stock, among other factors.

Metrics

IF-RE-140a.1. Water withdrawal data coverage as a percentage of (1) total floor area and (2) floor area in regions with High or Extremely High Baseline Water Stress, by property sector

1 The entity shall disclose (1) the percentage of its portfolio, based on total gross floor area, with complete water withdrawal data coverage.

1.1 Gross floor area is defined as the total property area in square metres, measured between the principal exterior surfaces of the enclosing fixed walls of the building(s).'

1.1.1 Leasable floor area may be used in place of gross floor area if gross floor area is unavailable for the relevant area of the portfolio (for example, a building with an unknown gross floor but a known leasable floor area).

1.1.2 Number of units may be used in place of floor area in the Apartments and Lodging/Resorts property sectors.

1.2 Floor area is considered to have complete water withdrawal data coverage when the entity obtains water withdrawal data (amounts withdrawn) for the relevant floor area during the reporting period, regardless of when such data was obtained.

1.3 The percentage shall be calculated as the portfolio gross floor area with complete water withdrawal data coverage divided by the total portfolio gross floor area for which water is used.

1.4 The scope of water withdrawals is aligned with the 2018 GRESB Real Estate Assessment Reference Guide, and it includes water that was withdrawn from all sources.

1.4.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities, or other entities.

2 The entity shall disclose (2) the percentage of its portfolio, based on gross floor area, located in regions classified as High (40–80%) or Extremely High (>80%) Baseline Water Stress with complete water withdrawal data coverage.

2.1 High or Extremely High Baseline Water Stress shall be determined by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

2.2 The percentage shall be calculated as the portfolio gross floor area located in regions classified as High or Extremely High Baseline Water Stress and that have complete water withdrawal data coverage, divided by the total portfolio gross floor area for which water is used in regions with High or Extremely High Baseline Water Stress.

3 The entity shall disclose (1) water withdrawal data coverage and (2) the percentage of water withdrawal data coverage in regions with High or Extremely High Baseline Water Stress, separately for each property type in its portfolio if properties are classified into sectors aligned with the FTSE EPRA Nareit Global Real Estate Index property sector classification.

4 The entity may describe the variations in water withdrawal data coverage, including the factors that influence it.

4.1 Variations in water withdrawal data coverage may occur based on distinctions, which may include:

4.1.1 Base Building, Tenant Space and Whole Building

4.1.2 Water Purchased by the Landlord and water Purchased by Tenants

4.1.3 Managed Assets and Indirectly Managed Assets

4.1.4 Geographical markets

4.2 Relevant factors that influence water withdrawal data coverage may include:

4.2.1 Geographical markets and the applicable enabling or inhibiting laws, regulations and policies within such markets, including those policies of utilities

4.2.2 Geographical markets and the applicability of risks related to water scarcity (and related current or future regulations)

4.2.3 Administrative or logistical barriers to obtaining water withdrawal data (for example, lack of integration of utilities' data reporting systems)

4.2.4 Tenant demands around the privacy or proprietary nature of water withdrawal data

4.2.5 Property sectors or other more nuanced classifications of property types

4.2.6 Lease structures, including the length of leases, access to water withdrawal data by the entity, and the entity's ability to influence water management performance of Tenant Spaces

4.2.7 The entity's belief that obtaining Tenant Space water withdrawal data may impact tenant demand negatively

5 The following terms are defined according to the 2018 GRESB Real Estate Assessment Reference Guide:

5.1 Base Building is defined as water consumed in supplying central building services to lettable/leasable areas and common areas.

5.2 Tenant Space is defined as the lettable floor area (both vacant and let/leased areas) that is or can be occupied by tenants.

5.3 Whole Building is defined as water used by tenants and base building services to lettable/leasable and common spaces. This should include all water supplied to the building for the operation of the building and the tenant space.

5.4 Purchased by Landlord is defined as water purchased by the landlord but consumed by the tenant. This may include water purchased by the landlord but used for vacant space.

5.5 Purchased by Tenant is defined as water purchased by the tenant. Typically, this is data outside the entity's immediate control.

5.6 Managed Assets and Indirectly Managed Assets are defined as follows: 'This definition of Managed assets and the definition of Indirectly Managed assets are solely based on the landlord/tenant relationship. [Managed and Indirectly Managed Assets are] assets or buildings for which the landlord is determined to have 'operational control' where operational control is defined as having the ability to introduce and implement operating and/or environmental policies and measures. In case both the landlord and tenant have the authority to introduce and implement any or all the policies mentioned above, the asset or building should be reported as a Managed asset. Where a single tenant has the sole authority to introduce and implement operating and/or environmental policies and measures, the tenant should be assumed to have operational control, so it should be considered to be an Indirectly Managed asset.'

6 The entity shall consider the 2018 GRESB Real Estate Assessment Reference Guide as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

IF-RE-140a.2. (1) Total water withdrawn by portfolio area with data coverage and (2) percentage in regions with High or Extremely High Baseline Water Stress, by property sector

1 The entity shall disclose (1) the total amount of water, in thousands of cubic metres, withdrawn by the portfolio area for which water withdrawal data coverage is available.

1.1 The scope of disclosure includes all property area in the entity's portfolio for which water withdrawal data coverage is available, regardless of whether water is consumed by the Tenant Space or Base Building (including outdoor, exterior and parking areas) or which party pays for water expenses.

1.2 The scope of disclosure excludes the portion of water consumed by the portfolio area for which water withdrawal data is unavailable.

1.2.1 If water withdrawal data is unavailable for Tenant Space or Whole Building for a property but is available for the Base Building, then the entity shall disclose this water withdrawal data.

1.3 The scope of water withdrawals is aligned with the 2018 GRESB Real Estate Assessment Reference Guide and includes water withdrawn from all sources.

1.3.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity shall disclose (2) the percentage of water withdrawn in regions with High (40–80%) or Extremely High (> 80%) Baseline Water Stress.

2.1 High or Extremely High Baseline Water Stress shall be determined by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

2.2 The percentage shall be calculated as the amount of water withdrawn (by volume) in regions with High or Extremely High Baseline Water Stress divided by the total amount of water withdrawn (by volume).

3 Water withdrawal data shall be disclosed by (a) Base Building and (b) Tenant Space, or (c) Whole Building, or a combination of these.

4 The entity shall disclose (1) total water withdrawn and (2) percentage in regions with High or Extremely High Baseline Water Stress, separately for each property type in its portfolio where properties are classified into sectors aligned with the FTSE EPRA Nareit Global Real Estate Index property sector classification.

5 The entity may describe the variations in water withdrawn.

5.1 Variations in water withdrawn may occur based on distinctions which may include:

5.1.1 Base Building, Tenant Space and Whole Building

5.1.2 Water Purchased by the Landlord and water Purchased by Tenant

5.1.3 Managed Assets and Indirectly Managed Assets

5.1.4 Geographical markets

6 The following terms are defined according to the 2018 GRESB Real Estate Assessment Reference Guide:

6.1 Base Building is defined as water consumed in supplying central building services to lettable/leasable areas and common areas.

6.2 Tenant Space is defined as the lettable floor area (both vacant and let/leased areas) that is or can be occupied by tenants.

6.3 Whole Building is defined as water used by tenants and base building services to lettable/leasable and common spaces. This should include all water supplied to the building for the operation of the building and the tenant space.

6.4 Purchased by Landlord is defined as water purchased by the landlord but consumed by the tenant. This may include water purchased by the landlord but used for vacant space.

6.5 Purchased by Tenant is defined as water purchased by the tenant. Typically, this is data outside the entity's immediate control.

6.6 Managed Assets and Indirectly Managed Assets are defined as follows: 'This definition of Managed assets and the definition of Indirectly Managed assets are solely based on the landlord/tenant relationship. [Managed and Indirectly Managed Assets are] assets or buildings for which the landlord is determined to have 'operational control' where operational control is defined as having the ability to introduce and implement operating and/or environmental policies and measures. In case both the landlord and tenant have the authority to introduce and implement any or all the policies mentioned above, the asset or building should be reported as a Managed asset. Where a single tenant has the sole authority to introduce and implement operating and/or environmental policies and measures, the tenant should be assumed to have operational control, so it should be considered to be an Indirectly Managed asset.'

7 The entity shall consider the 2018 GRESB Real Estate Assessment Reference Guide as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

IF-RE-140a.3. Like-for-like percentage change in water withdrawn for portfolio area with data coverage, by property sector

1 The entity shall disclose the like-for-like percentage change in water withdrawn for the portfolio area with data coverage.

1.1 The percentage shall be calculated as water withdrawn (by volume) in the reporting period divided by the water withdrawn (by volume) in the immediately prior reporting period minus one.

1.2 The scope of water withdrawn included in the calculation shall be aligned with the 2018 GRESB Real Estate Assessment Reference Guide ('Like-for-like Comparison') as including all water withdrawn by properties in the entity's portfolio for both the full reporting period and the immediately prior full reporting period.

1.2.1 Water withdrawn by properties acquired, sold, under development, or that have undergone a major renovation during the reporting period or the immediately prior reporting period shall be excluded.

1.2.2 No correction for changes in the occupancy rate is needed and properties with a high variation in vacancy rates shall be included.

1.2.3 If water withdrawal data coverage is unavailable for either (or both) the reporting period or the immediately prior reporting period, the water withdrawn by that relevant portfolio floor area is excluded from the numerator and the denominator in the calculation.

2 The scope, methodology and calculations of water withdrawn shall be consistent with IF-RE-140a.2.

3 Like-for-like change in water withdrawn shall be disclosed by (a) Base Building and (b) Tenant Space, or (c) Whole Building, or a combination of these.

3.1 If like-for-like change in water withdrawal data is not available for Tenant Space or Whole Building for a property but is available for the Base Building, then the entity shall disclose this like-for-like water withdrawal data.

4 The entity shall disclose like-for-like percentage change in water withdrawn separately for each property type in its portfolio where properties are classified into sectors aligned with the FTSE EPRA Nareit Global Real Estate Index property sector classification.

5 The entity may disclose the floor area, in square metres, included in the scope of like-for-like percentage change in water withdrawn if the scope significantly diverges from the floor area of water withdrawal data coverage.

6 Like-for-like data collection, analysis and disclosure may be consistent with the approach with which the entity discloses its financial reporting data.

6.1 If the entity discloses its financial reporting data using a concept and methodology similar to 'Like-for-like Comparison', the entity shall describe divergences between the scope of assets or floor area used in financial reporting and like-for-like change in water withdrawn. For example, if additional assets are excluded from the like-for-like change in water withdrawn relative to like-for-like financial reporting because of data coverage limitations, such inconsistencies shall be described.

7 The entity may additionally present like-for-like percentage change in water withdrawn on a normalised basis.

7.1 Normalisation factors and methodologies may include the following which are presented in the 2018 GRESB Real Estate Assessment Reference Guide:

7.1.1 Air conditioning or natural ventilation

7.1.2 Building age

7.1.3 Degree days

7.1.4 Footfall

7.1.5 Occupancy rate

7.1.6 Operational hours

7.1.7 Weather conditions

7.1.8 Other

7.2 If the entity chooses to additionally disclose normalised like-for-like percentage change in water withdrawn, the entity shall provide a brief description of the normalisation factor and methodology or its use of a third-party methodology.

8 The entity may describe the variations in like-for-like percentage change in water withdrawn.

8.1 Variations in water withdrawn may occur based on distinctions which may include:

8.1.1 Base Building, Tenant Space and Whole Building

8.1.2 Water Purchased by the Landlord and water Purchased by Tenant

8.1.3 Managed Assets and Indirectly Managed Assets

8.1.4 Geographical markets

9 The following terms are defined according to the 2018 GRESB Real Estate Assessment Reference Guide:

9.1 Base Building is defined as water consumed in supplying central building services to lettable/leasable areas and common areas.

9.2 Tenant Space is defined as the lettable floor area (both vacant and let/leased areas).

9.3 Whole Building is defined as water used by tenants and base building services to lettable/leasable and common spaces. This should include all water supplied to the building for the operation of the building and the tenant space.

9.4 Purchased by Landlord is defined as water purchased by the landlord but consumed by the tenant. This may include water purchased by the landlord but used for vacant space.

9.5 Purchased by Tenant is defined as water purchased by the tenant. Typically, this is data outside the entity's immediate control.

9.6 Managed Assets and Indirectly Managed Assets are defined as follows: ‘This definition of Managed assets and the definition of Indirectly Managed assets are solely based on the landlord/tenant relationship. [Managed and Indirectly Managed Assets are] assets or buildings for which the landlord is determined to have ‘operational control’ where operational control is defined as having the ability to introduce and implement operating and/or environmental policies and measures. In case both the landlord and tenant have the authority to introduce and implement any or all the policies mentioned above, the asset or building should be reported as a Managed asset. Where a single tenant has the sole authority to introduce and implement operating and/or environmental policies and measures, the tenant should be assumed to have operational control, so it should be considered to be an Indirectly Managed asset.’

10 The entity shall consider the 2018 GRESB Real Estate Assessment Reference Guide as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

IF-RE-140a.4. Description of water management risks and discussion of strategies and practices to mitigate those risks

1 The entity shall describe its water management risks associated with water withdrawals, water consumption and discharge of water or wastewater.

1.1 Risks associated with water withdrawals and water consumption include risks to the availability of adequate, clean water resources, which include:

1.1.1 Environmental constraints—such as operating in water-stressed regions, drought, concerns of aquatic impingement or entrainment, interannual or seasonal variability, and risks from the impact of climate change

1.1.2 Regulatory and financial constraints—such as volatility in water costs, stakeholder perceptions and concerns related to water withdrawals (for example, those from local communities, non-governmental organisations and regulatory agencies), direct competition with and impact from the actions of other users (for example, commercial and municipal users), restrictions to withdrawals because of regulations, and constraints on the entity’s ability to obtain and retain water rights or permits

1.2 Risks associated with the discharge of water or wastewater include the ability to obtain rights or permits related to discharges, regulatory compliance related to discharges, restrictions to discharges, the ability to maintain control over the temperature of water discharges, liabilities, reputational risks and increased operating costs because of regulation, stakeholder perceptions and concerns related to water discharges (for example, those from local communities, non-governmental organisations and regulatory agencies).

2 The entity may describe water management risks in the context of:

2.1 How risks may vary by withdrawal source, including surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities; and

2.2 How risks may vary by discharge destinations, including surface water, groundwater or wastewater utilities.

3 The entity may discuss the potential effects that water management risks may have on its operations and the time line over which such risks are expected to manifest.

3.1 Effects include those associated with costs, revenue, liabilities, continuity of operations and reputation.

4 The entity shall discuss its short- and long-term strategies or plans to mitigate water management risks, which include:

4.1 The scope of its strategy, plans, goals or targets, such as how they relate to various business units, geographies or water-consuming operational processes.

4.2 Any water management goals or targets it has prioritised, and an analysis of performance against those goals or targets.

4.2.1 Goals and targets include those associated with reducing water withdrawals, reducing water consumption, reducing water discharges, reducing aquatic impingements, improving the quality of water discharges and regulatory compliance.

4.3 The activities and investments required to achieve the plans, goals or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4.4 Disclosure of strategies, plans, goals or targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

5 For water management targets, the entity shall additionally disclose:

5.1 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target.

5.2 The time lines for the water management activities, including the start year, the target year and the base year.

5.3 The mechanism(s) for achieving the target, including:

5.3.1 Efficiency efforts, such as the use of water recycling or closed-loop systems;

5.3.2 Product innovations, such as redesigning products or services to require less water;

5.3.3 Process and equipment innovations, such as those that enable the reduction of aquatic impingements or entrainments;

5.3.4 Use of tools and technologies (for example, the World Wildlife Fund Water Risk Filter, the Global Water Tool and Water Footprint Network Footprint Assessment Tool) to analyse water use, risks and opportunities; and

5.3.5 Collaborations or programmes in place with the community or other organisations

5.4 The percentage reduction or improvement from the base year, in which the base year is the first year against which water management targets are evaluated towards the achievement of the target.

6 The entity shall discuss whether its water management practices result in any additional lifecycle impacts or trade-offs in its organisation, including trade-offs in land use, energy production and greenhouse gas (GHG) emissions, and why the entity chose these practices despite lifecycle trade-offs.

Management of Tenant Sustainability Impacts

Topic Summary

Real estate assets generate significant sustainability impacts, including resource consumption (energy and water), waste generation and impacts on occupant health through indoor environmental quality. While entities own real estate assets, the tenant operations of such assets dominate the sustainability impacts produced by the built environment. Tenants may design and construct leased spaces according to their operating needs. In turn, their operations consume significant amounts of energy and water, generate waste, and impact the health of those living, working, shopping, or visiting the properties. While these sustainability impacts often are often generated by tenant operations and activities, real estate owners play an important role in influencing tenant sustainability impacts. The way entities in the industry structure their agreements, contracts and relationships with tenants may be instrumental in managing the sustainability impacts of their tenants effectively, and ultimately, the impacts of their assets. Managing tenant sustainability impacts may include mitigating the problem of split incentives by aligning both parties' financial interests with sustainability outcomes, establishing systematic measurement and communication of resource consumption data, creating shared performance goals, and mandating minimum sustainability performance or design requirements, among other strategies. Effective management of tenant sustainability impacts, particularly related to energy, water and indoor environmental quality, may drive asset value appreciation, increase tenant demand and satisfaction, decrease direct operating costs, or decrease risks related to building codes and regulations.

Metrics

IF-RE-410a.1. (1) Percentage of new leases that contain a cost recovery clause for resource efficiency-related capital improvements and (2) associated leased floor area, by property sector

1 The entity shall disclose (1) the percentage of new leases that contain a cost recovery clause for resource efficiency-related capital improvements.

1.1 A cost recovery clause for resource efficiency-related capital improvements is defined as a clause in a lease agreement that allows the entity to invest in energy or water efficiency capital improvements to properties, while recovering all or a proportion of associated expenditures from tenants, regardless of the mechanism of cost recovery. This definition is generally aligned with:

1.1.1 The Green Lease Leaders application: 'Tenant cost recovery clause that can be used for energy efficiency-related capital improvements. This typically means that the list of operating expenses is expanded to include capital expenses intended to save energy, with the annual pass-through amount most often determined either by an amortisation schedule or projected savings.'

1.1.2 The 2018 GRESB Real Estate Assessment Reference Guide: 'Cost recovery clause for energy efficiency-related capital improvements: Allows the landlord to implement energy-efficiency measures during the lease and to recover a proportion or all of those costs from the tenant.'

1.2 The percentage shall be calculated as the portfolio newly leased floor area associated with leases that contain a cost recovery clause for resource efficiency-related capital improvements divided by total portfolio newly leased floor area.

1.2.1 Number of units may be used in place of floor area in the Apartments and Lodging/Resorts property sectors.

2 The entity shall disclose (2) the leased floor area, in square metres, associated with new leases that contain a cost recovery clause for resource efficiency-related capital improvements.

3 The scope of disclosure includes all the properties in the entity's portfolio that were newly leased during any part of the reporting period, and for which the entity and a tenant executed an associated lease.

3.1 If the entity executed lease amendments or letter agreements during the reporting period that contain a cost recovery clause for resource efficiency-related capital improvements, the associated leased floor area shall be included within the scope of disclosure.

4 The entity shall disclose (1) the percentage of new leases that contain a cost recovery clause for resource efficiency-related capital improvements, and (2) the associated leased floor area, separately for each property type in its portfolio where properties are classified into sectors aligned with the FTSE EPRA Nareit Global Real Estate Index property sector classification.

5 The entity may describe whether its standard lease contracts include a cost recovery clause for resource efficiency-related capital improvements (aligned with 2018 GRESB Real Estate Assessment Q39).

6 The entity may additionally disclose the percentage of all leases (as opposed to new leases only) in effect as of the last day of the reporting period that contain a cost recovery clause for resource efficiency-related capital improvements, calculated in a manner consistent with the above calculation.

7 The entity may provide a brief description of instances when it exercised cost recovery clauses for resource efficiency-related capital improvements, including the extent throughout the portfolio and the financial implications.

8 The entity additionally may disclose the amount of actual capital expenditures associated with resource efficiency-related capital improvements recovered from tenants during the reporting period using cost recovery clauses in leases.

9 The entity shall consider the 2018 GRESB Real Estate Assessment Reference Guide as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

IF-RE-410a.2. Percentage of tenants that are separately metered or submetered for (1) grid electricity consumption and (2) water withdrawals, by property sector

1 The entity shall disclose the percentage of tenants separately metered or submetered for (1) the grid electricity use resulting from their exclusive electricity consumption.

1.1 The percentage shall be calculated as the leasable floor area leased to tenants that are separately metered or submetered for the electricity consumption resulting from their exclusive consumption divided by the total portfolio leasable floor area.

2 The entity shall disclose the percentage of tenants separately metered or submetered for (2) the water usage resulting from their exclusive water withdrawals.

2.1 The percentage shall be calculated as the leasable floor area leased to tenants that are separately metered or submetered for the water use resulting from their exclusive withdrawals divided by the total portfolio leasable floor area.

3 Number of units may be used in place of floor area in the Apartments and Lodging/Resorts property sectors.

4 The entity shall disclose the percentage of tenants that are separately metered or submetered for their exclusive (1) grid electricity consumption, and (2) water withdrawals, separately for each property type in its portfolio where properties are classified into sectors aligned with the FTSE EPRA Nareit Global Real Estate Index property sector classification.

IF-RE-410a.3. Discussion of approach to measuring, incentivising and improving sustainability impacts of tenants

1 The entity shall discuss its strategy and process for integrating considerations of sustainability into its leases and tenant relationships (for example, tenant communication, voluntary initiatives and selection of a third-party property manager, if applicable) to measure, incentivise and improve impacts.

2 For the purposes of this disclosure, the scope of sustainability topics includes energy management, water management and the impacts of properties on tenant health, including indoor environmental quality.

3 Relevant strategies to discuss may include:

3.1 The following components, which are generally aligned with the 2018 GRESB Real Estate Assessment Q39.1:

3.1.1 Whether the entity has agreements with tenants to mutually share energy consumption or water withdrawal data

3.1.2 Whether the entity has shared energy consumption and water withdrawal targets

3.1.3 Whether the entity establishes requirements that any tenant works should meet standards provided by the entity related to energy consumption, water efficiency and indoor environmental quality

3.1.4 Whether the entity establishes requirements that tenants provide accurate information required for mandatory energy rating schemes

3.1.5 Whether the entity can prioritise sustainability requirements over minimising the costs of improvements and adjustments

3.2 Whether the entity prioritises separately metering or submetering tenant energy consumption and water withdrawals, and if so, if the entity also prioritises its own ability to measure the tenant energy consumption and water withdrawals

3.3 Whether the entity prioritises lease structures that require tenants to pay grid electricity and water utility expenses based on actual and exclusive consumption of such resources

4 The entity shall include a discussion of its support, participation and use of third-party initiatives concerning green leases.

4.1 Third-party initiatives concerning green leases may include green lease templates, principles, requirements, strategies and educational programs provided by organisations.

4.2 Examples of third-party initiatives concerning green leases may include:

4.2.1 Building Owners and Managers Association International, *Commercial Lease: Guide to Sustainable and Energy Efficient Leasing for High-Performance Buildings*

4.2.2 California Sustainability Alliance, *Green Leases Toolkit*

4.2.3 CMS, *Green Lease Clauses in Europe - A practical approach*

4.2.4 Corporate Realty, Design & Management Institute, *Model Green Lease*

4.2.5 Green Lease Leaders and Green Lease Library (programs jointly operated by the Institute for Market Transformation and the U.S. Department of Energy's Better Building Alliance)

4.2.6 Natural Resources Defence Council, *Energy Efficiency Lease Guidance*

4.2.7 Real Property Association of Canada, *Green Office Leases*

4.2.8 U.S. General Services Administration, *Green Lease Policies and Procedures*

4.2.9 U.S. Green Building Council, *Green Office Guide: Integrating LEED into Your Leasing Process and Greening Your Lease*

4.3 The entity shall describe whether third-party initiatives concerning green leases are integrated into standard lease contracts (generally aligned with GRESB Real Estate Assessment Q39.1).

5 The entity shall describe how the lease types used (for example, triple-net or full-service) and their provisions (for example, cost recovery clauses, tenant fit out guides, utility information sharing, mandatory participation in energy ratings) may influence or incentivise tenant behaviour related to sustainability impacts.

5.1 The entity may provide a discussion of how such lease structures may impact property values—including tenant demand and the associated rental rates and occupancy rates—over the long term.

Climate Change Adaptation

Topic Summary

Climate change affects entities in the industry via frequent or high-impact extreme weather events and changing climate patterns. How an entity structures its business model to incorporate assessments of climate change risks, and the adaptation to such risks, may increasingly be relevant to entity value over the long-term. More specifically, investment strategies with assets located on floodplains and in coastal regions exposed to inclement weather may require increased risk mitigation and business model adaptation to long-term climate change. These strategies are especially important considering the long-term challenges associated with flood insurance rates, the financial stability of government-subsidised flood insurance programs, and financing stipulations or other creditor concerns. Besides insurance, other risk mitigation measures include improvements to physical asset resiliency and lease terms that transfer risk to tenants, although these measures can create their own costs and risks for real estate entities. To ensure long-term growth, entities must implement comprehensive climate change adaptation strategies, account for trade-offs between various risk mitigation strategies, and integrate all projected cost and benefit considerations over the long-term.

Metrics

IF-RE-450a.1. Area of properties located in 100-year flood zones, by property sector

1 The entity shall disclose the total leasable floor area, in square metres, of properties in the entity's portfolio located in 100-year flood zones.

1.1 100-year flood zones are defined as land areas subject to a 1% or greater chance of flooding in any given year. Such areas also may be referenced as being subject to the 1% annual chance flood, the 1% annual exceedance probability flood, or the 100-year flood.

1.1.1 Examples of 100-year flood zones may include coastal flood plains, flood plains along major rivers and areas subject to flooding from ponding in low-lying areas.

1.2 Number of units may be used in place of floor area in the Apartments and Lodging/Resorts property sectors when floor area is not available.

2 The scope of disclosure shall include all the entity's properties located in 100-year flood zones, regardless of the jurisdiction in which they are located.

3 The entity shall disclose the total leasable floor area of properties that are located in 100-year flood zones separately for each property type in its portfolio where properties are classified into sectors aligned with the FTSE EPRA Nareit Global Real Estate Index property sector classification.

4 The entity may separately provide the planned leasable floor area of properties under development or construction that are located in 100-year flood zones.

5 The entity may disclose its risk perception and potential impacts resulting from reclassification of 100-year flood zones, including the risk of expansion of such areas into real estate property owned by the entity.

IF-RE-450a.2. Description of climate change risk exposure analysis, degree of systematic portfolio exposure, and strategies for mitigating risks

1 The entity shall describe the significant risks and opportunities presented to its business by climate change scenarios.

1.1 The entity shall identify each significant risk and opportunity.

1.1.1 Risks and opportunities may include availability of water, extreme weather events, evolving regulation and legislation, impacts on regional infrastructure, impacts on tenant demand, and impacts on local economies and populations, regardless of the impact of physical risks presented to the entity's portfolio.

1.2 The entity shall discuss:

1.2.1 The time line over which such risks and opportunities are expected to manifest.

1.2.2 How such climate change scenarios may manifest (for example, effects directly on the entity or effects on the entity's tenants).

1.2.3 How risks and opportunities may differ by property sector.

1.2.4 How risks and opportunities may differ by region.

1.3 The entity shall disclose the climate change scenarios used to determine the risks and opportunities presented by climate change as defined by the International Energy Agency in its annual World Energy Outlook.

2 The entity shall describe efforts to assess and monitor the impacts of climate change and the related strategies to alleviate or adapt to any risks or use any opportunities.

2.1 Alleviation strategies may include the use of property insurance, flood insurance, lease structures and lease durations.

2.2 Adaptation strategies may include investments in physical asset resiliency and contingency plans.

2.3 The entity shall discuss:

2.3.1 How strategies may differ by property sector; and

2.3.2 How strategies may differ by region.

3 The discussion shall differentiate between physical asset risk and financial risk to focus on the risks, opportunities, and alleviation or adaptation strategies that are most likely to impact financial value.

Volume 37—Real Estate Services

Industry Description

Real Estate Services industry entities provide a range of services to real estate owners, tenants, investors and developers. Primary services include property management, brokerage, appraisal and information services for real estate owners. Property management services may include leasing, tenant relations, building maintenance and building security. Many entities also provide brokerage services, facilitating sales and leasing transactions. Appraisals and other advisory or information services are other specialised services commonly provided to clients. Entities in the industry play important roles in the real estate value chain, which is a substantial part of the global economy.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Sustainability Services	Revenue from energy and sustainability services [53]	Quantitative	Presentation currency	IF-RS-410a.1
	(1) Floor area and (2) number of buildings under management provided with energy and sustainability services	Quantitative	Square metres (m²), Number	IF-RS-410a.2
	(1) Floor area and (2) number of buildings under management that obtained an energy rating	Quantitative	Square metres (m²), Number	IF-RS-410a.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of property management clients, categorised by: (1) tenants and (2) real estate owners	Quantitative	Number	IF-RS-000.A
Floor area under management with owner operational control [54]	Quantitative	Square metres (m²)	IF-RS-000.B
Number of buildings under management with owner operational control [55]	Quantitative	Number	IF-RS-000.C
Number of leases transacted, categorised by: (1) tenants and (2) real estate owners [56]	Quantitative	Number	IF-RS-000.D
Number of appraisals provided	Quantitative	Number	IF-RS-000.E

53 Note to **IF-RS-410a.1** – The entity shall provide a description of the energy and sustainability services it offers.

54 Note to **IF-RS-000.B** – The scope of floor area under management with owner operational control shall only include that portion of gross rentable floor area where property management services are provided and for which the real estate owner has operational control, where operational control is defined consistent with the 2018 GRESB® Real Estate Assessment Reference Guide as “having the ability to introduce and implement operating policies, health and safety policies, and/or environmental policies.”

55 Note to **IF-RS-000.C** – The scope of buildings under management shall only include distinct buildings or real estate assets where property management services are provided and for which the real estate owner has operational control, where operational control is defined consistent with the 2018 GRESB® Real Estate Assessment Reference Guide as “having the ability to introduce and implement operating policies, health and safety policies, and/or environmental policies.”

56 Note to **IF-RS-000.D** – Dual agency transactions shall be included in both the (1) tenants and (2) real estate owners categories. Subleases shall only be included in the (2) real estate owners category.

Sustainability Services

Topic Summary

In the Real Estate Services industry, buildings owned or occupied by clients generally have significant sustainability impacts. Buildings, and the activities that take place within them, drive energy consumption, direct and indirect greenhouse gas (GHG) emissions, water consumption, waste generation and indoor environmental quality concerns that can impact occupant health. Entities have an opportunity to improve the sustainability impacts of buildings and their operations through sustainability- related services. These services may include utility data management, energy procurement, energy and water benchmarking, resource efficiency improvements, activities related to sustainability certifications, and sustainability consulting and training. Entities may impact building sustainability further by arranging leases that incentivise both owners and tenants to improve sustainability performance, while yielding financial benefits for both parties. Providing these services may drive new revenue growth and increase client retention. Effective sustainability services may benefit owners or tenants through improved asset values, increased tenant demand, decreased operating costs and improved tenant experiences.

Metrics

IF-RS-410a.1. Revenue from energy and sustainability services

1 The entity shall disclose its revenue from energy and sustainability services.

1.1 Energy and sustainability services are defined as services provided to clients directly related to resource efficiency (including energy, water and waste), utility data management, energy procurement, obtaining and retaining sustainability and resource-related certifications, environmental reporting and corporate sustainability consulting and training.

1.1.1 Examples of energy and sustainability services include energy management and performance monitoring (for example, through sub-meters to measure electric usage); energy, water, and waste benchmarking or ratings-scheme services; advisory services related to renewable energy procurement; services related to LEED, ENERGY STAR® or other sustainability-related building certifications; energy- and sustainability-related building valuation analysis; and energy- and sustainability-related client training or consulting.

1.2 The scope of energy and sustainability services excludes services that impart improved energy and sustainability performance in an ancillary, indirect or minimal way, as well as environmental services that are part of the ordinary operation and maintenance of buildings (for example, facilities maintenance or janitorial services).

2 The scope of disclosure includes services provided to leasing clients, project- and development-service clients, and capital market and investment management clients.

Note to **IF-RS-410a.1**

1 The entity shall provide a description of the energy and sustainability services offered, where relevant information includes:

1.1 The degree to which the entity integrates energy and sustainability services into, or keeps these services distinct from, the entity's base property management services. Property management services may include the sales process for such services, the amount of overlap between clients for base property management services and energy and sustainability services, and the level of consistency of contract lengths and terms among base property management services and energy and sustainability services.

1.2 The market dynamics of energy and sustainability services, including competition, risks and opportunities, market share, customer demands and preferences, market growth and legislative and regulatory impacts.

1.3 Opportunities associated with providing market-leading energy and sustainability services, such as the potential to win a new client based solely on energy and sustainability services, which may result in additional non-energy and sustainability-related services in the future.

1.4 Risks associated with providing inadequate or insufficient energy and sustainability services, such as the potential to lose a client based on inadequate or insufficient energy and sustainability services.

2 The entity may disclose the number of energy- and sustainability-accredited professionals it employs.

3 The entity may disclose the estimated energy savings, greenhouse gas (GHG) emissions reductions, water savings, waste reductions or other performance measurements associated with the energy and sustainability services provided to clients.

IF-RS-410a.2. (1) Floor area and (2) number of buildings under management provided with energy and sustainability services

1 The entity shall disclose (1) the floor area under management for which it provided energy or sustainability-related services during the reporting period.

1.1 Floor area under management is defined as the gross rentable floor area where property management services are provided and for which the real estate owner has operational control.

1.1.1 Operational control is defined, consistent with the 2018 GRESB® Real Estate Assessment Reference Guide, as an instance when the real estate owner can introduce and implement operating policies, health and safety policies, or environmental policies.

1.2 Energy and sustainability services are defined as services provided to clients directly related to resource efficiency (including energy, water and waste), utility data management, energy procurement, obtaining and retaining sustainability and resource-related certifications, environmental reporting, and corporate sustainability consulting and training.

1.3 The scope of energy and sustainability services excludes services that impart improved energy and sustainability performance in an ancillary, indirect or minimal way, as well as environmental services that are part of the ordinary operation and maintenance of buildings (for example, facilities maintenance or janitorial services).

2 The entity shall disclose (2) the number of buildings for which it provided energy and sustainability-related services during the reporting period.

2.1 'Buildings under management' is defined as distinct buildings or real estate assets where property management services are provided and where the real estate owner has operational control.

3 The scope of disclosure includes the total floor area and all buildings that were provided with energy and sustainability services during the reporting period, regardless of the date of inception of such services.

IF-RS-410a.3. (1) Floor area and (2) number of buildings under management that obtained an energy rating

1 The entity shall disclose (1) the floor area under management that obtained an energy rating during the reporting period.

1.1 Floor area under management is defined as the gross rentable floor area where property management services are provided and for which the real estate owner has operational control.

1.1.1 Operational control is defined consistent with the 2018 GRESB® Real Estate Assessment Reference Guide as an instance in which the real estate owner can introduce and implement operating policies, health and safety policies, or environmental policies.

2 The entity shall disclose (2) the number of buildings that obtained an energy rating during the reporting period, where:

2.1 The number of buildings under management is defined as distinct buildings or real estate assets where property management services are provided and where the real estate owner has operational control.

2.2 An energy rating is defined, consistent with the 2018 GRESB® Real Estate Assessment Reference Guide, as a scheme that measures the energy performance of buildings.

2.3 The scope of energy rating schemes includes:

2.3.1 ENERGY STAR® for operations in the United States and Canada

2.3.2 EU Energy Performance Certificates (EPC) for operations in the European Union

2.3.3 National Australian Build Environment Rating System (NABERS) Energy for operations in Australia

2.3.4 NABERSNZ for operations in New Zealand

2.3.5 Government energy efficiency benchmarking

2.3.6 Other energy rating schemes that can be demonstrated to have substantially equivalent criteria, methodology, and presentation of results to those schemes above

3 The scope of disclosure is aligned with the 2018 GRESB® Real Estate Assessment Reference Guide in that it ‘only include[s] energy ratings that were awarded before or during the reporting period (pre-assessments or other unofficial forms of pre-certification are not valid). Some energy ratings are valid for a limited period; only the rating should be effective and official during the reporting period.’

4 The entity shall consider the GRESB® Real Estate Assessment Reference Guide as a normative reference; thus, any updates made year-on-year shall be considered updates to this guidance.

Volume 38—Waste Management

Industry Description

Waste Management industry entities collect, store, dispose of, recycle or treat various forms of waste from residential, commercial and industrial clients. Types of waste include municipal solid waste, hazardous waste, recyclable materials, and compostable or organic materials. Major entities commonly are integrated vertically, providing a range of services from waste collection to landfilling and recycling, while others provide specialised services such as treating medical and industrial waste. Waste-to-energy operations are a distinct industry segment. Some industry players also provide environmental engineering and consulting services, mostly to large industrial clients.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	(1) Gross global Scope 1 emissions, percentage covered under (2) emissions-limiting regulations and (3) emissions-reporting regulations	Quantitative	Metric tons (t) CO_2-e, Percentage (%)	IF-WM-110a.1
	(1) Total landfill gas generated, (2) percentage flared and (3) percentage used for energy	Quantitative	Million British Thermal Units (MMBtu), Percentage (%)	IF-WM-110a.2
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	IF-WM-110a.3
Fleet Fuel Management	(1) Fleet fuel consumed, (2) percentage natural gas and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	IF-WM-110b.1
	Percentage of alternative fuel vehicles in fleet	Quantitative	Percentage (%)	IF-WM-110b.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of customers by category: (1) municipal, (2) commercial, (3) industrial, (4) residential, and (5) other [57]	Quantitative	Number	IF-WM-000.A
Vehicle fleet size	Quantitative	Number	IF-WM-000.B

continued…

[57] Note to **IF-WM-000.A** – The scope of "residential" shall only include those residential customers that have direct contracts with the entity. For the purposes of this disclosure, residential customers serviced through contracts with a municipality shall be considered in the "municipal" category. The scope of each customer type shall be consistent with the entity's financial reporting.

…continued

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of: (1) landfills, (2) transfer stations, (3) recycling centres, (4) composting centres, (5) incinerators, and (6) all other facilities [58]	Quantitative	Number	IF-WM-000.C
Total amount of materials managed, by customer category: (1) municipal, (2) commercial, (3) industrial, (4) residential, and (5) other [59]	Quantitative	Metric tons (t)	IF-WM-000.D

Greenhouse Gas Emissions

Topic Summary

Landfills are a significant anthropogenic contributor to global greenhouse gas (GHG) emissions because they generate methane. As a result, regulators frequently require entities to limit landfill gas emissions. Entities can reduce these emissions through a variety of control technologies that require significant capital investments such as landfill gas collection efficiency improvements, control devices and increased methane oxidisation. Entities can capture and combust methane using a flare, an engine or a turbine to reduce the overall toxicity and potency of raw emissions dramatically. Landfill gas capture is particularly important for owners and operators of large landfills that have been the focus of regulation. Entities that operate in the waste-to-energy industry segment may reduce waste lifecycle emissions through decreased future emissions from landfills and displaced energy generation, but they face increased Scope 1 emissions from waste-to-energy facilities operations. Overall, GHG emissions pose regulatory risks for the industry, with potential effects on operational costs and capital expenditures. Entities also may generate revenue through the sale of natural gas and energy from waste-to-energy facilities, as well as reduce fuel purchases by using processed landfill gas to power operations. Performance on this issue may affect an entity's ability to secure new permits or renew existing ones, which can affect revenue.

Metrics

IF-WM-110a.1. (1) Gross global Scope 1 emissions, percentage covered under (2) emissions-limiting regulations and (3) emissions-reporting regulations

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalent (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

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58 Note to **IF-WM-000.C** – Landfills include landfills that are active and landfills owned by the entity that are closed. The scope of "all other facilities" excludes corporate offices. The scope of each customer type shall be consistent with the entity's financial reporting.

59 Note to **IF-WM-000.D** – "Managed" is defined as the handling of discarded materials, whether those materials are treated or not. The scope of "residential" shall only include those residential customers that have direct contracts with the entity. For the purposes of this disclosure, residential customers serviced through contracts with a municipality shall be considered in the "municipal" category. The scope of each customer type shall be consistent with the entity's financial reporting.

2.1 Acceptable calculation methodologies include those that conform to the *GHG Protocol* as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples include:

2.1.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)

2.1.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the U.S. Environmental Protection Agency (EPA)

2.1.3 India GHG Inventory Program

2.1.4 ISO 14064-1

2.1.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.1.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.2 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which generally is aligned with the 'financial control' approach defined by the *GHG Protocol*, and the approach published by the Climate Disclosure Standards Board (CDSB) that is described in REQ-07, 'Organisational boundary', of the *CDSB Framework for reporting environmental and social information*.

3 The entity shall disclose (2) the percentage of its gross global Scope 1 GHG emissions covered under an emissions-limiting regulation or programme intended to limit or reduce emissions directly, such as cap-and-trade schemes, carbon tax/fee systems, and other emissions control (for example, command-and-control approach) and permit-based mechanisms.

3.1 Examples of emissions-limiting regulations include:

3.1.1 California Cap-and-Trade (California Global Warming Solutions Act)

3.1.2 European Union Emissions Trading Scheme (EU ETS)

3.1.3 Quebec Cap-and-Trade (Quebec Environment Quality Act)

3.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO_2-e) covered under emissions-limiting regulations divided by the total amount of gross global Scope 1 GHG emissions (CO_2-e).

3.2.1 For emissions subject to more than one emissions-limiting regulation, the entity shall not account for those emissions more than once.

3.3 The scope of emissions-limiting regulations excludes emissions covered under voluntary emissions-limiting regulations (for example, voluntary trading systems), as well as reporting-based regulations.

4 The entity shall disclose (3) the percentage of its gross global Scope 1 GHG emissions covered under emissions reporting-based regulations.

4.1 Emissions reporting-based regulations are defined as regulations that demand the disclosure of GHG emissions data to regulators or the public, but for which no limit, cost, target or controls on the amount of emissions generated exists.

4.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO_2-e) covered under emissions reporting-based regulations divided by the total amount of gross global Scope 1 GHG emissions (CO_2-e).

4.2.1 For emissions subject to more than one emissions reporting-based regulation, the entity shall not account for those emissions more than once.

4.3 The scope of emissions reporting-based regulations does not exclude emissions covered under emissions-limiting regulations.

5 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

6 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach

used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

7 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

IF-WM-110a.2. (1) Total landfill gas generated, (2) percentage flared and (3) percentage used for energy

1 The entity shall disclose (1) the total amount, in millions of British Thermal Units (MMBtu), of landfill gas generated from its owned or operated facilities.

1.1 Landfill gas is defined as gas produced because of anaerobic decomposition of waste materials in the landfill.

2 The entity shall disclose (2) the percentage of landfill gas that was flared.

2.1 The percentage shall be calculated as the amount (in MMBtu) of landfill gas that was flared divided by the total amount (in MMBtu) of landfill gas generated.

2.1.1 Flared landfill gas includes gas flared through air injection and is defined as gas that is combusted using an open flame with combustion air provided by uncontrolled ambient air around the flame, or air that is blown into the flare to induce complete combustion.

3 The entity shall disclose (3) the percentage of landfill gas used for energy.

3.1 The percentage shall be calculated as the amount (in MMBtu) of landfill gas captured and used for energy divided by the total amount (in MMBtu) of landfill gas generated.

3.1.1 Landfill gas used for energy includes gas combusted for use in on-site energy or heat production, conveyed through pipelines for off-site combustion, and any other on-site or off-site use as a fuel.

4 The entity shall disclose the methodology used to calculate the amount of landfill gas generated, the percentage flared and the percentage used for energy.

IF-WM-110a.3. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss how lifecycle GHG emissions factor into Scope 1 emissions management and overall business strategy.

2.1 Relevant aspects to discuss include:

2.1.1 The trade-offs between lifecycle emissions and Scope 1 emissions

2.1.2 How such trade-offs are evaluated within the context of the entity’s business strategy and operational areas of focus (for example, landfill gas management, waste-to-energy, recycling, composting)

2.1.3 The extent to which the trade-offs factor into the entity’s business strategy, including identified areas of opportunity for growth and its capital expenditure strategy

2.1.4 Whether the short-term management of Scope 1 emissions or the long-term management of lifecycle emissions is prioritised by the entity

2.1.5 The impact of waste-to-energy (WTE) operations on lifecycle emissions versus Scope 1 emissions

2.2 The entity may disclose related quantitative measures, which may include:

2.2.1 Avoided emissions (for example, *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement)

2.2.2 Estimated future Scope 1 emissions from landfills

3 The entity shall discuss risks and opportunities arising out of lifecycle emissions and Scope 1 emissions, which may include:

3.1 Risks arising from future Scope 1 emissions over the long-term resulting from landfills

3.2 Risks arising from short-term increases in Scope 1 emissions resulting from WTE facilities

3.3 Opportunities arising from long-term decreases in lifecycle emissions resulting from WTE facilities, recycling and composting

4 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

4.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

4.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

4.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

4.4 The time lines for the reduction activity, including the start year, the target year and the base year;

4.5 The mechanism(s) for achieving the target; and

4.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

5 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

6 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

7 The entity shall discuss whether its strategies, plans, or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

8 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Fleet Fuel Management

Topic Summary

Many entities in the Waste Management industry own and operate large vehicle fleets for waste collection and transfer. The fuel consumption of vehicle fleets is a significant industry cost, both in terms of operating expenses and associated capital expenditures. Fossil fuel consumption can contribute to environmental impacts, including climate change and pollution. These environmental impacts may affect waste management entities through increased regulatory exposure and reduced competitiveness of new contract proposals. Hedging fuel purchases is a common tool used to manage fleet-fuel risks; however, increasingly, waste management entities are upgrading to more fuel-efficient fleets or switching to natural gas vehicles. A cleaner-burning fleet also may be perceived favourably by communities living near waste management facilities with heavy traffic.

Metrics

IF-WM-110b.1. (1) Fleet fuel consumed, (2) percentage natural gas and (3) percentage renewable

1 The entity shall disclose (1) the total amount of fuel consumed by its fleet vehicles as an aggregate figure, in gigajoules (GJ).

1.1 The calculation methodology for fuel consumed shall be based on actual fuel consumed as opposed to design parameters.

1.2 Acceptable calculation methodologies for fuel consumed may include methodologies based on:

1.2.1 Adding fuel purchases made during the reporting period to beginning inventory at the start of the reporting period, minus any fuel inventory at the end of the reporting period

1.2.2 Tracking fuel consumed by vehicle

1.2.3 Tracking fuel expenses

2 The entity shall disclose (2) the percentage of fuel consumed that is natural gas.

2.1 The percentage shall be calculated as the amount of natural gas consumed (in GJ) divided by the total amount of fuel consumed (in GJ).

3 The entity shall disclose (3) the percentage of fuel consumed that was renewable fuel.

3.1 Renewable fuel generally is defined as fuel that meets all the following requirements:

3.1.1 Produced from renewable biomass

3.1.2 Used to replace or reduce the quantity of fossil fuel present in a transportation fuel, heating oil or jet fuel

3.1.3 Achieved net greenhouse gas (GHG) emissions reduction on a life cycle basis

3.2 The entity shall disclose the standard or regulation used to determine if a fuel is renewable.

3.3 The percentage shall be calculated as the amount of renewable fuel consumed (in GJ) divided by the total amount of fuel consumed (in GJ).

4 The scope of disclosure is limited to fuel consumed by vehicles owned or operated by the entity.

5 In calculating energy consumption from fuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are directly measured or taken from the Intergovernmental Panel on Climate Change.

6 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage.

IF-WM-110b.2. Percentage of alternative fuel vehicles in fleet

1 The entity shall disclose the percentage of its fleet vehicles that are alternative fuel vehicles.

1.1 Alternative fuel vehicles are defined as vehicles powered by biodiesel, denatured alcohol, electricity, hydrogen, methanol, mixtures containing up to 85% methanol or denatured ethanol, natural gas, or propane (liquefied petroleum gas). Alternative energy vehicles also include any vehicle achieving a significant reduction in petroleum consumption, advanced lean burn technology vehicles, fuel cell vehicles and hybrid electric vehicles.

1.2 The percentage shall be calculated as the number of alternative energy vehicles in its fleet divided by the total number of vehicles in its fleet.

Volume 39—Water Utilities & Services

Industry Description

Water Utilities & Services industry entities own and operate water supply and wastewater treatment systems (generally structured as regulated utility businesses) or provide operational and other specialised water services to system owners (usually market-based operations). Water supply systems include the sourcing, treatment and distribution of water to residences, businesses and other entities such as governments. Wastewater systems collect and treat wastewater, including sewage, greywater, industrial waste fluids and stormwater runoff, before discharging the resulting effluent back into the environment.

Note: The scope of the Water Utilities & Services (IF-WU) industry excludes water services categorised as infrastructure design and development. These activities fall within the Engineering & Construction Services (IF-EC) industry.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	IF-WU-130a.1
Distribution Network Efficiency	Water main replacement rate [60]	Quantitative	Rate	IF-WU-140a.1
	Volume of non-revenue real water losses	Quantitative	Thousand cubic metres (m^3)	IF-WU-140a.2
End-Use Efficiency	Percentage of water utility revenue from rate structures designed to promote conservation and revenue resilience	Quantitative	Percentage (%)	IF-WU-420a.1
	Customer water savings from efficiency measures, by market [61]	Quantitative	Cubic metres (m^3)	IF-WU-420a.2
Water Supply Resilience	Total water sourced from regions with High or Extremely High Baseline Water Stress; percentage purchased from a third party	Quantitative	Thousand cubic metres (m^3), Percentage (%)	IF-WU-440a.1
	Volume of recycled water delivered to customers	Quantitative	Thousand cubic metres (m^3)	IF-WU-440a.2
	Discussion of strategies to manage risks associated with the quality and availability of water resources	Discussion and Analysis	n/a	IF-WU-440a.3

continued…

60 Note to **IF-WU-140a.1** – The entity shall discuss the use of and challenges associated with planned and corrective maintenance in its distribution system.

61 Note to **IF-WU-420a.2** – The entity shall discuss customer efficiency measures that are required by regulations for each of its relevant markets.

…continued

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Network Resiliency & Impacts of Climate Change	Wastewater treatment capacity located in 100-year flood zones	Quantitative	Cubic metres (m^3) per day	IF-WU-450a.1
	(1) Number and (2) volume of sanitary sewer overflows (SSO) and (3) percentage of volume recovered	Quantitative	Number, Cubic metres (m^3), Percentage (%)	IF-WU-450a.2
	(1) Number of unplanned service disruptions and (2) customers affected, each by duration category [62]	Quantitative	Number	IF-WU-450a.3
	Description of efforts to identify and manage risks and opportunities related to the impact of climate change on distribution and wastewater infrastructure	Discussion and Analysis	n/a	IF-WU-450a.4

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of: (1) residential, (2) commercial, and (3) industrial customers served, by service provided [63]	Quantitative	Number	IF-WU-000.A
Total water sourced, percentage by source type [64]	Quantitative	Cubic metres (m^3), Percentage (%)	IF-WU-000.B
Total water delivered to: (1) residential, (2) commercial, (3) industrial, and (4) all other customers [65]	Quantitative	Thousand cubic metres (m^3)	IF-WU-000.C
Average volume of wastewater treated per day, by (1) sanitary sewer, (2) stormwater, and (3) combined sewer	Quantitative	Cubic metres (m^3) per day	IF-WU-000.D
Length of (1) water mains and (2) sewer pipe	Quantitative	Kilometres (km)	IF-WU-000.E

62 Note to **IF-WU-450a.3** – The entity shall discuss notable service disruptions such as those that affected a significant population or those of extended duration.

63 Note to **IF-WU-000.A** – The number of customers served is defined as the number of individual service agreements for water or wastewater services at single properties, where an individual may own more than one property and be counted as a customer more than once. The entity may disclose additional customer types if such customer types exist that do not fall within the scope of the customer types described above. Disclosure of the number of customers by customer type shall additionally be broken out by the number of customers (in each customer type) provided with water services, and separately, provided with wastewater services. The entity may additionally disclose the number of customers (in each customer type) by other types of services.

64 Note to **IF-WU-000.B** – Water sourced shall be disclosed by the direct source in which the entity obtains water, as classified by the following water source types: groundwater, surface water, ocean water, recycled water, water purchased from third parties, and other sources.

65 Note to **IF-WU-000.C** – The amount of water delivered includes drinking water, industrial process water, and recycled water.

Energy Management

Topic Summary

Entities in the Water Utilities & Services industry consume significant amounts of energy for the withdrawal, conveyance, treatment, and distribution or discharge of potable water and wastewater. Typically, an entity's largest operating cost after purchased water, chemicals, labour and utility operating costs is energy use. Purchased grid electricity is the most common energy input. In more remote locations, entities may use on-site generation to power equipment. The inefficient use of purchased grid electricity creates environmental externalities, such as increased Scope 2 greenhouse gas emissions. Environmental regulations may affect the future grid energy mix, resulting in price increases. Additionally, climate change is expected to impact grid reliability and affect the availability of water resources. As a result, water utility energy intensity may increase in the future as water resource access becomes more difficult. Alternative water treatment, such as recycling and desalination, also can require more energy. Together with decisions about the use of alternative fuels, renewable energy and on-site electricity generation, energy efficiency can influence both the cost and the reliability of the energy supply.

Metrics

IF-WU-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification, or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

5 The scope of disclosure includes all water, wastewater, and stormwater operations and services.

5.1 The entity may categorise out its disclosures by water, wastewater or stormwater services.

Distribution Network Efficiency

Topic Summary

Water utilities develop, maintain and operate complex interconnected infrastructure networks that include extensive pipelines, canals, reservoirs and pump stations. Distribution networks may lose significant volumes of water (called 'non-revenue water' because it is a distributed volume of water not reflected in customer billings). This water is lost primarily because of infrastructure failures and inefficiencies, such as leaking pipes and service connections. Non-revenue real water losses may impact financial performance, raise customer rates, and squander water and other resources such as energy and treatment chemicals. Conversely, improvements to infrastructure and operating processes may limit non-revenue losses, increase revenue and reduce costs. Efficiently directing operational and maintenance expenses or capital expenditures to distribution systems including primarily pipeline and service connection repair, refurbishment, or replacement may improve entity value and provide strong investment returns.

Metrics

IF-WU-140a.1. Water main replacement rate

1 The entity shall disclose its water main replacement rate for the distribution system(s) it owns or operates.

1.1 The distribution system includes all water utility components for the distribution of finished or potable water to customers or other users. This includes the distribution of water for non-potable uses, including fire suppression.

2 The percentage shall be calculated as the total length of pipe replaced during the reporting period divided by the total length of water mains in its distribution system.

2.1 The scope of water main replacements includes complete main replacements, as well as rehabilitations or renewals that substantially extend the life of the water main.

2.2 The scope of water main replacements excludes water main repairs.

3 The scope of disclosure is limited to water operations and services (wastewater and stormwater services are excluded).

Note to **IF-WU-140a.1**

1 The entity shall describe the use of, and challenges associated with, planned and corrective maintenance in its distribution system, where:

1.1 Corrective maintenance is defined as all maintenance undertaken after asset failure.

1.2 Planned maintenance is defined as all regular maintenance activities undertaken in advance of asset failure.

2 Relevant challenges to describe may include the impacts of corrosion and soil properties on pipe materials (for example, cast iron, ductile iron, polyvinyl chloride and wood), the entity's ability to finance maintenance and replacement through rate adjustments, and the age of the current distribution network.

IF-WU-140a.2. Volume of non-revenue real water losses

1 The entity shall disclose the volume, in cubic metres, of non-revenue real water losses from the distribution system.

1.1 Non-revenue real water losses are defined as the physical water losses, which are not billed and produce no revenue, from the pressurised system and storage tanks up to the point of customer consumption, which is the customer meter for those utilities that meter their customers. In unmetered systems, the delineation is the point at which the customer becomes responsible for customer service connection piping maintenance and repairs. Real losses include leakage from mains and service connections and storage tank overflows.

2 The entity shall calculate the amount of non-revenue real water losses according to applicable jurisdictional laws or regulations when such loss occurs.

3 The scope of disclosure is limited to water operations and services (wastewater and stormwater services are excluded).

4 If applicable jurisdictional laws or regulations do not exist, the entity shall calculate the volume of real losses according to voluntary initiatives.

5 The entity may disclose the technique(s) employed to measure non-revenue water from real losses and the amount calculated according to each technique employed.

End-Use Efficiency

Topic Summary

Consumer level water efficiency and conservation—whether a product of government mandates, environmental consciousness or demographic trends—is increasingly important for long-term resource availability and the financial performance of the water supply segment of the industry. How utilities work with regulators to mitigate revenue declines while increasing end-use resource efficiency may be financially material. Water efficiency mechanisms, including rate decoupling, may ensure that a utility's revenue can adequately cover its fixed costs and provide the desired level of returns regardless of sales volume, while incentivising customers to conserve water. Efficiency mechanisms can align utilities' economic incentives with environmental and social interests, including improved resource efficiency, lower rates and increased capital investments in infrastructure. Water utilities may manage rate mechanism impacts through positive regulatory relations, forward-looking rate cases that incorporate efficiency and a strong execution of efficiency strategy.

Metrics

IF-WU-420a.1. Percentage of water utility revenue from rate structures designed to promote conservation and revenue resilience

1 The entity shall disclose the percentage of water utility revenue from rate structures designed to promote conservation and revenue resilience.

1.1 The scope of rate structures designed to promote conservation and revenue resilience is limited to rate structures explicitly and intentionally designed to:

1.1.1 Financially incentivise customers to reduce water consumption or improve water efficiency

1.1.2 Improve the revenue resilience of the water utility, primarily in circumstances of declining average customer water use or improving average customer water efficiency

1.2 The scope of rate structures that are designed to promote conservation and revenue resilience includes revenue decoupled rate structures.

1.2.1 Revenue decoupled rate structures are defined as a rate adjustment mechanism that separates the utility's fixed cost recovery from the volume sold, and the utility's revenue is collected based on the regulatory determined revenue requirement.

1.2.2 Revenue decoupled rate structures may also be referred to as 'revenue regulation' or 'revenue cap regulation' in which the regulator sets up an allowed revenue requirement and adjusts collections to achieve allowed, or 'target', revenue irrespective of actual sales.

1.2.3 Additional guidance on the scope of revenue decoupled rate structures is contained in Alternative Regulation and Ratemaking Approaches for Water Companies, The Brattle Group, September 23, 2013.

1.3 The scope of rate structures designed to promote conservation and revenue resilience may include rate structures that contain a lost revenue adjustment mechanism (LRAM).

1.3.1 Rate structures that contain an LRAM are defined as volumetric rates that contain a mechanism allowing the entity to recover revenues lost directly resulting from water conservation, water efficiency, or demand side management programmes the entity directly manages or implements.

1.3.2 Additional guidance on the scope of revenue decoupled rate structures is contained in *Alternative Regulation and Ratemaking Approaches for Water Companies*, The Brattle Group, September 23, 2013.

1.3.3 The scope of LRAM includes mechanisms that allow the estimation of lost revenue based on the programmes' actual impacts, but it excludes lost revenue from planned or forecast programmes' impacts (as described in *Alternative Regulation and Ratemaking Approaches for Water Companies*, The Brattle Group, September 23, 2013).

1.4 The scope of rate structures designed to promote conservation and revenue resilience excludes straight fixed variable rate design, absent other rate mechanisms explicitly designed to promote conservation.

2 The percentage shall be calculated as the regulated water utility revenue from rate structures designed to promote conservation and revenue resilience divided by total regulated water utility revenue.

3 The scope of disclosure is limited to water operations and services (wastewater and stormwater services are excluded).

IF-WU-420a.2. Customer water savings from efficiency measures, by market

1 The entity shall disclose the total volume of water savings, in cubic metres, from water efficiency measures installed or otherwise supported by the entity during the reporting period for each of its markets.

1.1 Markets are defined as those operations subject to distinct public utility regulatory oversight.

2 Water savings shall be defined according to the gross savings approach as the changes in water consumption or demand that result from programme-related actions taken by participants in an efficiency programme, regardless of why they participated.

2.1 The entity should list those markets where it reports water savings on a net savings basis, and thus may be different from the figures disclosed here.

2.1.1 Net water savings are defined as changes in consumption specifically attributable to a water efficiency programme that would not otherwise have happened without the programme.

3 Water savings shall be calculated on a gross basis, but consistent with the methodology set forth in jurisdictional evaluation, measurement, and verification (EM&V) regulations when such savings occur.

4 If jurisdictional regulations do not exist, the entity shall calculate water savings in a manner consistent with the measurement and verification methods outlined by Efficiency Valuation

Organisation's (EVO) *International Performance Measurement and Verification Protocol: Concepts and Options for Determining Energy and Water Savings, Volume 1* (IPM&V Protocol).

5 The entity shall consider the EVO IPM&V Protocol and jurisdictional regulations as normative references, thus any updates made year-on-year shall be considered updates to this guidance.

6 The scope of disclosure is limited to water operations and services (wastewater and stormwater services are excluded).

Note to **IF-WU-420a.2**

1 The entity shall describe customer efficiency measures required by regulations for each of its relevant markets, including a discussion of:

1.1 The amount or percentage of water savings from efficiency measures required by regulations for each market

1.2 Instances of non-compliance with water savings obligations

1.2.1 In such instances, the entity shall disclose the difference between the water savings delivered and the amount required by the regulation.

1.3 Water savings delivered that exceed those required by regulations that resulted in the entity receiving energy efficiency performance incentives, including the value of any such incentives

2 The entity shall describe the forms of regulation in each market that allow for or incentivise water efficiency, including a discussion of the benefits, challenges and financial effects associated with such regulations.

3 Relevant policy mechanisms to discuss may include:

3.1 Deferral decoupling

3.2 Current period decoupling

3.3 Single fixed variable rates

3.4 Lost revenue adjustments

3.5 Water efficiency feebates

4 The entity may describe incentives it has developed for its customers that promote end-use efficiency, which may include dynamic pricing, water efficiency rebates, and other measures to subsidise customer water efficiency.

5 The entity may describe voluntary initiatives in which it has participated to manage end-user water efficiency.

Water Supply Resilience

Topic Summary

Water supply systems obtain water from groundwater and surface water sources. Water supplies either may be accessed directly or purchased from a third party, often a government entity. Water scarcity, water source contamination, infrastructure failures, regulatory restrictions, competing users and overconsumption by customers are all factors that may jeopardise sufficient water supply access. These issues, combined with an increasing risk of extreme and frequent drought conditions because of climate change, may result in inadequate supplies or mandated water restrictions. The related financial impacts may manifest in diverse ways, depending on rate structure, but are most likely to impact entity value through decreased revenue. Water supply challenges also may increase the price of purchased water, which could result in higher operating costs. Failures of critical infrastructure such as aqueducts and canals, which could result from events such as earthquakes, can present catastrophic risks to customers of the water supply system and could inflict untold financial consequences. Entities may mitigate water supply risks (and the resulting financial risks) through diversification of water supplies, sustainable withdrawal levels, technological and infrastructure improvements, contingency planning, positive relations with regulators and other major users, as well as rate structures.

Metrics

IF-WU-440a.1. Total water sourced from regions with High or Extremely High Baseline Water Stress; percentage purchased from a third party

1 The entity shall disclose the amount of fresh water, in thousands of cubic metres, sourced from all sources in regions with High (40–80%) or Extremely High (>80%) Baseline Water Stress.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater and wholesale water purchased from a third party.

1.2 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

1.3 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

1.4 High or Extremely High Baseline Water Stress shall be classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

2 The entity shall disclose the percentage of fresh water sourced in regions with High or Extremely High Baseline Water Stress that was purchased from a third party.

2.1 The percentage shall be calculated as the amount of fresh water sourced in regions with High or Extremely High Baseline Water Stress (in thousands of cubic metres) purchased from a third party divided by the total amount of fresh water sourced in regions with High or Extremely High Baseline Water Stress (in thousands of cubic metres).

IF-WU-440a.2. Volume of recycled water delivered to customers

1 The entity shall disclose the volume, in cubic metres, of water recycled and delivered to its customers.

2 Recycled water shall be defined as wastewater treated to meet specific water quality criteria with the intention of being used for a range of purposes, which may include:

2.1 Potable reuse, such as direct augmentation of the drinking water supply and indirect augmentation of a drinking water source when an environmental buffer precedes drinking water treatment

2.2 Non-potable reuse, such as recreational landscape irrigation, agricultural reuse, industrial process reuse and environmental reuse (for example, wetland enhancement and groundwater recharge)

3 The amount of recycled water delivered shall be calculated as the amount of water that meets the quality standards for approved uses of recycled water as set forth through applicable jurisdictional laws or regulations where the recycling occurs.

IF-WU-440a.3. Discussion of strategies to manage risks associated with the quality and availability of water resources

1 The entity shall identify and describe its significant risks associated with the quality and availability of, and access to, water resources, including a discussion of its strategies to manage such risks.

1.1 Relevant information to provide may include:

1.1.1 Environmental constraints such as water resources in water-stressed regions, drought, interannual or seasonal variability, severe weather events, risks from the impacts of climate change, and any impacts or risks associated with contaminated sources.

1.1.2 Regulatory, infrastructure and financial constraints such as reliance on essential infrastructure to obtain water, risk of regulatory restrictions to obtaining sufficient water or the entity's ability to obtain and retain water rights, permits and allocations, and stakeholder perceptions and concerns related to water sources (for example, those from local communities, non-governmental organisations and regulatory agencies).

1.1.3 How risks may vary by water source including surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater or wholesale water supplies.

2 The entity shall include a description of the potential impacts these risks may have on its operations and the time line over which such risks are expected to manifest.

2.1 Impacts may include those associated with costs, revenue, liabilities, continuity of operations, access to water and reputation.

3 The entity shall provide a discussion of its short- and long-term strategy or plans to manage these risks, including, when relevant:

3.1 Diversification of water sources

3.2 Contingency planning in the event of critical infrastructure failure

3.3 The use of alternative, watershed-based approaches to align overall infrastructure decisions with overall watershed goals

3.4 The scope of its strategy, plans or targets, such as whether they pertain differently to different business units (for example, residential versus industrial), geographies or regulatory frameworks (for example, rate structures or mandated water-use restrictions)

3.5 The activities and investments established to manage water sourced from areas of water stress or scarcity and any risks or limiting factors that might affect the ability to address water scarcity

3.6 The efforts to secure and retain reliable long-term water supplies through senior water rights, permits, or allocations, including the entity's ability to secure water (for example, through purchase from a third party) should sufficient allocations be unavailable

4 Disclosure of strategies, plans and infrastructure investments shall be limited to activities that were active or reached completion during the reporting period.

5 The entity shall discuss if its management of water scarcity results in any additional lifecycle impacts or trade-offs including trade-offs in land use (for example, development of water storage facilities such as reservoirs), energy consumption, and greenhouse gas (GHG) emissions and why the entity chose these practices despite lifecycle trade-offs.

Network Resiliency & Impacts of Climate Change

Topic Summary

Climate change may create uncertainty for water supply systems and wastewater systems because of potential impacts on infrastructure and operations. Climate change may result in increased water stress, more frequent severe weather events, reduced water quality and rising sea levels that could impair utility assets and operations. Water supply and wastewater disposal are basic services for which maintaining operational continuity is of utmost importance. The increasing frequency and severity of storms challenge water and wastewater treatment facilities, and these factors can affect service continuity. Intense precipitation may result in sewage volumes that exceed treatment facility capacity resulting in the release of untreated effluent. Minimising current and future risks of service disruptions and improving service quality may require additional capital expenditures and operational expenses. As the likelihood of extreme weather events increases, entities that address these risks through redundancies and strategic planning may better serve customers and improve performance.

Metrics

IF-WU-450a.1. Wastewater treatment capacity located in 100-year flood zones

1 The entity shall disclose the capacity, in cubic metres per day, of its wastewater treatment facilities located in 100-year flood zones.

1.1 100-year flood zones are defined as land areas subject to a 1% greater chance of flooding in any given year. Such areas also may be referenced as being subject to the 1% annual chance flood, the 1% annual exceedance probability flood or the 100-year flood.

1.1.1 Examples of 100-year flood zones may include coastal flood plains, flood plains along major rivers and areas subject to flooding from ponding in low-lying areas.

2 The scope of disclosure shall include all the entity's wastewater treatment facilities located in 100-year flood zones.

IF-WU-450a.2. (1) Number and (2) volume of sanitary sewer overflows (SSO) and (3) percentage of volume recovered

1 The entity shall disclose the (1) number of sanitary sewer overflows (SSO) originating from sewer systems under the entity's operational control.

1.1 SSOs are defined as overflows, spills, releases or diversions of wastewater from a sanitary sewer system.

1.2 If regulations do not require reporting of SSOs, the entity shall disclose the calculation methodology or combination of methodologies used. Relevant methods may include:

1.2.1 Duration and flow rate comparison method

1.2.2 Upstream lateral connections method

1.2.3 Continuous flow metering

2 The entity shall disclose the (2) volume, in cubic metres, of SSOs originating from sewer systems under the entity's operational control.

2.1 The volume of SSOs shall be calculated according to the methodologies used for regulatory reporting in the corresponding jurisdiction.

3 The entity shall report the (3) percentage of SSOs recovered, by volume.

3.1 The percentage shall be calculated as the volume, in cubic metres, of sewage discharged to the environment through SSOs that was recovered, divided by the total amount of sewage discharged to the environment through SSOs.

3.2 The recovered volume is defined as the amount of sewage discharged that was captured and returned to the sanitary sewer system, private lateral or collection system.

3.3 The volume of SSOs recovered shall be calculated according to the methodologies used for regulatory reporting in the corresponding jurisdiction.

3.4 If regulations do not require reporting the recovery of SSOs, the entity shall disclose the calculation methodology or combination of methodologies used. Relevant methods may include:

3.4.1 Measured volume method

3.4.2 Visual estimation method

4 The entity may describe programmes and initiatives including those programmes overseen by applicable jurisdictional legal or regulatory authorities and those the entity has developed internally to reduce the number and volume of SSOs and to mitigate such occurrences.

IF-WU-450a.3. (1) Number of unplanned service disruptions and (2) customers affected, each by duration category

1 The entity shall disclose the (1) number of unplanned service disruptions to its drinking water supply services and (2) the total number of customers affected by such disruptions.

1.1 An unplanned service disruption shall be defined according to the applicable jurisdictional laws or regulations where the disruption occurred.

1.2 In cases when regulations to define disruptions do not exist, disruptions shall be considered as incidents of complete water shutoff, low flow restrictions, boil-water advisories and water main flushing, and they exclude those incidents when a reduction of service occurs, but normal activities (for example, dishwashing, showering, laundry washing and toilet flushing) are maintained.

1.3 The scope of unplanned service disruptions shall be limited to those disruptions that were not planned or scheduled and those disruptions exceeding the scheduled duration of disruption.

1.3.1 A scheduled disruption shall be defined according to local regulations where the disruption occurred. If such regulations do not exist, a scheduled disruption shall be considered a disruption for which the entity has provided a minimum of 24 hours advanced notification.

1.4 Customers are defined as the number of individual service agreements for water services at single properties, where an individual may own more than one property and be counted as a customer more than once.

2 The entity shall disclose the number of unplanned service disruptions and the number of customers affected, by the length of duration category.

2.1 The length of duration categories is under four hours, between four and 12 hours, or 12 hours or more.

2.2 The duration of a disruption is defined as the time taken for all unplanned or emergency corrective activities by all utility employees and contractors working for the utility after discovery of an unplanned service disruption.

3 The scope of disclosure is limited to water operations and services (wastewater and stormwater services are excluded).

4 The entity may separately disclose the number of disruptions that were intentionally planned or scheduled by the entity, the number of customers affected, and the duration of those disruptions.

Note to **IF-WU-450a.3**

1 The entity shall discuss notable service disruptions such as those that affected a significant number of customers or those of extended duration.

2 For such disruptions, the registrant should provide:

2.1 Description and cause of the service disruptions

2.2 The costs associated with the service disruptions

2.3 Actions taken to mitigate the potential for future service disruptions

2.4 Any other significant outcomes (for example, legal proceedings)

IF-WU-450a.4. Description of efforts to identify and manage risks and opportunities related to the impact of climate change on distribution and wastewater infrastructure

1 The entity shall describe its efforts to identify and manage risks and opportunities associated with climate change-related impacts on its water distribution and wastewater infrastructure.

1.1 Risks include, among others, threats to the entity's physical infrastructure resulting from climate change-related events (for example, rising sea levels, increasing storm intensity and impacts of drought) that could result in service disruption(s).

1.2 Opportunities include the need for infrastructure improvements within the entity's current service area and the opportunity to expand its services through the water infrastructure.

2 The entity shall describe how it identifies and prioritises the potential for risks to, and vulnerabilities of, its water distribution and wastewater infrastructure.

2.1 Relevant risks and vulnerabilities to describe may include those relating to the age, geographical location and physical qualities of the entity's distribution infrastructure.

2.2 Relevant efforts to discuss include involvement in climate change adaptation and mitigation programmes.

3 The entity shall describe its efforts to manage the risks and opportunities associated with its water distribution and wastewater infrastructure including, but not limited to, infrastructure development, current storm tracking, global gridded climate models and the use of redundant systems to assure service continuity.

4 The scope of disclosure includes all water, wastewater, and stormwater operations and services.

4.1 The entity may categorise its disclosures by water, wastewater or stormwater services.

5 The entity may describe its efforts to manage risks and opportunities associated with its distribution network in the context of the rate case and rate making political environment, including the effects on the entity's ability to expand, maintain and enhance the resiliency of its distribution network.

Volume 40—Biofuels

Industry Description

Biofuels industry entities produce biofuels and process raw materials for production. Using organic feedstocks, entities manufacture biofuels that are used primarily in transportation. Entities typically source feedstocks, which include food, oil crops and animal products, from agricultural product distributors. Ethanol and biodiesel are the most widely produced biofuels, while other types include biogas, biohydrogen and synthetic biofuels, produced from a variety of organic feedstocks. Biofuels entities' customers are chiefly fuel-blending and fuel-supply entities, including major integrated oil entities. Government regulations related to the use of renewable fuel are a significant demand driver in the industry.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Water Management in Manufacturing	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	RR-BI-140a.1
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	RR-BI-140a.2
	Number of incidents of non-compliance associated with water quality permits, standards and regulations	Quantitative	Number	RR-BI-140a.3
Lifecycle Emissions Balance	Lifecycle greenhouse gas (GHG) emissions, by biofuel type	Quantitative	Grammes of CO_2-e per megajoule (MJ)	RR-BI-410a.1
Sourcing & Environmental Impacts of Feedstock Production	Discussion of strategy to manage risks associated with environmental impacts of feedstock production	Discussion and Analysis	n/a	RR-BI-430a.1
	Percentage of biofuel production third-party certified to an environmental sustainability standard	Quantitative	Percentage (%) of litres	RR-BI-430a.2
Management of the Legal & Regulatory Environment	Amount of subsidies received through government programmes	Quantitative	Presentation currency	RR-BI-530a.1
	Discussion of corporate positions related to government regulations or policy proposals that address environmental and social factors affecting the industry	Discussion and Analysis	n/a	RR-BI-530a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Biofuel production capacity	Quantitative	Millions of litres (ML)	RR-BI-000.A
Production of: (1) renewable fuel, (2) advanced biofuel, (3) biodiesel, and (4) cellulosic biofuel	Quantitative	Millions of litres (ML)	RR-BI-000.B
Amount of feedstock consumed in production [66]	Quantitative	Metric tons (t)	RR-BI-000.C

Water Management in Manufacturing

Topic Summary

Biofuel refining is water-intensive. Biorefineries require water for feedstock processing, fermentation, distillation and cooling. Although water use at biorefineries is modest relative to the quantities consumed during feedstock crop production, it is concentrated, and thus may affect local water resources. Facilities also may generate wastewater containing salts, organic compounds, dissolved solids, phosphorus and other substances, requiring wastewater treatment. Biofuel refineries also may face reduced water availability, related cost increases or operational disruptions. Water extraction from particular areas for refining, as well as contamination of water supplies because of refining operations, also could create regulatory risk and tensions with local communities. Water efficiency in operations and the proper treatment of effluents are therefore important for biofuels entities.

Metrics

RR-BI-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

[66] Note to **RR-BI-000.C** – The amount of feedstock consumed in production is defined as feedstock purchases adjusted for changes in inventory throughout the reporting period.

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

RR-BI-140a.2. Description of water management risks and discussion of strategies and practices to mitigate those risks

1 The entity shall describe its water management risks associated with water withdrawals, water consumption and discharge of water or wastewater.

1.1 Risks associated with water withdrawals and water consumption include risks to the availability of adequate, clean water resources, which include:

1.1.1 Environmental constraints—such as operating in water-stressed regions, drought, concerns of aquatic impingement or entrainment, interannual or seasonal variability, and risks from the impact of climate change

1.1.2 Regulatory and financial constraints—such as volatility in water costs, stakeholder perceptions and concerns related to water withdrawals (for example, those from local communities, non-governmental organisations and regulatory agencies), direct competition with and impact from the actions of other users (for example, commercial and municipal users), restrictions to withdrawals because of regulations, and constraints on the entity's ability to obtain and retain water rights or permits

1.2 Risks associated with the discharge of water or wastewater include the ability to obtain rights or permits related to discharges, regulatory compliance related to discharges, restrictions to discharges, the ability to maintain control over the temperature of water discharges, liabilities, reputational risks and increased operating costs because of regulation, stakeholder perceptions and concerns related to water discharges (for example, those from local communities, non-governmental organisations and regulatory agencies).

2 The entity may describe water management risks in the context of:

2.1 How risks may vary by withdrawal source, including surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities; and

2.2 How risks may vary by discharge destinations, including surface water, groundwater or wastewater utilities.

3 The entity may discuss the potential effects that water management risks may have on its operations and the time line over which such risks are expected to manifest.

3.1 Effects include those associated with costs, revenue, liabilities, continuity of operations and reputation.

4 The entity shall discuss its short- and long-term strategies or plans to mitigate water management risks, which include:

4.1 The scope of its strategy, plans, goals or targets, such as how they relate to various business units, geographies or water-consuming operational processes.

4.2 Any water management goals or targets it has prioritised, and an analysis of performance against those goals or targets.

4.2.1 Goals and targets include those associated with reducing water withdrawals, reducing water consumption, reducing water discharges, reducing aquatic impingements, improving the quality of water discharges and regulatory compliance.

4.3 The activities and investments required to achieve the plans, goals or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4.4 Disclosure of strategies, plans, goals or targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

5 For water management targets, the entity shall additionally disclose:

5.1 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target.

5.2 The time lines for the water management activities, including the start year, the target year and the base year.

5.3 The mechanism(s) for achieving the target, including:

5.3.1 Efficiency efforts, such as the use of water recycling or closed-loop systems;

5.3.2 Product innovations, such as redesigning products or services to require less water;

5.3.3 Process and equipment innovations, such as those that enable the reduction of aquatic impingements or entrainments;

5.3.4 Use of tools and technologies (for example, the World Wildlife Fund Water Risk Filter, the Global Water Tool and Water Footprint Network Footprint Assessment Tool) to analyse water use, risks and opportunities; and

5.3.5 Collaborations or programmes in place with the community or other organisations

5.4 The percentage reduction or improvement from the base year, in which the base year is the first year against which water management targets are evaluated towards the achievement of the target.

6 The entity shall discuss whether its water management practices result in any additional lifecycle impacts or trade-offs in its organisation, including trade-offs in land use, energy production and greenhouse gas (GHG) emissions, and why the entity chose these practices despite lifecycle trade-offs.

RR-BI-140a.3. Number of incidents of non-compliance associated with water quality permits, standards and regulations

1 The entity shall disclose the total number of incidents of non-compliance, including violations of a technology-based standard and exceedances of quantity or quality-based standards.

2 The scope of disclosure includes incidents governed by applicable jurisdictional statutory permits and regulations, which include the discharge of a hazardous substance, violation of pre-treatment requirements or total maximum daily load (TMDL) exceedances.

3 The scope of disclosure shall only include incidents of non-compliance that resulted in a formal enforcement action(s).

3.1 Formal enforcement actions are defined as governmental recognised actions that address a violation or threatened violation of water quantity or quality laws, regulations, policies or orders, and can result in administrative penalty orders, administrative orders and judicial actions, among others.

4 Violations shall be disclosed, regardless of their measurement methodology or frequency. These include violations for:

4.1 Continuous discharges, limitations, standards and prohibitions that are generally expressed as maximum daily, weekly and monthly averages; and

4.2 Non-continuous discharges, limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge and mass or concentration of specified pollutants.

Lifecycle Emissions Balance

Topic Summary

The rapid growth in global biofuels production has been encouraged by government energy policies that seek to reduce net GHG emissions from transportation fuels and dependence on fossil fuels. Most major renewable-fuel policies worldwide require that biofuels achieve lifecycle GHG emissions reductions relative to a fossil-fuel baseline to qualify for renewable fuel-mandate thresholds. The biofuel lifecycle emission calculation may include indirect and direct emissions from feedstock crop production and land use, fuel refining, fuel and feedstock transport, and vehicle exhaust emissions. Biofuel producers may influence net emissions directly during the refining process through energy management (fuel use), process innovations and by using feedstocks with lower emissions profiles. Fuel products that achieve a reduction in net emissions may qualify as advanced biofuels, which could increase future demand. Biofuel entities that cost-effectively reduce product net carbon emissions may gain a competitive product advantage, spur revenue growth and increase market share.

Metrics

RR-BI-410a.1. Lifecycle greenhouse gas (GHG) emissions, by biofuel type

1 The entity shall disclose its lifecycle GHG emissions (in grammes of CO_2-e per megajoule) for each biofuel category produced.

1.1 Lifecycle GHG emissions are defined as the aggregate quantity of GHG emissions (including direct emissions and significant indirect emissions, such as significant emissions from land-use changes) related to the full fuel lifecycle, including all stages of fuel and feedstock production and distribution, from feedstock generation or extraction through the distribution and delivery of the finished fuel, to the ultimate consumer and fuel use, in which the mass values for all GHGs are adjusted to account for their relative global warming potential.

1.2 The entity shall disclose its lifecycle GHG emissions for each of the following biofuel types produced: (1) renewable fuel, (2) advanced biofuel, (3) biodiesel and (4) cellulosic biofuel.

1.2.1 Renewable fuel is defined as fuel derived from biomass.

1.2.2 Advanced biofuel is defined as fuel derived from algae, animal manure, corn cobs, grape marcs and wine lees, nut shells, husk wastes and residues from forestry and forest-based industries, used cooking oil, etc.

1.2.3 Biodiesel is defined as fuel derived from oils such as rapeseeds, sunflowers, soybeans, palm oil and waste cooking oil, and used in place of diesel fuel.

1.2.4 Cellulosic biofuel is defined as fuel derived from material composed of lignin, cellulose, hemicellulose such as biomass sourced from forests, woody energy crops, straw, strove, husks, grasses and cover crops.

2 The entity shall disclose the applicable jurisdictional laws or regulations used for calculation.

Sourcing & Environmental Impacts of Feedstock Production

Topic Summary

The Biofuels industry uses a variety of plant-based feedstocks for production. Most entities purchase feedstocks from agricultural producers and distributors. A growing proportion of the world's arable land now is occupied by biofuel crops. Unsustainable cultivation practices can have negative environmental externalities, including deforestation and biodiversity loss, soil degradation, and water pollution. These factors may affect feedstock crop yields adversely over the short- and long-term. This, in turn, may influence the price and availability of feedstocks for biofuels producers. Consequently, vetting the sustainability of supply chains, such as through certifications or engagement with suppliers, is an important consideration for biofuels producers.

Metrics

RR-BI-430a.1. Discussion of strategy to manage risks associated with environmental impacts of feedstock production

1 The entity shall discuss its strategy to manage the environmental impacts and regulatory risks associated with feedstock production, where risks may include:

1.1 Risks to feedstock supply and pricing created by climate change impacts such as the increased likelihood of extreme weather events, decreased availability of clean water resources, increased competition for arable land, and decreased crop yields because of temperature increases.

1.2 Long-term risks to feedstock supply associated with suppliers' impacts on environmental health including those on biodiversity and soil health that may be because of monoculture practices or fertiliser and pesticide use.

1.3 Constraints created by regulation such as compliance with sustainability criteria in renewable fuel mandates; potential regulatory limits on the types of land where feedstock can be grown; potential limits on what qualifies as renewable biomass; potential for reduction or loss of public or political support for biofuel mandates because of the environmental impacts of feedstock production; and resistance to the use of genetically modified organisms (GMOs).

2 The disclosure scope excludes risks associated with the lifecycle GHG emissions, which are addressed in RR-BI-410a.1, respectively.

3 If the entity identifies the availability of clean water resources as a risk to feedstock supply or pricing, it shall discuss the vulnerability to feedstock growing regions with water stress and how it manages price variability risk because of sourcing feedstock from these regions.

3.1 The entity should identify its known sources of feedstock from growing regions with High (40–80%) or Extremely High (>80%) Baseline Water Stress using the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

4 The entity shall describe how it manages risks or opportunities associated with feedstock production, including constraints created by regulation, and limits on availability and price.

4.1 Relevant strategies to discuss include sourcing from feedstock producers that are third-party certified to environmental sustainability standards, diversification of suppliers, using feedstock procurement criteria to choose suppliers for varied feedstocks with fewer environmental impacts or greater adaptability to the effects of environmental externalities (for example, drought-tolerant or disease-resistant feedstocks), supplier audits, sourcing from regions where the entity has greater control over feedstock sources, and expenditures on research and development (R&D) for alternative and substitute feedstocks that are less susceptible to environmental externalities.

4.2 The entity should disclose the sustainability criteria it uses to assess its feedstock suppliers.

RR-BI-430a.2. Percentage of biofuel production third-party certified to an environmental sustainability standard

1 The entity shall calculate the percentage as the volume of biofuel produced that is third-party certified to an environmental sustainability standard divided by the total volume of biofuel produced.

2 Environmental sustainability standards include Bonsucro, the Council on Sustainable Biomass Production (CSBP), International Sustainability & Carbon Certification, Roundtable on Sustainable Biomaterials (RSB), and Roundtable on Responsible Soy (RTRS), as well as other standards with equivalent criteria.

2.1 At a minimum, standards should include the following environmental sustainability topics:

2.1.1 GHG and other air emissions, water consumption and quality, soil health, fertiliser and pesticide use, land-use change, biodiversity and waste management.

3 The entity should disclose the certification schemes to which its biofuel is certified and the percentage of production certified to each scheme.

Management of the Legal & Regulatory Environment

Topic Summary

The Biofuels industry is dependent on government policies and regulations that create market demand and incentivise supply with tax breaks and other support for feedstock production. The Biofuels industry supports some regulations and policies related to renewable fuel policy, production tax credits and feedstock production. While regulatory support can result in positive short-term gains by supporting the biofuels market, the potential long-term adverse environmental impacts from feedstock and biofuels production may result in a reversal of beneficial policies, leading to a more uncertain regulatory environment. Consequently, biofuels entities may benefit from developing clear strategies for engaging regulators that are aligned with long-term sustainable business outcomes and that account for environmental externalities.

Metrics

RR-BI-530a.1. Amount of subsidies received through government programmes

1 The entity shall disclose the amount of subsidies received through government programmes during the reporting year. Subsidies include tax credits such as blending and production tax credits, funding for projects such as research and development, import tariffs, direct payments, capital grants, loans and loan guarantees and any other monetary support received from government departments or programmes.

2 Government programmes include those worldwide at all jurisdictional levels.

3 The entity may disclose the type of biofuel subsidies received and the amount of each. Types of biofuel subsidies may include blending and production tax credits, capital grants, direct payments, loans and loan guarantees, surcharges or tariffs on competing products, and funding for projects such as research and development.

4 The entity shall disclose the amount of subsidies as an aggregate amount that was recognised during the reporting year, regardless of the accounting method (for example, deferral method, flow-through method or other GAAP methods for investment tax credits).

RR-BI-530a.2. Discussion of corporate positions related to government regulations or policy proposals that address environmental and social factors affecting the industry

1 The entity shall identify risks and opportunities it faces related to laws, regulations or rulemaking, (hereafter referred to collectively as 'legal and regulatory environment') related to environmental and social factors that may have a significant financial impact.

1.1 The scope shall include existing, emerging and known future risks and opportunities.

1.2 The scope shall include risks and opportunities that may exist domestically and globally.

1.3 The regulatory environment related to material environmental and social factors includes those related to non-greenhouse gas air emissions, greenhouse gas emissions, water withdrawals and effluents, feedstock sourcing, and process and employee safety.

2 Relevant risks may include increased compliance costs, policy reversal (for example, changes to existing environmental regulations), loss of financial incentives (for example, reduction or elimination of tax deductions), reputation (for example, the entity's stance and actions related to the legal and regulatory environment), legal and regulatory environment misalignment with long-term strategy, and misalignment with the expectations of customers, investors and other stakeholders.

3 Relevant opportunities may include improved financial conditions (for example, through policies that incentivise biofuel manufacturing activities), improved community relations (for example, the entity's stance and actions related to the legal and regulatory environment), and other benefits the entity realises from the alignment of the legal and regulatory environment with long-term strategy.

4 The entity shall discuss its efforts to manage risks and opportunities associated with each aspect of the legal and regulatory environment associated with the topics included in this Standard that are relevant to the entity's business and may have a significant financial impact.

5 In addition to efforts to influence the legal and regulatory environment, the entity shall discuss its overall strategy to manage identified risks and opportunities associated with each aspect of the legal and regulatory environment.

5.1 Any changes it has made or plans to make to its business structure or model

5.2 The development of new technologies or services

5.3 Any changes made or plans to make to operational processes, control or organisational structures

Volume 41—Forestry Management

Industry Description

Forestry Management industry entities own or manage natural and planted forestry lands and timber tracts or operate non-retail tree nurseries and rubber plantations. The industry conducts operations on lands that can be entity-owned or leased from public or private landowners. Entities typically sell timber to wood products manufacturers, pulp and paper producers, energy producers, and a variety of other customers. Although some integrated entities also may operate sawmills, wood products facilities, or pulp and paper facilities, sustainability issues arising from these activities are addressed in the Building Products & Furnishings (CG-BP) and Pulp & Paper Products (RR-PP) industries.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Ecosystem Services & Impacts	Area of forestland certified to a third-party forest management standard, percentage certified to each standard [67]	Quantitative	Hectares, Percentage (%)	RR-FM-160a.1
	Area of forestland with protected conservation status	Quantitative	Hectares	RR-FM-160a.2
	Area of forestland in endangered species habitat	Quantitative	Hectares	RR-FM-160a.3
	Description of approach to optimising opportunities from ecosystem services provided by forestlands	Discussion and Analysis	n/a	RR-FM-160a.4
Climate Change Adaptation	Description of strategy to manage opportunities for and risks to forest management and timber production presented by climate change	Discussion and Analysis	n/a	RR-FM-450a.1

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Area of forestland owned, leased, and/or managed by the entity	Quantitative	Hectares	RR-FM-000.A
Aggregate standing timber inventory [68]	Quantitative	Cubic metres (m^3)	RR-FM-000.B
Timber harvest volume [69]	Quantitative	Cubic metres (m^3)	RR-FM-000.C

67 Note to **RR-FM-160a.1** – The entity shall describe forestry management practices for non-certified forestlands, and for any forest management certifications that were suspended or terminated, the entity shall disclose the number, associated acreage, and stated reason for suspension or termination.

68 Note to **RR-FM-000.B** – The entity may additionally note if it uses other units of measure to define its standing timber inventory, and it shall disclose any conversion factors used.

69 Note to **RR-FM-000.C** – The entity may additionally note if it uses other units of measure to define its timber harvest volume, and it shall disclose any conversion factors used.

Ecosystem Services & Impacts

Topic Summary

Along with their timber output, forests provide valuable ecosystem services including carbon sequestration, wildlife habitat, water purification and storage, soil formation, and recreational opportunities. Meanwhile, in many regions, regulations related to water quality and endangered species protection, as well as harvesting rights that are contingent upon environmental preservation, may create operational risks for entities. As such, protecting or enhancing ecosystem services within managed forestlands could mitigate reputational, demand and operational risks related to the potential adverse environmental impacts of forestry. Entities increasingly use third-party certification to show sustainable forestry management practices that serve to enhance forest asset value and productivity, as well as to meet rising consumer demand for sustainably produced forest products.

Metrics

RR-FM-160a.1. Area of forestland certified to a third-party forest management standard, percentage certified to each standard

1 The entity shall disclose its total forestland area, in acres, certified to a third-party forest management standard, where:

1.1 The scope includes forestlands owned, leased or managed by the entity.

1.2 Third-party forest management standards certify entities harvest forests in a sustainable manner based on environmental and social criteria including legal compliance, land rights, community and worker relations, environmental impact and biodiversity, forest management plans and practices, land use, wildlife habitat conservation, and water conservation, among others.

1.3 Third-party forest management certifications may include those promoted by the following organisations (or the equivalent):

1.3.1 American Tree Farm System (ATFS)

1.3.2 Forest Stewardship Council (FSC)

1.3.3 Programme for the Endorsement of Forest Certification (PEFC)

1.3.4 Forest certification systems endorsed by the PEFC

1.3.5 Sustainable Forest Initiative (SFI)

2 If a forestland area is certified to more than one certification standard, the entity shall not account for the acreage more than once when calculating the total forestland area certified to a third-party forest management standard.

3 The entity shall disclose the percentage of the total certified forestland certified to each forest management standard (for example, FSC, SFI, PEFC and ATFS) and show the associated certification(s) (for example, FSC Forest Management Certification, SFI Forest Management Standard, PEFC Sustainable Forest Management certification or ATFS Individual Third-Party certification).

3.1 The entity shall calculate the percentage of forestland certified to each forest management standard as the number of acres third-party certified to the respective standard divided by the total number of certified acres owned, leased or managed by the entity.

4 The entity shall disclose the percentage of acres certified to more than one certification scheme.

Note to **RR-FM-160a.1**

1 The entity shall provide a brief description of its forestry management practices implemented for non-certified forestlands owned, leased or managed by the entity.

2 The entity may discuss:

2.1 The topics and criteria addressed by the practices(s), such as: forest productivity and health, protection from ecological and biodiversity impacts, protection of water resources, noise impacts, discharges to water, protection of special sites, plantation farming, harvesting techniques, use of monocultures, use of genetically modified organisms

(GMOs), chemical usage, community involvement, indigenous communities, and aesthetics and recreation, among others

2.2 How the entity enforces the sustainable forestry management plans in its non-certified forestlands, including the type and frequency of inspections

2.3 The underlying references for its forestry management plan(s) for non-certified forestlands, including the degree to which its forest management practices are aligned with criteria outlined in third-party sustainable forestry management standards and ASTM D7480, *Guide for Evaluating the Attributes of a Forest Management Plan*; whether these references are codes, guidelines, standards or regulations; and whether they were developed by the entity, an industry, organisation, a third-party organisation (for example, a non-governmental organisation), a governmental agency or some combination of these groups

3 If policies and practices to ensure sustainable forest management vary significantly by forestland, the entity shall describe variations for each non-certified forestland and disclose the percentage of acres to which they were applied.

4 The entity shall disclose whether any forest management certifications were involuntarily suspended or terminated during the reporting period (for failure to meet the standard or resolve major non-conformities).

5 The entity shall disclose which certification(s) was suspended or terminated, the total acreage of land for which certification was suspended or terminated, the reason stated by the certification body or bodies for why the certification was suspended or terminated, and any other explanatory information about the suspension or termination.

6 The entity may discuss any relevant corrective actions taken in response to a certification being suspended or terminated.

RR-FM-160a.2. Area of forestland with protected conservation status

1 The entity shall disclose the area of owned, leased or managed forestland (by acreage) that has protected conservation status, where an area is considered to have protected conservation status if it is located within:

1.1 Areas legally designated as protected by government regulation, including national parks, national wildlife refuge sites, wilderness areas, state forests, state parks and areas under conservation easement, as well as sites categorised as such by NatureServe and State Natural Resource Agencies, and agencies associated with the network of Natural Heritage or Conservation Data Centres, or Natura 2000 sites.

1.1.1 These sites may be listed in the World Database of Protected Areas (WDPA) and mapped on ProtectedPlanet.net.

2 The scope includes areas of conservation status actively managed by or for the entity and excludes areas of conservation status exclusively set aside for conservation and not actively managed.

2.1 The scope includes areas of conservation status that are government-owned and managed by the entity.

3 The entity may disclose the percentage of the area of forestland with protected conservation status certified to a third-party forest management standard.

4 The entity may discuss the likelihood of a change to the area of its owned, leased or managed forestland that is considered to have protected conservation status.

5 The entity may separately identify forestland areas with additional ecological, biodiversity or conservation designations, such as those listed by the A–Z Guide of Areas of Biodiversity Importance prepared by the United Nations Environment Programme’s World Conservation Monitoring Centre (UNEP-WCMC).

RR-FM-160a.3. Area of forestland in endangered species habitat

1 The entity shall disclose the area of owned, leased or managed forestland (by acreage) located in endangered species habitat.

2 Forestlands are considered to be an endangered species habitat if a species that is classified by applicable jurisdictional laws or regulations as endangered or threatened inhabits the entity's forestlands.

3 The scope of disclosure includes forestlands owned, leased or managed by the entity.

4 An endangered species is defined as any species that is in danger of extinction throughout all or a significant portion of its range of habitat.

5 A threatened species is defined as any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

6 Endangered species habitats include critical habitat areas where the entity owns, leases or manages forestlands officially designated by applicable jurisdictional laws or regulations providing endangered species lists in the regions where the entity owns, leases or manages forestlands.

7 The entity may disclose the types of endangered or threatened species in its forestlands.

8 The entity shall disclose whether any overlap exists between the areas identified in RR-FM-160a.2 and RR-FM-160a.3.

9 The entity may provide discussion around forestlands located in endangered species habitats, but which present low risk to biodiversity or ecosystem services.

10 The entity may discuss the likelihood of a change to the area of its owned, leased or managed forestland considered to be an endangered species habitat.

10.1 Discussion may include:

10.1.1 Whether an endangered or threatened species habitat lies near, but not currently in, the entity's forestlands, and whether the habitat(s) could overlap with the entity's forestlands

10.1.2 Whether species in or near the entity's forestlands are classified as endangered or threatened in non-government regulatory lists, but not currently by government regulatory lists, and whether these species may be classified as endangered or threatened by a regulatory endangered species list

10.1.3 Whether the current endangered or threatened species habitat in the entity's forestlands is expected to change or expand in the future

10.2 The entity may disclose the likelihood of these changes occurring and the area of its forestlands that could be affected.

RR-FM-160a.4. Description of approach to optimising opportunities from ecosystem services provided by forestlands

1 The entity shall discuss how it optimises the opportunities created by the ecosystem services that its forestlands provide, where:

1.1 Ecosystem services are defined by the Millennium Ecosystem Assessment as the benefits obtained from ecosystems, which include: provisioning services (goods or products obtained from ecosystems), such as food, fresh water, timber and fibre; regulating services (benefits obtained from an ecosystem's control of natural processes), such as climate, erosion and pollination; cultural services (nonmaterial benefits obtained from an ecosystem), such as recreational and spiritual benefits; and supporting services (services that maintain the other ecosystem services), such as nutrient cycling, primary production and water cycling.

1.2 Opportunities from effective ecosystem services management may include higher land value, increased productivity and timber yield, direct payments for timber and non-timber forest products, and improved relationships with stakeholders.

2 For ecosystems services for which the entity receives no direct payments, the entity shall describe how it manages these ecosystem services. The discussion shall include:

2.1 The type(s) of ecosystem service(s) the entity manages, where types of ecosystem services may include: air quality, soil stabilisation and erosion control, and cultural value

2.2 The entity's management actions, including decisions about harvesting, management of conservation areas or areas of high biodiversity, or conserving forested watershed

3 For the ecosystem services for which the entity does receive direct payments, the entity may disclose the amount the entity receives for non-timber ecosystem goods and services and the type of compensation it receives, which may include:

3.1 Public payments to landowners (from the government)

3.2 Voluntary payments to landowners (from businesses, individuals and non-governmental organisations)

3.3 Compliance-driven payments (payments made to comply with government regulations)

4 The entity may disclose whether the revenue received from these non-timber or timber ecosystem services may change in the future and the methods or models used to develop these scenarios, including the use of global models or scientific research provided by governmental and non-governmental organisations.

5 The entity may discuss how management of non-timber ecosystem services is expected to affect tree growth and timber yield.

Climate Change Adaptation

Topic Summary

Global climate change may create long-term business uncertainty for some forestry management entities. Variations in precipitation patterns and temperatures, more frequent extreme weather events and forest fires, and an increased prevalence of tree diseases and pests may impact timberlands adversely through increased mortality or diminished productivity. Conversely, positively impacting forest productivity, climate change also may facilitate forest productivity through increased atmospheric carbon dioxide, a longer growing season, moderating temperatures in high latitudes, greater precipitation, and expanded geographical ranges for some species. Considering such variability, entities may benefit from identifying and understanding potential long-term impacts of climate change on the productivity of forestlands and from adjusting forestry management strategies to optimise the productivity of their forestland assets.

Metrics

RR-FM-450a.1. Description of strategy to manage opportunities for and risks to forest management and timber production presented by climate change

1 The entity shall discuss the risks or opportunities presented by climate scenarios to owned, leased or managed forestlands, including, if relevant, those presented by:

1.1 Physical impacts which may include increased temperatures, changes in growth rates, changes in seasonality, availability of water, pest migration, increased frequency of fires and increased frequency of extreme weather events

1.2 Existing and potential legislation and regulation related to climate change, including those that limit emissions, tax emissions, set up cap-and-trade systems, affect the demand for the entity's products or otherwise affect the entity

1.3 International accords relating to climate change

1.4 Indirect consequences of regulation or business trends, including legal, technological or other developments related to climate change

1.5 Other political and social risks, such as increased harvesting restrictions, or stakeholder perceptions or concerns (for example, those from local communities, non-governmental organisations and regulatory agencies)

2 For each of the risks or opportunities identified, the entity shall provide:

2.1 A description of the risk or opportunity, including an explanation and qualitative assessment of current and anticipated (long- and short-term) significant risks or opportunities associated with climate change

2.1.1 Disclosure corresponds to CDSB *Framework for reporting environmental and social information (*CDSB *Framework)* Requirement 03.

2.2 Strategic analysis of the long- and short-term impact climate change actually and potentially has on the entity's strategic objectives

2.2.1 Disclosure corresponds to CDSB *Framework* Requirements 02, 05 and 06.

2.3 The potential effect (direct or indirect) the risk or opportunity may have on the entity's business, and the projected magnitude of the effect

2.3.1 Where the entity has quantified the potential financial effects of the risk or opportunity (disclosure corresponds to CDSB *Framework* Requirements 03 and 06.)

2.4 The time frame in which the risk or opportunity is expected to manifest

2.4.1 Disclosure corresponds to CDSB *Framework* Requirement 03.

2.5 The likelihood that the risk or opportunity will manifest

2.5.1 Disclosure corresponds to CDP *Climate Change Questionnaire* CC5.1 and CC6.1.

3 The entity shall discuss how potential climate-related risks or opportunities may vary among the following, and how it prioritises the risks and opportunities identified (disclosure corresponds to CDP *Climate Change Questionnaire* CC2.1c):

3.1 The regions where the entity owns, leases or manages forestlands

3.2 The entity's products, services or markets

3.3 The types of tree species harvested by the entity

3.4 The entity's plantation forestlands and its natural forestlands

4 The entity shall provide a discussion of the scenarios used to determine the risks and opportunities presented by climate change, including:

4.1 The methods or models used to develop these scenarios, including the use of global models or scientific research provided by governmental and non-governmental organisations (for example, the Intergovernmental Panel on Climate Change Climate Scenario Process)

5 The entity shall discuss its risk management procedures with respect to climate change risks and opportunities, including:

5.1 How far into the future risks are considered

5.2 The frequency of monitoring

5.3 The entity's alleviation strategies, which may include: use of insurance; diversification of tree species; actions to strengthen the adaptive capacity of forestlands; strategies to reduce the risk and intensity of pest, disease and fire outbreaks; or plans to reduce risk and intensity of potential damage

5.4 The entity's adaptation strategies, which may include: improving ecosystem management and biodiversity; monitoring changes; developing tolerant tree varieties; and optimising the timing of planting and harvesting

5.5 The costs associated with these actions

5.6 Disclosure corresponds to CDP *Climate Change Questionnaire* CC2.1.

Volume 42—Fuel Cells & Industrial Batteries

Industry Description

Fuel Cells & Industrial Batteries industry entities manufacture fuel cells for energy production and energy storage equipment such as batteries. Manufacturers in this industry mainly sell products to entities for varied energy-generation and energy-storage applications and intensities, from commercial business applications to large-scale energy projects for utilities. Entities in the industry typically have global operations and sell products to a global marketplace.

Note: This industry excludes fuel cells or batteries used in light automotive vehicle applications. See the Auto Parts (TR-AP) industry for reporting this business segment. This industry also excludes non-industrial batteries for personal consumer use, which are classified under the Household & Personal Products (CG-HP) industry.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	RR-FC-130a.1
Product Efficiency	Average storage capacity of batteries, by product application and technology type	Quantitative	Specific energy (Wh/kg)	RR-FC-410a.1
	Average energy efficiency of fuel cells as (1) electrical efficiency and (2) thermal efficiency, by product application and technology type	Quantitative	Percentage (%)	RR-FC-410a.2
	Average battery efficiency as coulombic efficiency, by product application and technology type	Quantitative	Percentage (%)	RR-FC-410a.3
	Average operating lifetime of fuel cells, by product application and technology type	Quantitative	Hours (h)	RR-FC-410a.4
	Average operating lifetime of batteries, by product application and technology type	Quantitative	Number of cycles	RR-FC-410a.5

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of units sold	Quantitative	Number	RR-FC-000.A
Total storage capacity of batteries sold	Quantitative	Megawatt-hours (MWh)	RR-FC-000.B
Total energy production capacity of fuel cells sold	Quantitative	Megawatt-hours (MWh)	RR-FC-000.C

Energy Management

Topic Summary

Manufacturing in the Fuel Cells & Industrial Batteries industry requires energy to power machines and cooling, ventilation, lighting and product-testing systems. Purchased electricity is a major share of the energy sources used in the industry and accounts for a notable proportion of the total cost of materials and value added. Various sustainability factors are increasing the cost of conventional electricity while making alternative sources cost-competitive. Energy efficiency efforts may have a significant positive impact on operational efficiency and profitability, especially because many entities operate on relatively low or negative margins. By improving manufacturing process efficiency and exploring alternative energy sources, fuel cell and industrial battery entities may reduce both their indirect environmental impacts and their operating expenses.

Metrics

RR-FC-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Product Efficiency

Topic Summary

Both customer demand and regulatory requirements are driving innovation in energy-efficient products with lower environmental impacts and lower total cost of ownership. Therefore, research and development in the Fuel Cells & Industrial Batteries industry that drive energy and thermal efficiency and enhance storage capacities may lower barriers to adoption. Advances in battery technology to increase storage capabilities and improve charging efficiencies, while reducing costs for customers, are critical for the integration of renewable energy technologies into the grid. Pressured by stricter environmental regulations, high energy costs and customer preferences, fuel cell and industrial battery manufacturers that improve efficiency in the use phase may increase revenue and market share.

Metrics

RR-FC-410a.1. Average storage capacity of batteries, by product application and technology type

1 The entity shall disclose the average storage capacity of batteries by product application and technology type, weighted by unit sales volume per product application and technology type.

1.1 Storage capacity shall be measured as the specific energy, or gravimetric energy density, of batteries, and is calculated as the ratio of nominal energy in watt-hours to the mass of the product in kilogrammes: watt-hours / kilogrammes (Wh/kg).

2 The entity shall measure and disclose performance in accordance with the applicable product application or technology type standard(s), and it shall disclose the standard(s) used for performance measurement.

2.1 Applicable standard(s) include SAE J240—Automotive storage batteries and SAE J2185—Heavy-duty storage batteries.

3 The entity shall disclose performance by these application types, if applicable: portable, motive, stationary and 'all other', each further categorised by these technology types, if applicable: lead-based, nickel-based, lithium-based, sodium-based and all other types.

3.1 The entity may include additional categories of application types or technology types if appropriate, including categories for new products with low sales volumes, but strategic importance in terms of product efficiency or other attributes.

RR-FC-410a.2. Average energy efficiency of fuel cells as (1) electrical efficiency and (2) thermal efficiency, by product application and technology type

1 The entity shall disclose the average energy efficiency of fuel cells as (1) electrical efficiency and (2) thermal efficiency, weighted by unit sales volume per product application and technology type.

1.1 Electrical efficiency is calculated as net electricity produced divided by total fuel energy input.

1.2 Thermal efficiency is calculated as net useful power output divided by total fuel energy input.

1.3 The entity shall use lower heating values (LHV) in the calculation of electrical efficiency and thermal efficiency, and it shall disclose the heating values used.

2 The entity shall measure and disclose electrical and thermal efficiency in accordance with standard(s) applicable to the product application or technology type.

2.1 Applicable standard(s) may include: IEC 62282-3-200—Stationary fuel cell power systems and SAE J2615—Testing Performance of Fuel Cell Systems for Automotive Applications.

2.2 The entity shall disclose the standard(s) used for energy efficiency measurements.

3 The entity shall disclose electrical and thermal efficiency by these application types, if applicable: portable, motive, stationary and 'all other', each further categorised by these technology types, if applicable: direct methanol (DMFC), polymer electrolyte (PEM), alkaline (AFC), phosphoric acid (PAFC), molten carbonate (MCFC), solid oxide fuel cell (SOFC) and all other types.

3.1 The entity may include additional categories of application types or technology types if appropriate, including categories for new products with low sales volumes, but strategic importance in terms of product efficiency or other attributes.

4 The entity may disclose any other fuel cell outputs that have economic value (for example, hydrogen), including an appropriate measurement of sales-weighted average value, by product application and technology type.

RR-FC-410a.3. Average battery efficiency as coulombic efficiency, by product application and technology type

1 The entity shall disclose the average energy efficiency of batteries as coulombic efficiency, weighted by unit sales volume per product application and technology type.

1.1 Coulombic efficiency is calculated as energy removed from a battery during discharge divided by the energy used during charging to restore the original capacity.

2 The entity shall measure and disclose coulombic efficiency in accordance with standard(s) applicable to the product application or technology type.

2.1 Applicable standard(s) include SAE J240—Automotive storage batteries and SAE J2185—Heavy-duty storage batteries.

3 The entity shall disclose coulombic efficiency by these application types, if applicable: portable, motive, stationary and 'all other', each further categorised by these technology types, if applicable: lead-based, nickel-based, lithium-based, sodium-based and all other types.

3.1 The entity may include additional categories of application types or technology types if appropriate, including categories for new products with low sales volumes, but strategic importance in terms of product efficiency or other attributes.

RR-FC-410a.4. Average operating lifetime of fuel cells, by product application and technology type

1 The entity shall disclose the average operating lifetime of fuel cells, weighted by unit sales volume per product application and technology type.

1.1 Operating lifetime of fuel cells is calculated as operating hours until 20% net power degradation occurs.

2 The entity shall measure and disclose operating lifetime in accordance with standard(s) applicable to the product application or technology type.

2.1 Applicable standard(s) may include IEC 62282-3-200—Stationary fuel cell power systems and SAE J2615—Testing Performance of Fuel Cell Systems for Automotive Applications.

3 The entity shall disclose operating lifetime by these application types, if applicable: portable, motive, stationary and 'all other', each further categorised by these technology types, if applicable: direct methanol (DMFC), polymer electrolyte (PEM), alkaline (AFC), phosphoric acid (PAFC), molten carbonate (MCFC), solid oxide fuel cell (SOFC) and all other types.

3.1 The entity may include additional categories of application types or technology types, if appropriate, including categories for new products with low sales volumes, but strategic importance in terms of product efficiency or other attributes.

RR-FC-410a.5. Average operating lifetime of batteries, by product application and technology type

1 The entity shall disclose the average operating lifetime of batteries, weighted by unit sales volume per product application and technology type.

1.1 The operating lifetime of batteries is calculated as the number of times the battery can be fully charged and discharged, or 'cycles', until 20% capacity degradation occurs.

2 The entity shall measure and disclose operating lifetime in accordance with standard(s) applicable to the product application or technology type.

2.1 Applicable standard(s) include SAE J240—Automotive storage batteries and SAE J2185—Heavy-duty storage batteries.

3 The entity shall disclose performance by these application types, if applicable: portable, motive, stationary and 'all other', each further categorised by these technology types, if applicable: lead-based, nickel-based, lithium-based, sodium-based and all other types.

3.1 The entity may include additional categories of application types or technology types if appropriate, including categories for new products with low sales volumes, but strategic importance in terms of product efficiency or other attributes.

Volume 43—Pulp & Paper Products

Industry Description

Pulp & Paper Products industry entities manufacture a range of wood pulp and paper products, including pulp fibre, paper packaging and sanitary paper, office paper, newsprint, and paper for industrial applications. Entities in the industry typically function as business-to-business entities and may have operations in multiple countries. Although some integrated entities own or manage timber tracts and are engaged in forest management, sustainability issues arising from these activities are addressed in the Forestry Management (RR-FM) industry.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions	Quantitative	Metric tons (t) CO_2-e	RR-PP-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	RR-PP-110a.2
Energy Management	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage from biomass, (4) percentage from other renewable energy and (5) total self-generated energy [70]	Quantitative	Gigajoules (GJ), Percentage (%)	RR-PP-130a.1
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	RR-PP-140a.1
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	RR-PP-140a.2
Supply Chain Management	Percentage of wood fibre sourced from (1) third-party certified forestlands and percentage to each standard and (2) meeting other fibre sourcing standards and percentage to each standard [71]	Quantitative	Percentage (%) by weight	RR-PP-430a.1
	Amount of recycled and recovered fibre procured [72]	Quantitative	Metric tons (t)	RR-PP-430a.2

[70] Note to **RR-PP-130a.1** – The entity shall discuss risks and uncertainties associated with the use of biomass for energy.

[71] Note to **RR-PP-430a.1** – The entity shall discuss due diligence practices for fibre that is not from certified forestlands or certified to other fibre sourcing standards.

[72] Note to **RR-PP-430a.2** – The entity shall discuss its strategy to incorporate environmental lifecycle analyses into decisions to source recycled and recovered fibre versus virgin fibre.

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Pulp production	Quantitative	Air-dried metric tons (t)	RR-PP-000.A
Paper production	Quantitative	Air-dried metric tons (t)	RR-PP-000.B
Total wood fibre sourced [73]	Quantitative	Metric tons (t)	RR-PP-000.C

Greenhouse Gas Emissions

Topic Summary

The manufacturing of pulp and paper products generates direct greenhouse gas (GHG) emissions associated with the combustion of fossil fuels and biomass in stationary and mobile engines, cogeneration boilers, and other processing equipment. Entities in this industry also typically use significant amounts of carbon-neutral biomass for their energy needs, the use of which may reduce the costs associated with purchasing fossil fuels, as well as mitigate regulatory risk associated with carbon emissions. Emissions associated with fossil fuel sources may add regulatory compliance costs, depending on the magnitude of emissions and the prevailing emissions regulations. Entities that cost-effectively manage GHG emissions through greater energy efficiency, alternative fuels use or manufacturing process improvements may benefit from improved operating efficiency and reduced regulatory compliance costs.

Metrics

RR-PP-110a.1. Gross global Scope 1 emissions

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalent (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 Acceptable calculation methodologies include those that conform to the *GHG Protocol* as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples include:

2.1.1 G*HG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)

[73] Note to **RR-PP-000.C** – The scope of wood-fibre-based raw materials includes all inputs that are processed to be sold as a finished good, including recycled raw materials, virgin raw materials, and goods that will be consumed directly in the production process and excluding biomass for energy use.

2.1.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the U.S. Environmental Protection Agency (EPA)

2.1.3 India GHG Inventory Program

2.1.4 ISO 14064-1

2.1.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.1.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.2 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which generally is aligned with the 'financial control' approach defined by the *GHG Protocol*, and the approach published by the Climate Disclosure Standards Board (CDSB) that is described in REQ-07, 'Organisational boundary', of the *CDSB Framework for reporting environmental and social information*.

3 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

4 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

5 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

RR-PP-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

5 The entity shall discuss whether its strategies, plans, or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Energy Management

Topic Summary

Pulp and paper products manufacturing is energy-intensive. In most facilities, entities generate energy primarily from the combustion of biomass and fossil fuels, although purchased electricity also may be used in some facilities. Decisions regarding on-site electricity generation versus sourcing it from the grid, as well as the use of biomass and other renewable energy, may create trade-offs related to the energy supply's cost and reliability for operations and the extent of the regulatory risk from Scope 1 or other air emissions. The way an entity manages energy efficiency, its reliance on varied types of energy and the associated sustainability risks, and its access to alternative energy sources, may mitigate the effects of energy cost variability.

Metrics

RR-PP-130a.1. (1) Total energy consumed, (2) percentage grid electricity, (3) percentage from biomass, (4) percentage from other renewable energy and (5) total self-generated energy

1 The entity shall disclose (1) the total amount of energy consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from sources external to the entity and energy produced by the entity itself (self-generated). For example, direct fuel use, purchased electricity, and heating, cooling and steam energy all are included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy consumed that was supplied by biomass.

3.1 The percentage shall be calculated as biomass energy consumption divided by total energy consumption.

4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to:

4.1 Energy from biomass sources that meets at least one of the following criteria:

4.1.1 Certification to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System)

4.1.2 Classification as an 'eligible renewable' according to the Green-e Energy National Standard Version 2.5 (2014)

4.1.3 Eligibility for a jurisdictional Renewable Portfolio Standard

5 The entity shall disclose (4) the percentage of energy it consumed that was renewable energy, excluding biomass energy.

5.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

5.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

5.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

5.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

5.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

5.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

6 The entity shall disclose (5) the amount of energy self-generated by the entity as an aggregate figure, in gigajoules (GJ).

6.1 The entity may disclose the amount of self-generated energy sold to an electric utility or end-use customer.

6.2 The entity may disclose the amount of self-generated energy that was renewable energy, where renewable energy is defined above.

7 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Note to **RR-PP-130a.1**

1 The entity shall describe risks and uncertainties associated with the use of biomass as an energy source, and it shall describe how it manages those risks.

2 Risks and uncertainties associated with the use of biomass as an energy source may include:

2.1 Risks from air emissions (such as oxides of nitrogen and sulphur), including costs to comply with emissions restrictions and reputational damage resulting from violations.

2.2 Regulatory risks, including financial effects associated with compliance with potential biogenic carbon dioxide regulations, or reputational impacts associated with biomass failing to meet the definition of eligible renewable energy in a jurisdictional Renewable Portfolio Standard.

2.3 Sourcing risks, including reputational risks associated with a lack of transparency about whether purchased biomass was sustainably harvested.

Water Management

Topic Summary

Pulp and paper products manufacturing is typically water-intensive in materials processing, process cooling and steam generation at on-site energy plants. Entities require ample, stable water supplies and may produce large volumes of wastewater, the majority of which is treated and returned to the environment. Process water typically contains dissolved organic compounds and other solids, underscoring the importance of water treatment. In addition to water effluents, water availability is an important consideration because water scarcity may result in higher supply costs, supply disruptions or tension with local water users. Entities may adopt various strategies to address water supply and treatment issues, such as cost-effectively enhancing the recycling of process water, improving production techniques to lower water intensity, and ensuring compliance with water-effluent regulations.

Metrics

RR-PP-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

RR-PP-140a.2. Description of water management risks and discussion of strategies and practices to mitigate those risks

1 The entity shall describe its water management risks associated with water withdrawals, water consumption and discharge of water or wastewater.

1.1 Risks associated with water withdrawals and water consumption include risks to the availability of adequate, clean water resources, which include:

1.1.1 Environmental constraints—such as operating in water-stressed regions, drought, concerns of aquatic impingement or entrainment, interannual or seasonal variability, and risks from the impact of climate change

1.1.2 Regulatory and financial constraints—such as volatility in water costs, stakeholder perceptions and concerns related to water withdrawals (for example, those from local communities, non-governmental organisations and regulatory agencies), direct competition with and impact from the actions of other users (for example, commercial and municipal users), restrictions to withdrawals because of regulations, and constraints on the entity's ability to obtain and retain water rights or permits

1.2 Risks associated with the discharge of water or wastewater include the ability to obtain rights or permits related to discharges, regulatory compliance related to discharges, restrictions to discharges, the ability to maintain control over the temperature of water discharges, liabilities, reputational risks and increased operating costs because of regulation, stakeholder perceptions and concerns related to water discharges (for example, those from local communities, non-governmental organisations and regulatory agencies).

2 The entity may describe water management risks in the context of:

2.1 How risks may vary by withdrawal source, including surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities; and

2.2 How risks may vary by discharge destinations, including surface water, groundwater or wastewater utilities.

3 The entity may discuss the potential effects that water management risks may have on its operations and the time line over which such risks are expected to manifest.

3.1 Effects include those associated with costs, revenue, liabilities, continuity of operations and reputation.

4 The entity shall discuss its short- and long-term strategies or plans to mitigate water management risks, which include:

4.1 The scope of its strategy, plans, goals or targets, such as how they relate to various business units, geographies or water-consuming operational processes.

4.2 Any water management goals or targets it has prioritised, and an analysis of performance against those goals or targets.

4.2.1 Goals and targets include those associated with reducing water withdrawals, reducing water consumption, reducing water discharges, reducing aquatic impingements, improving the quality of water discharges and regulatory compliance.

4.3 The activities and investments required to achieve the plans, goals or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4.4 Disclosure of strategies, plans, goals or targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

5 For water management targets, the entity shall additionally disclose:

5.1 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target.

5.2 The time lines for the water management activities, including the start year, the target year and the base year.

5.3 The mechanism(s) for achieving the target, including:

5.3.1 Efficiency efforts, such as the use of water recycling or closed-loop systems;

5.3.2 Product innovations, such as redesigning products or services to require less water;

5.3.3 Process and equipment innovations, such as those that enable the reduction of aquatic impingements or entrainments;

5.3.4 Use of tools and technologies (for example, the World Wildlife Fund Water Risk Filter, the Global Water Tool and Water Footprint Network Footprint Assessment Tool) to analyse water use, risks and opportunities; and

5.3.5 Collaborations or programmes in place with the community or other organisations

5.4 The percentage reduction or improvement from the base year, in which the base year is the first year against which water management targets are evaluated towards the achievement of the target.

6 The entity shall discuss whether its water management practices result in any additional lifecycle impacts or trade-offs in its organisation, including trade-offs in land use, energy production and greenhouse gas (GHG) emissions, and why the entity chose these practices despite lifecycle trade-offs.

Supply Chain Management

Topic Summary

Pulp and paper products entities source wood and wood fibre from forestry management entities, paper fibre recyclers and forests that the entities themselves manage. Supply chain risks include decreased productivity of forestlands because of management practices or climate change, regulations addressing sustainable forest management, and reputational effects. To mitigate such risks and satisfy growing customer demand for sustainably sourced fibre and paper products, manufacturers implement forest certification and fibre chain-of-custody standards which verify that virgin and recycled fibre originate from sustainably managed forests. In addition, pulp and paper manufacturers may face trade-offs from the use of recovered fibre. Products with recycled content are increasingly in demand, providing a possible avenue for product differentiation, while using recycled fibre can minimise the need for virgin fibre. Conversely, manufacturing products with a greater recycled content may increase waste generation and energy consumption, while recycled fibre can be costlier, given demand–supply gaps. Therefore, entities may benefit by optimising recycled fibre use to balance its environmental and economic trade-offs.

Metrics

RR-PP-430a.1. Percentage of wood fibre sourced from (1) third-party certified forestlands and percentage to each standard and (2) meeting other fibre sourcing standards and percentage to each standard

1 The entity shall disclose the percentage of total wood-fibre-based materials sourced from forestlands certified to forest management standards, where:

1.1 Third-party forest management standards are those certifying forests are harvested in a sustainable manner and ensure adherence to environmental and social criteria including legal compliance, land rights, community and worker relations, environmental impact and biodiversity, forest management plans and practices, land use, wildlife habitat conservation, and water conservation, among others.

1.2 Third-party forest management certifications may include those promoted by the following organisations (or the equivalent):

1.2.1 American Tree Farm System (ATFS) (ATFS Certification)

1.2.2 Forest Stewardship Council (FSC) (FSC Forest Management and Chain of Custody certifications)

1.2.3 Programme for the Endorsement of Forest Certification (PEFC) (PEFC Chain of Custody certifications)

1.2.4 Forest certification systems endorsed by the PEFC

1.2.5 Sustainable Forest Initiative (SFI) (SFI Forest Management and Chain of Custody certifications)

1.3 The scope of wood-fibre-based materials includes all inputs processed to be sold as a finished good, including recycled raw materials, virgin raw materials, and goods consumed directly in the production process and excluding biomass for energy.

2 The percentage of wood-fibre-based materials from third-party certified forestlands shall be calculated as the total weight (in air dried metric tons) of the entity's wood-fibre-based materials sourced from third-party certified forestlands divided by the total weight (in air dried metric tons) of wood-fibre-based materials sourced.

3 The entity shall disclose the percentage of the total wood-fibre-based materials from third-party certified forestlands certified to each standard (for example, FSC Chain of Custody, PEFC Chain of Custody and SFI Chain of Custody).

3.1 The entity shall calculate the percentage of wood-fibre-based materials certified to each standard as the amount of wood-fibre-based materials third-party certified to the respective standard divided by the total amount of wood fibre sourced by the entity.

3.2 If wood-fibre is certified to multiple third-party certifications, the entity shall include the amount of such fibre in its calculations for each relevant certification.

4 The entity shall disclose the percentage of its total wood-fibre-based materials sourced from non-third-party certified forestlands but meets other fibre sourcing standards, including:

4.1 Responsible fibre sourcing standards (for example, SFI Fibre Sourcing Standard)

4.2 Controlled wood standards (for example, FSC Controlled Wood Certification and PEFC Controlled Wood)

4.3 Recycled fibre standards that include post- and pre-consumer reclaimed material (for example, PEFC Controlled Sources, FSC Recycled Label and SFI Recycled Label)

4.4 Any other due diligence standards that cover sourcing requirements for fibre from non-certified forestlands

5 For fibre from non-certified forestlands that meets multiple fibre sourcing standards, the entity shall not account for the weight more than once when calculating the total percentage of fibre from non-certified forestlands that meets other fibre sourcing standards.

6 The entity shall disclose the percentage of wood fibre that meets each sourcing standard (for example, FSC Controlled Wood, SFI Fibre Sourcing Standard and PEFC Controlled Sources).

6.1 If wood fibre meets multiple sourcing standards, the entity shall include the amount of such fibre in its calculations for each relevant sourcing standard.

Note to **RR-PP-430a.1**

1 The entity shall discuss its due diligence practices for fibre that is not from certified forestlands or certified to other fibre sourcing standards and its policies to verify the forestry management and harvesting practices of suppliers, which may include codes of conduct, audits or contracts, among others.

2 The entity shall disclose how it verifies that its non-certified fibre includes criteria for the following:

2.1 Wood legality

2.2 Wood sourced from areas of protected conservation status or high biodiversity value

2.3 Logging in or near areas of endangered species habitat

2.4 Logging in or near areas of indigenous peoples' land

2.5 The forestry management and harvesting practices of suppliers, including reviews of environmental impact assessments or forestry management plans

2.6 The use of genetically modified organisms (GMOs), pesticides or other chemicals in forests

2.7 Criteria outlined in the definition of SFI 'controversial sources', the definition of FSC 'controlled wood', or the equivalent

3 The entity also may disclose the sources of its wood fibre (for example, from corporate, private or federally owned forestlands and whether fibre is grown domestically or internationally) and the potential risks associated with procuring fibre from these sources.

RR-PP-430a.2. Amount of recycled and recovered fibre procured

1 The entity shall disclose the amount of recycled and recovered fibre procured in metric tons from suppliers as well as recycled and recovered fibre obtained directly through collection programmes.

2 Recycled content is defined, consistent with definitions in ISO 14021:1999, 'Environmental labels and declarations—Self-declared environmental claims (Type II environmental labelling)', as the portion, by mass, of recycled or recovered material in a product or packaging, where only pre-consumer and post-consumer materials shall be considered as recycled content, and where:

2.1 Recycled material is defined as material reprocessed from recovered (or reclaimed) material by means of a manufacturing process and made into a final product or a component for incorporation into a product.

2.2 Recovered material is defined as material that would have otherwise been discarded as waste or used for energy recovery, but it has instead been collected and recovered (or reclaimed) as a material input, in lieu of new primary material, for a recycling or manufacturing process.

2.3 Pre-consumer material is defined as material diverted from the waste stream during a manufacturing process. Excluded is the reuse of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated them.

2.4 Post-consumer material is defined as material generated by households or by commercial, industrial and institutional facilities in their role as end-users of a product that can no longer be used for its intended purpose. This includes returns of material from the distribution chain.

2.5 Fibre shall be considered recycled or recovered if it meets the SFI definition of recycled content, the FSC definition of reclaimed material, or the PEFC definition of recycled wood and fibres.

Note to **RR-PP-430a.2**

1 The entity shall discuss how it incorporates environmental lifecycle analyses into decisions to source recycled and recovered fibre versus virgin fibre.

1.1 An environmental lifecycle trade-off is defined as an environmental benefit or consequence of choosing to source one type of fibre over another.

1.1.1 Environmental lifecycle benefits from using recycled and recovered fibre may include reducing the need for deforestation, reducing GHG emissions from paper in landfills and reducing landfill waste.

1.1.2 Environmental lifecycle consequences of using recycled and recovered fibre can include increased resource consumption and generation of air emissions during the transportation and processing of fibre.

2 The entity shall discuss how lifecycle trade-off assessments are incorporated into its fibre sourcing decisions, including how the following risks and opportunities are managed:

2.1 Costs of recycled and recovered materials

2.2 Constraints related to accessing the necessary supply of recycled and recovered fibre

2.3 Recycling infrastructure needed by the entity or external paper collection facilities

2.4 Consumer behaviour to improve recovery of paper for recycling

2.5 Virgin wood fibre sourcing risks

2.6 Improving paper recovery rates

2.7 Regulation related to consumer recycling or minimum recycled content usage

2.8 Quality of fibre needed for products and the intended use of fibre for product segments

2.9 Product innovation opportunities

2.10 Increased revenue and reputational benefits related to products with recycled or recovered content

3 The entity may disclose a breakdown of its recycled and recovered fibre use by product segment.

Volume 44—Solar Technology & Project Developers

Industry Description

Solar Technology & Project Developers industry entities manufacture solar energy equipment, including solar photovoltaic (PV) modules, polysilicon feedstock, solar thermal electricity-generation systems, solar inverters and other related components. Entities also may develop, build and manage solar energy projects and offer financing or maintenance services to customers. The industry uses two primary technologies: PV and concentrated solar power (CSP). Within solar PV, two main technologies exist: crystalline silicon-based solar and thin-film solar, which includes panels made using copper indium gallium selenide and cadmium telluride. The primary markets for solar panels are residential, non-residential (commercial and industrial) and utility-scale projects. Entities in the industry operate globally.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management in Manufacturing	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	RR-ST-130a.1
Water Management in Manufacturing	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	RR-ST-140a.1
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	RR-ST-140a.2
Management of Energy Infrastructure Integration & Related Regulations	Description of risks associated with integration of solar energy into existing energy infrastructure and discussion of efforts to manage those risks	Discussion and Analysis	n/a	RR-ST-410a.1
	Description of risks and opportunities associated with energy policy and its effect on the integration of solar energy into existing energy infrastructure	Discussion and Analysis	n/a	RR-ST-410a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Total capacity of photovoltaic (PV) solar modules produced	Quantitative	Megawatts (MW)	RR-ST-000.A
Total capacity of completed solar energy systems [74]	Quantitative	Megawatts (MW)	RR-ST-000.B
Total project development assets [75]	Quantitative	Presentation currency	RR-ST-000.C

Energy Management in Manufacturing

Topic Summary

Solar panel manufacturing typically uses electrical energy purchased from the grid. Energy can account for a considerable share of the total cost of production. Considering rising energy costs and regulatory uncertainty surrounding the future of fossil-based energy, entities that diversify their energy sources may manage the associated risks and maintain a reliable energy supply more effectively. Entities that minimise energy use through effective energy management may reduce costs and gain a competitive advantage through operational efficiency and competitive pricing of products. Competitively priced products are particularly important given the intense price competition within the solar technology industry.

Metrics

RR-ST-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

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74 Note to **RR-ST-000.B** – Solar energy systems are defined as any system that converts sunlight into electrical energy, including photovoltaic (PV) systems and solar thermal electric systems. Completed systems are defined by the entity, consistent with its existing public disclosure of completed systems.

75 Note to **RR-ST-000.C** – Project development assets are defined by the entity, consistent with its existing public disclosure of project development assets, regardless of terminology used by the entity (e.g., “Project assets,” “Project assets—plants and land,” “Solar Energy Systems Held for Development and Sale,” etc.). At a minimum, project development assets include assets that are associated with solar energy systems that are under development or fully developed, owned by the entity, and held for sale or intended to be sold to a third party prior to the execution of a definitive sales agreement, and assets that consist primarily of capitalised costs incurred in connection with the development of solar energy systems.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Water Management in Manufacturing

Topic Summary

Solar photovoltaic panel manufacturing can be water-intensive, and ultra-pure water is a critical input in some processes. The manufacturing process also may generate wastewater, which must be treated before disposal or reuse, and therefore may result in incremental operating costs and capital expenditures. Furthermore, depending on the location, solar equipment manufacturing facilities may face water scarcity and related cost increases or operational disruptions. Water resource use may generate tension with local water users and associated risks, potentially disrupting manufacturing operations and adversely affecting brand value. To mitigate water supply and treatment risks, entities may adopt various strategies such as recycling process water, improving production techniques to lower water intensity, and improving water treatment systems.

Metrics

RR-ST-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic meters, that was withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes, and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities, or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic meters, that was consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea.

4 The entity shall analyze all of its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80 percent) or Extremely High (>80 percent) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose its water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose its water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

RR-ST-140a.2. Description of water management risks and discussion of strategies and practices to mitigate those risks

1 The entity shall describe its water management risks associated with water withdrawals, water consumption and discharge of water or wastewater.

1.1 Risks associated with water withdrawals and water consumption include risks to the availability of adequate, clean water resources, which include:

1.1.1 Environmental constraints—such as operating in water-stressed regions, drought, concerns of aquatic impingement or entrainment, interannual or seasonal variability, and risks from the impact of climate change

1.1.2 Regulatory and financial constraints—such as volatility in water costs, stakeholder perceptions and concerns related to water withdrawals (for example, those from local communities, non-governmental organisations and regulatory agencies), direct competition with and impact from the actions of other users (for example, commercial and municipal users), restrictions to withdrawals because of regulations, and constraints on the entity's ability to obtain and retain water rights or permits

1.2 Risks associated with the discharge of water or wastewater include the ability to obtain rights or permits related to discharges, regulatory compliance related to discharges, restrictions to discharges, the ability to maintain control over the temperature of water discharges, liabilities, reputational risks and increased operating costs because of regulation, stakeholder perceptions and concerns related to water discharges (for example, those from local communities, non-governmental organisations and regulatory agencies).

2 The entity may describe water management risks in the context of:

2.1 How risks may vary by withdrawal source, including surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities; and

2.2 How risks may vary by discharge destinations, including surface water, groundwater or wastewater utilities.

3 The entity may discuss the potential effects that water management risks may have on its operations and the time line over which such risks are expected to manifest.

3.1 Effects include those associated with costs, revenue, liabilities, continuity of operations and reputation.

4 The entity shall discuss its short- and long-term strategies or plans to mitigate water management risks, which include:

4.1 The scope of its strategy, plans, goals or targets, such as how they relate to various business units, geographies or water-consuming operational processes.

4.2 Any water management goals or targets it has prioritised, and an analysis of performance against those goals or targets.

4.2.1 Goals and targets include those associated with reducing water withdrawals, reducing water consumption, reducing water discharges, reducing aquatic impingements, improving the quality of water discharges and regulatory compliance.

4.3 The activities and investments required to achieve the plans, goals or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4.4 Disclosure of strategies, plans, goals or targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

5 For water management targets, the entity shall additionally disclose:

5.1 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target.

5.2 The time lines for the water management activities, including the start year, the target year and the base year.

5.3 The mechanism(s) for achieving the target, including:

5.3.1 Efficiency efforts, such as the use of water recycling or closed-loop systems;

5.3.2 Product innovations, such as redesigning products or services to require less water;

5.3.3 Process and equipment innovations, such as those that enable the reduction of aquatic impingements or entrainments;

5.3.4 Use of tools and technologies (for example, the World Wildlife Fund Water Risk Filter, the Global Water Tool and Water Footprint Network Footprint Assessment Tool) to analyse water use, risks and opportunities; and

5.3.5 Collaborations or programmes in place with the community or other organisations

5.4 The percentage reduction or improvement from the base year, in which the base year is the first year against which water management targets are evaluated towards the achievement of the target.

6 The entity shall discuss whether its water management practices result in any additional lifecycle impacts or trade-offs in its organisation, including trade-offs in land use, energy production and greenhouse gas (GHG) emissions, and why the entity chose these practices despite lifecycle trade-offs.

Management of Energy Infrastructure Integration & Related Regulations

Topic Summary

Entities in the industry have faced challenges in establishing solar energy as a cost-competitive means of energy production and GHG reduction, and they have encountered difficulty in capturing a greater market share of global energy generation. To promote greater adoption of solar, the industry may benefit by preventing systemic disruptions to the existing energy infrastructure and essential energy services. Entities are innovating to overcome the technical challenges of increasing solar integration with the grid. They also are engaging regulatory agencies and policymakers to reduce regulatory barriers to solar energy adoption, many of which are emerging because of concerns regarding increasing overall grid electricity costs and grid disruptions. Solar entities are investing in innovative technologies to reduce hardware and installation costs, and they are pursuing business-model innovation to reduce the cost of capital and facilitate the purchase of solar energy systems. Solar technology entities may improve their competitiveness through deploying one or more of these strategies successfully to ensure their ability to scale over the long term.

Metrics

RR-ST-410a.1. Description of risks associated with integration of solar energy into existing energy infrastructure and discussion of efforts to manage those risks

1 The entity shall describe risks, challenges and barriers surrounding the integration of solar energy into the existing energy infrastructure in terms of its products and services.

1.1 Relevant information to provide may include:

1.1.1 Technological barriers to increased integration of solar energy, such as limited transmission network connectivity, lack of access to high-capacity transmission networks, variability in interconnection standards, and inverter interconnection requirements

1.1.2 Operational barriers to increased integration of solar energy, such as curtailment and challenges associated with the variable nature of solar energy

1.1.3 Customer motivations for seeking increased solar energy integration, such as economic advantages, regulatory compliance, risk mitigation, and public perception or reputational risk

2 The entity shall discuss its strategy and approach to design, development and sales to integrate solar energy into the existing energy infrastructure.

2.1 Relevant strategies and approaches may include:

2.1.1 Technical product design

2.1.2 New product or product components development (for example, smart inverters)

2.1.3 Technical innovation to reduce the cost of solar energy modules or systems

2.1.4 Third-party partnerships and product integrations

2.1.5 Project design (for example, project siting in regions with reduced curtailment risk)

2.1.6 Project risk transfer (for example, power purchase agreements (PPAs) with curtailment caps)

2.1.7 Marketing and sales (for example, focus on regions or customer segments with less grid integration risk)

2.1.8 Incorporating energy storage technology or 'smart grid' technology into solar energy systems, whether through proprietary technological development or collaboration with third parties

2.1.9 Products designed to operate 'off-grid' or as part of 'micro-grids'

2.1.10 Innovation that decreases solar energy's levelised cost of energy (LCOE) through the reduction in 'soft costs', including financing, leasing, customer acquisition and development costs

2.1.11 Innovation that increases the total addressable solar energy market

2.2 Relevant information to provide includes:

2.2.1 Whether the entity pursues more than one approach

2.2.2 Whether the entity's approach varies by market

2.2.3 The intensity of R&D requirements for the entity's approach and strategy

2.2.4 The level of competition relative to the entity's approach and strategy

2.2.5 How the entity evaluates the success of its approach

3 The scope of disclosure shall include all the entity's solar energy-related products, product components, projects, project development efforts and services, as well as the associated marketing and sales strategies, in the markets in which the entity operates.

4 The entity may describe how energy infrastructure influences the establishment of sales targets, strategies for specific product categories, technologies or marketing practices in specific regions, research and development (R&D) objectives, and partnerships.

RR-ST-410a.2. Description of risks and opportunities associated with energy policy and its effect on the integration of solar energy into existing energy infrastructure

1 The entity shall discuss the risks and opportunities associated with energy policy and the effect energy policy has on solar energy integration into existing energy infrastructure, in which:

1.1 Relevant risks and opportunities may include:

1.1.1 Direct or indirect government subsidization of solar energy

1.1.2 International trade policy disputes and agreements

1.1.3 Public policies that set out minimum requirements for renewable energy generation (for example, renewable portfolio standards)

1.1.4 Public policies that affect the monetisation of solar energy generation, which may include net metering, time-of-use rates, feed-in tariffs, utility fixed fees and renewable energy priority dispatch

1.1.5 Public policies that affect the financing and tax structure of solar energy, which may include investment tax credits, property-assessed clean energy, loan guarantees and depreciation schedules

1.1.6 Public policies pertaining to any external social costs created by distributed solar energy generation

1.1.7 Policies pertaining to electricity transmission, which may include regional transmission planning, interconnected transmission networks, interconnection standards and high-capacity transmission networks

1.1.8 Replacements to ageing energy generation and transmission infrastructure

2 The entity shall identify the risks and opportunities related to legislation, regulation, rule-making and the overall political environment (hereafter referred to collectively as 'regulatory and political environment') regarding energy policy and the integration of solar energy into energy infrastructure.

2.1 The scope shall include existing, emerging and known future risks and opportunities.

2.2 The scope shall include risks and opportunities that may exist at each jurisdictional level, international governmental organisations, and regulatory organisations.

2.2.1 The scope shall include the relevant policies of utilities, rule-makers and regulators.

3 Relevant information to provide includes, but is not limited to, the impact on demand for the entity's solar energy products and services and the impact on business viability related to risks and opportunities associated with energy policy and the impact energy policy has on the integration of solar energy into the existing energy infrastructure.

Volume 45—Wind Technology & Project Developers

Industry Description

Wind Technology & Project Developers manufacture wind turbines, blades, towers and other components of wind power systems. Entities that develop, build and manage wind energy projects also are included within this industry scope. Manufacturers also may offer post-sale maintenance and support services. Turbines may be installed onshore or offshore, which can create differences in wind-generating capacity and project development challenges for each type of installation. Most major wind technology entities operate globally.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Materials Efficiency	Top five materials consumed, by weight	Quantitative	Metric tons (t)	RR-WT-440b.1
	Average top head mass per turbine capacity, by wind turbine class	Quantitative	Metric tons per megawatts (t/MW)	RR-WT-440b.2
	Description of approach to optimise materials efficiency of wind turbine design	Discussion and Analysis	n/a	RR-WT-440b.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of delivered wind turbines, by wind turbine class [76]	Quantitative	Number	RR-WT-000.A
Aggregate capacity of delivered wind turbines, by wind turbine class [77]	Quantitative	Megawatts (MW)	RR-WT-000.B
Amount of turbine backlog [78]	Quantitative	Presentation currency	RR-WT-000.C
Aggregate capacity of turbine backlog [79]	Quantitative	Megawatts (MW)	RR-WT-000.D

[76] Note to **RR-WT-000.A** – Wind turbine class is defined by the International Electrotechnical Commission's IEC 61400-1, Edition 3.0—Design requirements. Wind turbine class shall be determined by the rating of the turbine.

[77] Note to **RR-WT-000.B** – Wind turbine class is defined by the International Electrotechnical Commission's IEC 61400-1, Edition 3.0—Design requirements. Wind turbine class shall be determined by the rating of the turbine.

[78] Note to **RR-WT-000.C** – Turbine backlog is defined by the entity, consistent with its existing public disclosure of order backlog. Turbine backlog excludes any backlog amounts resulting from operating and maintenance agreements or other service agreements.

[79] Note to **RR-WT-000.D** – Turbine backlog is defined by the entity, consistent with its existing public disclosure of order backlog. Turbine backlog excludes any backlog amounts resulting from operating and maintenance agreements or other service agreements.

Materials Efficiency

Topic Summary

The Wind Technology & Project Developers industry's long-term success depends on producing energy at a comparatively lower cost than other energy sources. Steel and other materials purchases are one of the largest costs of turbines, and inputs such as steel have exhibited price volatility in the past. In recent years, wind turbines have grown in size, in terms of both the tower height and the swept area of the rotor, to improve energy output and increase the potential for wind energy production in more areas. To achieve this expansion cost-effectively, entities may employ innovative methods to increase turbine output while using materials more efficiently. Increased output and efficiency could influence entities' competitiveness and market share, costs of production, and operational risks related to the supply and price volatility of raw materials, as well as the ability of the entity to scale.

Metrics

RR-WT-440b.1 Top five materials consumed, by weight

1 For each of the following wind turbine classes, the entity shall disclose the weight, in metric tons, of the five materials consumed in the greatest amounts, by weight, in delivered wind turbines during the reporting period.

2 The scope of disclosure includes materials weights in the final delivered turbine, including the nacelle, blades and tower, and excludes the weight of materials consumed in production (for example, waste), freight, storage and installation (for example, foundation).

3 Materials may include aluminium, carbon fibre, copper, fibreglass, iron or steel.

4 The entity may disclose the weight of the five materials consumed in the greatest amounts by wind turbine class.

4.1 Wind turbine classes are defined by the International Electrotechnical Commission's (IEC) 61400-1, Edition 3.0—Design requirements:

4.1.1 IEC Wind Turbine Class I

4.1.2 IEC Wind Turbine Class II

4.1.3 IEC Wind Turbine Class III

4.1.4 IEC Wind Turbine Class IV

4.1.5 IEC Wind Turbine Class S

4.1.6 Turbulence characteristics

4.1.7 Mixed class (e.g., IEC Wind Turbine Class I / II)

4.1.8 Onshore

4.1.9 Offshore

5 The entity may disclose additional materials weights that may represent significant materials costs, supply chain risks or exposure to pricing volatility.

RR-WT-440b.2. Average top head mass per turbine capacity, by wind turbine class

1 For each of the following wind turbine classes, the entity shall disclose the average top head mass per turbine capacity of turbines delivered during the reporting period, weighted by turbine deliveries per wind turbine class.

1.1 Wind turbine classes are defined by the International Electrotechnical Commission's (IEC) 61400-1, Edition 3.0—Design requirements:

1.1.1 IEC Wind Turbine Class I

1.1.2 IEC Wind Turbine Class II

1.1.3 IEC Wind Turbine Class III

1.1.4 IEC Wind Turbine Class IV

1.1.5 IEC Wind Turbine Class S

2 Wind turbine class shall be determined by the rating of the turbine.

3 Average top head mass per turbine capacity shall be calculated as the mass of the top head in metric tons divided by turbine capacity in megawatts (MW).

3.1 The top head shall include the turbine nacelle and the turbine rotor.

3.2 The top head shall exclude the blades.

3.3 Turbine capacity is the rated turbine capacity, defined as the maximum output (generation) of a wind turbine, in megawatts (MW), also referred to as 'nameplate capacity'.

4 The entity may disclose performance in additional wind turbine classes, including:

4.1 Turbulence characteristics

4.2 Mixed class (for example, IEC Wind Turbine Class I/II)

4.3 Onshore

4.4 Offshore

RR-WT-440b.3. Description of approach to optimise materials efficiency of wind turbine design

1 The entity shall describe how it improves wind turbine materials efficiency including design considerations and materials selection to optimise:

1.1 Amount of materials consumed

1.2 Capacity and capacity factor by materials consumed

1.3 Lifespan

2 The scope of disclosure shall include materials selection and modifications to wind turbine design as well as operational control software (for example, SCADA systems) that may increase the materials efficiency of wind turbines.

2.1 Materials selection may include priorities in materials selection, emphasis on materials innovation and development, materials risk assessments and objectives around materials consumption.

2.2 Modifications to wind turbine design may include design innovation to reduce materials consumption through reduced turbine weights or tower weights, design innovation to increase turbine capacity or capacity factor relative to materials consumption, strategies to reduce waste created in turbine manufacturing, and design to reduce materials consumed in installation of wind turbines (for example, foundation).

Volume 46—Aerospace & Defence

Industry Description

Entities in the Aerospace & Defence industry include manufacturers of commercial aircraft, aircraft parts, aerospace and defence products, as well as defence prime contractors. Commercial aircraft manufacturers represent approximately one quarter of industry revenue and sell mainly to commercial airlines and governments. Aerospace and defence parts manufacturers represent the largest segment of the industry by total revenue, selling primarily to governments. Both aerospace and defence manufacturers operate globally and serve a global customer base. Defence primes represent approximately one quarter of total industry revenue and manufacture products including military aircraft, space vehicles, missile systems, ammunition, small arms, naval ships, and other commercial and military vehicles. Their customers consist of various government agencies and related businesses with global operations. The defence prime category also includes firearms manufacturers that sell to law enforcement agencies, businesses, distributors, retailers and consumers. Important sustainability topics within the industry include the energy efficiency and emissions profile of products and management of manufacturing energy and waste.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	RT-AE-130a.1
Fuel Economy & Emissions in Use-phase	Revenue from alternative energy-related products	Quantitative	Presentation currency	RT-AE-410a.1
	Description of approach and discussion of strategy to address fuel economy and greenhouse gas (GHG) emissions of products	Discussion and Analysis	n/a	RT-AE-410a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Production by reportable segment [80]	Quantitative	Number	RT-AE-000.A
Number of employees	Quantitative	Number	RT-AE-000.B

80 Note to **RT-AE-000.A** – Production should be disclosed as the number of units produced by product category, where relevant product categories include (1) ground vehicles, (2) aircraft, (3) marine vehicles, (4) vehicle and aircraft components, and (5) space and weapons systems.

Energy Management

Topic Summary

Energy is a critical input to aerospace and defence manufacturing processes. Purchased electricity is the largest share of the industry's energy expenditures, followed by purchased fuels. The type of energy used, magnitude of consumption and energy management strategies depend on the type of products manufactured. An entity's energy mix, including electricity generated on-site, grid-sourced electricity and alternative energy, may influence the cost and reliability of energy supply and, ultimately, affect the entity's cost structure and regulatory risk.

Metrics

RT-AE-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest

Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Fuel Economy & Emissions in Use-phase

Topic Summary

Customer preferences and regulatory incentives are increasing the demand for energy-efficient and reduced-emissions products in the Aerospace & Defence industry. Many of the industry's products are powered by fossil fuels and release greenhouse gases (GHGs) and other air emissions during use. As the designers and manufacturers of most of the global aerospace and defence transportation fleet, entities in this industry have a unique opportunity to support many industries and government agencies that are striving to meet GHG emissions and fuel-management goals and imperatives. Products with higher fuel economy and lower use-phase emissions may capture expanding market share and adapt to changing customer preferences and regulations around fuel economy and emissions more effectively.

Metrics

RT-AE-410a.1. Revenue from alternative energy-related products

1 The entity shall disclose total revenue from the sale of alternative energy-related products, where:

1.1 Alternative energy-related products include products such as vehicles, vehicle components and stationary power generation equipment that rely on alternative fuel or energy as a primary means of propulsion or energy production.

1.2 Alternative energy and fuel includes:

1.2.1 Renewable fuel and energy, which is defined as deriving from sources capable of being replenished quickly through ecological cycles, such as geothermal, wind, solar, hydroelectric and biomass (including ethanol, first-generation biofuels and advanced biofuels)

1.2.2 Hydrogen fuel and fuel cells including those that operate using natural gas, propane and methanol

1.3 Electric, hybrid electric and dual-fuelled products for which one of the fuel sources is an alternative fuel shall be considered within the scope of disclosure.

RT-AE-410a.2. Description of approach and discussion of strategy to address fuel economy and greenhouse gas (GHG) emissions of products

1 The entity shall describe its approach and discuss its strategies for improving the fuel economy and reducing the use-phase greenhouse gas (GHG) emissions of its products.

2 Relevant aspects of the approach and strategy include improvements to existing products and technologies, the introduction of new technologies, research and development efforts into advanced technologies, and partnerships with peers, academic institutions or customers (including governmental customers).

3 Relevant technologies to describe may include those related to materials design and engineering, advanced powertrains, renewable fuels, energy storage and batteries, aerodynamic design, and products and fuels that otherwise result in reduced GHG emissions, where:

3.1 Advanced powertrain technologies include vehicles and vehicle components that are electric, hybrid electric, plug-in hybrid, dual-fuel and zero-emissions (for example, fuel cell).

3.2 Renewable fuels and energy technologies are those that operate on sources capable of being replenished quickly through ecological cycles, including geothermal, wind, solar, hydroelectric and biomass (including ethanol, first-generation biofuels and advanced biofuels).

3.3 Products that result in reduced GHG emissions include any vehicle or technology that achieves a significant reduction in petroleum consumption as well as advanced lean burn technology vehicles and technologies.

3.4 Fuels that result in reduced GHG emissions further include denatured alcohol, methanol, mixtures containing up to 85% methanol or denatured ethanol, natural gas and propane (liquefied petroleum gas).

3.5 If relevant, the entity shall discuss the technologies it is prioritising to improve the fuel economy and reduce the GHG emissions of its products, such as the specific type of fuel systems it is developing (for example, hybrid, electric or fuel cell).

4 The entity shall describe the factors influencing these efforts, such as meeting civil customer demand, alignment with industry initiatives, or meeting requirements of federal procurement programmes and initiatives, in which:

4.1 Relevant programmes and initiatives to describe include the International Civil Aviation Organization Resolution A38-18.

5 The entity may describe the benchmarks used to measure product fuel efficiency improvements for relevant vehicles or vehicle system segments, including a description of targets for fuel efficiency improvements.

6 The entity may provide measurements of fuel efficiency and fuel efficiency improvements for its relevant vehicle or vehicle systems segments.

6.1 Measurements of fuel efficiency and fuel efficiency improvements may include:

6.1.1 Inherent fuel efficiency measurements, such as miles per gallon for vehicles and vessels and 1/Specific Air Range for aerospace vehicles

6.1.2 Year-over-year fuel efficiency improvements

7 The entity may discuss how customer demand and requirements affect fuel efficiency measures and improvements, if relevant.

Volume 47—Chemicals

Industry Description

Entities in the Chemicals industry transform organic and inorganic feedstocks into more than 70,000 diverse products with a range of industrial, pharmaceutical, agricultural, housing, automotive and consumer applications. The industry commonly is segmented into basic (commodity) chemicals, agricultural chemicals and specialty chemicals. Basic chemicals, the largest segment by volume produced, include bulk polymers, petrochemicals, inorganic chemicals and other industrial chemicals. Agricultural chemicals include fertilisers, crop chemicals and agricultural biotechnology. Specialty chemicals include paints and coatings, agrochemicals, sealants, adhesives, dyes, industrial gases, resins and catalysts. Larger entities may produce basic, agricultural and specialty chemicals, but most entities are specialised. Chemicals entities typically manufacture and sell products globally.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	Quantitative	Metric tons (t) CO_2-e, Percentage (%)	RT-CH-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	RT-CH-110a.2
Energy Management	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable and (4) total self-generated energy [81]	Quantitative	Gigajoules (GJ), Percentage (%)	RT-CH-130a.1
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	RT-CH-140a.1
	Number of incidents of non-compliance associated with water quality permits, standards and regulations	Quantitative	Number	RT-CH-140a.2
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	RT-CH-140a.3
Product Design for Use-phase Efficiency	Revenue from products designed for use-phase resource efficiency	Quantitative	Presentation currency	RT-CH-410a.1

[81] Note to **RT-CH-130a.1** – The entity shall discuss its efforts to reduce energy consumption and/or improve energy efficiency throughout the production processes.

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Production by reportable segment [82]	Quantitative	Cubic metres (m^3) or metric tons (t)	RT-CH-000.A

Greenhouse Gas Emissions

Topic Summary

Chemical manufacturing generates direct (Scope 1) greenhouse gas (GHG) emissions from fossil fuel combustion in manufacturing and cogeneration processes, as well as process emissions from the chemical transformation of feedstocks. GHG emissions may result in regulatory compliance costs or penalties and operating risks for chemicals entities. However, the financial effects may vary depending on the magnitude of emissions and the prevailing emissions regulations. The industry may be subject to increasingly stringent regulations as countries try to limit or reduce emissions. Entities that cost-effectively manage GHG emissions through greater energy efficiency, the use of alternative fuels or manufacturing process advances may benefit from improved operating efficiency and reduced regulatory risk, among other financial benefits.

Metrics

RT-CH-110a.1. Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalent (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 Acceptable calculation methodologies include those that conform to the GHG Protocol as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples include:

2.1.1 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the US Environmental Protection Agency (EPA)

2.1.2 India GHG Inventory Program

2.1.3 ISO 14064-1

[82] Note to **RT-CH-000.A** – Production should be disclosed for each of the entity's reportable segments, where production is reported as weight for solid products and volume for liquid and gas products.

2.1.4 *Petroleum Industry Guidelines for Reporting GHG Emissions*, 2nd edition, 2011, published by IPIECA

2.1.5 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.1.6 WBCSD *Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain*

2.2 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which generally is aligned with the 'financial control' approach defined by the *GHG Protocol*, and the approach published by the Climate Disclosure Standards Board (CDSB) that is described in REQ-07, 'Organisational boundary', of the *CDSB Framework for reporting environmental and social information*.

3 The entity shall disclose the percentage of its gross global Scope 1 GHG emissions covered under an emissions-limiting regulation or programme intended to limit or reduce emissions directly, such as cap-and-trade schemes, carbon tax/fee systems, and other emissions control (for example, command-and-control approach) and permit-based mechanisms.

3.1 Examples of emissions-limiting regulations may include:

3.1.1 California Cap-and-Trade (California Global Warming Solutions Act)

3.1.2 European Union Emissions Trading Scheme (EU ETS)

3.1.3 Quebec Cap-and-Trade (Quebec Environment Quality Act)

3.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO_2-e) covered under emissions-limiting regulations divided by the total amount of gross global Scope 1 GHG emissions (CO_2-e).

3.2.1 For emissions subject to more than one emissions-limiting regulation, the entity shall not account for those emissions more than once.

3.3 The scope of emissions-limiting regulations excludes emissions covered under voluntary emissions-limiting regulations (for example, voluntary trading systems), as well as reporting-based regulations.

4 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

5 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

6 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

RT-CH-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

5 The entity shall discuss whether its strategies, plans, or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Energy Management

Topic Summary

Chemical manufacturing is typically energy-intensive, with energy used to power processing units, cogeneration plants, machinery and non-manufacturing facilities. The type of energy used, amount consumed and energy management strategies depends on the type of products manufactured. Typically, fossil fuels such as natural gas and natural gas liquids are the predominant form of non-feedstock energy used, while purchased electricity also may be a significant share. Therefore, energy purchases may be a significant share of production costs. An entity’s energy mix may include energy generated on-site, purchased grid electricity and fossil fuels, and renewable and alternative energy. Trade-offs in the use of energy sources include cost, reliability of supply, related water use and air emissions, and regulatory compliance and risk. As such, an entity’s energy intensity and energy sourcing decisions may affect its operating efficiency and risk profile over time.

Metrics

RT-CH-130a.1. (1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable and (4) total self-generated energy

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification*, *Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall disclose (4) the amount of energy self-generated by the entity as an aggregate figure, in gigajoules (GJ).

4.1 The entity may disclose the amount of self-generated energy sold to an electric utility or end-use customer.

4.2 The entity may disclose the amount of self-generated energy that was renewable energy, where renewable energy is defined above.

5 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Note to **RT-CH-130a.1**

1 The entity shall discuss its efforts to reduce energy consumption or improve energy efficiency throughout the manufacturing and production processes.

2 The entity shall discuss implementation of Green Chemistry Principle 6, ‘Design for Energy Efficiency’, including, if relevant, efforts such as conducting reactions at ambient temperature and pressure, reducing key materials that require energy-intensive processing (for example, distillation and drying), using excess steam and heat to generate energy, improving catalytic processes, and other process improvements that result in gains in energy efficiency.

2.1 Relevant strategies to discuss include the use of incremental improvement, the implementation of best practice technology, the use of emerging technologies, and the development of ‘game changers’, consistent with the International Council of Chemical Associations (ICCA) Technology Road Map.

3 The entity may disclose the aggregate energy savings (in gigajoules) achieved through such efforts and processes.

Water Management

Topic Summary

Used primarily for cooling, steam generation and feedstock processing, water is a critical input in chemicals production. Long-term historical increases in water scarcity and cost, and expectations of continued increases—because of over-consumption and reduced supplies resulting from population growth and shifts, pollution and climate change—show the importance of water management. Water scarcity may result in a higher risk of operational disruption for entities with water-intensive operations, and can increase water procurement costs and capital expenditures. Meanwhile, chemical manufacturing may generate process wastewater that must be treated before disposal. Non-compliance with water quality regulations may result in regulatory compliance and mitigation costs or legal expenses stemming from litigation. Reducing water use and consumption through increased efficiency and other water management strategies may result in lower operating costs over time and may mitigate financial effects of regulations, water supply shortages and community-related disruptions of operations.

Metrics

RT-CH-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly included in the entity’s product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute’s (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

RT-CH-140a.2. Number of incidents of non-compliance associated with water quality permits, standards and regulations

1 The entity shall disclose the total number of incidents of non-compliance, including violations of a technology-based standard and exceedances of quantity or quality-based standards.

2 The scope of disclosure includes incidents governed by applicable jurisdictional statutory permits and regulations, which include the discharge of a hazardous substance, violation of pre-treatment requirements or total maximum daily load (TMDL) exceedances.

3 The scope of disclosure shall only include incidents of non-compliance that resulted in a formal enforcement action(s).

3.1 Formal enforcement actions are defined as governmental actions that address a violation or threatened violation of water quantity or quality laws, regulations, policies or orders, and can result in administrative penalty orders, administrative orders and judicial actions, among others.

4 Violations shall be disclosed, regardless of their measurement methodology or frequency. These include violations for:

4.1 Continuous discharges, limitations, standards and prohibitions that are generally expressed as maximum daily, weekly and monthly averages; and

4.2 Non-continuous discharges, limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge and mass or concentration of specified pollutants.

RT-CH-140a.3. Description of water management risks and discussion of strategies and practices to mitigate those risks

1 The entity shall describe its water management risks associated with water withdrawals, water consumption and discharge of water or wastewater.

1.1 Risks associated with water withdrawals and water consumption include risks to the availability of adequate, clean water resources, which include:

1.1.1 Environmental constraints—such as operating in water-stressed regions, drought, concerns of aquatic impingement or entrainment, interannual or seasonal variability, and risks from the impact of climate change

1.1.2 Regulatory and financial constraints—such as volatility in water costs, stakeholder perceptions and concerns related to water withdrawals (for example, those from local communities, non-governmental organisations and regulatory agencies), direct competition with and impact from the actions of other users (for example, commercial and municipal users), restrictions to withdrawals because of regulations, and constraints on the entity's ability to obtain and retain water rights or permits

1.2 Risks associated with the discharge of water or wastewater include the ability to obtain rights or permits related to discharges, regulatory compliance related to discharges, restrictions to discharges, the ability to maintain control over the temperature of water discharges, liabilities, reputational risks and increased operating costs because of regulation, stakeholder perceptions and concerns related to water discharges (for example, those from local communities, non-governmental organisations and regulatory agencies).

2 The entity may describe water management risks in the context of:

2.1 How risks may vary by withdrawal source, including surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities; and

2.2 How risks may vary by discharge destinations, including surface water, groundwater or wastewater utilities.

3 The entity may discuss the potential effects that water management risks may have on its operations and the time line over which such risks are expected to manifest.

3.1 Effects include those associated with costs, revenue, liabilities, continuity of operations and reputation.

4 The entity shall discuss its short- and long-term strategies or plans to mitigate water management risks, which include:

4.1 The scope of its strategy, plans, goals or targets, such as how they relate to various business units, geographies or water-consuming operational processes.

4.2 Any water management goals or targets it has prioritised, and an analysis of performance against those goals or targets.

4.2.1 Goals and targets include those associated with reducing water withdrawals, reducing water consumption, reducing water discharges, reducing aquatic impingements, improving the quality of water discharges and regulatory compliance.

4.3 The activities and investments required to achieve the plans, goals or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4.4 Disclosure of strategies, plans, goals or targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

5 For water management targets, the entity shall additionally disclose:

5.1 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target.

5.2 The time lines for the water management activities, including the start year, the target year and the base year.

5.3 The mechanism(s) for achieving the target, including:

5.3.1 Efficiency efforts, such as the use of water recycling or closed-loop systems;

5.3.2 Product innovations, such as redesigning products or services to require less water;

5.3.3 Process and equipment innovations, such as those that enable the reduction of aquatic impingements or entrainments;

5.3.4 Use of tools and technologies (for example, the World Wildlife Fund Water Risk Filter, the Global Water Tool and Water Footprint Network Footprint Assessment Tool) to analyse water use, risks and opportunities; and

5.3.5 Collaborations or programmes in place with the community or other organisations

5.4 The percentage reduction or improvement from the base year, in which the base year is the first year against which water management targets are evaluated towards the achievement of the target.

6 The entity shall discuss whether its water management practices result in any additional lifecycle impacts or trade-offs in its organisation, including trade-offs in land use, energy production and greenhouse gas (GHG) emissions, and why the entity chose these practices despite lifecycle trade-offs.

Product Design for Use-phase Efficiency

Topic Summary

As increasing resource scarcity and regulations encourage greater materials efficiency and lower energy consumption and emissions, the Chemicals industry may benefit from developing products that enhance customer efficiency. From reducing automobile emissions through materials optimisation to improving building insulation performance, Chemicals industry products can enhance efficiency across many applications. Entities that develop cost-effective solutions to meet customer demand for improved efficiency may benefit from increased revenue and market share, stronger competitive positioning and enhanced brand value.

Metrics

RT-CH-410a.1. Revenue from products designed for use-phase resource efficiency

1 The entity shall disclose its total revenue from products designed to increase resource efficiency during their use-phase.

1.1 Products designed to increase resource efficiency are defined as those that, through their use, can improve energy efficiency, eliminate or lower greenhouse gas (GHG) emissions, reduce raw materials consumption, increase product longevity or reduce water consumption.

1.2 The use-phase is defined as the course over which the entity's product is used by a customer or consumer as a final product or the course over which the entity's product is used by a customer or consumer to generate a final product (for example, in a manufacturing or production process).

2 A product shall be considered to have been designed to increase use-phase resource efficiency if documentation shows that the entity has tested, modelled or otherwise established the increase to resource efficiency its product delivers during its use-phase.

2.1 The scope of disclosure includes products that eliminate emissions during the use-phase, the need for a raw material or the need for a process component like water.

2.2 The scope of disclosure includes products that impart an incremental improvement to resource efficiency, as far as the entity can demonstrate the improvement is meaningful.

2.3 The scope of disclosure excludes products that impart improved resource efficiency in an ancillary, indirect or minimal way (for example, a conventional product that is slightly lighter than the previous generation of the product).

3 Examples of products that increase resource efficiency may include insulation materials, high-albedo paints and coating, fuel additives that result in more efficient combustion, energy-efficient lighting materials, additives or materials that extend the useful life of use-phase products, materials that enable vehicle lightweighting (for example, polymers to replace metals), biofuels, solar films, solar shingles and other renewable energy materials.

Volume 48—Containers & Packaging

Industry Description

Containers and packaging industry entities convert raw materials including metal, plastic, paper and glass, into semi-finished or finished packaging products. Entities produce a wide range of products, including corrugated cardboard packaging, food and beverage containers, bottles for household products, aluminium cans, steel drums and other forms of packaging. Entities in the industry typically function as business-to-business entities and many operate globally.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	Quantitative	Metric tons (t) CO_2-e, Percentage (%)	RT-CP-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets and an analysis of performance against those targets	Discussion and Analysis	n/a	RT-CP-110a.2
Energy Management	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable and (4) total self-generated energy	Quantitative	Gigajoules (GJ), Percentage (%)	RT-CP-130a.1
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	RT-CP-140a.1
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	RT-CP-140a.2
	Number of incidents of non-compliance associated with water quality permits, standards and regulations	Quantitative	Number	RT-CP-140a.3
Waste Management	Amount of waste generated, percentage hazardous and percentage recycled	Quantitative	Metric tons (t), Percentage (%)	RT-CP-150a.1
Supply Chain Management	Total wood fibre procured; percentage from certified sources	Quantitative	Metric tons (t), Percentage (%)	RT-CP-430a.1
	Total aluminium purchased; percentage from certified sources	Quantitative	Metric tons (t), Percentage (%)	RT-CP-430a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Amount of production, by substrate [83]	Quantitative	Metric tons (t)	RT-CP-000.A
Percentage of production as: (1) paper/wood, (2) glass, (3) metal, and (4) plastic	Quantitative	Percentage (%) by revenue	RT-CP-000.B
Number of employees	Quantitative	Number	RT-CP-000.C

Greenhouse Gas Emissions

Topic Summary

The Containers & Packaging industry generates direct (Scope 1) greenhouse gas (GHG) emissions from fossil fuel combustion in manufacturing and cogeneration processes. GHG emissions may result in regulatory compliance costs or penalties and operating risks for entities. However, the financial effects may vary depending on the magnitude of emissions and the prevailing emissions regulations. The industry may be subject to increasingly stringent regulations as countries try to limit or reduce emissions. Entities that cost-effectively manage GHG emissions through greater energy efficiency, the use of alternative fuels or manufacturing process advances could benefit from improved operating efficiency and reduced regulatory risk, among other financial benefits.

Metrics

RT-CP-110a.1. Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalents (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 Acceptable calculation methodologies include those that conform to the GHG Protocol as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples may include:

2.1.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)

[83] Note to **RT-CP-000.A** – Relevant substrates include paper and/or wood fibre, glass, metal, and petroleum-based substrates (i.e., polymers).

2.1.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the US Environmental Protection Agency (EPA)

2.1.3 India GHG Inventory Program

2.1.4 ISO 14064-1

2.1.5 *Petroleum Industry Guidelines for Reporting GHG Emissions*, 2nd edition, 2011, published by IPIECA

2.1.6 *Protocol for the Quantification of Greenhouse Gas Emissions from Waste Management Activities* published by Entreprises pour l'Environnement (EpE)

2.2 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which generally is aligned with the 'financial control' approach defined by the GHG Protocol, and the approach published by the Climate Disclosure Standards Board (CDSB) described in REQ-07, 'Organisational boundary', of the *CDSB Framework for reporting environmental and social information*.

3 The entity shall disclose the percentage of its gross global Scope 1 GHG emissions covered under an emissions-limiting regulation or programme intended to limit or reduce emissions directly, such as cap-and-trade schemes, carbon tax or fee systems, and other emissions control (for example, command-and-control approach) and permit-based mechanisms.

3.1 Examples of emissions-limiting regulations include:

3.1.1 California Cap-and-Trade (California Global Warming Solutions Act)

3.1.2 European Union Emissions Trading Scheme (EU ETS)

3.1.3 Quebec Cap-and-Trade (Quebec Environment Quality Act)

3.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO_2-e) covered under emissions-limiting regulations divided by the total amount of gross global Scope 1 GHG emissions (CO_2-e).

3.2.1 For emissions subject to more than one emissions-limiting regulation, the entity shall not account for those emissions more than once.

3.3 The scope of emissions-limiting regulations excludes emissions covered under voluntary emissions-limiting regulations (for example, voluntary trading systems), as well as reporting-based regulations.

4 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

5 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

6 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

RT-CP-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons

(HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

5 The entity shall discuss whether its strategies, plans or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Energy Management

Topic Summary

Containers and packaging manufacturing is energy-intensive, with energy used to power processing units, cogeneration plants, machinery and non-manufacturing facilities. The type of energy used, amount consumed and energy management strategies depend on the type of products manufactured. Typically, fossil fuels such as natural gas and biomass are the predominant form of energy used, while purchased electricity also may be a significant share. Therefore, energy purchases may be a significant share of production costs. An entity's energy mix may include energy generated on site, purchased grid electricity and fossil fuels, and renewable and alternative energy. Trade-offs in the use of such energy sources include cost, reliability of supply, related water use and air emissions, and regulatory compliance and risk. As such, an entity's energy intensity and energy sourcing decisions may affect its operating efficiency and risk profile over time.

Metrics

RT-CP-130a.1. (1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable and (4) total self-generated energy

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, heating, cooling and steam energy all are included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall disclose (4) the amount of energy self-generated as an aggregate figure, in gigajoules (GJ).

4.1 The entity may disclose the amount of self-generated energy sold to an electric utility or end-use customer.

5 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Water Management

Topic Summary

Containers and packaging manufacturing requires water for various stages of production including in raw materials processing, process cooling and steam generation at on site cogeneration plants. Long-term historical increases in water scarcity and cost, and expectations of continued increases—because of over-consumption and reduced supplies resulting from population growth and shifts, pollution and climate change—show the importance of water management. Water scarcity may result in a higher risk of operational disruption for entities with water-intensive operations, and can increase water procurement costs and capital expenditures. Meanwhile, containers and packaging manufacturing may generate process wastewater that must be treated before disposal. Non-compliance with water quality regulations may result in regulatory compliance and mitigation costs or legal expenses stemming from litigation. Reducing water use and consumption through increased efficiency and other water management strategies may result in lower operating costs over time and may mitigate financial effects of regulations, water supply shortages and community-related disruptions of operations.

Metrics

RT-CP-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly included in the entity’s product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute’s (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

RT-CP-140a.2. Description of water management risks and discussion of strategies and practices to mitigate those risks

1 The entity shall describe its water management risks associated with water withdrawals, water consumption and discharge of water or wastewater.

1.1 Risks associated with water withdrawals and water consumption include risks to the availability of adequate, clean water resources, which include:

1.1.1 Environmental constraints—such as operating in water-stressed regions, drought, concerns of aquatic impingement or entrainment, interannual or seasonal variability, and risks from the impact of climate change

1.1.2 Regulatory and financial constraints—such as volatility in water costs, stakeholder perceptions and concerns related to water withdrawals (for example, those from local communities, non-governmental organisations and regulatory agencies), direct competition with and impact from the actions of other users (for example, commercial and municipal users), restrictions to withdrawals because of regulations, and constraints on the entity’s ability to obtain and retain water rights or permits

1.2 Risks associated with the discharge of water or wastewater include the ability to obtain rights or permits related to discharges, regulatory compliance related to discharges, restrictions to discharges, the ability to maintain control over the temperature of water discharges, liabilities, reputational risks and increased operating costs because of regulation, stakeholder perceptions and concerns related to water discharges (for example, those from local communities, non-governmental organisations and regulatory agencies).

2 The entity may describe water management risks in the context of:

2.1 How risks may vary by withdrawal source, including surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities; and

2.2 How risks may vary by discharge destinations, including surface water, groundwater or wastewater utilities.

3 The entity may discuss the potential effects that water management risks may have on its operations and the time line over which such risks are expected to manifest.

3.1 Effects include those associated with costs, revenue, liabilities, continuity of operations and reputation.

4 The entity shall discuss its short- and long-term strategies or plans to mitigate water management risks, which include:

4.1 The scope of its strategy, plans, goals or targets, such as how they relate to various business units, geographies or water-consuming operational processes.

4.2 Any water management goals or targets it has prioritised, and an analysis of performance against those goals or targets.

4.2.1 Goals and targets include those associated with reducing water withdrawals, reducing water consumption, reducing water discharges, reducing aquatic impingements, improving the quality of water discharges and regulatory compliance.

4.3 The activities and investments required to achieve the plans, goals or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4.4 Disclosure of strategies, plans, goals or targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

5 For water management targets, the entity shall additionally disclose:

5.1 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target.

5.2 The time lines for the water management activities, including the start year, the target year and the base year.

5.3 The mechanism(s) for achieving the target, including:

5.3.1 Efficiency efforts, such as the use of water recycling or closed-loop systems;

5.3.2 Product innovations, such as redesigning products or services to require less water;

5.3.3 Process and equipment innovations, such as those that enable the reduction of aquatic impingements or entrainments;

5.3.4 Use of tools and technologies (for example, the World Wildlife Fund Water Risk Filter, the Global Water Tool and Water Footprint Network Footprint Assessment Tool) to analyse water use, risks and opportunities; and

5.3.5 Collaborations or programmes in place with the community or other organisations

5.4 The percentage reduction or improvement from the base year, in which the base year is the first year against which water management targets are evaluated towards the achievement of the target.

6 The entity shall discuss whether its water management practices result in any additional lifecycle impacts or trade-offs in its organisation, including trade-offs in land use, energy production and

greenhouse gas (GHG) emissions, and why the entity chose these practices despite lifecycle trade-offs.

RT-CP-140a.3. Number of incidents of non-compliance associated with water quality permits, standards and regulations

1 The entity shall disclose the total number of incidents of non-compliance, including violations of a technology-based standard and exceedances of quantity or quality-based standards.

2 The scope of disclosure includes incidents governed by applicable jurisdictional statutory permits and regulations, which include the discharge of a hazardous substance, violation of pre-treatment requirements or total maximum daily load (TMDL) exceedances.

3 The scope of disclosure shall only include incidents of non-compliance that resulted in a formal enforcement action(s).

3.1 Formal enforcement actions are defined as governmental actions that address a violation or threatened violation of water quantity or quality laws, regulations, policies or orders, and can result in administrative penalty orders, administrative orders and judicial actions, among others.

4 Violations shall be disclosed, regardless of their measurement methodology or frequency. These include violations for:

4.1 Continuous discharges, limitations, standards and prohibitions that are generally expressed as maximum daily, weekly and monthly averages; and

4.2 Non-continuous discharges, limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge and mass or concentration of specified pollutants.

Waste Management

Topic Summary

Containers and packaging manufacturing may generate hazardous process waste which may include heavy metals, spent acids, catalysts and wastewater treatment sludge. Entities face regulatory and operational challenges in managing waste because some wastes are subject to regulations pertaining to its transport, treatment, storage and disposal. Waste management strategies include reduced generation, effective treatment and disposal, and recycling and recovery, if possible. Such activities, while requiring initial investment or operating costs, may reduce an entity's long-term cost structure and mitigate the risk of remediation liabilities or regulatory penalties.

Metrics

RT-CP-150a.1 Amount of waste generated, percentage hazardous and percentage recycled

1 The entity shall calculate and disclose the total amount of hazardous waste generated, in metric tons.

1.1 Hazardous wastes are defined in accordance with the applicable jurisdictional legal or regulatory framework(s) where the waste was generated.

2 The entity shall calculate and disclose the percentage of hazardous waste recycled as the total weight of hazardous waste generated that was recycled, divided by the total weight of hazardous waste generated.

2.1 Hazardous waste that is reused, reclaimed or remanufactured shall be considered within the scope of recycled.

2.2 Recycled, reused, reclaimed and remanufactured hazardous waste is defined in accordance with the applicable jurisdictional legal or regulatory framework(s) where the waste was generated.

2.3 Materials incinerated, including for energy recovery, shall not be considered within the scope of recycled.

2.3.1 Energy recovery is defined as the use of combustible waste to generate energy through direct incineration, with or without other waste, but with recovery of the heat.

2.3.2 The entity may separately disclose the percentage of hazardous waste generated that was incinerated.

3 The entity may use the United Nations Environmental Programme (UNEP) Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal for the purposes of defining hazardous waste or recycled hazardous waste for operations located in jurisdictions that lack applicable legal or regulatory definitions.

4 The entity shall disclose the legal or regulatory framework(s) used to define hazardous waste and recycled hazardous waste, and the amounts defined in accordance with each applicable framework.

Supply Chain Management

Topic Summary

Containers and packaging manufacturing uses large quantities of raw materials including wood fibre and aluminium. Sustainable production of these materials is an important supply chain consideration for entities in the industry because adverse environmental impacts could increase materials costs and affect the brand value of entities. To mitigate such risks, entities may implement supply chain vetting practices and implement third-party standards within internal operations and suppliers that certify that the materials were produced in a sustainable manner. Additionally, such actions may raise brand value and meet customer demand for sustainably produced packaging products, providing access to new markets and growth opportunities.

Metrics

RT-CP-430a.1. Total wood fibre procured; percentage from certified sources

1 The entity shall disclose the total weight (in metric tons) of wood-fibre-based raw materials procured during the reporting period.

1.1 The scope of raw materials includes all inputs processed to be sold as a finished good, including recycled raw materials, virgin raw materials and goods consumed directly in the production process.

2 The percentage shall be calculated as the total weight (in metric tons) of its wood-fibre-based raw materials certified to a responsible sourcing standard divided by the total weight (in metric tons) of wood-fibre-based raw materials, if responsible sourcing certifications include those promulgated by the following organisations (or an equivalent):

2.1 American Tree Farm System (ATFS)

2.2 Forest Stewardship Council (FSC) (FSC 100% label and FSC Mixed Sources and FSC Recycled labels)

2.3 Programme for the Endorsement of Forest Certification (PEFC) (PEFC Certified and PEFC Recycled labels)

2.4 Sustainable Forest Initiative (SFI) (SFI Chain of Custody and SFI Certified Sourcing labels)

3 The entity may disclose separately the percent of fibre that is certified to each relevant responsible sourcing standard (for example, FSC, SFI, PEFC and ATFS) and relevant standards (for example, FSC 100% label, FSC Mixed Sources and FSC Recycled labels, SFI Chain of Custody and SFI Certified Sourcing labels, and PEFC Certified and PEFC Recycled labels).

4 Wood fibre certified to more than one standard shall be accounted for by the entity only once.

RT-CP-430a.2. Total aluminium purchased; percentage from certified sources

1 The entity shall disclose the total weight (in metric tons) of aluminium-based raw materials purchased during the reporting period.

1.1 The scope of raw materials includes all inputs processed to be sold as a finished good, including recycled raw materials, virgin raw materials and goods that will be consumed directly in the production process.

2 The percentage shall be calculated as the total weight (in metric tons) of its aluminium based raw materials certified to a responsible sourcing standard divided by the total weight of aluminium based raw materials.

3 Responsible sourcing certification includes that promulgated by the Aluminium Stewardship Initiative (ASI) (Performance Standard Version 1 and Chain of Custody Standard Draught 2) or certification to an equivalent standard.

4 Aluminium certified to more than one standard shall be accounted for by the entity only once.

Volume 49—Electrical & Electronic Equipment

Industry Description

Electrical and electronic equipment industry entities develop and manufacture a broad range of electric components including power generation equipment, energy transformers, electric motors, switchboards, automation equipment, heating and cooling equipment, lighting and transmission cables. These include non-structural commercial and residential building equipment, such as Heating, Ventilation and Air Conditioning (HVAC) systems, lighting fixtures, security devices, and elevators; electrical power equipment; traditional power generation and transmission equipment; renewable energy equipment; industrial automation controls; measurement instruments; and electrical components used for industrial purposes, such as coils, wires and cables. In a mature and competitive industry, these entities operate globally and typically generate a significant portion of their revenue from outside the country of their domicile.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	RT-EE-130a.1
Product Lifecycle Management	Percentage of products by revenue that contain IEC 62474 declarable substances [84]	Quantitative	Percentage (%) by revenue	RT-EE-410a.1
	Percentage of eligible products, by revenue, certified to an energy efficiency certification	Quantitative	Percentage (%) by revenue	RT-EE-410a.2
	Revenue from renewable energy-related and energy efficiency-related products	Quantitative	Presentation currency	RT-EE-410a.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of units produced by product category [85]	Quantitative	Number	RT-EE-000.A
Number of employees	Quantitative	Number	RT-EE-000.B

[84] Note to **RT-EE-410a.1** – Disclosure shall include a discussion of approach to managing the use of IEC 62474 declarable substances.

[85] Note to **RT-EE-000.A** – Production should be disclosed as number of units produced by product category, where relevant product categories include energy generation, energy delivery, and lighting and indoor climate control electronics.

Energy Management

Topic Summary

Electrical and electronic equipment entities may use significant amounts of energy. Purchased electricity is the largest share of energy expenditure in the industry, followed by purchased fuels. The type of energy used, amount consumed and energy management strategies depend on the type of products manufactured. Including the use of electricity generated on site, grid-sourced electricity and alternative energy, an entity's energy mix may be important in reducing the cost and increasing the reliability of energy supply and, ultimately, affecting the entity's cost structure and exposure to regulatory shifts.

Metrics

RT-EE-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy all are included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest

Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification*, *Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Product Lifecycle Management

Topic Summary

Electrical and electronic equipment entities face increasing challenges and opportunities associated with environmental and social externalities that may stem from the use of their products. Regulations are incentivising entities to reduce or eliminate the use of harmful chemicals in their products. To a lesser extent, regulations and customers are encouraging entities to reduce the environmental footprint of their products in the use-phase, primarily in terms of energy intensity. Electrical and electronic equipment entities that develop cost-effective products and energy efficiency solutions may benefit from increased revenue and market share, stronger competitive positioning and enhanced brand value. Similarly, products with reduced chemical safety concerns may provide opportunities for increased market share.

Metrics

RT-EE-410a.1. Percentage of products by revenue that contain IEC 62474 declarable substances

1 The entity shall disclose the percentage of products sold during the reporting period that contain the International Electrotechnical Commission’s (IEC) 62474 declarable substances.

1.1 A product contains a declarable substance if, according to IEC 62474—*Material Declaration for Products of and for the Electrotechnical Industry*, it contains an amount of the substance above the ‘reporting threshold’, is within the scope of the ‘reporting application’ identified, and is within the mandatory ‘reporting requirement’.

1.2 The entity shall calculate the percentage as the revenue from products sold that contain a declarable substance(s) divided by total revenue from products sold.

2 The scope of disclosure includes all products, including products from an entity not required to declare or otherwise making declarations, according to IEC 62474.

Note to **RT-EE-410a.1**

1 The entity shall discuss how it manages the use of substances listed as declarable substance groups or declarable substances in IEC 62474, including a discussion of specific operational processes during which use of these substances is considered and the actions the entity has taken to manage the use of these substances.

2 Relevant management approaches and actions to describe may include:

2.1 Product design criteria for the exclusion of substances (for example, banned substances lists)

2.2 Use of material substitution assessments, materials and parts procurement guidelines, product safety testing, product declarations (for example, material safety data sheets) and product labelling

3 If the entity assesses and manages the impact of known or potentially toxic substances with reference to other regulations, industry norms or accepted chemical lists, it may identify those practices, and it shall describe the degree of overlap with IEC 62474.

RT-EE-410a.2. Percentage of eligible products, by revenue, certified to an energy efficiency certification

1 The entity shall disclose the percentage of its revenue from eligible products certified to an energy efficiency certification.

1.1 The entity shall calculate the percentage as the revenue from products meeting the requirements for the applicable certification divided by total revenue from products eligible for certification by certification.

1.1.1 Eligible products are those in a product category for which certification exists, which may include: uninterruptible power supply products, heating, cooling and ventilation equipment, and lighting and fans.

2 The entity shall disclose the percentage of products by revenue by energy efficiency certification.

2.1 If the entity has products certified to a previous version of an energy efficiency certification, it shall disclose this information, including the version of the standard to which its products are certified, a breakdown of how many products are certified to that version of the standard, and its time lines to achieve certification to the most current version of the standard.

3 For each jurisdiction where the entity sells products, the entity shall disclose the applicable certification programme.

RT-EE-410a.3. Revenue from renewable energy-related and energy efficiency-related products

1 The entity shall disclose total revenue from renewable energy-related and energy efficiency-related products.

2 Renewable energy-related products are defined as products or systems that enable the inclusion of renewable energy into established energy infrastructure.

2.1 Renewable energy is defined as energy derived from sources that are capable of being replenished quickly through ecological cycles, such as geothermal, wind, solar, hydroelectric and biomass (including ethanol, first-generation biofuels and advanced biofuels).

2.2 Examples of products and systems may include turbine controllers, relays, switchgears, solar PV fuses, SCADA systems, interconnection technologies and other balance of plant equipment designed for renewable energy applications.

2.3 The scope of products and systems is limited to those that enable the integration of renewable energy into established energy infrastructure and grids; it excludes revenue from the sale or installation of renewable energy generation hardware such as wind turbines, solar photovoltaic modules and solar thermal electricity generation equipment.

3 A product shall be considered to have been designed to increase energy efficiency if documentation shows that the entity has tested, modelled or otherwise established an increase in energy efficiency during the product’s use-phase.

3.1 Examples of products that increase energy efficiency may include: smart grid technologies and infrastructure (for example, demand response systems, distribution automation, smart inverters or advanced metering equipment); smart home and intelligent building control products; flexible alternating current transmission systems and low-loss transformers.

3.1.1 Smart grid is defined as a modernisation of the electricity delivery systems to monitor, protect and automatically optimise the operation of its interconnected elements—from the central and distributed generation through the transmission network and the distribution system, to industrial users and building automation systems, and to energy storage installations and to end-use consumers.

3.2 The scope of disclosure includes products that impart an incremental improvement to energy efficiency, insofar as the entity can demonstrate that the improvement is meaningful, such as through alignment with the milestones set forth in Section 5, ‘Key Sectors’ of the European Commission’s Road Map to a Resource Efficient Europe or with EU Directive 2012/27/EU, or through conformance with energy efficiency standards such as the International Electrotechnical Commission’s (IEC) IE2 High Efficiency, IE3 Premium Efficiency and IE4 Super Premium Efficiency.

3.3 The scope of disclosure excludes products that impart improved resource efficiency in an ancillary, indirect or minimal way (for example, a conventional product that is slightly lighter than the previous generation of the product).

Volume 50—Industrial Machinery & Goods

Industry Description

Industrial machinery and goods industry entities manufacture equipment for a variety of industries including construction, agriculture, energy, utility, mining, manufacturing, automotive and transportation. Products include engines, earth-moving equipment, trucks, tractors, ships, industrial pumps, locomotives and turbines. Machinery manufacturers use large amounts of raw materials for production, including steel, plastics, rubber, paints and glass. Manufacturers also may machine and cast parts before final assembly. Demand in the industry is tied closely to industrial production, while government emissions standards and customer demand are encouraging innovations to improve energy efficiency and limit air emissions during product use.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	RT-IG-130a.1
Fuel Economy & Emissions in Use-phase	Sales-weighted fleet fuel efficiency for medium- and heavy-duty vehicles	Quantitative	Litres per 100 tonne-kilometres	RT-IG-410a.1
	Sales-weighted fuel efficiency for non-road equipment	Quantitative	Litres per hour	RT-IG-410a.2
	Sales-weighted fuel efficiency for stationary generators	Quantitative	Kilojoules per litre	RT-IG-410a.3
	Sales-weighted emissions of (1) nitrogen oxides (NO_x) and (2) particulate matter (PM) for: (a) marine diesel engines, (b) locomotive diesel engines, (c) on-road medium- and heavy-duty engines and (d) other non-road diesel engines [86]	Quantitative	Grammes per kilojoule	RT-IG-410a.4

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of units produced by product category [87]	Quantitative	Number	RT-IG-000.A
Number of employees	Quantitative	Number	RT-IG-000.B

86 Note to **RT-IG-410a.4** – The entity shall discuss how it manages fleet fuel economy and emissions risks and opportunities.

87 Note to **RT-IG-000.A** – At a minimum, the entity should indicate the number of units produced for the following product categories: (1) vehicles and agricultural and construction equipment, (2) engines and power generation equipment, and (3) parts and components.

Energy Management

Topic Summary

Energy is a critical input in industrial machinery manufacturing. Purchased electricity is the largest share of energy expenditure in the industry, followed by purchased fuels. The type of energy used, amount consumed and energy management strategies depend on the type of products manufactured. Including the use of electricity generated on site, grid-sourced electricity and alternative energy, an entity's energy mix can influence the cost and reliability of energy supply and, ultimately, affect the entity's cost structure and regulatory risk.

Metrics

RT-IG-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, heating, cooling and steam energy all are included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest

Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Fuel Economy & Emissions in Use-phase

Topic Summary

Many of the Industrial Machinery & Goods industry's products are powered by fossil fuels and release greenhouse gases (GHGs) and other air emissions during use. Customer preferences for improved fuel economy combined with regulations restricting emissions are increasing the demand for energy-efficient and lower-emission products in the industry. As such, entities that develop products with these characteristics may capture expanding market share, reduce regulatory risk and improve brand value.

Metrics

RT-IG-410a.1. Sales-weighted fleet fuel efficiency for medium- and heavy-duty vehicles

1 The entity shall disclose its sales-weighted average fleet fuel efficiency for medium- and heavy-duty vehicles.

1.1 Fleet fuel efficiency is defined as the average fuel economy of its medium- and heavy-duty commercial vehicles, weighted by the number of each sold during the reporting period and measured in litres per 100 tonne-kilometres.

1.2 The scope of disclosure includes combination tractors (commonly known as semi-trucks or lorries), heavy-duty pickup trucks and vans, and vocational vehicles.

1.3 The scope of disclosure includes vehicles in the fleet that weigh a minimum of 3.5 metric tons or 8,500 pounds.

1.4 If fleet averages are calculated by model year for regulatory purposes, the entity shall use these performance data.

1.5 In the absence of regulatory guidance on calculating a fleet average, the entity shall calculate performance based on the fuel economy of vehicles sold during the reporting period, weighted by sales volume.

2 The entity shall disclose the sales-weighted fuel efficiency requirement for its medium- and heavy-duty vehicles pursuant to the entity's applicable jurisdictional heavy-duty vehicle fuel emissions standards or regulations.

3 If the entity operates in more than one jurisdiction, the entity shall disclose the standard or regulation used to determine if a fuel is renewable.

RT-IG-410a.2. Sales-weighted fuel efficiency for non-road equipment

1 The entity shall disclose its sales-weighted average fuel efficiency for its non-road equipment and vehicles.

1.1 Fuel efficiency is defined as the average fuel economy of its non-road equipment, weighted by the number of each unit sold during the reporting period and measured in litres of fuel consumed per hour of operation (litres per hour).

1.1.1 In calculating litres per hour, the entity shall use the model-rated fuel efficiency value for each piece of equipment if available.

1.1.2 If model-rated fuel efficiency values are not available, the entity shall calculate the litres operational efficiency for the equipment, assuming normal, reasonable operating conditions (for example, for load factor, speed and environmental conditions).

1.2 Non-road equipment may include excavators and other construction equipment, farm tractors and other agricultural equipment, heavy forklifts, airport ground service equipment, and utility equipment such as generators, pumps and compressors.

RT-IG-410a.3. Sales-weighted fuel efficiency for stationary generators

1 The entity shall disclose the sales-weighted average fuel efficiency of its stationary generators.

1.1 Sales-weighted fuel efficiency is the average fuel efficiency of stationary generators sold during the reporting period, measured in kilojoules per litre.

2 Sales-weighted fuel efficiency is calculated as the harmonic mean of design fuel efficiency in kilojoules per litre, in which:

2.1 The harmonic mean captures the average amount of fuel needed by each generator to produce a given amount of power.

2.2 The harmonic mean is the reciprocal of the average of the reciprocal values.

RT-IG-410a.4. Sales-weighted emissions of (1) nitrogen oxides (NO_x) and (2) particulate matter (PM) for: (a) marine diesel engines, (b) locomotive diesel engines, (c) on-road medium- and heavy-duty engines and (d) other non-road diesel engines

1 The entity shall disclose the sales-weighted average emissions of (1) nitrogen oxides (NO_x) and (2) particulate matter (PM) for each of these product categories: (a) marine diesel engines, (b) locomotive diesel engines, (c) on-road medium- and heavy-duty engines and (d) other non-road diesel engines.

1.1 Emissions are calculated as the average emissions of (1) NO_x and (2) PM for engines, weighted by the number of each sold during the reporting period and measured in grammes per kilojoule.

1.2 Marine diesel engines, locomotive diesel engines, on-road medium- and heavy-duty engines, and other non-road diesel engines shall be defined based on applicable jurisdictional laws or regulations.

1.2.1 Other non-road diesel engines may include: excavators and other construction equipment, farm tractors and other agricultural equipment, heavy forklifts, airport ground service equipment, and utility equipment such as generators, pumps and compressors.

1.3 The entity shall state the calculation method used to calculate emissions.

1.4 The entity may disclose if any products do not meet current emissions standards established in applicable jurisdictional laws or regulations.

2 The entity may discuss its progress towards, and readiness for, future jurisdictional emissions standards that could affect its products.

Note to **RT-IG-410a.4**

1 The entity shall discuss how it manages fleet fuel economy and emissions risks and opportunities.

2 Relevant aspects of the approach and strategy to discuss include improvements to existing products and technologies, the introduction of new technologies, research and development efforts into advanced technologies, and partnerships with peers, academic institutions or customers (including governmental customers).

Volume 51—Casinos & Gaming

Industry Description

Publicly held casinos and gaming entities operate gambling facilities or platforms, including brick-and-mortar casinos, riverboat casinos, online gambling websites and racetracks. The industry is characterised by intense regulatory oversight, which is the main barrier to entry for new operators. Industry regulation varies significantly worldwide.

Note: Some entities in the Casinos & Gaming industry are also engaged in activities of the Hotels & Lodging or Restaurants industries. The disclosure topics for such activities are outlined in the Hotels & Lodging (SV-HL) and Restaurants (FB-RN) industries. For the purposes of this Standard, casinos and gaming entities are assumed to be engaged solely in operating gambling facilities and providing online gaming services, and therefore issues such as water management and food safety, which may be material for entities that have significant hotel and restaurant operations, are not covered by this industry.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	SV-CA-130a.1

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of tables	Quantitative	Number	SV-CA-000.A
Number of slots	Quantitative	Number	SV-CA-000.B
Number of active online gaming customers [88]	Quantitative	Number	SV-CA-000.C
Total area of gaming floor	Quantitative	Square metres (m²)	SV-CA-000.D

Energy Management

Topic Summary

With many facilities open 24 hours a day, the Casinos & Gaming industry requires a large amount of energy to operate. Casino facilities often have few windows and therefore rely on their buildings' mechanical systems for heating, ventilation, air-conditioning (HVAC) and lighting. Fossil fuel-based energy production and consumption contribute to significant environmental impacts, including climate change and pollution, and have the potential to impact casino entities' results of operations. Entities that rely on electricity consumption

88 Note to **SV-CA-000.C** – The number of active customers shall be considered as the number for which there was at least one financial transaction (bet, deposit, withdraw) with real currency within the reporting period, where real currency is defined by the U.S. Financial Crimes Enforcement Network.

for their operations increasingly must manage energy efficiency as well as energy availability, including the risks and opportunities associated with energy sourcing from fossil fuels or from renewable and alternative energy sources.

Metrics

SV-CA-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy all are included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix outside the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to: materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel use (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Volume 52—Hotels & Lodging

Industry Description

Hotels and lodging industry entities provide overnight accommodation, including hotels, motels and inns. This competitive industry is comprised primarily of large hotel chains in which customers base purchase decisions on a wide range of factors including quality and consistency of services, availability of locations, price, and loyalty programme offers. Entities often are structured in one or more of the following ways: direct revenue from hotel services, including room rental and food and beverage sales; management and franchise services with fee revenue from property management; and vacation residential ownership with revenue from sales of residential units.

Note: Some entities in the Hotels & Lodging industry also are engaged in activities of the Restaurants (FB-RN) industry. This Standard assumes hotel and lodging entities do not provide food and beverage services. Therefore, disclosures regarding food safety, waste and sourcing, which may be material for entities that also offer food and beverages, are not covered by this industry.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	SV-HL-130a.1
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	SV-HL-140a.1
Climate Change Adaptation	Number of lodging facilities located in 100-year flood zones	Quantitative	Number	SV-HL-450a.1

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of available room-nights	Quantitative	Number	SV-HL-000.A
Average occupancy rate [89]	Quantitative	Rate	SV-HL-000.B
Total area of lodging facilities [90]	Quantitative	Square metres (m²)	SV-HL-000.C
Number of lodging facilities and the percentage that are: (1) managed, (2) owned and leased, (3) franchised	Quantitative	Number, Percentage (%)	SV-HL-000.D

Energy Management

Topic Summary

Hotel buildings require a significant amount of energy to operate, which is a substantial portion of hotel operating expenses. The industry purchases the majority of its electricity commercially. This purchased electricity indirectly results in greenhouse gas (GHG) emissions, which is a significant contributor to climate change. Entities in the industry are implementing energy management best practices to reduce operating expenses and environmental impacts and to improve their brand value with guests, who increasingly are concerned about environmental sustainability.

Metrics

SV-HL-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

89 Note to **SV-HL-000.B** – Measured as number of (1) occupied room-nights divided by (2) available room-nights across all properties.

90 Note to **SV-HL-000.C** – The scope includes facilities that were owned, operated, leased, or franchised during any portion of the reporting period.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix outside the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel use (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data, including electricity from solar or wind energy).

Water Management

Topic Summary

Hotel buildings require a relatively large amount of water resources to operate. Although water is not the industry's greatest operating cost, reduced water availability or significant price increases could affect financial results. This effect may be particularly acute in water-stressed regions because of supply constraints. Entities in the industry are implementing water management best practices to reduce operating expenses and environmental impacts and to improve their brand value with guests, who increasingly are concerned about environmental sustainability.

Metrics

SV-HL-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the total amount of water, in thousands of cubic metres, consumed in operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

Climate Change Adaptation

Topic Summary

Hotels operating in climate change-exposed areas may be impacted by physical climate risks including inclement weather and flooding. Inclement weather may damage property and disrupt operations, thereby reducing asset values and revenues. In addition, hotels may face higher insurance premiums for buildings located in coastal regions or may be unable to insure their properties. Hotel operators will likely need to adapt to shifting climate trends such as rising sea levels, hurricanes, and flooding in order to maintain their climate-exposed revenue-generating properties.

Metrics

SV-HL-450a.1. Number of lodging facilities located in 100-year flood zones

1 The entity shall disclose the number of its lodging facilities that are located in 100-year flood zones.

1.1 100-year flood zones are defined as land areas subject to a one-percent or greater chance of flooding in any given year. Such areas may also be referred to as being subject to the one-percent annual chance flood, the one-percent annual exceedance probability flood, or the 100-year flood.

1.1.1 Examples of 100-year flood zones may include, but are not limited to, coastal flood plains, flood plains along major rivers, and areas subject to flooding from ponding in low-lying areas.

2 The scope of disclosure shall include all of the entity's lodging facilities that are located in 100-year flood zones, regardless of the country of their location.

Volume 53—Leisure Facilities

Industry Description

Entities in the Leisure Facilities industry operate entertainment, travel, and recreation facilities and services. Entities in this industry operate amusement parks, film theatres, ski resorts, sports stadiums, and athletic clubs and other venues. Leisure facilities entities mainly generate revenue by providing live, digital or interactive entertainment to millions of guests and customers annually in various locations.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	SV-LF-130a.1

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Attendance [91]	Quantitative	Number	SV-LF-000.A
Number of customer-days [92]	Quantitative	Number	SV-LF-000.B

Energy Management

Topic Summary

Leisure facilities entities operate large outdoor and indoor facilities that may consume a significant amount of energy. Most of the industry's electricity is purchased commercially, which indirectly results in greenhouse gas (GHG) emissions, a significant contributor to climate change. Entities in the industry are implementing energy management best practices to reduce operating expenses and environmental impacts and to improve their brand value with guests, who increasingly are concerned about environmental sustainability.

[91] Note to **SV-LF-000.A** – Attendance is the total number of visits by customers to any leisure facility in the entity's portfolio that is branded by the operator (i.e., licensed) or in which it has controlling ownership.

[92] Note to **SV-LF-000.B** – Customer-days is the aggregate total amount of time customers spent visiting any leisure facility in the entity's portfolio, calculated as the sum of the visitation time of each customer. For facilities that sell day passes (e.g., amusement parks), but do not track entry and exit times, the hours of operation open to guests can be used for estimation. For facilities that sell single unit entry passes (e.g., film theatres), the average visitation time can be used for estimation.

Metrics

SV-LF-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix outside the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel use (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Volume 54—Electronic Manufacturing Services & Original Design Manufacturing

Industry Description

The Electronic Manufacturing Services (EMS) & Original Design Manufacturing (ODM) industry consists of two main segments. EMS entities provide assembly, logistics and after-market services for original equipment manufacturers. ODM entities provide engineering and design services for original equipment manufacturers and may own significant intellectual property. Although EMS & ODM entities produce equipment for a variety of sectors, the industry is associated closely with the Hardware industry, which consists of entities that design technology hardware products such as personal computers, consumer electronics and storage devices for both personal consumers and businesses.

Note: The Electronic Manufacturing Services & Original Design Manufacturing industry does not include the design of technology hardware products. Entities that design and manufacture technology hardware products should consider the disclosure topics and metrics in the Hardware (TC-HW) industry.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	TC-ES-140a.1
Product Lifecycle Management	Weight of end-of-life products and e-waste recovered; percentage recycled	Quantitative	Metric tons (t), Percentage (%)	TC-ES-410a.1

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of manufacturing facilities	Quantitative	Number	TC-ES-000.A
Area of manufacturing facilities	Quantitative	Square metres (m^2)	TC-ES-000.B
Number of employees	Quantitative	Number	TC-ES-000.C

Water Management

Topic Summary

The manufacturing of computers, computer components and other electronics requires significant volumes of water. Water is becoming a globally scarce resource because of increasing consumption from population growth, rapid urbanisation and climate change. Without careful planning, water scarcity may result in higher supply costs, social tensions with local communities and governments, or loss of access to water in water-scarce regions thereby presenting a critical risk to production and revenue. Electronic Manufacturing Services (EMS) & Original Design Manufacturing (ODM) entities that improve water use efficiency may reduce operating costs and maintain a lower risk profile, ultimately affecting cost of capital and market valuation. Furthermore, entities that prioritise water use efficiency may reduce regulatory risks as applicable jurisdictional environmental laws or regulations place more emphasis on resource conservation.

Metrics

TC-ES-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly included in the entity’s product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute’s (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

Product Lifecycle Management

Topic Summary

Entities in the Electronic Manufacturing Services (EMS) & Original Design Manufacturing (ODM) industry, along with the industry’s customers such as hardware entities, face increasing challenges associated with environmental externalities attributed to product manufacturing, transport, use and disposal. Rapid obsolescence of hardware products may worsen such externalities. The industry’s products commonly contain hazardous materials, making safe end-of-life disposal a critical aspect to manage. Entities unable to minimise the environmental externalities of their products may face increased regulatory costs as jurisdictional environmental laws or regulations place more emphasis on resource conservation and waste management. Through product innovation that facilitates end-of-life product recovery and the use of less impactful materials, EMS & ODM manufacturers can achieve improvements in lifecycle impacts, reduce regulatory risks and realise cost savings.

Metrics

TC-ES-410a.1. Weight of end-of-life products and e-waste recovered; percentage recycled

1 The entity shall disclose the weight, in metric tons, of end-of-life material recovered, including through reverse logistics services, recycling services, product take-back programmes and refurbishment services.

1.1 End-of-life material recovered is defined as products, materials and parts, including electronic waste material (e-waste), that at the end of their useful life would have otherwise been discarded as waste or used for energy recovery, but have instead been collected.

1.2 The scope of end-of-life material recovered includes materials physically handled by the entity.

1.3 The scope of end-of-life material recovered includes materials of which the entity did not take physical possession, but were collected by a third party for the expressed purpose of reuse, recycling or refurbishment.

1.4 The scope of end-of-life material recovered excludes materials collected for repair or that are under warranty and subject to recall.

2 The entity shall disclose the percentage of end-of-life material recovered and subsequently recycled.

2.1 The percentage shall be calculated as the weight of end-of-life material recovered and subsequently recycled divided by the total weight of end-of-life material recovered.

2.2 Recycled material (including remanufactured material) is defined as waste material reprocessed or treated by means of production or manufacturing processes and made into a final product or a component for incorporation into a product.

2.3 The scope of recycled material includes material reused or reclaimed.

2.3.1 Reused material is defined as recovered products or components of products used for the same purpose for which they were conceived, including products donated or refurbished by the entity or by third parties.

2.3.2 Reclaimed material is defined as material processed to recover or regenerate a usable product.

2.4 The scope of recycled material includes primary recycled material, co-products (outputs of equal value to primary recycled materials), by-products (outputs of lesser value to primary recycled materials) and material sent externally for further recycling.

2.5 The scope of recycled material excludes portions of products and materials that are disposed of in landfills.

3 Electronic waste material (e-waste) shall be considered recycled only if the entity can demonstrate that this material was transferred to entities with third-party certification to a standard for e-waste recycling such as the e-Stewards® Standard for Responsible Recycling and Reuse of Electronic Equipment or the Responsible Recycling Practices (R2) Standard for Electronic Recyclers.

3.1 The entity shall disclose the standard(s) complied with by the entities to which it has transferred e-waste.

Volume 55—Hardware

Industry Description

Hardware industry entities design and sell technology hardware products, including computers, consumer electronics, communications equipment, storage devices, components and peripherals. Many entities in the industry rely heavily upon the Electronic Manufacturing Services & Original Design Manufacturing (EMS & ODM) industry for manufacturing services. The industry is expected to continue to grow as technology use rapidly increases, especially among emerging market consumers.

Note: Entities engaged in activities of the Software & IT Services industry (TC-SI), Internet Media & Services (TC-IM) industry or the EMS & ODM industry (TC-ES) should consider the disclosure topics and metrics in those industries

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Product Lifecycle Management	Percentage of products by revenue that contain IEC 62474 declarable substances [93]	Quantitative	Percentage (%)	TC-HW-410a.1
	Percentage of eligible products, by revenue, meeting the requirements for EPEAT registration or equivalent [94]	Quantitative	Percentage (%)	TC-HW-410a.2
	Percentage of eligible products, by revenue, certified to an energy efficiency certification	Quantitative	Percentage (%)	TC-HW-410a.3
	Weight of end-of-life products and e-waste recovered; percentage recycled	Quantitative	Metric tons (t), Percentage (%)	TC-HW-410a.4

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of units produced by product category [95]	Quantitative	Number	TC-HW-000.A
Area of manufacturing facilities	Quantitative	Square metres (m^2)	TC-HW-000.B
Percentage of production from owned facilities	Quantitative	Percentage (%)	TC-HW-000.C

[93] Note to **TC-HW-410a.1** – Disclosure shall include a discussion of the approach to managing the use of IEC 62474 declarable substances.

[94] Note to **TC-HW-410a.2** – Disclosure shall include a discussion of efforts to incorporate environmentally focused principles into product design.

[95] Note to **TC-HW-000.A** – The entity shall indicate the number of units produced during the reporting period and whether they were manufactured in its own facilities or produced by contract manufacturers or suppliers. Categories may include communications equipment, components, computer hardware, computer peripherals, computer storage, consumer electronics, other hardware, printing & imaging, and transaction management systems.

Product Lifecycle Management

Topic Summary

Entities in the Hardware industry face increasing challenges associated with environmental and social externalities attributed to product manufacturing, transport, use and disposal. Rapid obsolescence of hardware products may worsen these externalities. Entities are designing more products with the entire lifecycle in mind. Specific considerations include energy efficiency of products, hazardous material inputs, and designing for and facilitating safe end-of-life disposal and recycling. Entities that prioritise designing and manufacturing products with improved environmental and social impacts may avoid costs associated with externalities, and they may be more likely to grow consumer demand and market share, while eliminating potentially harmful materials. Furthermore, entities that minimise environmental and social externalities of products may be less exposed to increasing regulation and costs, such as those related to extended producer responsibility.

Metrics

TC-HW-410a.1. Percentage of products by revenue that contain IEC 62474 declarable substances

1 The entity shall disclose the percentage of products sold during the reporting period that contain declarable substances.

1.1 A product contains a declarable substance if, according to the International Electrotechnical Commission's IEC 62474—*Material Declaration for Products of and for the Electrotechnical Industry*, it contains an amount of the declarable substance that is:

1.1.1 Above the 'reporting threshold'

1.1.2 Within the scope of the 'reporting application' identified

1.1.3 Within the mandatory 'reporting requirement'

1.2 The entity shall calculate the percentage as the revenue from electrical, electronic and related technology products sold that contain a declarable substance(s) divided by total revenue from electrical, electronic and related technology products sold.

2 The scope of disclosure includes all electrical, electronic and related technology products, including products from an entity not required to declare or otherwise making declarations, according to IEC 62474.

Note to **TC-HW-410a.1**

1 The entity shall describe how it manages the use of substances listed as declarable substance groups or declarable substances in IEC 62474, including a discussion of specific operational processes during which use of these substances is considered and the actions the entity has taken to manage the use of these substances.

1.1 Relevant management approaches and actions to describe may include:

1.1.1 Product design criteria for the exclusion of substances (for example, banned substances lists)

1.1.2 Use of material substitution assessments, materials and parts procurement guidelines, product safety testing, product declarations (for example, material safety data sheets) and product labelling

2 If the entity assesses and manages the impact of known or potentially toxic substances with reference to other regulations, industry norms or accepted chemical lists, it may identify those practices, and it shall describe the degree of overlap with IEC 62474.

TC-HW-410a.2. Percentage of eligible products, by revenue, meeting the requirements for EPEAT registration or equivalent

1 The entity shall disclose the percentage of products sold during the reporting period that meet the requirements for Electronic Product Environmental Assessment Tool (EPEAT) registration or an equivalent standard.

1.1 A product meets the requirements of EPEAT registration if it appears on the EPEAT Registry, or the entity can otherwise demonstrate that the product meets these requirements.

1.2 Standards that are equivalent to EPEAT include those that have criteria and requirements related to substantially similar topics, such as:

1.2.1 Reduction or elimination of environmentally sensitive materials

1.2.2 Material selection and declaration

1.2.3 Design for end-of-life

1.2.4 Product longevity or lifecycle extension

1.2.5 Energy conservation

1.2.6 End-of-life management

1.2.7 Corporate performance

1.2.8 Packaging

1.3 Examples of standards equivalent to EPEAT may include the Total Cost of Ownership (TCO) Development fourth generation family of standards.

2 The entity shall calculate the percentage as the revenue from products sold during the reporting period that meet the requirements for EPEAT registration, or an equivalent standard, divided by total revenue from products eligible for EPEAT registration.

2.1 Eligible products are those in a product category for which EPEAT registration exists, which includes desktop computers, notebook computers, computer displays and mobile phones.

2.2 Product categories currently outside the scope of EPEAT registration, but for which an equivalent standard exists may be considered eligible products.

Note to **TC-HW-410a.2**

1 The entity shall describe how it includes environmentally focused principles into product design.

1.1 Environmentally focused principles or criteria include those outlined in the International Electrotechnical Commission's (IEC) Environmentally Conscious Design (IEC-62430 or IEC-62075).

1.2 The discussion shall include:

1.2.1 Elimination of toxic substances

1.2.2 Use of recycled materials

1.2.3 Reduction of packaging

1.2.4 Design for consolidated shipping

1.2.5 Design of low energy consumption products

1.2.6 Design for product take-back

1.2.7 Labelling for recycling

1.2.8 Elimination or replacement of materials subject to resource scarcity (for example, cobalt and rare earth elements)

TC-HW-410a.3. Percentage of eligible products, by revenue, certified to an energy efficiency certification

1 The entity shall disclose the percentage of its revenue from eligible products certified to an energy efficiency certification.

1.1 The entity shall calculate the percentage as the revenue from products meeting the requirements for the applicable certification divided by total revenue from products eligible for certification by certification.

1.1.1 Eligible products are those in a product category for which certification exists, which may include: audio and video equipment, battery charging systems, computers, data centre storage, displays, enterprise servers, imaging equipment, set-top boxes and cable boxes, large network equipment, small network equipment, telephony, televisions and uninterruptible power supplies.

2 The entity shall disclose the percentage of products by revenue by energy efficiency certification.

2.1 If the entity has products certified to a previous version of an energy efficiency certification, it shall disclose this information, including which version of the standard to which its products are certified, a breakdown of how many products are certified to that version of the standard, and time lines to achieve certification to the most current version of the standard.

3 For each jurisdiction where the entity sells products, the entity shall disclose the applicable certification programme.

TC-HW-410a.4. Weight of end-of-life products and e-waste recovered; percentage recycled

1 The entity shall disclose the weight, in metric tons, of end-of-life material recovered, including through reverse logistics services, recycling services, product take-back programmes and refurbishment services.

1.1 End-of-life material recovered is defined as products, materials and parts, including electronic waste material (e-waste) that at the end of their useful life would have otherwise been disposed of as waste or used for energy recovery, but have instead been collected.

1.2 The scope of end-of-life material recovered includes materials physically handled by the entity.

1.3 The scope of end-of-life material recovered includes materials of which the entity did not take physical possession, but were collected by a third party for the expressed purpose of reuse, recycling or refurbishment.

1.4 The scope of end-of-life material recovered excludes materials collected for repair or that are under warranty and subject to recall.

2 The entity shall disclose the percentage of end-of-life material recovered and subsequently recycled.

2.1 The percentage shall be calculated as the weight of end-of-life material recovered and subsequently recycled divided by the total weight of end-of-life material recovered.

2.2 Recycled material (including remanufactured material) is defined as waste material reprocessed or treated by means of production or manufacturing processes and made into a final product or a component for incorporation into a product.

2.3 The scope of recycled material includes material reused or reclaimed.

2.3.1 Reused material is defined as recovered products or components of products used for the same purpose for which they were conceived, including products donated or refurbished by the entity or by third parties.

2.3.2 Reclaimed material is defined as material processed to recover or regenerate a usable product.

2.4 The scope of recycled material includes primary recycled material, co-products (outputs of equal value to primary recycled materials), by-products (outputs of lesser value to primary recycled materials) and material sent externally for further recycling.

2.5 The scope of recycled material excludes portions of products and materials discarded in landfills.

2.6 Electronic waste material (e-waste) shall be considered recycled only if the entity can demonstrate that it transferred this material to entities with third-party certification to a standard for e-waste recycling such as the e-Stewards® Standard for Responsible Recycling and Reuse of Electronic Equipment or the Responsible Recycling Practices (R2) Standard for Electronic Recyclers.

2.6.1 The entity shall disclose the standard(s) complied with by the entities to which it has transferred e-waste.

Volume 56—Internet Media & Services

Industry Description

The Internet Media & Services industry consists of two main segments. Entities in the Internet Media segment provide search engines and internet advertising channels, online gaming, and online communities such as social networks, as well as content, which is usually easily searchable, such as educational, medical, health, sports or news content. Entities in the internet-based Services segment sell services mainly through the internet. The industry generates revenue primarily from online advertising, usually on free content, with other revenue sources being subscription fees, content sales or the sale of user information to third parties.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Environmental Footprint of Hardware Infrastructure	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	TC-IM-130a.1
	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	TC-IM-130a.2
	Discussion of the integration of environmental considerations into strategic planning for data centre needs	Discussion and Analysis	n/a	TC-IM-130a.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Entity-defined measure of user activity [96]	Quantitative	See note	TC-IM-000.A
(1) Data processing capacity, (2) percentage outsourced [97]	Quantitative	See note	TC-IM-000.B
(1) Amount of data storage, (2) percentage outsourced [98]	Quantitative	Petabytes, Percentage (%)	TC-IM-000.C

[96] Note to **TC-IM-000.A** – The entity shall define and disclose a basic measure of customer activity suitable for its business activities. This may include, but is not limited to, sales transactions, purchase transactions, number of searches, monthly active users, or page views.

[97] Note to **TC-IM-000.B** – Data processing capacity shall be reported in units of measure typically tracked by the entity or used as the basis for contracting software and IT services, such as Million Service Units (MSUs), Million Instructions per Second (MIPS), Mega FloatingPoint Operations per Second (MFLOPS), compute cycles, or other. Alternatively, the entity may disclose owned and outsourced data processing needs in other units of measure, such as rack space or data centre square footage. The percentage outsourced shall include o-premise cloud services, those that are hosted on public cloud, and those that are residing in colocation data centres.

[98] Note to **TC-IM-000.C** – The percentage outsourced shall include on-premise cloud services, those that are hosted on public cloud, and those that are residing in colocation data centres.

Environmental Footprint of Hardware Infrastructure

Topic Summary

With the Internet & Media Services industry providing a growing amount of content and service offerings, entities in this industry increasingly own, operate or rent more data centres and other hardware. Thus, managing the energy and water use associated with IT hardware infrastructure is relevant to value creation. Data centres must be powered continuously. Energy supply disruptions may have a material impact on operations depending on the disruption magnitude and timing. Entities face a trade-off between energy and water consumption because of data centre cooling needs. Cooling data centres with water instead of chillers improves energy efficiency, but this method may create dependence on significant local water resources. Data centre specification decisions are important for managing costs, obtaining a reliable energy and water supply, and reducing reputational risks, particularly with the increasing global regulatory focus on climate change and the opportunities arising from energy efficiency and renewable energy innovations.

Metrics

TC-IM-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix outside the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

5 The entity may disclose the trailing 12-month (TTM) weighted average power usage effectiveness (PUE) for its data centres.

5.1 PUE is defined as the ratio of the total amount of power used by a computer data centre facility to the amount of power delivered to computing equipment.

5.2 If disclosing PUE, the entity shall follow the guidance and calculation methodology described in *PUE™: A Comprehensive Examination of the Metric* (2014), published by ASHRAE and The Green Grid Association.

TC-IM-130a.2. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes, and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly included in the entity’s product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute’s (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

TC-IM-130a.3. Discussion of the integration of environmental considerations into strategic planning for data centre needs

1 The entity shall describe how it integrates environmental considerations, including energy and water use, into strategic planning for data centres.

2 Discussion shall include, but is not limited to, how environmental factors impact the entity's decisions regarding the siting, design, construction, refurbishment and operation of data centres.

2.1 Environmental factors and criteria may include:

2.1.1 Location-based environmental factors, such as regional humidity, average temperature and water availability.

2.1.2 Environmental regulations, such as energy efficiency standards and national- or state-level carbon legislation on pricing and carbon intensity of grid electricity.

3 The scope of disclosure includes considerations for existing owned data centres, the development of new data centres, and the outsourcing of data centre services, if relevant.

Volume 57—Semiconductors

Industry Description

Semiconductors industry entities design or manufacture semiconductor devices, integrated circuits, their raw materials and components, or capital equipment. Some entities in the industry provide outsourced manufacturing, assembly or other services for designers of semiconductor devices.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	(1) Gross global Scope 1 emissions and (2) amount of total emissions from perfluorinated compounds	Quantitative	Metric tons (t) CO_2-e	TC-SC-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	TC-SC-110a.2
Energy Management in Manufacturing	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	TC-SC-130a.1
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	TC-SC-140a.1
Product Lifecycle Management	Percentage of products by revenue that contain IEC 62474 declarable substances [99]	Quantitative	Percentage (%)	TC-SC-410a.1
	Processor energy efficiency at a system-level for: (1) servers, (2) desktops and (3) laptops [100]	Quantitative	Various, by product category	TC-SC-410a.2

[99] Note to **TC-SC-410a.1** – Disclosure shall include a discussion of efforts to minimise usage of these substances.

[100] Note to **TC-SC-410a.2** – Disclosure shall include a discussion of efforts to design for new and emerging usage patterns with respect to energy efficiency in all product categories (i.e., applications for servers, desktops, laptops, workstations, netbooks, tablets, mobile phones, and storage).

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Total production [101]	Quantitative	See note	TC-SC-000.A
Percentage of production from owned facilities	Quantitative	Percentage (%)	TC-SC-000.B

Greenhouse Gas Emissions

Topic Summary

Entities in the Semiconductors industry generate greenhouse gas (GHG) emissions, particularly those from perfluorinated compounds, from semiconductor manufacturing operations. GHG emissions may create regulatory compliance costs and operating risks for semiconductors entities, although resulting financial effects may vary depending on the magnitude of emissions and the prevailing emissions regulations. Entities that cost-effectively manage GHG emissions through greater energy efficiency, the use of alternative chemicals or manufacturing process advances may benefit from improved operating efficiency and reduced regulatory risk.

Metrics

TC-SC-110a.1. (1) Gross global Scope 1 emissions and (2) amount of total emissions from perfluorinated compounds

1 The entity shall disclose its (1) gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalents (CO_2-e) calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 The entity shall disclose its (2) gross global Scope 1 GHG emissions, in metric tons of CO_2-e, originated from perfluorinated compounds.

3 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

3.1 Acceptable calculation methodologies include those that conform to the *GHG Protocol* as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples may include:

3.1.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)

[101] Note to **TC-SC-000.A** – The entity shall disclose total production from its own manufacturing facilities and those with which it contracts for manufacturing services. For semiconductor equipment manufacturers the total production shall be reported on a per unit basis. For semiconductor device manufacturers the total production shall be reported consistent with International SEMATECH Manufacturing Initiative's Semiconductor Key Environment Performance Indicators Guidance, Technology Transfer #09125069A-ENG.

3.1.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the US Environmental Protection Agency (EPA)

3.1.3 India GHG Inventory Program

3.1.4 ISO 14064-1

3.1.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

3.1.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

3.2 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which generally is aligned with the 'financial control' approach defined by the *GHG Protocol*, and the approach published by the Climate Disclosure Standards Board (CDSB) described in REQ-07, 'Organisational boundary', of the *CDSB Framework for reporting environmental and social information*.

4 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

5 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

6 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

TC-SC-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined according to *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.3 The entity shall specifically discuss its strategy or plan to manage Scope 1 GHG emissions that originate from perfluorinated compounds.

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

3.1 Relevant activities and investments may include energy efficiency efforts, demand-response programmes and development of renewable energy portfolios consistent with the IPCC Fifth Assessment Report: Climate Change 2014: Mitigation of Climate Change, Contribution of Working Group III.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

5 The entity shall discuss whether its strategies, plans or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Energy Management in Manufacturing

Topic Summary

Energy is a critical input for manufacturing semiconductor devices. The price of conventional grid electricity and volatility of fossil fuel prices may increase because of evolving climate change regulations and new incentives for energy efficiency and renewable energy, among other factors, while alternative energy sources become more cost-competitive. Decisions regarding energy sourcing and type, as well as alternative energy use, may create trade-offs related to the energy supply's cost and reliability for operations. As industry innovation adds complexity to manufacturing processes, new technologies to manufacture semiconductors may consume more energy unless entities invest in the energy efficiency of their operations. The way an entity manages energy efficiency, reliance on different types of energy, the associated sustainability risks, and alternative energy source access may affect financial performance.

Metrics

TC-SC-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix outside the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel use (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Water Management

Topic Summary

Water is critical to the semiconductor production process, which requires significant volumes of 'ultra-pure' water for cleaning purposes, to avoid trace molecules from affecting product quality. As manufacturing becomes more complex, entities in the industry are discovering the importance of reducing ultra-pure water use. Water is becoming a scarce resource around the world, because of increasing consumption from population growth and rapid urbanisation, and reduced supplies because of climate change. Furthermore, water pollution in developing countries makes available water supplies unusable or expensive to treat. Without careful planning, water scarcity may result in higher supply costs, social tensions with local communities and governments, or loss of water access in water-scarce regions, thereby presenting a critical risk to production. Semiconductor entities that increase water use efficiency during manufacturing may maintain a lower risk profile and face reduced regulatory risks as local, regional and national environmental laws place increasing emphasis on resource conservation.

Metrics

TC-SC-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all of its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

Product Lifecycle Management

Topic Summary

As an increasing number of devices become connected to each other and to the internet, semiconductor entities face greater demand for products that increase computing power and decrease energy costs. Semiconductor machinery and device manufacturers may reduce the environmental and human health impacts of their products by increasing the energy-efficiency of equipment and chips and reducing the use of harmful materials in products. As consumer demand grows for energy-efficient devices that increase battery life, reduce heat output and decrease energy consumption, semiconductor manufacturers that satisfy these may gain a competitive advantage, driving revenue and market share growth. Entities also may benefit from reducing the use of toxic materials from chips destined for consumer devices, which has implications for the end-of-life management of electronic waste, an issue of growing legislative importance in many countries.

Metrics

TC-SC-410a.1. Percentage of products by revenue that contain IEC 62474 declarable substances

1 The entity shall disclose the percentage of products sold during the reporting period that contain declarable substances.

1.1 A product contains a declarable substance if, according to the International Electrotechnical Commission's IEC 62474—Material Declaration for Products of and for the Electrotechnical Industry, it contains an amount of the declarable substance that is:

1.1.1 Above the 'reporting threshold'

1.1.2 Within the scope of the 'reporting application' identified

1.1.3 Within the mandatory 'reporting requirement'

1.2 The entity shall calculate the percentage as the revenue from electrical, electronic and related technology products sold that contain a declarable substance(s) divided by total revenue from electrical, electronic and related technology products sold.

2 The scope of disclosure includes all electrical, electronic and related technology products, including products from an entity not required to declare, or otherwise make declarations, according to IEC 62474.

Note to **TC-SC-410a.1**

1 The entity shall describe how it manages the use of substances that appear as declarable substance groups or declarable substances in IEC 62474, including a discussion of specific

operational processes during which use of these substances is considered as well as a discussion of actions the entity has taken to manage the use of these substances.

1.1 Relevant management approaches and actions to describe may include:

1.1.1 Product design criteria for the exclusion of substances (for example, banned substances lists)

1.1.2 Use of material substitution assessments, materials and parts procurement guidelines, product safety testing, product declarations (for example, material safety data sheets), and product labelling

2 If the entity assesses and manages the impact of known or potentially toxic substances with reference to other regulations, industry norms or accepted chemical lists, it may identify those practices, and it shall describe the degree of overlap with IEC 62474.

TC-SC-410a.2. Processor energy efficiency at a system-level for: (1) servers, (2) desktops and (3) laptops

1 The entity shall disclose the energy efficiency of its processors based on benchmarked performance per watt of energy consumed for (1) servers, (2) desktops and (3) laptops, using the following parameters:

1.1 Representative product: The entity shall calculate performance using a representative product for each product category (servers, desktops, laptops), in which a representative product typically would be the entity's bestselling specification of processor in the product category. If the entity determines its representative product differently, it shall explain the criteria it used in this determination.

1.2 System-level testing: Testing shall be conducted—and disclosure shall be made—at the system-level for a computer integrating the entity's processor and not at a component-level. The entity shall conduct testing using a representative computer system structure, such as the bestselling system using the entity's processor or one that is widely commercially available.

1.3 Specified benchmark: At a minimum, the entity shall disclose performance to the benchmarks defined below for each product category; the entity may disclose performance to additional benchmarks.

2 As described below, the entity shall conduct testing and disclose performance, depending on product category, consistent with guidance provided by:

2.1 The Standard Performance Evaluation Entity (SPEC)

2.2 MobileMark®

3 For (1) servers the entity shall conduct testing according to the SPEC Power SPECpower_sssj2008 and disclose the results as: overall ssj_ops/watt

4 For (2) desktop computers the entity shall conduct testing according to the SPEC CPU2006 benchmark and disclose results as both:

4.1 SPECspeed2017_int_base score/watt

4.2 SPECspeed2017_fp_basescore/watt

5 For (3) laptops the entity shall conduct testing according to the MobileMark® 2014 v1.5 and disclose results as both:

5.1 Performance qualification score

5.2 Battery life score (in minutes)

6 The entity shall consider the guidance references provided by SPEC and MobileMark® as normative references; thus any future updates made to them shall be considered updates to this guidance.

7 The entity may additionally disclose energy efficiency performance for other product categories, for which a benchmark is not specified above (for example, workstations, netbooks, tablets, mobile phones, and storage), using a relevant benchmark.

7.1 The entity shall describe the parameters it used to select and test to applicable benchmarks.

Note to **TC-SC-410a.2**

1 The entity shall discuss how it incorporates product energy efficiency considerations into design for new and emerging usage patterns in all relevant product categories.

1.2 The discussion may include how, in the entity's view, the energy efficiency of processors is influenced by factors such as growth of new product categories (for example, machine-to-machine communication), new usage patterns (for example, increased data consumption via mobile devices), purchasing specifications or consumer demand (for example, environmentally conscious consumers).

Volume 58—Software & IT Services

Industry Description

The Software & Information Technology (IT) Services industry offers products and services globally to retail, business and government customers, and includes entities that develop and sell applications software, infrastructure software and middleware. The industry generally is competitive but with dominant players in some segments. Although relatively immature, the industry is characterised by high-growth entities that place a heavy emphasis on innovation and depend on human and intellectual capital. The industry also includes IT services entities delivering specialised IT functions, such as consulting and outsourced services. New industry business models include cloud computing, software as a service, virtualisation, machine-to-machine communication, big data analysis and machine learning. Additionally, brand value is important for entities in the industry to scale and achieve network effects, whereby wide adoption of a particular software product may result in self-perpetuating growth in sales.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Environmental Footprint of Hardware Infrastructure	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	TC-SI-130a.1
	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	TC-SI-130a.2
	Discussion of the integration of environmental considerations into strategic planning for data centre needs	Discussion and Analysis	n/a	TC-SI-130a.3
Managing Systemic Risks from Technology Disruptions	Number of (1) performance issues and (2) service disruptions; (3) total customer downtime [102]	Quantitative	Number, Days	TC-SI-550a.1
	Description of business continuity risks related to disruptions of operations	Discussion and Analysis	n/a	TC-SI-550a.2

[102] Note to **TC-SI-550a.1** – Disclosure shall include a description of each significant performance issue or service disruption and any corrective actions taken to prevent future disruptions.

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
(1) Number of licences or subscriptions, (2) percentage cloud-based	Quantitative	Number, Percentage (%)	TC-SI-000.A
(1) Data processing capacity, (2) percentage outsourced [103]	Quantitative	See note	TC-SI-000.B
(1) Amount of data storage, (2) percentage outsourced [104]	Quantitative	Petabytes, Percentage (%)	TC-SI-000.C

Environmental Footprint of Hardware Infrastructure

Topic Summary

With the growth of cloud-based service offerings, entities in this industry own, operate or rent increasingly more data centres and other hardware. Thus, managing the energy and water use associated with IT hardware infrastructure is relevant to value creation. Data centres must be powered continuously, and disruptions to the energy supply can have a material effect on operations, depending on the magnitude and timing of the disruption. Entities face a trade-off between energy and water consumption because of data centre cooling needs. Cooling data centres with water instead of chillers improves energy efficiency, but this method may create dependence on significant local water resources. Data centre specification decisions are important for managing costs, obtaining a reliable supply of energy and water, and reducing reputational risks, particularly with the increasing global regulatory focus on climate change and the opportunities arising from energy efficiency and renewable energy innovations.

Metrics

TC-SI-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

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[103] Note to **TC-SI-000.B** – Data processing capacity shall be reported in units of measure typically tracked by the entity or used as the basis for contracting software and IT services, such as Million Service Units (MSUs), Million Instructions per Second (MIPS), Mega Floating- Point Operations per Second (MFLOPS), compute cycles, or other. Alternatively, the entity may disclose owned and outsourced data processing needs in other units of measure, such as rack space or data centre square footage. The percentage outsourced shall include on-premise cloud services, those that are hosted on public cloud, and those that are residing in colocation data centres.

[104] Note to **TC-SI-000.C** – The percentage outsourced shall include On-Premise cloud services, those that are hosted on public cloud, and those that are residing in colocation data centres.

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix outside the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel use (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

5 The entity may disclose the trailing 12-month (TTM) weighted average power usage effectiveness (PUE) for its data centres.

5.1 PUE is defined as the ratio of the total amount of power used by a computer data centre facility to the amount of power delivered to computing equipment.

5.2 If disclosing PUE, the entity shall follow the guidance and calculation methodology described in *PUE™: A Comprehensive Examination of the Metric* (2014), published by ASHRAE and The Green Grid Association.

TC-SI-130a.2. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly incorporated into the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

TC-SI-130a.3. Discussion of the integration of environmental considerations into strategic planning for data centre needs

1 The entity shall describe how it integrates environmental considerations, including energy and water use, into strategic planning for data centres.

2 Discussion shall include, but is not limited to, how environmental factors impact the entity's decisions regarding the siting, design, construction, refurbishment, and operations of data centres.

2.1 Environmental factors and criteria may include:

2.1.1 Location-based environmental factors, such as regional humidity, average temperature and water availability.

2.1.2 Environmental regulations, such as energy efficiency standards and national- or state-level carbon legislation on pricing, and carbon intensity of grid electricity.

3 The scope of disclosure includes considerations for existing owned data centres, development of new data centres and outsourcing of data centre services, where relevant.

Managing Systemic Risks from Technology Disruptions

Topic Summary

With trends towards increased cloud computing and Software as a Service (SaaS), software and IT service providers must ensure they have robust infrastructure and policies in place to minimise disruptions to their services. Disruptions such as programming errors or server downtime may generate systemic risks, because computing and data storage functions move from individual entity servers in various industries to data centres of cloud-computing service providers. The risks are increased particularly if the affected customers are in sensitive sectors, such as financial institutions or utilities, which are considered critical national infrastructure. Entities' investments in improving the reliability and quality of their IT infrastructure and services may attract and retain customers, thereby creating revenue and opportunities in new markets.

Metrics

TC-SI-550a.1. Number of (1) performance issues and (2) service disruptions; (3) total customer downtime

1 The entity shall disclose (1) the number of performance issues in software and information technology (IT) services provided to customers.

1.1 Performance issues are defined as any planned or unplanned downtime causing an interruption, of more than 10 minutes but less than or equal to 30 minutes, in the provision of cloud-based services to customers.

1.2 Performance issues may include those caused by technical failures, programming errors, cyber-attacks, weather events or natural disasters at hosting facilities.

2 The entity shall disclose (2) the number of service disruptions in software and IT services provided to customers.

2.1 Service disruptions are defined as any planned or unplanned downtime causing an interruption of more than 30 minutes in provision of cloud-based services to customers.

2.2 Service disruptions may include those caused by technical failures, programming errors, cyber-attacks, weather events or natural disasters at hosting facilities.

3 The entity shall disclose (3) the total customer downtime related to performance issues and service disruptions in software and IT services provided to customers.

3.1 Total customer downtime is defined as the interruption duration of each service disruption multiplied by the number of software and IT services licences affected, reported in licence-days. For context, the entity shall indicate the licensing basis (for example, number of seats, number of CPU cores, number of cloud subscriptions) and whether the licences are consumption-based or capacity-based.

Note to **TC-SI-550a.1**

1 For each significant service disruption, the entity shall disclose the duration of the disruption, the extent of disruption and the root cause, as well as any corrective actions taken to prevent future disruptions. Where material, the entity shall disclose the associated cost incurred, such as remediation costs to correct technology or process issues, as well as any liability costs.

2 A service disruption is considered significant if the cost to correct it is material or if it is disruptive to a large number of customers or fundamental business operations in a manner that affects time to market, revenue capture or other material parameters.

TC-SI-550a.2. Description of business continuity risks related to disruptions of operations

1 The entity shall describe potential business continuity risks associated with technology disruptions affecting operations.

1.1 Examples of disruptions may include those caused by technical failures, programming errors, cyber-attacks, weather events or natural disasters at hosting facilities.

2 The entity shall discuss measures implemented to manage business continuity risks, such as technologies or processes that reduce the effects of disruptions, enhance the resilience of systems, insure against loss, or provide redundancies to critical business operations.

3 The entity shall identify which critical business operations support cloud-based services, and the entity shall further note whether those operations are owned or outsourced.

4 The entity may discuss estimated amount of potential loss, probability of that loss and the associated time frame. These estimates may be based on insurance figures or other third-party or internal assessments of potential loss.

Volume 59—Telecommunication Services

Industry Description

Telecommunication Services industry entities provide a range of services from wireless and wireline telecommunications to cable and satellite services. The wireless services segment provides direct communication through radio-based cellular networks and operates and maintains the associated switching and transmission facilities. The wireline segment provides local and long-distance voice communication via the Public Switched Telephone Network. Wireline carriers also offer voice over internet protocol (VoIP) telephone, television and broadband internet services over an expanding network of fibre optic cables. Cable providers distribute television programming from cable networks to subscribers. They typically also provide consumers with video services, high-speed internet service and VoIP. Traditionally, these services are bundled into packages that charge subscribers a single payment. Satellite entities distribute TV programming through broadcasting satellites orbiting the earth or through ground stations. Entities serve customers primarily in their domestic markets, although some entities operate in more than one country.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Environmental Footprint of Operations	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	TC-TL-130a.1
Managing Systemic Risks from Technology Disruptions	(1) System average interruption duration, (2) system average interruption frequency and (3) customer average interruption duration [105]	Quantitative	Minutes, Number	TC-TL-550a.1
	Discussion of systems to provide unimpeded service during service disruptions	Discussion and Analysis	n/a	TC-TL-550a.2

[105] Note to **TC-TL-550a.1** – Disclosure shall include a description of each significant performance issue or service disruption and any corrective actions taken to prevent future disruptions.

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of wireless subscribers [106]	Quantitative	Number	TC-TL-000.A
Number of wireline subscribers [107]	Quantitative	Number	TC-TL-000.B
Number of broadband subscribers [108]	Quantitative	Number	TC-TL-000.C
Network traffic	Quantitative	Petabytes	TC-TL-000.D

Environmental Footprint of Operations

Topic Summary

Individual telecommunication services entities consume substantial amounts of energy. Depending on the source of energy and generation efficiency, electricity consumption by telecom network infrastructure can contribute significantly to environmental externalities, such as climate change, creating sustainability risks for the industry. Although network equipment and data centres are becoming more energy efficient, their overall energy consumption is increasing with the expansion in telecommunications infrastructure and data traffic. How telecommunication services entities manage their overall energy efficiency or intensity, reliance on different types of energy, and how they access alternative sources of energy may become increasingly material as the global regulatory focus on climate change increases, creating incentives for energy efficiency and renewable energy as well as pricing of greenhouse gas (GHG) emissions. Because energy expenditures may be significant in the industry, entities that improve operational energy efficiency may increase cost savings and profit margins.

Metrics

TC-TL-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

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[106] Note to **TC-TL-000.A** – Wireless subscribers are defined as those customers that contract with the entity for mobile services, which include cellular phone service and/or wireless data service.

[107] Note to **TC-TL-000.B** – Wireline subscribers are defined as those customers that contract with the entity for fixed line phone services.

[108] Note to **TC-TL-000.C** – Broadband subscribers are defined as those customers that contract with the entity for fixed line cable and internet services, which include WiFi connections.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix outside the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

5 The entity may disclose the trailing 12-month (TTM) weighted average power usage effectiveness (PUE) for its data centres.

5.1 PUE is defined as the ratio of the total amount of power used by a computer data centre facility to the amount of power delivered to computing equipment.

5.2 If disclosing PUE, the entity shall follow the guidance and calculation methodology described in *PUE™: A Comprehensive Examination of the Metric* (2014), published by ASHRAE and The Green Grid Association.

Managing Systemic Risks from Technology Disruptions

Topic Summary

Given the systemic importance of telecommunications networks, systemic or economy-wide disruption may result if the telecommunication services network infrastructure is unreliable and prone to business continuity risks. As the frequency of extreme weather events associated with climate change increases, telecommunication services entities may face growing physical threats to network infrastructure, with potentially significant social or systemic impacts. In the absence of resilient and reliable infrastructure, entities may lose revenue associated with service disruptions or face unplanned capital expenditures to repair damaged or compromised equipment. Entities that successfully manage business continuity risks, including identifying critical business operations, and that enhance resilience of the system may substantially reduce their risk exposure and decrease their cost of capital. While implementation of such measures may have upfront costs, entities may gain long-term benefits in terms of lower remediation expenses in cases of high-impact disruptions.

Metrics

TC-TL-550a.1. (1) System average interruption duration, (2) system average interruption frequency and (3) customer average interruption duration

1 The entity shall disclose its (1) system average interruption duration in minutes.

1.1 The system average interruption duration is defined as the total duration of service disruptions for the average customer during the reporting period.

1.2 A service disruption is defined as a significant degradation or interruption in the ability of a significant number of end users to establish and maintain a channel of communications in a particular service offered by the entity (voice, SMS, broadband, mobile data, etc.) because of failure or degradation in the performance of a communications provider's network.

1.3 The entity shall calculate its system average interruption duration as the sum of the number of customers interrupted in each service disruption multiplied by the duration of each service disruption (restoration time), divided by the total number of customers served, written as $\sum(r_i \times N_i) / N_T$.

1.3.1 $\sum$ = Summation function

1.3.2 r_i = Restoration time for each service disruption, in minutes

1.3.3 N_i = Total number of customers interrupted in each service disruption

1.3.4 N_T = Average number of unique customer accounts with active service during the reporting period

2 The entity shall disclose its (2) system average interruption frequency as a number of service disruptions per customer.

2.1 The system average interruption frequency is defined as the average number of times a customer experienced a service disruption during the reporting period.

2.2 The entity shall calculate its system average interruption frequency as the total number of customers interrupted divided by the total number of customers served, written as $\sum(N_i) / N_T$.

2.2.1 $\sum$ = Summation function

2.2.2 N_i = Number of customers interrupted in each service disruption

2.2.3 N_T = Average number of unique customer accounts with active service during the reporting period

3 The entity shall disclose its (3) customer average interruption duration in minutes.

3.1 The customer average interruption duration is defined as the average amount of time required to restore service once a service disruption has occurred.

3.2 The entity shall calculate its customer average interruption duration as the sum of the number of customers interrupted in each incident multiplied by the duration of each service disruption (restoration time), divided by the total number of customers interrupted, written as $\sum(N_i \times r_i) / \sum(N_i)$.

3.2.1 $\sum$ = Summation function

3.2.2 r_i = Restoration time for each service disruption, in minutes

3.2.3 N_i = Number of customers interrupted in each service disruption

4 The scope of disclosure is restricted to:

4.1 Wireline communications services

4.2 Wireless communications services

4.3 Internet service provider (ISP) services

Note to **TC-TL-550a.1**

1 The system average interruption duration, system average interruption frequency, and customer average interruption duration are related metrics, and one can be derived from the other two. For example, the system average interruption duration (sub-metric 1) can be calculated by multiplying the system average interruption frequency (sub-metric 2) by the customer average interruption duration (sub-metric 3).

2 For each significant service interruption, the entity shall disclose the duration of the disruption, the extent of impact and the root cause, as well as any corrective actions taken to prevent future disruptions.

2.1 If relevant, the entity shall show costs incurred, such as those because of organisational change, training or technology expenditures required for remediation, lost revenue, payment of warranties or costs associated with breach of contract.

TC-TL-550a.2. Discussion of systems to provide unimpeded service during service disruptions

1 The entity shall discuss business continuity risks associated with service disruptions affecting operations.

1.1 Examples of disruptions may include those caused by technical failures, programming errors, cyberattacks, weather events or natural disasters at hosting facilities.

2 The entity shall discuss how it manages business continuity risks, including an identification of critical business operations and redundancies or other measures implemented to enhance resilience of the system or to reduce impact, including insurance against loss.

3 The entity may discuss the estimated amount of potential loss, probability of that loss and the associated time frame. These estimates may be based on insurance figures or other third-party or internal assessments of potential loss.

Volume 60—Air Freight & Logistics

Industry Description

Air Freight & Logistics industry entities provide freight services and transportation logistics to both businesses and individuals. The industry consists of three main segments: air freight transportation, post and courier services, and transportation logistics services. Entities in the industry earn revenue from one or more of the segments and range from non-asset-based to asset-heavy. Transportation logistics services include contracting with road, rail, marine and air freight entities to select and hire appropriate transportation. Services also may include customs brokerage, distribution management, vendor consolidation, cargo insurance, purchase order management and customised logistics information. The industry is crucial to global trade, granting it a degree of demand stability.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions	Quantitative	Metric tons (t) CO_2-e	TR-AF-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	TR-AF-110a.2
	Fuel consumed by (1) road transport, percentage (a) natural gas and (b) renewable, and (2) air transport, percentage (a) alternative and (b) sustainable	Quantitative	Gigajoules (GJ), Percentage (%)	TR-AF-110a.3
Supply Chain Management	Total greenhouse gas (GHG) footprint across transport modes	Quantitative	Metric tons (t) CO_2-e per ton-kilometre	TR-AF-430a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Revenue ton kilometres (RTK) for: (1) road transport and (2) air transport [109]	Quantitative	RTK	TR-AF-000.A
Load factor for: (1) road transport and (2) air transport [110]	Quantitative	Rate	TR-AF-000.B
Number of employees, number of truck drivers	Quantitative	Number	TR-AF-000.C

109 Note to **TR-AF-000.A** – Revenue ton kilometres (RTK) is defined as one metric ton of revenue traffic transported one kilometre. RTK is computed by multiplying the vehicle-kilometres travelled on each leg by the number of tons of revenue traffic carried on that leg.

110 Note to **TR-AF-000.B** – Load factor is a measure of capacity utilisation and is calculated as kilometres travelled by cargo divided by total kilometres travelled.

Greenhouse Gas Emissions

Topic Summary

Air Freight & Logistics industry entities generate direct greenhouse gas (GHG) emissions that contribute to climate change. Emissions are generated from fuel combustion by both air and road freight operations. Given the altitude of the emissions from jet fuel, air freight makes an especially potent contribution to climate change. Management of GHG emissions is likely to affect air freight and logistics entities' cost structure over time because emissions are tied directly to fuel use, and thus to operating expenses. Fuel efficiency and alternative fuels usage may reduce fuel costs or limit exposure to volatile fuel pricing, future regulatory costs and other consequences of GHG emissions. While newer aircraft and trucks are generally more fuel efficient, existing fleets may be retrofitted. Capital investments in more fuel-efficient aeroplanes or vehicles and emerging fuel-management technology may reduce fuel expenses and improve profitability. These investments also may help entities capture market share of customers seeking low-carbon shipping solutions.

Metrics

TR-AF-110a.1. Gross global Scope 1 emissions

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalent (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 Acceptable calculation methodologies include those that conform to the *GHG Protocol* as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples may include:

2.1.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)

2.1.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the U.S. Environmental Protection Agency (EPA)

2.1.3 India GHG Inventory Program

2.1.4 ISO 14064-1

2.1.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.1.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.2 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which generally is aligned with the 'financial control' approach defined by the *GHG Protocol*, and the approach published by the Climate Disclosure Standards Board (CDSB) described in REQ-07, 'Organisational boundary', of the *CDSB Framework for reporting environmental and social information*.

3 The entity may discuss any change in emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

4 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

5 The entity may discuss the calculation methodology for its emissions disclosure, such as if data is from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

TR-AF-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

3.1 Aviation-related activities and investments may include fuel optimisation efforts such as the use of ground power and pre-conditioned air rather than auxiliary power units (APU) when parked at a gate, adjusting flight speed to optimise fuel efficiency, route design (for example, NextGen), use of winglets, reduction in aircraft weight and upgrading of the fleet with new aircraft.

3.2 Road transportation-related activities and investments may include fuel optimisation efforts such as route and load optimisation, adoption of technology such as engine and powertrain efficiency and aerodynamic improvements, use of electric- or natural gas-powered vehicles, weight reduction, improved tyre rolling resistance, hybridisation and automatic engine shutdown.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

5 The entity shall discuss whether its strategies, plans or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for

example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

TR-AF-110a.3. Fuel consumed by (1) road transport, percentage (a) natural gas and (b) renewable, and (2) air transport, percentage (a) alternative and (b) sustainable

1 The entity shall disclose the amount of fuel consumed as an aggregate figure, in gigajoules (GJ), categorised by (1) road transport-related operations, and separately, (2) air transport-related operations.

1.1 The calculation methodology for fuel consumed shall be based on actual fuel consumed as opposed to design parameters.

1.2 Acceptable calculation methodologies for fuel consumed may include methodologies based on:

1.2.1 Adding fuel purchases made during the reporting period to beginning inventory at the start of the reporting period, less any fuel inventory at the end of the reporting period

1.2.2 Tracking fuel consumed by vehicles

1.2.3 Tracking fuel expenses

2 In disclosing fuel consumed by (1) road transport-related operations, the entity additionally shall disclose the percentage of fuel consumed that was (a) natural gas.

2.1 The percentage shall be calculated as the amount of fuel consumed by road transport-related operations that was natural gas (in GJ) divided by the total amount of fuel consumed by road transport-related operations (in GJ).

3 In disclosing fuel consumed by (1) road transport-related operations, the entity shall additionally disclose the percentage of fuel consumed that was (b) renewable fuel.

3.1 Renewable fuel is generally defined as fuel that meets all of these requirements:

3.1.1 Produced from renewable biomass

3.1.2 Used to replace or reduce the quantity of fossil fuel present in a transportation fuel, heating oil or jet fuel

3.1.3 Achieved net greenhouse gas (GHG) emissions reduction on a life cycle basis.

3.2 The entity shall disclose the standard or regulation used to determine if a fuel is renewable.

3.3 The percentage shall be calculated as the amount of renewable fuel consumed by road transport-related operations (in GJ) divided by the total amount of fuel consumed by road transport-related operations (in GJ).

4 In disclosing fuel consumed by (2) air transport-related operations, the entity additionally shall disclose the percentage of fuel consumed that was (a) alternative fuel.

4.1 Alternative fuel is defined by the International Civil Aviation Organization (ICAO) as fuel from sources other than petroleum that has the potential to generate lower carbon emissions than petroleum-based fuel on a life cycle basis.

4.2 The percentage shall be calculated as the amount of alternative fuel consumed by air transport-related operations (in GJ) divided by the total amount of fuel consumed by air transport-related operations (in GJ).

5 In disclosing fuel consumed by (2) air transport-related operations, the entity shall additionally disclose the percentage of fuel consumed that was (b) sustainable fuel.

5.1 Sustainable fuel is defined as a subset of alternative fuel that meets all of the following criteria described by ICAO:

5.1.1 Achieves net greenhouse gas (GHG) emissions reduction on a life cycle basis

5.1.2 Avoids competition with food and water through utilisation of marginal or unviable land

5.1.3 Contributes to local social and economic development, such as through expanded employment and revitalised infrastructure.

5.2 The percentage shall be calculated as the amount of sustainable fuel consumed by air transport-related operations (in GJ) divided by the total amount of fuel consumed by air transport-related operations (in GJ).

6 The scope of disclosure is limited to fuel the entity directly consumed.

7 In calculating energy consumption from fuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

8 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel use (including biofuels).

Supply Chain Management

Topic Summary

Many entities in the Air Freight & Logistics industry contract with large, complex networks of asset-based third-party providers to provide freight transportation services to their customers. Contracting is common among entities providing freight forwarding, logistics, brokerage and intermodal services. Contractors range across all modes of transport such as motor carriers, railroads, air freight and ocean carriers. Entities must manage contractor relationships to ensure contractor actions that may have environmental or social impacts do not result in material adverse effects on their own operations, such as decreased brand value. At the same time, entities that offer low-carbon logistics solutions may capture market share from customers seeking to reduce the carbon footprint of their shipment.

Metrics

TR-AF-430a.2. Total greenhouse gas (GHG) footprint across transport modes

1 The entity shall disclose the complete tank-to-wheels greenhouse gas (GHG) footprint in metric tons of CO_2-e per metric ton-kilometre.

2 Tank-to-wheels emissions relate to vehicle processes and exclude upstream emissions associated with primary energy production (well-to-tank emissions).

2.1 The entity shall calculate its disclosure according to EN 16258:2012 – Methodology for calculation and declaration of energy consumption and GHG emissions of transport services (freight and passengers).

2.1.1 Calculations shall be consistent with the methodology used to calculate the ‘tank-to-wheels GHG emissions (Gt)’ result that is described in EN 16258:2012.

2.1.2 Determination of transportation system scope, boundaries and any necessary allocations shall be consistent with the methodology described in EN 16258:2012.

3 The scope of disclosure includes emissions from all freight transportation and logistics activities, including those from the entity’s own assets (Scope 1) and those from contract carriers and outsourced freight forwarding services.

4 The scope of disclosure includes emissions from all modes of transportation, such as road freight, air freight, barge transport, marine transport and rail transport.

5 Consistent with EN 16258:2012, disclosure may be based on calculations from a mix of categories of emissions values (specific measured values, transport operator vehicle-type- or route-type-specific values, transport operator fleet values and default values).

6 If relevant and necessary for interpretation of disclosure, the entity shall describe its allocation methods, emissions values, boundaries, mix of transport services used and other information.

Volume 61—Airlines

Industry Description

Airlines industry entities provide air transportation globally to passengers for both leisure and business purposes. This includes commercial full-service, low-cost and regional airlines. Full-service carriers typically use a hub-and-spoke model to design their routes within countries and internationally. Low-cost carriers usually offer a smaller number of routes as well as no-frills service to their customers. Regional carriers typically operate under contract to full-service carriers, expanding the network of the larger carriers. Many airline entities also have a cargo segment in their operations to generate additional revenue. Entities in the industry commonly form partnerships or join alliances to increase network size. Operating as an alliance allows airlines to offer customers access to international or otherwise underserved itineraries on more than one airline under one ticket. At the same time, airlines share some overhead costs and increase their competitive position in the global market without having to operate outside their home country.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions	Quantitative	Metric tons (t) CO_2-e	TR-AL-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	TR-AL-110a.2
	(1) Total fuel consumed, (2) percentage alternative and (3) percentage sustainable	Quantitative	Gigajoules (GJ), Percentage (%)	TR-AL-110a.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Available seat kilometres (ASK) [111]	Quantitative	ASK	TR-AL-000.A
Passenger load factor [112]	Quantitative	Rate	TR-AL-000.B
Revenue passenger kilometres (RPK) [113]	Quantitative	RPK	TR-AL-000.C
Revenue ton kilometres (RTK) [114]	Quantitative	RTK	TR-AL-000.D
Number of departures	Quantitative	Number	TR-AL-000.E
Average age of fleet	Quantitative	Years	TR-AL-000.F

111 Note to **TR-AL-000.A** – Available seat kilometres (ASK) is defined as the maximum potential cumulative kilometres travelled by passengers (that is, kilometres travelled by occupied and unoccupied seats).

112 Note to **TR-AL-000.B** – Load factor is a measure of capacity utilisation and is calculated as passenger kilometres travelled divided by available seat kilometres.

113 Note to **TR-AL-000.C** – Revenue passenger kilometres (RPK) is defined as the cumulative total kilometres travelled by revenue passengers. A revenue passenger is a passenger for whose transportation an air carrier receives commercial remuneration.

114 Note to **TR-AL-000.D** – Revenue ton kilometres (RTK) is defined as one metric ton of revenue traffic transported one kilometre. RTK is computed by multiplying the aircraft kilometres flown on each flight stage by the number of metric tons of revenue traffic carried on that flight stage (for example, passengers, baggage, freight, and mail).

Greenhouse Gas Emissions

Topic Summary

As a result of a heavy reliance on hydrocarbon fuels, the Airlines industry generates significant emissions, more than 99% of which are in the form of carbon dioxide (CO_2). Therefore, the industry is subject to compliance costs and risks associated with climate change mitigation policies. The main sources of greenhouse gas (GHG) emissions for airlines entities are aircraft fuel use and emissions, ground equipment and facility electricity. Aircraft fuel consumption is the largest contributor to total emissions from the industry, and fuel management is a critical part of reducing emissions. Management of fuel-related environmental impacts includes increasing fuel efficiency through fleet upgrades, retrofits, and flight speed and route design optimisation, as well as using alternative and sustainable fuels. These initiatives require capital expenditures, but in the long term, they may reduce fuel costs and decrease exposure to GHG emissions programmes and regulatory risk.

Metrics

TR-AL-110a.1 Gross global Scope 1 emissions

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalent (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 Acceptable calculation methodologies include those that conform to the *GHG Protocol* as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples may include:

2.1.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)

2.1.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the U.S. Environmental Protection Agency (EPA)

2.1.3 India GHG Inventory Program

2.1.4 ISO 14064-1

2.1.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.1.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.2 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which is generally aligned with the 'financial control' approach defined by the *GHG Protocol*, and the approach published by the Climate Disclosure Standards Board (CDSB) described in REQ-07, 'Organisational boundary', of the *CDSB Framework for reporting environmental and social information*.

3 The entity may discuss any change in emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

4 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

5 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

TR-AL-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined according to *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

3.1 Relevant activities and investments may include fuel optimisation efforts such as the use of ground power and pre-conditioned air rather than auxiliary power units (APU) when parked at gate, adjusting flight speed to optimise fuel efficiency, route design (for example, NextGen), use of winglets, reduction in aircraft weight and upgrading of the fleet with new aircraft.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

5 The entity shall discuss whether its strategies, plans or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

TR-AL-110a.3. (1) Total fuel consumed, (2) percentage alternative and (3) percentage sustainable

1 The entity shall disclose (1) the total amount of fuel consumed from all sources as an aggregate figure, in gigajoules (GJ).

1.1 The calculation methodology for fuel consumed shall be based on actual fuel consumed as opposed to design parameters.

1.2 Acceptable calculation methodologies for fuel consumed may include methodologies based on:

1.2.1 Adding fuel purchases made during the reporting period to beginning inventory at the start of the reporting period, less any fuel inventory at the end of the reporting period

1.2.2 Tracking fuel consumed by vehicles

1.2.3 Tracking fuel expenses

2 The entity shall disclose (2) the percentage of fuel consumption that was alternative fuel.

2.1 Alternative fuel is defined by the International Civil Aviation Organization (ICAO) as fuel from sources other than petroleum that has the potential to generate lower carbon emissions than petroleum-based fuel on a life cycle basis.

2.2 The percentage shall be calculated as the amount of alternative fuel consumed (in GJ) divided by the total amount of fuel consumed (in GJ).

3 The entity shall disclose (3) the percentage of fuel consumed that was sustainable fuel.

3.1 Sustainable fuel is defined as a subset of alternative fuel that meets all of the following criteria described by ICAO:

3.1.1 Achieves net greenhouse gas (GHG) emissions reduction on a life cycle basis

3.1.2 Avoids competition with food and water through marginal or unviable land use

3.1.3 Contributes to local social and economic development, such as through expanded employment and revitalised infrastructure.

3.2 The percentage shall be calculated as the amount of sustainable fuel consumed (in GJ) divided by the total amount of fuel consumed (in GJ).

4 The scope of disclosure is limited to fuel the entity directly consumes. In calculating energy consumption from fuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change, the US Department of Energy or the US Energy Information Agency.

5 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel use (including biofuels).

Volume 62—Auto Parts

Industry Description

Entities in the Auto Parts industry supply motor vehicle parts and accessories to original equipment manufacturers (OEM). Auto parts entities typically specialise in manufacturing and assembling parts or accessories, such as engine exhaust systems, alternative drivetrains, hybrid systems, catalytic converters, aluminium wheels (rims), tyres, rear-view mirrors, and onboard electrical and electronic equipment. Although the larger automotive industry includes several tiers of suppliers that provide parts and raw materials used to assemble motor vehicles, the scope of these Auto Parts industry disclosures includes only Tier 1 suppliers that supply parts directly to OEMs. The scope of the industry excludes captive suppliers, such as engine and stamping facilities, owned and operated by OEMs. It also excludes Tier 2 suppliers, which provide inputs for the Auto Parts industry.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Energy Management	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	TR-AP-130a.1
Design for Fuel Efficiency	Revenue from products designed to increase fuel efficiency or reduce emissions	Quantitative	Presentation currency	TR-AP-410a.1

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of parts produced	Quantitative	Number	TR-AP-000.A
Weight of parts produced	Quantitative	Metric tons (t)	TR-AP-000.B
Area of manufacturing plants	Quantitative	Square metres (m^2)	TR-AP-000.C

Energy Management

Topic Summary

Most energy consumed in the automobile manufacturing process occurs in the supply chain. Auto parts manufacturers use electricity and fossil fuels in their production processes, resulting in direct and indirect emissions of greenhouse gases (GHGs). Purchased electricity is a majority of the energy used in the Auto Parts industry. Sustainability initiatives such as incentives for energy efficiency and renewable energy are making alternative sources of energy more cost competitive. Regulators and consumers also are encouraging the industry to reduce GHG emissions. While managing the cost and risks associated with overall energy efficiency, reliance on various types of energy and access to alternative energy sources may become increasingly important.

Metrics

TR-AP-130a.1. (1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix outside the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards or materials that are eligible for an applicable state renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel use (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Design for Fuel Efficiency

Topic Summary

Automobile manufacturers increasingly are demanding motor parts and components that reduce vehicle fuel consumption. Fuel-efficient components and parts are critical in reducing automobile tailpipe emissions through energy efficiency gains and weight reductions, among other factors. Auto parts entities that design and manufacture such parts may increase sales to auto manufacturers that increasingly are facing stricter environmental regulations and customer preferences for more environmentally friendly cars.

Metrics

TR-AP-410a.1. Revenue from products designed to increase fuel efficiency or reduce emissions

1 The entity shall disclose total revenue from products designed to increase fuel efficiency or reduce emissions during their use phase.

1.1 Products designed to increase fuel efficiency or reduce emissions are defined as products the entity has tested, modelled or otherwise shown to improve fuel efficiency or eliminate or lower emissions of greenhouse gases (GHG), nitrogen oxide (NO_x), particulate matter (PM), sulphur oxides (SO_x) and other air pollutants during their use phase.

1.2 The use phase is defined as the course over which the product is used by a customer or consumer as a final product or to generate a final product (for example, in a manufacturing or production process).

1.3 The disclosure scope includes products that provide incremental improvement to fuel efficiency or emission reduction, if the entity can demonstrate the improvement is meaningful, such as through alignment with the milestones set forth in Section 5, 'Key Sectors/Ensuring efficient mobility', of the European Commission's Road Map to a Resource Efficient Europe or with EU Directive 2012/27/EU (Energy Efficiency Directive).

1.4 The scope of disclosure excludes products that offer improved fuel efficiency or reduced emissions in an ancillary or indirect way (for example, a conventional product that is slightly lighter than the previous generation of the product).

2 Examples of products that may increase fuel efficiency or reduce emissions may include those relating to: electrification of auxiliary systems such as oil and water pumps, waste heat recovery, improved aerodynamics, hybrid and advanced fuel technologies, improvements to combustion efficiency, idle reduction, alternative cooling systems, electric power steering, hybrid-enabled braking technologies, low rolling resistance (LRR), new and retread tyre technologies, and engine management systems/products.

3 For products designed to both increase fuel efficiency and reduce emissions, the entity shall account only for the products' revenue once.

Volume 63—Automobiles

Industry Description

Automobiles industry entities manufacture passenger vehicles, light trucks and motorcycles. Industry players design, build and sell vehicles that use a range of traditional and alternative fuels and powertrains. They sell these vehicles to dealers for consumer retail sales as well as sell directly to fleet customers, including car rental and leasing entities, commercial fleets and governments. Because of the industry's global nature, nearly all entities have manufacturing facilities, assembly plants and service locations in several countries around the world. The Automobiles industry is concentrated, with a few large manufacturers and a diversified supply chain. Given the industry's reliance on natural resources and sensitivity to the business cycle, revenue is typically cyclical.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Fuel Economy & Use-phase Emissions	Sales-weighted average passenger fleet fuel economy, by region	Quantitative	Mpg, L/km, gCO_2/km, km/L	TR-AU-410a.1
	Number of (1) zero emission vehicles (ZEV), (2) hybrid vehicles and (3) plug-in hybrid vehicles sold	Quantitative	Number	TR-AU-410a.2
	Discussion of strategy for managing fleet fuel economy and emissions risks and opportunities	Discussion and Analysis	n/a	TR-AU-410a.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of vehicles manufactured	Quantitative	Number	TR-AU-000.A
Number of vehicles sold	Quantitative	Number	TR-AU-000.B

Fuel Economy & Use-phase Emissions

Topic Summary

Motor vehicle fossil fuel combustion accounts for a significant share of the greenhouse gas (GHG) emissions contributing to global climate change. Engine exhaust also generates local air pollutants such as nitrogen oxides (NO_x), volatile organic compounds (VOCs) and particulate matter (PM), which can threaten human health and the environment. In this context, vehicle emissions increasingly concern consumers and regulators around the world. Although use-phase emissions are downstream from auto manufacturers, regulations often focus on auto manufacturers to reduce these emissions, such as through fuel economy standards. More stringent emissions standards and changing consumer demands are driving electric vehicle and hybrid market expansion, as well as for high fuel-efficiency conventional vehicles. Moreover, manufacturers are designing innovative vehicles made with lighter-weight materials to improve fuel efficiency. Entities that meet current fuel-efficiency and emissions standards and continue to innovate to meet or exceed future regulatory standards in various markets may strengthen their competitive position and expand their market share, while mitigating the risk of reduced demand for conventional vehicles.

Metrics

TR-AU-410a.1. Sales-weighted average passenger fleet fuel economy, by region

1 The entity shall disclose the average fuel economy of its passenger and light-duty vehicle fleet, weighted for the footprint of vehicles sold, by geographical region.

1.1 The average fuel economy shall be calculated by model year as required for regulatory purposes.

1.2 In the absence of regulatory guidance on calculating a fleet average, the entity shall calculate performance based on the fuel economy of vehicles sold during the reporting period weighted by sales volume.

1.3 The calculation shall be made on a fleet-average basis regardless of whether regulations are based on vehicle weight.

2 The entity shall disclose the percentage by geographic region.

2.1 Geographical regions are defined as the regions for which the entity conducts segment financial reporting and which are subject to fleet fuel economy, fuel consumption or emissions standards.

3 Disclosure may be provided in various units for each geographical region, which may include:

3.1 Grams of carbon dioxide per kilometre (gCO_2/km) for (1) passenger cars and (2) light commercial vehicles sold in the European Union

3.2 Litres of petrol per kilometre (L/km) for passenger vehicles sold in Japan

3.3 Miles per gallon (mpg) for (1) domestic passenger cars, (2) imported passenger cars and (3) light trucks sold in the US and subject to Corporate Average Fuel Economy (CAFE) standards, where these vehicle categories are defined in US 49 CFR Part 523

3.4 Kilometres per litre (km/L) for passenger vehicles sold in New Zealand

4 The scope of disclosure shall include all vehicles subject to national passenger vehicle standards for fleet fuel economy, fuel consumption or emissions.

5 The entity may disclose fleet performance for other vehicle segments such as:

5.1 Cargo vehicles in Japan

5.2 Heavy-duty vehicles in the US

5.3 Light commercial vehicles in the EU

TR-AU-410a.2. Number of (1) zero emission vehicles (ZEV), (2) hybrid vehicles and (3) plug-in hybrid vehicles sold

1 The entity shall disclose the number of vehicles sold during the reporting period classified as: (1) zero emission vehicles (ZEV), (2) hybrid vehicles and (3) plug-in hybrid electric vehicles.

1.1 ZEVs are vehicles driven only by an electric motor that are powered by advanced-technology batteries or hydrogen fuel cell, and they have no tailpipe emissions over their entire lifetime under all possible operational modes and conditions.

1.2 Hybrid vehicles (hybrid electric vehicle or HEVs) are vehicles that can draw propulsion energy from both of these on-vehicle sources of stored energy: (a) a consumable fuel and (b) an energy storage device such as a battery, capacitor or flywheel.

1.3 Plug-in hybrid electric vehicles are vehicles that offer electric driving with an electric motor powered by a large battery pack that is charged by plugging into a source of electricity.

2 The scope of disclosure includes all vehicles sold globally that are eligible to be classified in accordance with the above guidance.

TR-AU-410a.3. Discussion of strategy for managing fleet fuel economy and emissions risks and opportunities

1 The entity shall discuss its strategy for improving the fuel economy and reducing the use-phase emissions of its fleet.

1.1 Use-phase emissions include greenhouse gases and air pollutants such as carbon dioxide, nitrogen oxides, volatile organic compounds, and particulate matter.

2 Relevant aspects of the strategy include improvements to existing vehicles and technologies, the introduction of new technologies, research and development efforts into advanced technologies, and partnerships with peers, academic institutions or customers.

3 Relevant technologies may include those related to materials design and engineering, advanced powertrains, renewable fuels, energy storage and batteries, aerodynamic design, fuel injection systems, particulate filters, and products and fuels that otherwise result in reduced emissions.

3.1 Advanced powertrain technologies include vehicles and vehicle components that are electric, hybrid electric, plug-in hybrid, dual-fuel and zero-emissions (for example, fuel cell).

3.2 Renewable fuels and energy technologies are those that operate on sources capable of being replenished in a short time through ecological cycles, including biomass (including ethanol, first-generation biofuels and advanced biofuels).

3.3 Products that result in reduced emissions include any vehicle or technology that achieves a significant reduction in fuel consumption.

3.4 Fuels that result in reduced emissions include biodiesel, ethanol, natural gas, propane and hydrogen.

3.5 Internal combustion engines include those equipped with technology (for example, selective catalytic reduction) to reduce nitrogen oxide emissions.

3.6 Particulate filters (for example, wall-flow filter or partial-flow filter) include those that reduce emissions (including carbon monoxide, hydrocarbons and particulate matter).

3.6.1 If relevant, the entity shall discuss the technologies it is prioritising to improve the fuel economy and reduce emissions of its vehicles, such as the specific type of fuel systems it is developing (for example, hybrid, electric or fuel cell).

4 The entity shall discuss the factors influencing fuel economy and emissions efforts, such as meeting customer demand or meeting regulatory requirements of the markets it operates in or plans to operate in.

4.1 Relevant programmes and initiatives may include:

4.1.1 California Low-Emission Vehicle Program – LEV III

4.1.2 China VI emission standard

4.1.3 Euro 6 standards for light duty vehicles

4.1.4 US Clean Air Act

4.1.5 US Corporate Average Fuel Economy (CAFE) standards

5 The entity shall discuss whether it is complying with fuel economy and use-phase regulatory obligations, whether such existing regulations require future improvements, progress towards meeting such regulations and strategies to maintain compliance with emerging regulations.

6 The scope of disclosure includes all vehicles subject to national and local vehicle standards.

7 The entity may discuss the benchmarks used to measure improvements in fuel economy and emissions reductions, including targets for fuel economy improvements and emissions reductions.

Volume 64—Car Rental & Leasing

Industry Description

Entities in this industry rent or lease passenger vehicles to customers. Consumers typically rent vehicles for periods of less than a month, whereas leases may last a year or more. The industry includes car-sharing business models in which rentals are measured hourly and typically include subscription fees. Car rental entities operate out of airport locations, which serve business and leisure travellers, and out of neighbourhood locations, which mostly provide repair-shop and weekend rentals. The industry is concentrated, with several dominant market players, who operate globally using a franchise model. The growth of public transit and ride-sharing services in major metropolitan areas may represent a threat to the long-term profitability of the Car Rental & Leasing industry if customers choose to hail rides or take public transit rather than rent vehicles.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Fleet Fuel Economy & Utilisation	Rental day-weighted average rental fleet fuel economy, by region	Quantitative	Mpg, L/km, gCO_2/km, km/L	TR-CR-410a.1
	Fleet utilisation rate	Quantitative	Rate	TR-CR-410a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Average vehicle age	Quantitative	Months	TR-CR-000.A
Total available rental days [115]	Quantitative	Days	TR-CR-000.B
Average rental fleet size [116]	Quantitative	Number of vehicles	TR-CR-000.C

Fleet Fuel Economy & Utilisation

Topic Summary

By providing fuel-efficient and alternative fuel vehicles, car rental and leasing entities may improve the environmental sustainability of their operations while also achieving financial benefits. Consumer demand for more efficient vehicles is growing, motivated by both environmental stewardship and lower operating

[115] Note to **TR-CR-000.B** – The total number of available rental days is the number of 24-hour periods—or portions thereof—that the entity offered vehicles for rental during the reporting period.

[116] Note to **TR-CR-000.C** – The average rental fleet size is the simple average of the maximum number of vehicles available for rental each month during the reporting period.

costs associated with fuel efficiency. In addition to providing fuel-efficient and low-emission fleets, entities in the industry are adapting to changing vehicle needs by providing car-sharing services. In urban settings, car sharing is an attractive alternative to vehicle ownership that reduces congestion and the environmental impacts associated with private ownership of vehicles. By maximising fleet utilisation rates through car-sharing, entities may improve operational efficiency.

Metrics

TR-CR-410a.1. Rental day-weighted average rental fleet fuel economy, by region

1 The entity shall disclose the average fuel economy of its passenger vehicle rental fleet, weighted for the rental days of each vehicle model during the reporting period, by geographic region.

1.1 The average fuel economy shall be calculated as the rental day-weighted harmonic mean of vehicle fuel efficiency.

1.1.1 The harmonic mean is calculated as the reciprocal of the average of the reciprocals.

1.1.2 Rental day weighting is performed by incorporating into calculations a factor for the fraction of total rental days for which each vehicle model accounted.

2 The entity shall disclose the average fuel economy of its passenger vehicle rental fleet by geographic region.

2.1 Geographic regions are defined as the regions for which the entity conducts segment financial reporting and which are subject to fleet fuel economy, fuel consumption or emissions standards.

3 Disclosure may be provided in different units for each geographic region which may include:

3.1 Grams of CO_2 per kilometre (gCO_2/km) for (1) passenger cars and (2) light commercial vehicles in the European Union

3.2 Litres of petrol per kilometre (L/km) for passenger vehicles in Japan

3.3 Miles per gallon (mpg) for (1) domestic passenger cars, (2) imported passenger cars and (3) light trucks in the US that are subject to Corporate Average Fuel Economy (CAFE) standards, where these vehicle categories are defined in US 49 CFR Part 523

3.4 Kilometres per litre (km/L) for passenger vehicles in New Zealand

4 The scope of disclosure shall include all vehicles subject to national passenger vehicle standards for fleet fuel economy, fuel consumption or emissions.

5 The entity may disclose fleet fuel economy for other vehicle segments such as:

5.1 Cargo vehicles in Japan

5.2 Heavy-duty vehicles in the US

5.3 Light commercial vehicles in the EU

TR-CR-410a.2. Fleet utilisation rate

1 The entity shall disclose its fleet utilisation rate.

1.1 The rate shall be calculated as the total number of rental days divided by the total number of available rental days.

1.1.1 Rental days are defined as the number of 24-hour periods—or portions thereof—that vehicles were rented.

1.1.2 Available rental days are defined as the number of 24-hour periods—or portions thereof—that the entity offered vehicles for rental during the reporting period. This figure shall exclude the time when vehicles were undergoing inspection, cleaning or maintenance, and any time when they were subject to recall.

2 The scope of disclosure includes vehicles at all the entity's rental locations, including airport locations, off-airport locations and vehicles in the entity's car-sharing fleet.

Volume 65—Cruise Lines

Industry Description

Cruise Lines industry entities provide passenger transportation and leisure entertainment, including deep sea cruises and river cruises. A few large entities dominate the industry. Cruises provide a luxury resort experience for thousands of passengers at a time. The Cruise Lines industry often has been the fastest-growing segment of the travel industry, but it is very cyclical.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions	Quantitative	Metric tons (t) CO_2-e	TR-CL-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	TR-CL-110a.2
	(1) Total energy consumed, (2) percentage heavy fuel oil, (3) percentage onshore power supply (OPS) and (4) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	TR-CL-110a.3
	Average Energy Efficiency Design Index (EEDI) for new ships	Quantitative	Grammes of CO_2 per ton-nautical mile	TR-CL-110a.4

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Available lower berth kilometres (ALB-KM) [117]	Quantitative	ALB-KM	TR-CL-000.A
Average passenger cruise days (APCD) [118]	Quantitative	APCD	TR-CL-000.B
Number of shipboard employees [119]	Quantitative	Number	TR-CL-000.C
Cruise passengers [120]	Quantitative	Number	TR-CL-000.D
Number of vessel port calls	Quantitative	Number	TR-CL-000.E

117 Note to **TR-CL-000.A** – Available lower berth (ALB) is a measure of the standard capacity of a cruise ship, usually assuming two people per available cabin. It accounts for changes in fleet size, itineraries, and passenger capacity. Available lower berth kilometres (ALB-KM) are computed by multiplying ALB on each leg by the number of kilometres travelled on that leg.

118 Note to **TR-CL-000.B** – Average passenger cruise days (APCD) is computed as the number of available lower berths on a ship multiplied by the number of days that those berths are available to passengers during the reporting period.

119 Note to **TR-CL-000.C** – Shipboard employees are those employees who work aboard the entity's vessels (including direct and contract employees) during the reporting period.

120 Note to **TR-CL-000.D** – Cruise passengers is the number of passengers aboard the entity's vessels, excluding employees.

Greenhouse Gas Emissions

Topic Summary

Cruise lines generate emissions mainly from the combustion of diesel in ship engines. The industry's reliance on heavy fuel oil ('bunker fuel') is of material concern because of rising fuel costs and intensifying greenhouse gas (GHG) regulations. Evolving environmental regulations are encouraging the adoption of more fuel-efficient engines, engine retrofits and the use of cleaner-burning fuels. Fuel constitutes a major expense for industry players, providing a further incentive for investing in upgrades or retrofits to boost fuel efficiency. In addition, GHG regulation violations may result in fines and compliance costs.

Metrics

TR-CL-110a.1. Gross global Scope 1 emissions

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalent (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits, or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 Acceptable calculation methodologies include those that conform to the *GHG Protocol* as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples may include:

2.1.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)

2.1.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the U.S. Environmental Protection Agency (EPA)

2.1.3 India GHG Inventory Program

2.1.4 ISO 14064-1

2.1.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.1.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.2 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which is generally aligned with the 'financial control' approach defined by the *GHG Protocol*, and the approach published by the Climate Disclosure Standards Board (CDSB) described in REQ-07, 'Organisational boundary', of the *CDSB Framework for reporting environmental and social information*.

3 The entity may discuss any change in emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

4 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

5 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

TR-CL-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined according to *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

3.1 Relevant activities and investments may include route optimisation, use of alternative fuels and energy sources, system improvements, optimisation of ship operation, improving efficiency through ship design and propulsion systems (including hull and propeller improvements), and upgrading the fleet with new ships.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

5 The entity shall discuss whether its strategies, plans or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

TR-CL-110a.3. (1) Total energy consumed, (2) percentage heavy fuel oil, (3) percentage onshore power supply (OPS) and (4) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy the entity directly consumed during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from heavy fuel oil.

2.1 Heavy fuel oils are defined as heavier oils that remain after distillate fuel oils and lighter hydrocarbons are distilled away in refinery operations.

2.2 The percentage shall be calculated as heavy fuel oil consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was onshore power supply (OPS).

3.1 OPS includes the shoreside electrical power consumed by a ship at berth while the main and auxiliary engines are turned off.

3.2 The percentage shall be calculated as OPS consumption divided by total energy consumption.

4 The entity shall disclose (4) the percentage of energy it consumed that was renewable energy.

4.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

4.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

4.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

4.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

4.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

4.3.3 The renewable portion of the electricity grid mix outside the control or influence of the entity is excluded from the scope of renewable energy.

4.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification, or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards, or materials that are eligible for an applicable jurisdictional renewable portfolio standard.

5 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel use (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

TR-CL-110a.4. Average Energy Efficiency Design Index (EEDI) for new ships

1 The entity shall disclose the average Energy Efficiency Design Index (EEDI) for new ships in grammes of carbon dioxide per ton-nautical mile.

1.1 An EEDI value is the product of power installed, specific fuel consumption and carbon conversion, divided by the product of available capacity and vessel speed at design load

1.2 The entity shall calculate the average EEDI as a simple average of the EEDI value of all new ships added to the entity's fleet during the reporting period.

1.2.1 New ships are limited to those built after 2013 and for which the International Maritime Organisation (IMO) has adopted EEDI as a metric.

1.3 The entity shall follow calculation methodologies outlined in IMO MEPC 66/21/Add.1, Annex 5, *2014 Guidelines on the Method of Calculation of the Attained Energy Efficiency Design Index (EEDI) For New Ships*.

Volume 66—Marine Transportation

Industry Description

Marine Transportation industry entities provide deep-sea, coastal or river-way freight shipping services. The industry is of strategic importance to international trade, and its revenues are tied to macroeconomic cycles. Important activities include transportation of containerised and bulk freight, including consumer goods and a wide range of commodities, and transportation of chemicals and petroleum products in tankers. Because of the industry's global scope, entities may operate under many diverse applicable jurisdictional legal and regulatory frameworks.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions	Quantitative	Metric tons (t) CO_2-e	TR-MT-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	TR-MT-110a.2
	(1) Total energy consumed, (2) percentage heavy fuel oil and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	TR-MT-110a.3
	Average Energy Efficiency Design Index (EEDI) for new ships	Quantitative	Grammes of CO_2 per ton-nautical mile	TR-MT-110a.4

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of shipboard employees [121]	Quantitative	Number	TR-MT-000.A
Total distance travelled by vessels	Quantitative	Nautical miles (nm)	TR-MT-000.B
Operating days [122]	Quantitative	Days	TR-MT-000.C
Deadweight tonnage [123]	Quantitative	Thousand deadweight tons	TR-MT-000.D
Number of vessels in total shipping fleet	Quantitative	Number	TR-MT-000.E
Number of vessel port calls	Quantitative	Number	TR-MT-000.F
Twenty-foot equivalent unit (TEU) capacity	Quantitative	TEU	TR-MT-000.G

Greenhouse Gas Emissions

Topic Summary

Marine transportation entities generate emissions mainly from the combustion of diesel in ship engines. The industry's reliance on heavy fuel oil ('bunker fuel') is of material concern because of rising fuel costs and intensifying greenhouse gas (GHG) regulations. The industry is among the most fuel efficient of the major transportation modes in terms of fuel use per ton shipped. However, because of the industry's size, its contribution to the global GHG emissions is still significant. Recent environmental regulations are encouraging the adoption of more fuel-efficient engines and the use of cleaner-burning fuels. Fuel constitutes a major expense for industry players, providing a further incentive for investing in upgrades or retrofits to boost fuel efficiency.

Metrics

TR-MT-110a.1. Gross global Scope 1 emissions

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalents (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

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[121] Note to **TR-MT-000.A** – Shipboard employees are those employees who work aboard the entity's vessels (including direct and contract employees) during the reporting period.

[122] Note to **TR-MT-000.C** – Operating days are calculated as the number of available days in a reporting period minus the aggregate number of days that the vessels are off-hire due to unforeseen circumstances (i.e., a measure of days in a reporting period during which vessels actually generate revenue).

[123] Note to **TR-MT-000.D** – Deadweight tonnage is the sum, for all of the entity's vessels, of the difference in displacement in deadweight tons between the light displacement and the actual loaded displacement.

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 Acceptable calculation methodologies include those that conform to the *GHG Protocol* as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples may include:

2.1.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)

2.1.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the U.S. Environmental Protection Agency (EPA)

2.1.3 India GHG Inventory Program

2.1.4 ISO 14064-1

2.1.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.1.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.2 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which is generally aligned with the 'financial control' approach defined by the *GHG Protocol*, and the approach published by the Climate Disclosure Standards Board (CDSB) described in REQ-07, 'Organisational boundary,' of the *CDSB Framework for reporting environmental and social information*.

3 The entity may discuss any change in emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

4 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

5 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

TR-MT-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined according to *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

3.1 Relevant activities and investments may include: route optimisation, use of alternative fuels and energy sources, system improvements, optimisation of ship operation, improving efficiency through ship design and propulsion systems (including hull and propeller improvements), and upgrading the fleet with new ships.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

5 The entity shall discuss whether its strategies, plans or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

TR-MT-110a.3. (1) Total energy consumed, (2) percentage heavy fuel oil and (3) percentage renewable

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from heavy fuel oil.

2.1 Heavy fuel oils are defined as heavier oils that remain after distillate fuel oils and lighter hydrocarbons are distilled away in refinery operations.

2.2 The percentage shall be calculated as heavy fuel oil consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that is renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy

Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix outside the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification, Version 1.0* (2017) or Green-e regional standards or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel use (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

TR-MT-110a.4. Average Energy Efficiency Design Index (EEDI) for new ships

1 The entity shall disclose the average Energy Efficiency Design Index (EEDI) for new ships in grammes of carbon dioxide per ton-nautical mile.

1.1 An EEDI value is the product of power installed, specific fuel consumption and carbon conversion, divided by the product of available capacity and vessel speed at design load.

1.2 The entity shall calculate the average EEDI as a simple average of the EEDI value of all new ships added to the entity’s fleet during the reporting period.

1.2.1 New ships are limited to those built after 2013 and for which the International Maritime Organisation (IMO) has adopted EEDI as a metric.

1.3 The entity shall follow calculation methodologies outlined in IMO MEPC 66/21/Add.1, Annex 5, *2014 Guidelines on the Method of Calculation of the Attained Energy Efficiency Design Index (EEDI) For New Ships*.

Volume 67—Rail Transportation

Industry Description

Rail Transportation industry entities provide rail freight shipping and support services. Important activities include shipping containerised and bulk freight, including consumer goods and commodities. Rail entities typically own, maintain and operate their rail networks, which may require significant capital expenditures. The industry exhibits economies of density because of its network effects, potentially fostering natural monopoly conditions. Together with the large sunk costs of rail infrastructure, this provides a competitive advantage to incumbent entities in the industry and creates barriers to entry for new entities.

Note: The scope of the Rail Transportation industry does not include passenger rail transportation.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions	Quantitative	Metric tons (t) CO_2-e	TR-RA-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	TR-RA-110a.2
	Total fuel consumed, percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	TR-RA-110a.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of carloads transported [124]	Quantitative	Number	TR-RA-000.A
Number of intermodal units transported [125]	Quantitative	Number	TR-RA-000.B
Track kilometres [126]	Quantitative	Kilometres (km)	TR-RA-000.C
Revenue tonne-kilometres (RTK) [127]	Quantitative	RTK	TR-RA-000.D
Number of employees	Quantitative	Number	TR-RA-000.E

[124] Note to **TR-RA-000.A** – The scope of disclosure includes all carloads that the entity transported in conjunction with the shipping of freight (including freight that is not containerised) for its customers.

[125] Note to **TR-RA-000.B** – Intermodal units include shipping containers and truck trailers that can be transported across modes of transportation.

[126] Note to **TR-RA-000.C** – Track kilometres include route kilometres (the total extent of routes available for trains to operate) and take into account multiple track routes such that each route kilometre with double track is considered two track kilometres.

[127] Note to **TR-RA-000.D** – A revenue tonne-kilometre (RTK) is defined as one metric ton of revenue traffic transported one kilometre. Revenue tonne-kilometres are calculated by multiplying the kilometres travelled on each leg by the number of metric tons of revenue traffic carried on that leg.

Greenhouse Gas Emissions

Topic Summary

The Rail Transportation industry generates emissions mainly through the combustion of diesel in locomotive engines. Despite relatively low emissions compared to other transportation industries, fuel management has implications for industry entities in terms of operating costs and regulatory compliance. Greenhouse gases (GHGs) including carbon dioxide (CO_2) are of particular importance to government regulators concerned about climate change. Intensifying regulation of locomotive exhaust emissions and high fuel costs encourage rail entities to invest in fuel efficiency enhancements to manage emissions. These investments can improve an entity's operational efficiency and cost structure, with effects on value and competitive position both within the industry and compared to other modes of transport.

Metrics

TR-RA-110a.1. Gross global Scope 1 emissions

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalents (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 Acceptable calculation methodologies include those that conform to the *GHG Protocol* as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples may include:

2.1.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)

2.1.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the US Environmental Protection Agency (EPA)

2.1.3 India GHG Inventory Program

2.1.4 ISO 14064-1

2.1.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.1.6 *Protocol for the Quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.2 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which generally is aligned with the 'financial control' approach defined by the *GHG Protocol*, and the approach published by the Climate Disclosure Standards Board (CDSB) described in REQ-07, 'Organisational boundary', of the *CDSB Framework for reporting environmental and social information*.

3 The entity may discuss any change in emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

4 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach

used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

5 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

TR-RA-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined according to *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year, and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

3.1 Relevant activities and investments may include operational improvements (such as decreased idling, trip optimisation and maximising loads) and fleet enhancements (such as new engines, fuel optimisation technology and aerodynamic fleet modifications, and upgrading the fleet with new locomotives).

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

5 The entity shall discuss whether its strategies, plans or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

TR-RA-110a.3. Total fuel consumed, percentage renewable

1 The entity shall disclose the total amount of fuel consumed from all sources as an aggregate figure, in gigajoules (GJ).

1.1 The calculation methodology for fuel consumed shall be based on actual fuel consumed as opposed to design parameters.

1.2 Acceptable calculation methodologies for fuel consumed may include methodologies based on:

1.2.1 Adding fuel purchases made during the reporting period to beginning inventory at the start of the reporting period, minus any fuel inventory at the end of the reporting period

1.2.2 Tracking fuel consumed by vehicles

1.2.3 Tracking fuel expenses

2 The entity shall disclose the percentage of fuel consumed that was renewable fuel.

2.1 Renewable fuel generally is defined as fuel that meets all of these requirements:

2.1.1 Produced from renewable biomass;

2.1.2 Used to replace or reduce the quantity of fossil fuel present in a transportation fuel, heating oil or jet fuel; and

2.1.3 Achieved net greenhouse gas (GHG) emissions reduction on a lifecycle basis.

2.2 The entity shall disclose the standard or regulation used to determine if a fuel is renewable

2.3 The percentage shall be calculated as the amount of renewable fuel consumed (in GJ) divided by the total amount of fuel consumed (in GJ).

3 The scope of disclosure only includes fuel directly consumed by the entity.

4 In calculating energy consumption from fuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are directly measured or taken from the Intergovernmental Panel on Climate Change (IPCC).

5 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels).

Volume 68—Road Transportation

Industry Description

Road Transportation industry entities provide long- and short-haul freight trucking services. Important activities include containerised and bulk freight shipment, including consumer goods and a wide variety of commodities. Generally, the industry may be categorised two ways: truckload (vehicles carrying the goods of only one customer) and less-than-truckload (vehicles carrying the goods of multiple customers). Owner-operators comprise the vast majority of the industry because of the relative ease of entry. A few large operators maintain market share through contracts with major shippers. Large entities often subcontract with owner-operators to supplement their owned fleet.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions	Quantitative	Metric tons (t) CO_2-e	TR-RO-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	TR-RO-110a.2
	(1) Total fuel consumed, (2) percentage natural gas and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	TR-RO-110a.3

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Revenue tonne-kilometres (RTK) [128]	Quantitative	RTK	TR-RO-000.A
Load factor [129]	Quantitative	Number	TR-RO-000.B
Number of employees, number of truck drivers	Quantitative	Number	TR-RO-000.C

128 Note to **TR-RO-000.A** – A revenue tonne-kilometre (RTK) is defined as one metric ton of revenue traffic transported one kilometre. RTK is computed by multiplying the vehicle-kilometres travelled on each leg by the number of metric tons of revenue traffic carried on that leg.

129 Note to **TR-RO-000.B** – Load factor is a measure of capacity utilisation and is calculated as cargo distance travelled divided by total distance travelled.

Greenhouse Gas Emissions

Topic Summary

The Road Transportation industry generates emissions mainly through the combustion of diesel and other fossil fuels in truck engines. Greenhouse gases (GHGs) including carbon dioxide (CO_2) are of particular importance to government regulators concerned about climate change and to consumers demanding low-carbon or carbon-neutral transportation solutions. Because GHG emissions from trucks constitute a significant portion of transportation-related emissions, the industry is a focal point for regulations to limit GHG emissions. Operational changes that increase fuel efficiency may reduce fuel costs while also limiting exposure to volatile fuel pricing, regulatory costs and other consequences of GHG emissions. Although newer trucks are more fuel-efficient, other measures also may improve efficiency and reduce emissions in existing fleets.

Metrics

TR-RO-110a.1. Gross global Scope 1 emissions

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalents (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 Acceptable calculation methodologies include those that conform to the *GHG Protocol* as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples may include:

2.1.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)

2.1.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the US Environmental Protection Agency (EPA)

2.1.3 India GHG Inventory Program

2.1.4 ISO 14064-1

2.1.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA

2.1.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.2 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which generally is aligned with the 'financial control' approach defined by the *GHG Protocol*, and the approach published by the Climate Disclosure Standards Board (CDSB) described in REQ-07, 'Organisational boundary', of the *CDSB Framework for reporting environmental and social information*.

3 The entity may discuss any change in emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

4 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

5 The entity may discuss the calculation methodology for its emissions disclosure, such as if data is from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

TR-RO-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined according to *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

3.1 Relevant activities and investments may include fuel optimisation efforts such as route and load optimisation, adoption of technology such as engine and powertrain efficiency and aerodynamic improvements, use of electric- or natural gas-powered vehicles, weight reduction, improved tyre rolling resistance, hybridisation, and automatic engine shutdown.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

5 The entity shall discuss whether its strategies, plans or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

TR-RO-110a.3. (1) Total fuel consumed, (2) percentage natural gas and (3) percentage renewable

1 The entity shall disclose (1) the total amount of fuel consumed from all sources as an aggregate figure, in gigajoules (GJ).

1.1 The calculation methodology for fuel consumed shall be based on actual fuel consumed as opposed to design parameters.

1.2 Acceptable calculation methodologies for fuel consumed may include methodologies based on:

1.2.1 Adding fuel purchases made during the reporting period to beginning inventory at the start of the reporting period, minus any fuel inventory at the end of the reporting period

1.2.2 Tracking fuel consumed by vehicles

1.2.3 Tracking fuel expenses

2 The entity shall disclose (2) the percentage of fuel consumed that is natural gas.

2.1 The percentage shall be calculated as the amount of natural gas consumed (in GJ) divided by the total amount of fuel consumed (in GJ).

3 The entity shall disclose (3) the percentage of fuel consumed that was renewable fuel.

3.1 Renewable fuel generally is defined as fuel that meets all of these requirements:

3.1.1 Produced from renewable biomass

3.1.2 Used to replace or reduce the quantity of fossil fuel present in a transportation fuel, heating oil or jet fuel

3.1.3 Achieved net greenhouse gas (GHG) emission reduction on a lifecycle basis

3.2 The entity shall disclose the standard or regulation used to determine if a fuel is renewable.

3.3 The percentage shall be calculated as the amount of renewable fuel consumed (in GJ) divided by the total amount of fuel consumed (in GJ).

4 The scope of disclosure only includes fuel directly consumed by the entity.

5 In calculating energy consumption from fuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are directly measured or taken from the Intergovernmental Panel on Climate Change.

6 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel use (including biofuels).

Exposure Draft HKFRS S2 BC
Issued 16 September 2024

Basis for Conclusions on
Exposure Draft Hong Kong Financial Reporting Standard S2

Climate-related Disclosures

Hong Kong Institute of
Certified Public Accountants
香港會計師公會

Basis for Conclusions on IFRS S2 *Climate-related Disclosures*

[Draft] HKFRS S2 is based on IFRS S2 *Climate-related Disclosures*. In approving HKFRS S2, the Financial Reporting Standards Committee of the Hong Kong Institute of Certified Public Accountants has considered and agreed with the International Sustainability Standards Board's (ISSB) Basis for Conclusions on IFRS S2. The ISSB's Basis for Conclusions is reproduced below for your consideration when commenting on the [draft] HKFRS S2. The paragraph numbers of IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information* and IFRS S2 referred to below generally correspond with those in [draft] HKFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information* and [draft] HKFRS S2, respectively.

CONTENTS

Basis for Conclusions on IFRS S2 *Climate-related Disclosures*

This Basis for Conclusions accompanies, but is not part of, IFRS S2 Climate-related Disclosures. *It summarises the considerations of the International Sustainability Standards Board (ISSB) in developing IFRS S2. Individual ISSB members gave greater weight to some factors than to others. The ISSB also published an Effects Analysis, which describes the likely costs and benefits of IFRS S2.*

Introduction

BC1 The ISSB developed IFRS S2 *Climate-related Disclosures* (IFRS S2) in response to calls from users of general purpose financial reports (users) for more consistent, complete, comparable and verifiable information about an entity's climate-related risks and opportunities. To meet this demand, IFRS S2 requires an entity to disclose information about climate-related risks and opportunities that could reasonably be expected to affect the entity's cash flows, its access to finance or cost of capital over the short, medium or long term. For the purposes of IFRS S2, these risks and opportunities are collectively referred to as 'climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects'.

Overview

BC2 Climate change is likely to present risks for nearly all entities and economic sectors. It might also create opportunities for entities, including those focused on mitigating climate change and adapting to its effects (see paragraphs BC17–BC25). An entity might be directly exposed to these risks and opportunities, or indirectly exposed through third parties such as suppliers and customers. However, the entity's degree and type of exposure to the effects of climate-related risks and opportunities are likely to vary depending on the entity's sector, industry, location and its specific circumstances. This varied exposure will, in turn, affect the assessment of the entity's overall risk profile carried out by users of general purpose financial reports.

BC3 IFRS S2 sets out the requirements for disclosing information about an entity's climate-related risks and opportunities. In particular, IFRS S2 requires an entity to disclose information that enables users of general purpose financial reports to understand:

(a) the governance processes, controls and procedures the entity uses to monitor, manage and oversee climate-related risks and opportunities;

(b) the entity's strategy for managing climate-related risks and opportunities, including:

(i) the climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects;

(ii) the current and anticipated effects of those climate-related risks and opportunities on the entity's business model and value chain;

(iii) the effects of those climate-related risks and opportunities on the entity's strategy and decision-making, including information about its climate-related transition plans;

(iv) the effects of those climate-related risks and opportunities on the entity's financial position, financial performance and cash flows for the reporting period, and the anticipated effects on the entity's financial position, financial performance and cash flows over the short, medium and long term taking into account how those climate-related risks and opportunities have been factored into the entity's financial planning; and

(v) the climate resilience of the entity's strategy and its business model to climate-related physical risks and climate-related changes, developments and uncertainties, taking into consideration the entity's identified climate-related risks and opportunities;

(c) the processes the entity uses to identify, assess, prioritise and monitor climate-related risks and opportunities, including whether and how those processes are integrated into and inform the entity's overall risk management process; and

(d) the metrics and targets used to understand the entity's performance in relation to its climate-related risks and opportunities, including:

   (i) the metrics the entity uses to measure, monitor and manage climate-related risks and opportunities (even if those metrics are not required by IFRS S2);

   (ii) the cross-industry and industry-based metrics required by IFRS S2 (even if the entity does not use these metrics in its business); and

   (iii) any climate-related target the entity has set, and any targets it is required to meet by law or regulation.

Relationship to other IFRS Sustainability Disclosure Standards

BC4 The ISSB issued IFRS S2 at the same time as IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information* (IFRS S1). The climate-related disclosure requirements in IFRS S2 are consistent with and complement the requirements in IFRS S1.

BC5 IFRS S1 sets out overarching requirements for an entity to disclose information about sustainability-related risks and opportunities that is useful to users of general purpose financial reports in making decisions relating to providing resources to the entity. IFRS S2 sets out supplementary requirements that relate more specifically to climate-related risks and opportunities. If an entity determines that a climate-related risk or opportunity could reasonably be expected to affect its prospects, the entity is required to apply IFRS S2 in preparing its disclosures about that climate-related risk or opportunity.

BC6 An entity is required to apply IFRS S2 in accordance with the conceptual foundations, general requirements and the requirements related to judgements, uncertainties and errors in IFRS S1. The ISSB has developed these conceptual foundations and requirements to ensure consistency among disclosures prepared in accordance with IFRS Sustainability Disclosure Standards.

Materiality

BC7 Among the conceptual foundations established in IFRS S1 is the concept of materiality. IFRS S1 states that:

> In the context of sustainability-related financial disclosures, information is material if omitting, misstating or obscuring that information could reasonably be expected to influence decisions that primary users of general purpose financial reports make on the basis of those reports, which include financial statements and sustainability-related financial disclosures and which provide information about a specific reporting entity.

BC8 Material information about an entity's sustainability-related risks and opportunities enables users of general purpose financial reports to make decisions in relation to providing resources to the entity. In applying IFRS Sustainability Disclosure Standards, including IFRS S2, an entity is required to make materiality judgements and disclose material information about the sustainability-related risks and opportunities, including the climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects. Requirements in IFRS Sustainability Disclosure Standards, including IFRS S2, only need to be applied if their effect is material to the complete set of the entity's general purpose financial reports. In other words, the entity need not disclose information otherwise required by IFRS S2 if the information is not material.

Background

BC9 IFRS S2 is the result of proposals set out in the Exposure Draft IFRS S2 *Climate-related Disclosures* (Exposure Draft) published in March 2022. The ISSB received 690 comment letters and survey responses about the proposals. The respondents represented a range of stakeholder groups and geographies. The largest number of responses came from preparers. A large number of responses also came from users of general purpose financial reports, including investor associations and individual users. The ISSB also conducted 328 individual and group events before the consultation period ended in July 2022. A further 143 individual and group meetings with stakeholders took place from August to December 2022.

BC10 Most respondents agreed that the majority of the proposals would result in disclosures that will enable users of general purpose financial reports to assess the effects of climate-related risks and opportunities on an entity's cash flows, its access to finance and cost of capital. Almost all respondents agreed with the proposals on governance, strategy, risk management, and the cross-industry metric categories and targets. Views were mixed on some proposals, including those relating to Scope 3 greenhouse gas emissions, the use of scenario analysis and industry-based disclosures. Although many respondents, most notably users, broadly agreed with these proposals, many other respondents, most notably preparers, commented on operational challenges associated with the proposals.

BC11 In addition to providing feedback on the proposed objective and the specific proposals, respondents noted the urgency of climate-related financial disclosures, citing the significant risks that climate change presents to individual entities, to international capital markets and to the financial stability of the global economy.

BC12 The ISSB considered the feedback on the Exposure Draft, along with the feedback on the Exposure Draft IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information*, to determine its approach to redeliberation, the timetable for redeliberation and the specific topics for redeliberation. The ISSB focused its redeliberations on those proposals that received mixed feedback, including suggestions to add to, remove or modify the proposed requirements. The ISSB also considered those proposals for which stakeholders provided new information or emphasised different considerations to those relied on in developing the Exposure Draft. Specifically, the ISSB decided to redeliberate four proposals relating to IFRS S2:

(a) strategy and decision-making, including transition planning, and climate-related targets;

(b) climate resilience;

(c) greenhouse gas emissions; and

(d) industry-based requirements.

BC13 The ISSB also decided to redeliberate one topic and one proposal relating to both IFRS S1 and IFRS S2:

(a) proportionality of the proposals; and

(b) current and anticipated financial effects of sustainability-related and climate-related risks and opportunities on an entity's financial performance, financial position and cash flows.

Proportionality

BC14 Most respondents to the Exposure Draft suggested that the ISSB consider the range of capabilities and preparedness of entities around the world to apply IFRS Sustainability Disclosure Standards. Respondents noted that some entities might be less able than others to comply for a variety of reasons, including:

(a) *resource constraints*—the costs of investing in and operating the systems and processes necessary to enable disclosure are proportionately higher for some entities;

(b) *data availability*—high-quality external data is less available in some markets, industries and parts of the value chain; and

(c) *specialist availability*—skills or expertise are less available to some entities and in some markets.

BC15 The ISSB developed a range of mechanisms to respond to these 'proportionality' challenges, and made a number of decisions intended to support the application of IFRS S2 by a wide range of entities. The proportionality mechanisms were used in requirements that are included in both IFRS S1 and IFRS S2. These requirements include those associated with identification of risks and opportunities, determination of the scope of the value chain, disclosure of current and anticipated financial effects, and other areas such as timing of reporting and providing comparative information in the first year of application. The proportionality mechanisms were also used in specific requirements that are included only in IFRS S2. These requirements are associated with climate-related scenario analysis, measurement of Scope 1, Scope 2 and Scope 3 greenhouse gas emissions, and calculation of metrics in particular cross-industry metric categories. These proportionality mechanisms are summarised in Table 1 and described in more detail in this document.

Table 1—Summary of ISSB decisions that assist with proportionality or in the application of IFRS S2

Area	Mechanisms to address proportionality challenges		Transition relief	Additional clarifications/ mechanisms to facilitate application	
	Concept of 'reasonable and supportable information… without undue cost or effort'(a)	Consideration of skills, capabilities and resources		Concept of 'unable to do so'(b)	Guidance, educational material and other efforts to facilitate application
Identification of risks and opportunities	X				X
Determination of the scope of the value chain	X				X
Current financial effects				X	X
Anticipated financial effects	X	X		X	X
Climate-related scenario analysis	X	X			X
Measurement of Scope 1 and Scope 2 greenhouse gas emissions			X		X
Measurement of Scope 3 greenhouse gas emissions	X		X		X
Calculation of metrics in particular cross-industry metric categories	X				X

continued…

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Area	Mechanisms to address proportionality challenges		Transition relief	Additional clarifications/ mechanisms to facilitate application	
	Concept of 'reasonable and supportable information… without undue cost or effort'(a)	Consideration of skills, capabilities and resources		Concept of 'unable to do so'(b)	Guidance, educational material and other efforts to facilitate application
Other areas—for example, timing of reporting and providing comparative information in first annual reporting period			X		X

(a) See paragraphs BC10–BC17 of the Basis for Conclusions on IFRS S1 for further information about using 'reasonable and supportable information'.

(b) Although the term 'unable to do so' was used in the Exposure Draft, it is no longer used in IFRS S2; however, this concept is articulated through whether the current or anticipated financial effects are separately identifiable or whether the level of measurement uncertainty involved in estimating those effects is so high that the resulting quantitative information would not be useful.

Interoperability

BC16 IFRS Sustainability Disclosure Standards are intended to establish a comprehensive global baseline of sustainability-related financial disclosures to meet the information needs of users of general purpose financial reports and, therefore, of international capital markets. The ISSB recognises that this baseline is likely to be supplemented by entities and jurisdictions with information aimed at meeting the needs of a broader group of stakeholders or to address particular jurisdictional information needs. If an entity discloses information to meet jurisdictional regulatory requirements and public policy objectives in addition to the information required by IFRS Sustainability Disclosure Standards, the Standards require the entity to ensure that this additional information does not obscure the information required by IFRS Sustainability Disclosure Standards. The feedback to the Exposure Draft indicated strong agreement among respondents with pursuing and facilitating interoperability with jurisdictional requirements, and, therefore, the ISSB considered such interoperability in its redeliberation of IFRS S2.

Objective and scope

Climate-related risks and opportunities

BC17 The objective of IFRS S2 is to require an entity to disclose information about its climate-related risks and opportunities that is useful to users of general purpose financial reports in making decisions relating to providing resources to the entity. The requirements in IFRS S2 are intended to elicit decision-useful information from an entity regarding the climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects.

BC18 The climate-related risks to which IFRS S2 applies are physical risks from climate change (climate-related physical risks) and transition risks associated with the transition to a lower-carbon economy (climate-related transition risks). These categories of climate-related risk are consistent with those used in the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD).

BC19 Climate-related physical risks can be:

(a) *acute*—driven by events such as storms, precipitation or temperatures. For example, extreme temperatures or severe storms can affect an entity's premises, operations, supply chain, transportation needs or employee safety, with resulting effects on the entity's cash flows, its access to finance or cost of capital.

(b) *chronic*—resulting from longer-term factors such as increase in mean temperatures, shifts in precipitation patterns or rising sea levels. Chronic risks could also have longer-term financial consequences for entities. For example, rising sea levels might affect an entity's premises or operations.

BC20 Transition risks are associated with policy, legal, technology and market changes resulting from efforts to limit global warming and move to a lower-carbon economy. Such changes could include new regulations to minimise greenhouse gas emissions, or a shift in market preferences towards lower-carbon products and services. For example, the move to a lower-carbon economy could include the movement away from fossil fuel energy and related physical assets, as well as efforts to reduce costs and increase or accelerate the deployment of cleaner and more energy-efficient technologies. Transition risks might affect an entity to varying extents depending on the nature, speed and focus of the changes that occur.

BC21 An entity might pursue a range of mitigation and adaptation responses to manage physical and transition risks related to climate change. Mitigation efforts, such as those intended to reduce greenhouse gas emissions, are primarily associated with an entity's responses to transition risks. For example, an entity might adopt new technologies or change its business model to introduce new products and services that reduce its greenhouse gas emissions. Adaptation responses are primarily associated with physical risks and involve an entity preparing for both the current and anticipated effects of climate change. For example, an entity might invest in changes to infrastructure to improve its resilience to physical risks.

BC22 An entity might also take advantage of climate-related opportunities—for example, by developing new products and services that meet shifting consumer needs or preferences and enhance the entity's brand reputation. As with climate-related risks, climate-related opportunities will vary depending on the region, market and industry in which an entity operates.

BC23 Climate-related risks and opportunities are distinct but are not always mutually exclusive. For example, changing consumer preferences towards lower-carbon products might pose a risk to the demand for an entity's products and, at the same time, present an opportunity for the entity to develop an alternative, lower-carbon product line or gain market share if it has such a product line. The ISSB emphasised the importance of this relationship between climate-related risks and opportunities in redeliberating some of the requirements in IFRS S2, such as those related to risk management and strategy, particularly in the areas of climate-related transition plans and climate resilience.

BC24 The impacts of climate change are wide ranging, interrelated and have varied effects on an entity. Therefore, it is impossible to precisely define the full scope of climate-related risks and opportunities that might affect an entity. Consequently, IFRS S2 does not explicitly prescribe what is 'climate-related'. The requirements in IFRS S2 are aligned with the TCFD recommendations and are accompanied by the *Industry-based Guidance on Implementing IFRS S2* (Industry-based Guidance), which is derived from the industry-based requirements in the SASB Standards, in order to provide parameters to help an entity identify risks and opportunities in applying IFRS S2. The Industry-based Guidance is not intended to be comprehensive or interpreted as such.

BC25 Although the requirements in IFRS S2 do not explicitly reference some climate-related matters such as reduced access to fresh water, biodiversity loss, deforestation and climate-related social impacts, disclosures about these and other such matters are required if an entity determines that the information is material for users of general purpose financial reports. For example, if a beverage manufacturer determines it is exposed to short-, medium- or long-term effects of climate change on water availability—especially in water-stressed regions—the entity might determine that information about the implications of reduced water availability for its strategy, operations, capital planning and asset values is material. Therefore, this information would be required by IFRS S2.

Impacts and dependencies

BC26 Climate-related risks and opportunities arise from an entity's impacts and dependencies on natural resources, and the relationships it maintains with its stakeholders, society, the economy and the natural environment.

BC27 Changes in the availability, quality or cost-stability of essential inputs—sometimes called 'dependencies'—could lead to climate-related risk. The climate-related dependencies to which an entity is exposed will vary substantially depending on the entity's business model and activities. For example, a beverage manufacturer might depend on the availability and quality of local water resources, which might be affected by an increase in drought conditions due to climate change, which in turn could affect the manufacturer's operations and its ability to produce its goods (thus presenting a climate-related physical risk).

BC28 An entity's 'impacts' can also affect its cash flows, its access to finance or cost of capital over the short, medium or long term. An entity's impacts on climate change give rise to climate-related risks and opportunities if these impacts affect the resources and relationships on which the entity depends. An entity's greenhouse gas emissions might give rise to climate-related risks, for example, if the entity expects a carbon tax to be introduced in a key jurisdiction in which it operates or if the entity expects a shift in consumer preferences towards lower-carbon alternatives to result in decreased demand for its products. Therefore, IFRS S2 requires an entity to disclose information about its impacts if such information is material.

BC29 The requirements in IFRS S2 reflect the view that, depending on an entity's specific facts and circumstances, information on both impacts and dependencies can be useful to users of general purpose financial reports in understanding the risks and opportunities to which the entity is exposed, and in making decisions relating to providing resources to the entity.

Core content

BC30 The requirements in IFRS S2 are structured around core content related to governance, strategy, risk management, and metrics and targets, following the structure set out in IFRS S1. This core content is aligned with the structure of the widely accepted TCFD recommendations and reflects how entities oversee and manage sustainability-related risks and opportunities, including those related to climate change. The requirements associated with governance, strategy, risk management, and metrics and targets are intended to result in an entity disclosing a complete set of information that enables users of general purpose financial reports to understand the entity's exposure to, and management of, climate-related risks and opportunities. For the avoidance of doubt, IFRS S2 does not prescribe how entities should manage their businesses. Instead, these requirements are intended to ensure that entities are transparent about the climate-related processes and policies they have in place and provide disclosures that meet the information needs of users.

Governance

BC31 Paragraphs 5–7 of IFRS S2 require an entity to disclose information that enables users of general purpose financial reports to understand the governance processes, controls and procedures the entity has used to monitor, manage and oversee climate-related risks and opportunities. To achieve this objective, IFRS S2 requires an entity to disclose information about the governance body(s) (for example, a board, committee or equivalent body charged with governance) or individual(s) with oversight of climate-related risks and opportunities and to disclose information about management's role in supporting that oversight.

BC32 By design, the governance requirements in IFRS S2 are closely aligned with those in IFRS S1. To ensure consistent and comparable disclosures, and to assist entities in applying IFRS S2, the requirements are set out in both IFRS S1 and IFRS S2 in full. Feedback from stakeholders indicated that many entities structure their governance and management to integrate climate-related risks and opportunities with other sustainability-related risks and opportunities. As a result, IFRS S2 states that if an entity takes an integrated approach to monitor, manage and oversee its sustainability-related risks and opportunities, the entity is required to avoid duplicating its governance disclosure for each sustainability-related risk and opportunity.

Strategy

Climate-related risks and opportunities

BC33 Paragraph 10 of IFRS S2 requires an entity to disclose information about climate-related risks and opportunities that could reasonably be expected to affect the entity's cash flows, its access to finance or cost of capital over the short, medium or long term. This means that the entity is required to disclose information about such risks and opportunities if they could reasonably be expected to occur over one or more time horizons.

BC34 IFRS S2 distinguishes between two categories of climate-related risks—physical risks and transition risks (see paragraphs BC17–BC25). These categories, which are consistent with those set out in the TCFD recommendations, are widely used.

BC35 The climate-related physical and transition risks to which an entity is exposed are likely to vary depending on the entity’s business model, sector, location of operations, the nature of its value chain and other entity-specific circumstances. Therefore, the particular information disclosed in accordance with paragraphs 10–12 of IFRS S2 will also vary by entity. Although the specific details of an entity’s disclosures could be tailored to its circumstances, the requirements enable comparability by providing users of general purpose financial reports with information about common elements of a risk or opportunity and how the entity is responding to each risk and opportunity.

BC36 The Exposure Draft proposed industry-based requirements to further enable comparable disclosures among industry peer entities. Although most respondents to the Exposure Draft agreed with the inclusion of industry-based disclosure requirements, feedback was mixed on some aspects of the industry-based proposals, including the ability and appropriateness of applying some of the proposals internationally. The ISSB decided that the industry-based disclosure topics and associated metrics would be published as guidance to accompany IFRS S2. The ISSB decided that an entity is required to refer to and consider the applicability of that guidance.

BC37 The ISSB noted that, in the context of the requirements in paragraphs 10–22 of IFRS S2, the disclosure topics identified and defined in the Industry-based Guidance can serve as a helpful starting point for an entity in considering the risks and opportunities about which it might need to prepare disclosures. These disclosure topics, which are derived from the SASB Standards, set out the climate-related risks and opportunities that are most likely to be associated with particular business models, activities or other common features that characterise participation in an industry. Although an entity is required to refer to and consider the applicability of the Industry-based Guidance, it might determine that the guidance is not applicable. Additionally, the disclosure topics and associated metrics set out in the Industry-based Guidance are not intended to be exhaustive. Accordingly, an entity is required to disclose information about topics that are not included in the Industry-based Guidance if the entity determines that such information is material.

BC38 In describing the risks and opportunities about which an entity should prepare and disclose information, the Exposure Draft referred to ‘significant’ climate-related risks and opportunities. Many respondents to the Exposure Draft expressed concerns about the use of the term ‘significant’ because it could be interpreted in various ways. Additionally, some respondents were confused about the distinction and connection between the concepts of ‘significant’ (which applies to risks and opportunities) and ‘material’ (which applies to information about those risks and opportunities). The ISSB intended to use the term ‘significant’ to indicate that, in preparing its disclosures, an entity is not required to consider an exhaustive list of all possible climate-related risks and opportunities, but only those that could reasonably be expected to affect the entity’s prospects. Although this intention is unchanged, for the sake of clarity, the ISSB agreed to remove the term ‘significant’ in relation to the climate-related risks and opportunities to which IFRS S2 applies. The ISSB also agreed to develop guidance as part of IFRS S1 to clarify the distinction between the process of identifying the sustainability-related risks and opportunities that could reasonably be expected to affect an entity’s prospects and identifying material information to provide about those risks and opportunities.

BC39 Paragraph 10 of IFRS S2 requires an entity to disclose information about the climate-related risks and opportunities that could reasonably be expected to affect the entity’s prospects. In feedback to the ISSB, preparers described challenges in identifying risks and opportunities, such as the breadth of assessments that would be necessary to cover all the climate-related risks and opportunities that might affect the entity. In response, the ISSB introduced the concept of an entity using ‘all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort, including information about past events, current conditions and forecasts of future conditions' when identifying climate-related risks and opportunities. The ISSB noted that introducing this concept clarifies that an entity:

(a) is prohibited from overstating or understating opportunities (or risks) premised on information that is unsupportable or unreasonable;

(b) is required to use all information that is available to the entity at the reporting date (including information about past events, current conditions and forecasts of future conditions);

(c) is not required to use information that was unavailable at the reporting date; and

(d) is not expected to carry out an exhaustive search for information to identify every climate-related risk or opportunity—because such an exhaustive search would represent 'undue cost or effort'.[1]

BC40 IFRS S1 permits an entity, in limited circumstances in which information is commercially sensitive and is not already publicly available, to omit information about a sustainability-related opportunity in accordance with the criteria set out in IFRS S1. The exemption in IFRS S1 applies to the disclosure of information about sustainability-related opportunities and is therefore also applicable to information about climate-related opportunities in IFRS S2 and future IFRS Sustainability Disclosure Standards, unless otherwise stated. These criteria were agreed by the ISSB as a means of identifying information about sustainability-related opportunities considered to be commercially sensitive. If an entity applies the exemption, including for a climate-related opportunity, it is required to apply the additional disclosure requirements associated with the exemption. The ISSB acknowledged that if an entity applies the exemption this might create asymmetry between the disclosure of information about risks and the disclosure of information about opportunities. However, the ISSB observed that many entities already voluntarily report on climate-related opportunities, despite there being no requirement to report this information.

Time horizons

BC41 IFRS S2 requires an entity to disclose information about the time horizons over which the climate-related risks and opportunities could reasonably be expected to occur. A few respondents to the Exposure Draft asked for additional guidance on, or explicit definitions of, the applicable time horizons. However, the ISSB observed that the time horizons (short, medium and long term) vary depending on an entity's particular circumstances. How an entity defines, assesses and plans for the short, medium or long term is the result of many factors, including the industry in which the entity operates and the associated business and investment cycles. Therefore, the ISSB confirmed the approach used in the Exposure Draft and IFRS S2 does not define time horizons. Instead, IFRS S2 requires an entity to disclose how it defines 'short term', 'medium term' and 'long term', and how these definitions are linked to the entity's strategic planning. The ISSB noted that this approach aligns with the TCFD recommendations.

Climate-related risks and opportunities throughout an entity's value chain

BC42 The requirements in paragraph 13 of IFRS S2 are intended to enable users of general purpose financial reports to understand the current and anticipated effects of climate-related risks and opportunities on an entity's business model and value chain. IFRS S1 defines value chain as 'the full range of interactions, resources and relationships related to a reporting entity's business model and the external environment in which it operates'. IFRS S1 further clarifies that an entity's value chain includes the activities, resources and relationships the entity uses and depends on to create its products or services from conception to delivery, consumption and end-of-life. This definition is intentionally broad. However, the breadth of the definition does not mean that an entity is required to disclose information about every climate-related risk or opportunity that is affecting, or is likely to affect, any part of its value chain. The information required by IFRS S2 about the effects of climate-related risks and opportunities on the entity's value chain is limited to information that is material. For example, an entity might identify a concentration of physical risks in a particular geographical location affecting the supply of a particular resource that is essential in manufacturing a product.

[1] See paragraphs BC10–BC17 of the Basis for Conclusions on IFRS S1 for further information about using 'reasonable and supportable information'.

BC43 The ISSB recognised the potential challenges associated with an entity providing disclosures about its value chain, given the potential complexity of the value chain and the various interconnections that might be involved. To address these potential challenges, the ISSB decided that in determining the scope of an entity's value chain, including its breadth and composition, in relation to each climate-related risk or opportunity, the entity is required to use all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort. The ISSB determined that this approach would assist entities by establishing parameters for the information they consider when preparing disclosures regarding the value chain, including the effort required to obtain such information. This requirement is described in paragraph B6(b) of IFRS S1.

Effects of climate-related risks and opportunities on strategy and decision-making

BC44 Paragraph 14 of IFRS S2 requires an entity to disclose the effects of climate-related risks and opportunities on its strategy and decision-making. Specifically, the entity is required to disclose information about how it has responded to and plans to respond to climate-related risks and opportunities in its strategy and decision-making; information about plans to achieve any climate-related targets it has set and any targets it is required to meet by law or regulation; information about how it is resourcing or plans to resource these activities; and quantitative and qualitative information about the progress of plans it has previously disclosed. Information about the progress of plans that have been previously disclosed relates to any previously disclosed plans that are still relevant. Information about progress might include progress in the current reporting period as well as cumulative progress since the beginning of the earliest period reported or since the last milestone was reached.

BC45 Many respondents to the Exposure Draft said that the proposals related to strategy and decision-making were difficult to understand and therefore would be difficult to apply. The ISSB agreed to clarify the requirements by distinguishing between the requirements related to an entity's overall strategy and decision-making, and the requirements specifically related to the entity's plan to manage the transition to a lower-carbon economy (climate-related transition plan). The ISSB also agreed to move the requirements that relate to climate-related targets to paragraphs 33–36 of IFRS S2 to provide greater clarity.

Climate-related transition plans

BC46 The ISSB decided that if an entity has a particular plan or set of plans to respond to the expected transition to a lower-carbon economy, disclosure of that transition plan will help users of general purpose financial reports assess the effects of climate-related risks and opportunities on the entity's cash flows, its access to finance and cost of capital.

BC47 For some entities, a climate-related transition plan forms part of the overall business strategy because the plan adjusts the entity's business model to respond to climate-related risks and opportunities. For other entities, a climate-related transition plan might apply more narrowly to a particular product line, business unit or set of activities, and sit alongside the entity's overall business strategy. The requirements in IFRS S2 are intended to reflect the fact that the details contained in an entity's disclosure of its climate-related transition plan will reflect the entity's individual circumstances, including any relevant industry-based disclosures.

BC48 Although market perspectives vary on the most useful information an entity could disclose regarding its climate-related transition plan, users of general purpose financial reports said that an entity's climate-related transition plan should not only present its greenhouse gas emission reduction targets, but also provide information about the specific actions it plans to take to achieve those targets, respond to climate-related transition risks, and contribute to and benefit from the expected transition to a lower-carbon economy. Such information might include current or anticipated changes to an entity's business model and strategy, and the performance indicators it uses to measure progress on key drivers of climate-related transition risk.

BC49 The ISSB observed that, in disclosing information about its climate-related transition plan, an entity might refer to information disclosed in accordance with other requirements in IFRS S2. For example, an entity could highlight connections between its disclosure of greenhouse gas emissions (paragraph 29(a) of IFRS S2) and its targets to reduce greenhouse gas emissions (paragraph 36 of IFRS S2). The entity might also refer to its resilience assessment (paragraph 22 of IFRS S2) to the extent that the assessment has informed its climate-related transition plan or related disclosure.

BC50 Respondents to the Exposure Draft commented on the overlap between the proposals associated with climate-related transition plans and those associated with climate-related targets. The ISSB confirmed the requirements to provide such disclosures, but decided to structure them more clearly. Paragraph 33 of IFRS S2 requires an entity to disclose information relating to the characteristics of its climate-related targets (including greenhouse gas emissions targets), whereas paragraph 36 of IFRS S2 requires an entity to disclose additional information specifically relating to its greenhouse gas emissions targets and how it plans to achieve those targets.

BC51 IFRS S2 differentiates between climate-related targets and greenhouse gas emissions targets. Climate-related targets include any target an entity has set to respond to climate-related risks and opportunities. These targets might refer to the cross-industry metric categories outlined in paragraph 29 of IFRS S2 or to industry-based metrics, such as those included in the Industry-based Guidance. ‘Greenhouse gas emissions targets’ are a particular example of a climate-related target and specifically refer to the greenhouse gas emissions targets an entity sets or is required to meet. In relation to an entity’s climate-related transition plan, greenhouse gas emissions targets provide information about the timing and pathway of the entity’s plans to reduce its emissions in anticipation of a lower-carbon economy. IFRS S2 requires that an entity provide information about greenhouse gas emissions targets that it has set as well as those it is required to meet by law or regulation. For the avoidance of doubt, IFRS S2 does not require an entity to set a greenhouse gas emissions target (or other climate-related targets). Rather, it requires the entity to disclose information about its greenhouse gas emissions targets if the entity has set (or is required to meet) such targets and requires that, if an entity has set a net greenhouse gas emissions target, it is required to also disclose a gross greenhouse gas emissions target.

BC52 Respondents to the Exposure Draft said that further requirements were necessary in IFRS S2 to enhance the comparability and consistency of entities’ disclosures about their climate-related transition plans. In response to these comments, the ISSB decided to introduce a requirement for an entity to disclose the assumptions it made in developing its climate-related transition plan, and the dependencies on which the plan’s achievement relies. An assumption is a belief, expectation, hypothesis or premise that the entity expects will occur and therefore builds into its climate-related transition plan. As such, assumptions are uncertain. Dependencies are critical factors and conditions required for an entity’s transition plan to be realised. Examples of assumptions include expectations about regulatory requirements or the ability of an entity to implement planned changes within its value chain. Examples of dependencies include an emission removal technology that is necessary for an entity to meet its greenhouse gas emissions targets, or a minimum level of resource availability that is required for the entity to implement its climate-related transition plan. The ISSB concluded that users of general purpose financial reports need to understand the assumptions and dependencies that underpin an entity’s climate-related transition plan in order to assess the credibility of the plan and to be able to make comparisons between entities.

Current and anticipated financial effects

BC53 IFRS S2 requires an entity to disclose the ‘current’ and ‘anticipated’ financial effects of its climate-related risks and opportunities:

(a) *current financial effects*—the effects of the entity’s climate-related risks and opportunities on its financial position, financial performance and cash flows for the reporting period; and

(b) *anticipated financial effects*—the effects of the entity’s climate-related risks and opportunities on its financial position, financial performance and cash flows over the short, medium and long term, including information about how climate-related risks and opportunities are included in the entity’s financial planning.

BC54 IFRS S2 sets out the circumstances in which an entity is not required to provide quantitative information. Although the term ‘unable to do so’ is not used in IFRS S2, this term is effectively rearticulated through the criteria set out in paragraphs 19–20 of IFRS S2.

BC55 By design, these requirements are closely aligned with those in IFRS S1 requiring an entity to disclose the current and anticipated financial effects of its sustainability-related risks and opportunities. To help entities apply IFRS S2, and to ensure consistent and comparable disclosures, the requirements are set out in both IFRS S1 and IFRS S2 in full.

BC56 The ISSB decided to clarify the relationship between the disclosure requirements for information about climate resilience and the disclosure requirements for information about current and anticipated financial effects. The ISSB noted that the two sets of requirements are distinct and are intended to serve different information needs. The requirements related to the climate resilience of an entity's strategy and business model are intended to inform users of general purpose financial reports about the entity's ability to cope with and withstand the effects of climate-related risks and uncertainties in different scenarios. The requirements related to the current and anticipated financial effects of climate-related risks and opportunities are intended to provide information about the effects of these risks and opportunities on an entity's financial performance, financial position and cash flows. The requirements can be applied independently. However, a resilience assessment can inform the disclosures of current and anticipated financial effects and vice versa.

Climate resilience

BC57 The likelihood, magnitude and timing of climate-related risks and opportunities affecting an entity are often complex and uncertain. As a result, users of general purpose financial reports need information to enable them to understand the resilience of an entity's strategy and business model to climate change. Therefore, paragraph 22 of IFRS S2 requires an entity to disclose information on two distinct aspects of this assessment, including:

(a) information about the entity's climate resilience to enable users to understand key areas of uncertainty, the implications for the entity's strategy and business model, and its adaptive capacity; and

(b) information about how the entity has carried out climate-related scenario analysis to inform its assessment of its climate resilience.

BC58 Paragraph 22 of IFRS S2 requires an entity to disclose information about the resilience of its strategy and business model to climate-related changes, developments and uncertainties. Climate-related changes might include events or changes directly resulting from climate change (for example, pervasive wildfires). Climate-related developments might include evolving macroeconomic factors such as regulatory responses and demographic shifts (for example, regulatory limits on the use of particular fossil fuels). Climate-related uncertainties might include the different confidence intervals associated with climate-related changes and climate-related developments (for example, assumptions about the pervasiveness of wildfires or the stringency of regulation).

BC59 The requirements in IFRS S2 make a distinction between the concepts of 'resilience assessment' and 'scenario analysis'. A resilience assessment is management's assessment of a range of plausible but uncertain climate outcomes, the implications for the entity's business model and strategy and its capacity to adapt or respond. Scenario analysis is the analytical exercise used to inform that assessment. The disclosures required by paragraph 22(b) of IFRS S2 relate to the approach used by the entity to carry out scenario analysis, whereas the requirements in paragraph 22(a) of IFRS S2 specifically refer to disclosures about the assessment of resilience based on that scenario analysis. In making this distinction, the ISSB emphasised that an entity is not required to disclose the results of its scenario analysis, but is instead required to disclose its interpretation of those results.

BC60 Paragraph 22(a) of IFRS S2 requires disclosures related to the significant areas of uncertainty considered in an entity's assessment of its climate resilience. For example, the entity might disclose that its resilience assessment is subject to significant uncertainty arising from the effects of future climate-driven migration, which might affect the stability of its supply chain or the resilience of its assets and operations in particular geographies. As the time horizon considered in the scenario analysis increases, the degree of judgement required to interpret its results also increases.

BC61 Paragraph 22(b)(ii) of IFRS S2 lists particular required disclosures related to the key assumptions an entity made in carrying out its climate-related scenario analysis. Although IFRS S2 requires these specific disclosures, the ISSB observed that an entity might make assumptions in carrying out its climate-related scenario analysis that should be disclosed if material, because the assumptions listed in paragraph 22(b)(ii) of IFRS S2 are not exhaustive. This is reflected in the overarching objective of the disclosures in paragraph 22.

BC62 The Exposure Draft proposed that an entity would be required to use climate-related scenario analysis to assess its climate resilience unless it is 'unable to do so'. This proposed requirement would have allowed an entity to use an alternative method to assess its climate resilience if it is unable to use climate-related scenario analysis. This proposal was designed to respond to concerns that climate-related scenario analysis might be too challenging, especially for an entity that lacks the skills, capabilities and resources to carry out such analysis. Respondents to the Exposure Draft provided mixed feedback on this proposal, including on the effectiveness of the 'unable to do so' wording. Some respondents were concerned that the wording would allow entities to opt out of using climate-related scenario analysis. Others were unclear about what criteria to consider in determining whether an entity is 'able' or 'unable' to carry out climate-related scenario analysis. Respondents also expressed an array of views on the various methods that might or might not be considered to constitute climate-related scenario analysis.

BC63 The ISSB made several related decisions to reduce confusion, enhance clarity and retain an appropriate degree of proportionality for entities, whose circumstances vary. The ISSB decided to remove the wording 'unable to do so' from the requirements on climate resilience in IFRS S2 and to confirm that an entity is required to use climate-related scenario analysis to assess its climate resilience. The ISSB also decided to clarify that climate-related scenario analysis encompasses a range of practices, from qualitative scenario narratives to sophisticated quantitative modelling. The ISSB also decided that an entity is required to use an approach to climate-related scenario analysis that is commensurate with its circumstances.

BC64 The ISSB recognised a need to provide additional guidance to respond to concerns that scenario analysis might create undue cost or effort, especially for entities with fewer skills, capabilities or resources. Therefore, the ISSB agreed to provide application guidance to accompany IFRS S2, which is designed to support an entity in determining an approach to climate-related scenario analysis that is commensurate with its circumstances. The application guidance (paragraphs B1–B18 of IFRS S2) draws on the range of practice outlined in documents published by the TCFD, including *Technical Supplement: The Use of Scenario Analysis in Disclosure of Climate-related Risks and Opportunities* (2017) and *Guidance on Scenario Analysis for Non-Financial Companies* (2020). The application guidance in IFRS S2 requires an entity to use an approach to climate-related scenario analysis that enables it to consider all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort, taking into consideration:

(a) the entity's exposure to climate-related risks and opportunities; and

(b) the skills, capabilities and resources available to the entity to enable it to carry out the climate-related scenario analysis.

BC65 The greater an entity's exposure to climate-related risks and opportunities and the more skills, capabilities and resources available to carry out climate-related scenario analysis, the more sophisticated the form of analysis the entity would be required to use to support its resilience assessment. An entity with fewer resources and relatively low risk exposure might develop a scenario narrative focused on a key product, business unit or operating location. However, a larger entity with high risk exposure and greater analytical experience might carry out sophisticated quantitative modelling using a range of scenarios to capture multiple risk transmission channels across its own operations and throughout its value chain. If an entity does not currently have the skills and capabilities to carry out a more sophisticated form of climate-related scenario analysis but has a high degree of exposure to climate-related risk, the entity might initially use a simpler approach to climate-related scenario analysis. The ISSB emphasised that if an entity's climate-related risk exposure warrants a more sophisticated approach to scenario analysis, the entity cannot use a lack of skills or capabilities to justify using a less sophisticated approach if it has the resources available to obtain or develop those skills or capabilities. The ISSB expects this guidance will enable entities to develop their skills and capabilities and strengthen their disclosures over time through a process of learning and iteration. For example, as an entity's capabilities develop so will its assessment of what is considered 'undue' in terms of cost or effort.

BC66 The ISSB decided not to specify the particular scenarios that an entity would be required to use in its climate-related scenario analysis because the relevant scenarios would depend on the entity's facts and circumstances, including the nature and location of its operations and the physical and transition risks to which it is exposed. Instead, the ISSB confirmed that an entity is required to explain which climate-related scenarios it has used, including whether they are related to transition or physical risks. IFRS S2 also requires disclosure of whether a diverse range of climate-related scenarios was used in the analysis, meaning entities are required to disclose information such as the number of scenarios used and whether the scenarios cover different outcomes or pathways. For example, if an entity considered both orderly and disorderly transition scenarios, the entity could disclose that fact.

BC67 The ISSB agreed that specifying which scenarios an entity should use would not be practical, might quickly become outdated and could lead to the disclosure of information that does not reflect the entity's specific circumstances or management's view of what is plausible. Therefore, the ISSB decided not to require the use of scenarios consistent with the latest international agreement on climate change or particular science-based scenarios. However, the ISSB also agreed that the scenarios selected by an entity must be relevant to its circumstances in order to provide useful information to users of general purpose financial reports. The ISSB also agreed to consider developing additional educational materials to support entities in selecting relevant scenarios in applying IFRS S2.

BC68 The ISSB decided that an entity would be permitted to carry out scenario analysis to coincide with a multi-year strategic planning cycle rather than updating the analysis at every reporting date. However, the ISSB confirmed that the information required by paragraph 22 of IFRS S2 must be disclosed annually. An entity is required to assess its climate resilience on an annual basis to reflect updated insight into the implications of climate uncertainty for the entity's business model. In this regard, the information required by paragraph 22(a) of IFRS S2 would be updated in each reporting period, whereas the information required by paragraph 22(b) of IFRS S2 might remain unchanged from one reporting period to the next if climate-related scenario analysis has not been carried out.

BC69 The ISSB acknowledged that climate-related scenario analysis can be used to inform a variety of other disclosures required by IFRS S2, including the identification and assessment of risks and opportunities, the anticipated financial effects associated with those risks and opportunities, and the plans an entity might develop to transition to a lower-carbon economy. However, the use of scenario analysis is required only in the context of the entity's resilience assessment.

Risk management

BC70 Information arising from the application of paragraphs 24–26 of IFRS S2 is intended to enable users of general purpose financial reports to understand the processes an entity uses to identify, assess, prioritise and monitor climate-related risks and opportunities.

BC71 By design, the risk management requirements in IFRS S2 are closely aligned with those in IFRS S1. To help entities apply IFRS S2, and to ensure consistent and comparable disclosures, the requirements are set out in both IFRS S1 and IFRS S2 in full. IFRS S2 requires that an entity avoid unnecessary duplication in its disclosures on risk management. For example, it might be appropriate for an entity to describe its overall approach to risk management for sustainability-related risks and opportunities and to include specific incremental details regarding the approach taken for climate-related risks and opportunities.

BC72 Some respondents to the Exposure Draft suggested that climate-related scenario analysis can provide a useful input to the identification and assessment of climate-related risks and opportunities. The ISSB decided to introduce an additional requirement for an entity to describe whether and how it uses climate-related scenario analysis to inform the process described in paragraphs 24–26 of IFRS S2.

Metrics and targets

BC73 The ISSB received feedback that the drafting of the objective of the 'Metrics and targets' section in the Exposure Draft did not fully reflect the intention of disclosures about metrics and targets. The feedback indicated that some respondents interpreted the objective of these disclosures as being limited to disclosures of the metrics and targets an entity already uses. The ISSB decided that this interpretation could lead to an entity excluding metrics required by IFRS Sustainability Disclosure Standards that were not used by the entity, though information provided by disclosing those metrics is material. The ISSB decided to clarify that the objective is to require an entity to disclose information about the entity's performance against:

(a) the metrics the entity uses to measure and monitor climate-related risks and opportunities (even if those metrics are not required by IFRS S2); and

(b) the metrics explicitly required by IFRS S2 (even if the entity does not use these metrics in its business).

BC74 The ISSB further clarified that its intention in making that decision was not to prescribe how entities should manage their businesses, but instead to clarify the disclosure requirements for metrics and targets. An entity's management is not required to use the metrics set out in IFRS S2 to manage its business. Rather, the intention is to ensure that users of general purpose financial reports have the information that the ISSB has identified as likely to be useful in assessing an entity's cash flows, its access to finance and cost of capital over the short, medium and long term.

Cross-industry metric categories

BC75 To help users of general purpose financial reports compare an entity's performance in relation to its climate-related risks and opportunities with that of other entities, IFRS S2 (paragraph 29) requires that all entities disclose information in line with seven cross-industry metric categories, which are derived from the TCFD's *Guidance on Metrics, Targets and Transition Plans* (TCFD guidance):

(a) greenhouse gas emissions;

(b) climate-related transition risks;

(c) climate-related physical risks;

(d) climate-related opportunities;

(e) capital deployment;

(f) internal carbon prices; and

(g) remuneration.

These cross-industry metric categories are intended to provide common information to allow users of general purpose financial reports to assess an entity's exposure to and management of climate-related risks and opportunities. The categories are also intended to be indicative of key aspects and drivers of climate-related risks and opportunities and to provide insight into the potential effects of climate change on the entity.

BC76 Most respondents to the Exposure Draft broadly agreed with the seven cross-industry metric categories, particularly their alignment with the TCFD guidance. Respondents also commented that these cross-industry metric categories provide a common set of climate-related disclosures that are applicable to most types of entities and thus enable enhanced comparability of disclosures between industries and between business models. Many respondents to the Exposure Draft also agreed that the seven categories provide adequate cross-industry metrics and emphasised the importance of limiting the number of these metrics to reduce the reporting burden on entities.

BC77 The descriptions of the cross-industry metric categories in IFRS S2 are in most cases intentionally non-specific to enable an entity to identify appropriate metrics. The ISSB took this approach to allow for the likelihood that measurement methodologies and the availability and quality of underlying data might evolve over time.

BC78 To guide entities in applying the cross-industry metric requirements, the *Illustrative Guidance* that accompanies IFRS S2 provides examples of information that could be used to meet the cross-industry metric categories. These examples are based on the TCFD guidance.

Scope 1, Scope 2 and Scope 3 greenhouse gas emissions

BC79 Most respondents to the Exposure Draft agreed with the proposed requirement for an entity to disclose its absolute gross Scope 1, Scope 2 and Scope 3 greenhouse gas emissions generated during the reporting period—expressed as CO_2 equivalent (CO_2e). Respondents said that this information would help users of general purpose financial reports assess an entity's exposure to particular climate-related risks and opportunities, in particular those associated with the expected transition to a lower-carbon economy.

BC80 IFRS S2 defines the three scopes of greenhouse gas emissions from the perspective of the reporting entity, adopting the definitions used in the *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (2004) (GHG Protocol Corporate Standard):

(a) *Scope 1 greenhouse gas emissions*—direct greenhouse gas emissions that occur from sources that are owned or controlled by an entity (for example, greenhouse gas emissions from combustion in owned or controlled boilers, furnaces, vehicles or from chemical production in owned or controlled process equipment).

(b) *Scope 2 greenhouse gas emissions*—indirect greenhouse gas emissions from the generation of purchased or acquired electricity, steam, heating or cooling consumed by an entity (for example, greenhouse gas emissions from energy suppliers).

(c) *Scope 3 greenhouse gas emissions*—indirect greenhouse gas emissions (not included in Scope 2 greenhouse gas emissions) that occur in the value chain of an entity, including both upstream and downstream emissions. Scope 3 greenhouse gas emissions are further divided into 15 categories, eight of which are upstream, and seven of which are downstream from the entity. Scope 3 Category 15 is 'Investments'—those greenhouse gases emitted by a third party to which the reporting entity provides financing. The investment category is a particularly important reporting category for financial institutions because it is often the most significant part of their greenhouse gas emissions inventory (see paragraphs BC122–BC129).

Gross greenhouse gas emissions and emissions intensity

BC81 IFRS S2 requires an entity to disclose its gross greenhouse gas emissions—that is, its greenhouse gas emissions before taking into consideration any removal efforts (for example, from an entity's intended use of carbon credits). The gross greenhouse gas emissions disclosure helps users of general purpose financial reports determine whether the entity is reducing its own greenhouse gas emissions or those in its value chain and, if it is, the extent to which it is doing so.

BC82 The Exposure Draft also proposed that an entity be required to disclose its emissions intensity separately for Scope 1, Scope 2 and Scope 3. Emissions intensity is expressed as metric tonnes of CO_2e per unit of physical or economic output. The ISSB acknowledged that emissions intensity metrics are helpful to users of general purpose financial reports because these metrics normalise an entity's greenhouse gas emissions, enabling users to compare greenhouse gas emissions between different entities. Together with absolute greenhouse gas emissions, emissions intensity metrics help provide a complete picture of an entity's greenhouse gas emissions profile over time. For example, an entity's absolute greenhouse gas emissions could increase if the entity expands its operations, but, at the same time, the emissions intensity could fall because the entity is becoming more efficient. In this example, the disclosure of the entity's absolute greenhouse gas emissions alone might not communicate the greenhouse gas emissions reduction the entity has achieved in its business operations.

BC83 Although emissions intensity metrics are useful, users of general purpose financial reports would be able to compare disclosures between entities only if the entities use the same denominator to calculate emissions intensity. The ISSB observed that it is not appropriate to prescribe a single standardised approach to calculating intensity metrics because the relevant denominator often depends on several factors, including an entity's industry and business model and users' preferences. Therefore, the ISSB decided that although emissions intensity information is useful, IFRS S2 should not explicitly require an entity to disclose its emissions intensity. This decision was informed by the current practice of users, who either calculate an entity's emissions intensity themselves or obtain a calculation from a third-party provider. An entity's disclosure of absolute greenhouse gas emissions in accordance with IFRS S2 would enable users to calculate emissions intensity themselves if this disclosure were combined with other information (including financial data already available in an entity's financial statements).

BC84 The ISSB also confirmed that disclosure of emissions intensity metrics would be required if these metrics are judged to be useful to users of general purpose financial reports, in accordance with paragraph 15(b) of IFRS S1. This provision requires an entity 'to disclose additional information if compliance with the specifically applicable requirements in IFRS Sustainability Disclosure Standards is insufficient to enable *users of general purpose financial reports* to understand the effects of sustainability-related risks and opportunities on the entity's cash flows, its access to finance and cost of capital over the short, medium and long term'. IFRS S2 also requires an entity to disclose metrics used by its governance body or management to measure progress towards any targets. Therefore, an entity is required to disclose an emissions intensity metric if that information is material (in accordance with paragraph 15(b) of IFRS S1) or if the entity's governance body or management uses such a metric to manage the entity's climate-related risks and opportunities (in accordance with paragraph 28(c) of IFRS S2) or both.

BC85 The ISSB also noted that the Industry-based Guidance that accompanies IFRS S2 includes industry-based activity metrics that might help users of general purpose financial reports calculate emissions intensity. For example, an entity in the cruise lines industry might include activity metrics for available lower berth kilometres (ALB-KM) or average passenger cruise days (APCD) as described in Volume 65—Cruise Lines. In determining appropriate industry-specific disclosures, IFRS S2 refers entities to this guidance.

Measurement approach, inputs and assumptions

BC86 The ISSB decided that an entity is required to measure its Scope 1, Scope 2 and Scope 3 greenhouse gas emissions in accordance with the GHG Protocol Corporate Standard. Most respondents to the Exposure Draft agreed with the proposed use of the GHG Protocol Corporate Standard. However, some respondents commented that other methods for measuring greenhouse gas emissions are more commonly used in some jurisdictions (see paragraph BC88). The ISSB decided to reference the GHG Protocol Corporate Standard in IFRS S2 to provide a common basis for measurement. Although various measurement approaches are available within the GHG Protocol Corporate Standard, the ISSB concluded that using this single reference would improve the comparability of entities' disclosures by narrowing the range of permitted measurement approaches. This decision was also informed by the ISSB's understanding that the GHG Protocol Corporate Standard is the predominant method used by entities around the world and in most jurisdictions.

BC87 The requirements in IFRS S2 for measuring greenhouse gas emissions are largely based on the GHG Protocol Corporate Standard because the use of this method for measuring greenhouse gas emissions provides common approaches and principles that:

(a) allow an entity to prepare a greenhouse gas emissions inventory that faithfully represents its greenhouse gas emissions;

(b) align with the predominant corporate practices for compiling a greenhouse gas emissions inventory; and

(c) promote consistency and transparency in greenhouse gas emissions accounting and disclosure between various entities.

Although IFRS S2 refers to the GHG Protocol Corporate Standard as a basis for measurement of greenhouse gas emissions, IFRS S2 also sets out additional requirements, such as the categories that an entity is required to include in its measurement of Scope 3 greenhouse gas emissions and the inputs it is required to use to measure those emissions. The ISSB noted that the specific requirements in IFRS S2 must be applied in the event of any inconsistency with the GHG Protocol Corporate Standard.

BC88 The GHG Protocol Corporate Standard is the most commonly used standard globally for measuring greenhouse gas emissions, and is directly referenced in many jurisdictions, including Brazil, India, Mexico, the Philippines and the UK. However, some jurisdictions require entities to report their emissions in accordance with national measurement schemes. These jurisdictions include Australia, China, France, Japan, South Korea and Taiwan. Entities in these jurisdictions—and other jurisdictions that require an entity to use other approaches for measuring greenhouse gas emissions—could incur additional costs in meeting the requirements in IFRS S2. To respond to this issue, the ISSB confirmed that if an entity is required by a jurisdictional authority or an exchange on which the entity is listed to use a method of measuring greenhouse gas emissions that differs from the GHG Protocol Corporate Standard, the entity is permitted to use that method. The ISSB agreed to this relief to avoid duplicative reporting and agreed that it only applies if an entity would otherwise be required to use both the GHG Protocol Corporate Standard and another method to measure its greenhouse gas emissions as a result of applying IFRS S2.

BC89 Some entities choose to use other methods for measuring greenhouse gas emissions. Some respondents to the Exposure Draft raised concerns about the cost for these entities if they are required to change the methods they currently use and instead use the GHG Protocol Corporate Standard. These respondents argued that such entities should be allowed to choose their own method for measuring their greenhouse gas emissions. As stated in paragraph BC86, the ISSB concluded that referencing a common framework for measuring greenhouse gas emissions will improve the comparability between entities' disclosures. However, to allay these respondents' concerns, the ISSB has provided relief for a limited period. This relief permits an entity that has used other methods in the annual reporting period immediately preceding the date of its initial application of IFRS S2 to continue using that method in the first year of its application of IFRS S2 (see paragraphs BC166–BC169).

BC90 Some respondents to the Exposure Draft raised concerns about the requirement in IFRS S2 for an entity to use a third-party method, observing that any changes to the method would be outside the ISSB's control and not subject to the IFRS Foundation's due process. The GHG Protocol Corporate Standard was first published in 2001 and is expected to be updated periodically to clarify the method for measuring greenhouse gas emissions. The ISSB considered these respondents' concerns and decided that IFRS S2 refers to the 2004 version of the GHG Protocol Corporate Standard, which was the latest version available when the Exposure Draft was published (31 March 2022). If the GHG Protocol Corporate Standard were to be updated, the ISSB will assess the likely effects of those changes before proposing any changes to IFRS S2 to reflect those updates. The ISSB will update IFRS S2 to include a reference to a modified version of the GHG Protocol Corporate Standard only after it has made this assessment and sought feedback on any proposed change in accordance with the IFRS Foundation's due process.

BC91 The Exposure Draft did not specify the inputs an entity would be required to use to calculate greenhouse gas emissions. Several respondents to the Exposure Draft commented that although the GHG Protocol Corporate Standard is a common basis for measuring greenhouse gas emissions, it allows an entity to choose particular inputs and make specific assumptions when calculating its greenhouse gas emissions. These variables include global warming potential (GWP) values and emission factors. Variations in entities' use of GWP values and emission factors could compromise the comparability of entities' disclosures.

BC92 GWP values are multipliers applied to seven constituent greenhouse gases (listed in paragraph BC98) to convert them into a standardised metric (CO_2e), which enables an entity to convert and aggregate various greenhouse gases into absolute greenhouse gas emissions data. The most frequently used GWP values are defined by the Intergovernmental Panel on Climate Change (IPCC). These values are refined in periodically published IPCC assessment reports. As of June 2023, the latest GWP values are defined in the IPCC Sixth Assessment Report.[2] The ISSB decided to introduce a requirement in IFRS S2 for an entity to use GWP values based on the latest IPCC assessment report when converting the constituent greenhouse gases into CO_2e. This requirement is intended to enhance the comparability of entities' greenhouse gas emissions disclosures, and to ensure greenhouse gas emissions data reflects the latest scientific knowledge. This approach is consistent with the GHG Protocol Corporate Standard, which recommends the use of the most recent GWP values.

BC93 Although the ISSB requires an entity to use the latest updated GWP values to convert greenhouse gases into CO_2e, the ISSB also recognises that in some cases the GWP values used by an entity might differ depending on the jurisdictions in which the entity operates and the sources of data the entity uses to measure its greenhouse gas emissions. For example, emission factors—used by an entity to convert activity data into greenhouse gas emissions information—often already have the information converted into CO_2e using GWP values that might or might not align with the most recently updated GWP values from the IPCC. If an entity has identified the emission factors that best represent the entity's activities, and these are only available in CO_2e and not based on the most recent GWP values, then the entity is required to use those emission factors. Additionally, an entity is required to disclose information that enables users of general purpose financial reports to understand the measurement approach, inputs and assumptions the entity has used to measure its greenhouse gas emissions and why these measurement approaches, inputs and assumptions are relevant to its greenhouse gas emissions (see paragraph BC95). As part of this disclosure requirement, an entity is required to explain which GWP values it uses and, if necessary, why it has not used the updated GWP values from the latest IPCC report.

BC94 An emission factor is a coefficient that enables an entity to convert quantitative activity data into a measurement of the greenhouse gas emissions resulting from those activities. For example, if an entity is assessing the Scope 1 greenhouse gas emissions from its delivery fleet, the entity might select fuel consumption or the distance travelled by the fleet as the activity data. This data is then converted to greenhouse gas emissions data using emission factors. Emission factors can be estimated from several published sources, such as the International Energy Agency or national sources in jurisdictions where greenhouse gas emissions disclosure is mandatory. The emission factors an entity uses to measure its greenhouse gas emissions are specific to its circumstances. Therefore, the ISSB decided that IFRS S2 would not prescribe or attempt to standardise emission factors. Instead, IFRS S2 requires an entity to select and use the most appropriate emission factors that most specifically represent the activity that is generating the greenhouse gas emissions. To help an entity select the appropriate emission factors to use for measuring its Scope 3 greenhouse

2 Intergovernmental Panel on Climate Change, *Climate Change 2022: Impacts, Adaptation, and Vulnerability*, Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, 2022.

gas emissions, IFRS S2 provides a measurement framework. This framework requires an entity to prioritise inputs and assumptions with particular characteristics designed to improve the representational faithfulness of the entity's greenhouse gas emission measurement (paragraphs B38–B54 in IFRS S2).

BC95 Respondents to the Exposure Draft said that, to minimise variation, the ISSB could require an entity to use a standardised measurement approach, inputs and assumptions. Alternatively, respondents suggested that the ISSB could require an entity to disclose the measurement approach, inputs and assumptions that it uses in measuring greenhouse gas emissions. The ISSB decided to introduce a requirement in IFRS S2 to ensure that the inputs and assumptions an entity has used to calculate its greenhouse gas emissions are disclosed to users of general purpose financial reports, especially if those inputs are not prescribed in IFRS S2. An entity is required to disclose information that enables users to understand the measurement approach, inputs and assumptions it has used to measure its greenhouse gas emissions. The entity is also required to disclose its reasoning for why it has chosen the measurement approach, inputs and assumptions it has used to measure its greenhouse gas emissions. The disclosure of this information is required to enable users to understand the emission factors and activity data, and the measurement uncertainty associated with these inputs. For activity data, this disclosure includes information such as whether the data is based on economic or physical outputs and what the data represents (for example, for Scope 3 greenhouse gas emissions Category 1, the data might represent quantities of goods or services bought by the entity). For emission factors, this disclosure includes information such as the source of the data (for example, direct measurement, supplier-specific data or industry-average data) or the level of the data (for example, facility-level or corporate level).

BC96 The requirement for an entity to disclose the measurement approach, inputs and assumptions it has used to measure its greenhouse gas emissions could result in very detailed information, some of which could be immaterial and therefore risk obscuring material information. However, the ISSB observed that this disclosure requirement is subject to paragraphs B29–B30 of IFRS S1, which establishes requirements on the aggregation and disaggregation of information. Rather than disclosing information about every input, an entity is required to disclose information at a sufficient level of detail and aggregation to result in the disclosure of material information. For example, when an entity measures its Scope 3 greenhouse gas emissions, it might use different emission factors and activity data inputs to capture greenhouse gas emissions for different parts of its value chain. In this circumstance, the entity would be required to only disclose information about inputs that are helpful to users of general purpose financial reports to understand how the entity has measured its greenhouse gas emissions.

BC97 An entity might change its assumptions and inputs over time. The ISSB decided to require an entity to disclose information about, and the reasons for, any changes the entity makes during the reporting period to the measurement approach, inputs or assumptions it uses to measure its greenhouse gas emissions. This requirement is particularly important for Scope 3 greenhouse gas emissions disclosures because measurement techniques are rapidly evolving and therefore the approaches an entity uses are likely to change over time.

Aggregation and disaggregation of greenhouse gas emissions

BC98 IFRS S2 requires an entity to disclose its Scope 1, Scope 2 and Scope 3 greenhouse gas emissions. In disclosing its greenhouse gas emissions, an entity is required to include all seven greenhouse gases identified in the United Nations Framework Convention on Climate Change (UNFCCC) and agreed upon as part of the Kyoto Protocol: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3). Each gas contributes to climate change in different ways, and each has a different lifespan. When presenting data on these gases, it is common to convert the data on each gas to a standardised metric, CO_2e, to enable comparison and to determine the gases' individual and total contributions to global warming. An entity uses GWP values to make these conversions and then aggregates all these gases into a single greenhouse gas data point (see paragraph BC92).

BC99 Some respondents to the Exposure Draft suggested that the disaggregation of greenhouse gas emissions by the seven constituent greenhouse gases might provide useful information, especially when information about an entity's non-CO_2 emissions (for example, methane emissions) provides insight into a particular climate-related risk or opportunity. The ISSB observed that although there might be specific situations in which disaggregation by the constituent gases could be important, disaggregation is not relevant in all circumstances. Therefore, the ISSB confirmed that IFRS S2 does not explicitly require an entity to disaggregate its greenhouse gas emissions disclosures by the constituent gases. The ISSB noted that paragraph B30 of IFRS S1 includes requirements on disaggregation that would result in the disclosure of the constituent gases being required if such disaggregation provides material information that would otherwise be obscured if aggregated. The *Illustrative Examples* that accompany IFRS S2 provides some examples that illustrate some considerations in determining whether it is necessary to disaggregate greenhouse gas emissions disclosure.

BC100 The ISSB observed that the Industry-based Guidance that accompanies IFRS S2 might help an entity determine whether greenhouse gas emissions should be disaggregated by constituent gas. For example, for entities in the oil and gas exploration and production industry, the Industry-based Guidance specifies information about methane emissions (Volume 11—Oil & Gas—Exploration & Production), noting that with '… natural gas production from shale resources expanding, the management of the emission of methane, a highly potent greenhouse gas … has emerged as a major operational, reputational, and regulatory risk for companies' in this industry. In this instance, the disaggregation of methane emissions is highlighted as being likely to provide material information.

BC101 The Exposure Draft proposed that an entity be required to disaggregate its Scope 1 and Scope 2 greenhouse gas emissions into those referable to the consolidated accounting group and those referable to other investees excluded from the consolidated accounting group. This disclosure was proposed in the Exposure Draft to facilitate comparability because the GHG Protocol Corporate Standard allows entities to take different measurement approaches to determine which emissions are included in the calculation of Scope 1, Scope 2 and Scope 3 greenhouse gas emissions. For example, an entity can include the emissions of unconsolidated investees using an equity share approach or control approach. These different approaches mean that the way information is provided in an entity's financial statements about its investments in other entities might not align with how its greenhouse gas emissions are calculated. It also means that two entities with identical investments in other entities could report different greenhouse gas emissions in relation to those investments by virtue of choices made in applying the GHG Corporate Protocol Standard.

BC102 Most respondents to the Exposure Draft agreed with this proposal. However, some respondents questioned whether this proposed requirement would override the choices an entity is permitted to make in accordance with the GHG Protocol Corporate Standard. The ISSB clarified the wording of the requirement to confirm that an entity is required to disclose its greenhouse gas emissions measured in accordance with the GHG Protocol Corporate Standard, but the entity is not required to use a particular approach to measure its greenhouse gas emissions (that is, IFRS S2 does not require an entity to use the equity share approach, or either control approach). Rather, IFRS S2 only requires an entity to disaggregate the amount it has measured using its chosen approach. The ISSB confirmed that an entity is required to disaggregate its Scope 1 and Scope 2 greenhouse gas emissions into those referable to the consolidated accounting group and those referable to other investees excluded from the consolidated accounting group. The ISSB also confirmed that an entity is required to disclose the approach it has used to measure its greenhouse gas emissions.

BC103 The ISSB considered how this requirement would be applied by an entity applying IFRS Accounting Standards to a joint arrangement. Applying IFRS 11 *Joint Arrangements*, an entity classifies a joint arrangement as either a joint venture or a joint operation. An entity generally accounts for an investment in a joint venture using the equity method in accordance with IAS 28 *Investments in Associates and Joint Ventures*. The ISSB noted that an equity method investee is not part of the consolidated accounting group in accordance with IFRS Accounting Standards. Therefore, in relation to a joint venture, paragraph 29(a)(iv)(2) of IFRS S2 applies to any Scope 1 or Scope 2 greenhouse gas emissions. In contrast, in a joint operation, an entity has rights to the assets and obligations for the liabilities related to the arrangement. In accordance with IFRS 11, the entity recognises, in relation to its interest in a joint operation, its share of those assets, liabilities, revenues and expenses, and accounts for each item in accordance with the applicable IFRS Accounting Standard. In other words, the assets, liabilities, revenues and expenses in relation to an interest in a joint operation are accounted for as part of the consolidated accounting group. Consequently, the ISSB noted that paragraph 29(a)(iv)(1) of IFRS S2 applies to any Scope 1 or Scope 2 greenhouse gas emissions in relation to a joint operation.

BC104 In addition, the ISSB observed that, in accordance with other generally accepted accounting principles (GAAP), an entity is permitted to account for an investee by applying proportionate consolidation. In relation to such investees, paragraph 29(a)(iv)(1) of IFRS S2 applies to any Scope 1 or Scope 2 greenhouse gas emissions.

Scope 2 greenhouse gas emissions

BC105 Respondents to the Exposure Draft asked the ISSB to clarify whether an entity is required to disclose its Scope 2 greenhouse gas emissions using a market-based approach, a location-based approach or both approaches. These respondents favoured an entity disclosing its Scope 2 greenhouse gas emissions using both approaches.

BC106 A market-based approach involves an entity measuring the emissions from purchased electricity using source- or supplier-specific emission factors. Electricity suppliers and contractual instruments vary in the greenhouse gas emissions they produce depending on the energy source or technology used. An entity using a location-based approach measures the average emissions intensity of the grids on which energy consumption occurs (most commonly using grid-average emission factor data).

BC107 The ISSB agreed that each approach serves a useful purpose. A location-based approach enables users of general purpose financial reports to understand the risks and opportunities associated with local grid resources and greenhouse gas emissions. A market-based approach enables users to understand the risks and opportunities created by contractual relationships and an entity's procurement actions. In some circumstances, the information provided by the two approaches could differ significantly, for example, if an entity has entered into contractual relationships to source electricity from renewable sources.

BC108 The ISSB agreed that allowing an entity to choose which approach to use would reduce comparability and might result in disclosures weighted towards more positive data that might not faithfully represent the entity's greenhouse gas emissions. This issue could have been addressed by requiring all entities to disclose both market-based and location-based approaches. However, the ISSB noted that for some entities and jurisdictions such a requirement would introduce a significant change to current practice and it might not always be necessary for both sets of information to be provided. The ISSB decided that an entity is required to disclose Scope 2 greenhouse gas emissions using the location-based approach and provide disclosures to help users of general purpose financial reports understand the contractual instruments into which it has entered.

BC109 The ISSB noted that more detailed information about an entity's contractual instruments could help users of general purpose financial reports better understand the entity's efforts to reduce its Scope 2 greenhouse gas emissions. However, the ISSB decided not to require a market-based approach to measuring Scope 2 greenhouse gas emissions due to the significant variation in mechanisms that an entity could use and depending on the maturity of the market in which it operates and is located. To reflect the challenges associated with a market-based approach, the ISSB decided that an entity is required to disclose information to help users understand any contractual instruments the entity has entered into for the sale and purchase of energy. In fulfilling this requirement, the ISSB noted that information about an entity's market-based Scope 2 greenhouse gas emissions might be included as part of this disclosure.

Scope 3 greenhouse gas emissions

BC110 The ISSB confirmed that IFRS S2 requires all entities to disclose information about their Scope 3 greenhouse gas emissions. This disclosure includes information about which of the 15 categories defined in the *GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard* (2011) (GHG Protocol Value Chain Standard) are included in an entity's emissions measurement. The GHG Protocol Value Chain Standard supplements the GHG Protocol Corporate Standard. The ISSB noted that the categories included in an entity's Scope 3 measurement will depend on the entity's facts and circumstances. An entity is required to consider the relevance of all 15 categories, but might determine that not all categories are applicable to the entity and therefore do not need to be included in the measurement of its Scope 3 greenhouse gas emissions. The ISSB also agreed that for entities engaged in financial activities associated with some industries, information about financed emissions is important. Citing particular considerations associated with the measurement and disclosure of Scope 3 greenhouse gas emissions, the ISSB decided to provide related application guidance in IFRS S2 (see paragraphs BC122–BC129).

BC111 Respondents to the Exposure Draft had mixed views on the proposed requirement for an entity to disclose Scope 3 greenhouse gas emissions. Most users of general purpose financial reports who responded to the Exposure Draft agreed that entities should be required to disclose absolute gross Scope 3 greenhouse gas emissions. These users argued that an entity is exposed to transition risks associated with its greenhouse gas emissions, including those greenhouse gas emissions within its value chain. For example, an increase in carbon price or the introduction of stricter greenhouse gas emissions regulations could lead to higher costs or decreased availability of resources within an entity's value chain. Users also commented that Scope 3 greenhouse gas emissions disclosures provide them with more complete and comparable information about an entity's greenhouse gas emissions. For example, these disclosures would enable users to understand whether an entity's Scope 1 and Scope 2 greenhouse gas emissions have decreased as a result of structural changes in the entity's operations or the outsourcing of greenhouse gas emissions (thereby increasing its Scope 3 greenhouse gas emissions).

BC112 Many preparers who responded to the Exposure Draft agreed with the proposed disclosure requirement for absolute gross Scope 3 greenhouse gas emissions. However, these preparers also expressed concerns about particular aspects of the requirements, including challenges related to the availability of data, use of estimates, calculation methodologies and other sources of uncertainty. Although greenhouse gas emissions, including Scope 3 greenhouse gas emissions, are well defined in the GHG Protocol Corporate Standard, calculating Scope 3 greenhouse gas emissions is a process that involves data and methodological challenges and is still being refined. Scope 3 greenhouse gas emissions include those arising from activities not under the direct ownership or control of an entity. Therefore, the entity might face challenges related to data availability and quality as well as the associated cost of data collection. These challenges contribute to uncertainty in the measurement of Scope 3 greenhouse gas emissions. Some respondents argued that because of such challenges, IFRS S2 should not require the disclosure of Scope 3 greenhouse gas emissions.

BC113 The ISSB made a number of decisions intended to address the challenges with Scope 3 greenhouse gas emissions that were raised by respondents. Those decisions included:

(a) introducing transition relief to address immediate but temporary challenges associated with implementation and initial application (paragraphs BC170–BC173);

(b) introducing relief to address challenges associated with data from entities in the value chain that use reporting periods that differ from the entity's reporting period, subject to some restrictions (see paragraph BC114); and

(c) introducing a measurement framework to enable entities to prepare Scope 3 greenhouse gas emissions information that is faithfully representative, and associated disclosures to help users of general purpose financial reports understand the characteristics of the information the entity has prioritised in its measurement of those greenhouse gas emissions (see paragraphs BC116–BC121).

BC114 The ISSB acknowledged that if a reporting entity has entities in its value chain with reporting periods that differ from the entity's reporting period, it might be difficult to collect greenhouse gas emissions information that aligns with the timing of the entity's reporting. To provide relief in such circumstances, the ISSB agreed that the entity can use greenhouse gas emissions information from entities in its value chain for a reporting period different from the entity's as long as:

(a) the entity uses the most recent data available from those entities in its value chain without undue cost or effort to measure and disclose its greenhouse gas emissions;

(b) the length of the reporting periods is the same; and

(c) the entity discloses the effects of significant events and changes in circumstances (relevant to its greenhouse gas emissions) that occur between the reporting dates of the entities in its value chain and the date of the entity's general purpose financial reporting.

BC115 The ISSB initially agreed that the relief permitting an entity to use greenhouse gas emissions information from a reporting period that is not aligned with its own reporting period would be available for the measurement of Scope 3 greenhouse gas emissions. However, the ISSB ultimately decided that this relief would also be available for the measurement of Scope 1 and Scope 2 greenhouse gas emissions. The ISSB noted that this relief might also be relevant in other circumstances beyond greenhouse gas emissions disclosures and the ISSB will monitor whether there is a need to expand this relief. The ISSB observed that information about the greenhouse gas emissions referable to an entity's investees might be categorised as Scope 1, Scope 2 or Scope 3 greenhouse gas emissions depending on the measurement approach that the entity uses in applying the GHG Protocol Corporate Standard.

BC116 The ISSB acknowledged the concerns raised by respondents about the measurement of Scope 3 greenhouse gas emissions (see paragraph BC112) and confirmed that these measurements are expected to be imperfect and to rely on estimation. However, the ISSB observed that requiring entities to prioritise the use of measurement approaches, inputs and assumptions that possess particular characteristics would enable entities to faithfully represent their Scope 3 greenhouse gas emissions. Therefore, the ISSB introduced a Scope 3 measurement framework that categorises and prioritises the inputs used to measure Scope 3 greenhouse gas emissions (paragraphs B38–B54 of IFRS S2). This framework is part of the application guidance that accompanies IFRS S2 and is intended to assist entities in measuring Scope 3 greenhouse gas emissions. The guidance is also intended to improve the consistency and comparability of Scope 3 greenhouse gas emissions disclosures, and to reduce measurement uncertainty in the estimation of Scope 3 greenhouse gas emissions.

BC117 Building on the GHG Protocol Value Chain Standard, the measurement framework requires an entity to prioritise particular types of data used to measure Scope 3 greenhouse gas emissions, namely:

(a) data based on direct measurement;

(b) data from specific activities within the entity's value chain;

(c) timely data that faithfully represents the jurisdiction of, and the technology used for, the value chain activity and its greenhouse gas emissions; and

(d) data that has been verified.

In addition to the measurement framework, the ISSB decided that an entity is required to use 'all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort' to measure its Scope 3 greenhouse gas emissions (see paragraph B39 of IFRS S2). The ISSB notes that for the purposes of this measurement framework, reasonable and supportable information might need to include information about past events, current conditions and forecasts of future conditions, depending on the sources of the Scope 3 greenhouse gas emissions.

BC118 The ISSB confirmed that the characteristics in paragraph BC117 are not listed in order of priority. Instead, these are desired characteristics required to be considered when an entity determines which combination of measurement approaches, inputs and assumptions is most appropriate to faithfully represent its value chain activities and greenhouse gas emissions. The ISSB decided that if an entity estimates greenhouse gas emissions rather than using direct measurement information, the entity is required to prioritise information that is as specific as possible and consistent with the activities that occur in the value chain. For example, an entity is required to prioritise information that faithfully represents the technology used for the activity in the value chain and its associated emissions. The ISSB noted that when an entity considers the characteristics set out in the measurement framework, it is required to consider the trade-offs between the characteristics described to determine the best approach to measuring the entity's Scope 3 greenhouse gas emissions. For example, an entity that is estimating its greenhouse gas emissions for the year ending 2023 might use an emission factor that is not timely (for example, the emission factor might be from a research project in 2017). However, this emission factor might best represent the greenhouse gas emissions associated with the technology used in the entity's value chain as at the reporting date.

BC119 As part of the Scope 3 measurement framework, an entity is required to prioritise Scope 3 greenhouse gas emissions data that is verified. The ISSB recognised that verification might be challenging for Scope 3 greenhouse gas emissions data, but also that verification might take place in several ways (for example, internally or externally). Therefore, IFRS S2 does not specify how the information is verified, but requires an entity to disclose the extent to which the entity's Scope 3 greenhouse gas emissions are measured using inputs that are verified (see paragraphs B53–B54 of IFRS S2).

BC120 In addition to applying the requirements in the measurement framework, an entity is required to provide the accompanying disclosures specified in paragraph B56 of IFRS S2. These disclosures are intended to help users of general purpose financial reports understand the characteristics of the data the entity has prioritised in its calculation of Scope 3 greenhouse gas emissions, and therefore to understand the quality of the data that an entity used and the basis for the entity's measurement of these emissions. These disclosures also help an entity communicate to users how the various data sources are used to estimate its Scope 3 greenhouse gas emissions. Users who responded to the Exposure Draft said that measurement that relies on estimates is preferable to having no information about Scope 3 greenhouse gas emissions at all. These users said estimates are preferable even if that information is subject to considerable measurement uncertainty, provided that entities are transparent about the inputs used and the measurement uncertainties associated with the amount disclosed.

BC121 If an entity determines that it is impracticable to estimate and disclose its Scope 3 greenhouse gas emissions, the entity is required by paragraph B57 of IFRS S2 to disclose information that enables users of general purpose financial reports to understand how it is managing its Scope 3 greenhouse gas emissions. IFRS S2 uses the same definition of 'impracticable' as IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors* and thus sets a high threshold for how an entity determines whether it is impracticable to meet the requirements. As described in paragraph B57 of IFRS S2, a requirement is impracticable only if the entity cannot apply it after making every reasonable effort to do so. For the avoidance of doubt, this threshold is higher than a cost-benefit threshold.[3] The ISSB noted the non-mandatory guidance on 'impracticable' published by the SME Implementation Group in April 2012,[4] which clarifies that 'impracticable' refers to effort, not cost. In agreeing to include an exemption based on impracticability, the ISSB noted that in practice it expects entities to rarely use the exemption because the measurement framework for Scope 3 greenhouse gas emissions has been designed to be applied by entities with a range of resources and circumstances. The framework also permits the use of estimation, which can be based on third-party information (for example, industry-average information).

Financed emissions (financial sector)

BC122 Financial organisations, including commercial banks, asset managers and insurance companies, are increasingly being asked to disclose the extent of their investment and lending activity associated with sustainability-related risks and opportunities. In relation to climate-related risks and opportunities, such disclosure involves an entity disclosing the greenhouse gas emissions associated with its financial activities. The term 'financed emissions' is often used to refer to the absolute greenhouse gas emissions that banks and investors finance through their loans and investments. IFRS S2 requires entities that engage in such activities to disclose information about financed emissions as an extension of the requirement in paragraph 29(a)(vi) of IFRS S2 for an entity to disclose its Scope 3 greenhouse gas emissions, including Category 15 (investments).

BC123 The application guidance in paragraphs B58–B63 of IFRS S2 sets out requirements for the disclosure of financed emissions by entities engaged in financial activities associated with asset management, commercial banking and insurance. The guidance is based on the proposals for financed emissions that were included in Appendix B to the Exposure Draft.

BC124 The ISSB decided to provide the other industry-based materials as guidance accompanying IFRS S2 (see paragraphs BC134–BC138). However, the ISSB determined that requiring entities with activities in asset management, commercial banking and insurance to disclose additional information about financed emissions was appropriate.

BC125 The application guidance is intended to enhance consistent and comparable disclosure of financed emissions information while allowing for innovation. It is also intended to enable the market to converge on measurement methodologies for different asset classes as they emerge and gain acceptance, such as those developed by the Partnership for Carbon Accounting Financials. Although the requirements support the use of different measurement approaches, they also provide users of general purpose financial reports with the information necessary to understand an entity's exposures and the approaches the entity has used to measure its financed emissions.

BC126 The ISSB decided to make targeted amendments to the proposed requirements on financed emissions to improve their clarity. In particular, the ISSB agreed not to proceed with the proposals for entities with activities in commercial banking and insurance to disclose information about the carbon-related industries to which they are exposed. The proposed requirements were intended to help users of general purpose financial reports understand where climate-related transition risk is likely to be concentrated in the entity's portfolio. Although respondents to the Exposure Draft generally agreed with this approach, their feedback suggested a high level of subjectivity surrounding the industries that are—or are not—considered to be carbon-related. The ISSB agreed and concluded that the requirement to disclose information more generally about the industries to which an entity is exposed would enable users to make their own determinations regarding 'carbon-related industries'.

3 The International Accounting Standards Board (IASB) considered 'lowering the impracticability threshold to a cost-benefit threshold' as part of amending IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors*.

4 The SME Implementation Group assists the IASB in supporting the implementation of the *IFRS for SMEs* Accounting Standard.

BC127 The ISSB decided to confirm and clarify the proposed requirements for an entity engaged in financial activities associated with commercial banking or insurance to disclose information about its undrawn loan commitments. That is, the entity would be required to disclose separately its financial exposures and its emissions related to those undrawn loan commitments. The ISSB also decided to confirm and clarify the proposed requirement for an entity engaged in financial activities associated with commercial banking to provide disclosures on a gross basis. That is, the entity would be required to provide these disclosures without considering risk mitigation, which the ISSB noted would not affect the greenhouse gas emissions associated with a loan. Additionally, for all financial activities, the ISSB decided to remove the proposal for an entity to include derivatives when calculating its financed emissions, citing the lack of an established methodology for the asset class.

BC128 For entities engaged in financial activities associated with asset management, the ISSB decided to require disclosure at the level of total assets under management (AUM). The ISSB made this decision because the revenue and reputation of these entities would be affected by the fees from and performance of all client portfolios, and also because financed emissions are an indicator of exposure to climate-related risks that can impact investment performance and fees. The ISSB acknowledged that, in many cases, a more detailed disaggregation of the disclosure—such as by strategy or product—might be likely to provide users of general purpose financial reports with more decision-useful information. The ISSB noted that, in such cases, paragraph B30 of IFRS S1 requires that 'an entity shall not aggregate information if doing so would obscure information that is material'. Therefore, the ISSB emphasised that if an entity determines that disaggregation by strategy, asset class or any other characteristic is necessary to ensure that material information is not obscured, such disaggregation is required. The ISSB stressed that, in such a case, information should be disaggregated if it reveals information that is material in relation to the reporting entity rather than to the underlying investment or portfolio of investments. Finally, the ISSB decided to require the disclosure of AUM for Scope 1, Scope 2 and Scope 3 greenhouse gas emissions because it is likely that some entities will be unable to obtain information about all three scopes of greenhouse gas emissions for every investment.

BC129 The ISSB confirmed that IFRS S2 requires financed emissions disclosure only for insurance-related financial activities associated with an insurer's assets. In other words, IFRS S2 does not require disclosure of the 'associated emissions' of underwriting portfolios in the insurance and reinsurance industries. Similarly, the ISSB decided not to proceed with the proposed requirements for an entity engaged in financial activities associated with investment banking to disclose information about its 'facilitated emissions', citing the lack of established methodology in relation to such emissions.

Internal carbon price

BC130 Paragraph 29(f)(ii) of IFRS S2 requires an entity to disclose the price for each metric tonne of greenhouse gas emissions the entity uses, if any, to measure the cost of its greenhouse gas emissions. IFRS S2 does not specify whether the price for each metric tonne is meant to imply the current price, a shadow price or anything else. The ISSB observed that the entity would provide this information (for example, if the entity uses a shadow price) as part of the required explanation of how the price is used in decision-making. Additionally, if an entity does not maintain internal carbon prices, the ISSB observed that the entity would disclose that fact.

Climate-related transition risks, climate-related physical risks and climate-related opportunities

BC131 Paragraph 29(b)–(d) of IFRS S2 require an entity to disclose the amount and percentage of assets or business activities that are:

(a) vulnerable to climate-related transition risks;

(b) vulnerable to climate-related physical risks; and

(c) aligned with climate-related opportunities.

BC132 Respondents suggested that entities might face challenges in calculating these metric categories, primarily due to the judgement required and measurement uncertainty involved. In response, the ISSB clarified that an entity would be required to use all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort to meet these requirements. The ISSB observed that introducing this concept clarifies that:

(a) undue cost or effort is not required to obtain the information or prepare the disclosures.

(b) an entity is prohibited from overstating or understating assets or business activities aligned with climate-related opportunities (or, conversely, assets or business activities vulnerable to climate-related transition or climate-related physical risks) based on information that is unsupportable or unreasonable, because entities are required to have a sensible basis for information that supports disclosure.

(c) in determining the appropriate information to consider, an entity would include information that is historical, current and forward-looking and is available at the reporting date. For example, consideration of past occurrences such as extreme weather events and their impact on assets may be included as part of the information considered, to the extent that such information is available at the reporting date without undue cost or effort.

BC133 When preparing the disclosures required by paragraph 29(b)–(d) of IFRS S2, an entity is required to consider the linkages between the amounts disclosed and the amounts recognised and disclosed in the related financial statements. The ISSB observed that explaining connections between disclosures can be achieved without duplication. For example, an entity might consider providing information in its climate-related financial disclosures by cross-referencing information that is already included in its related financial statements.

Industry-based metrics

BC134 IFRS S2 requires an entity to disclose industry-based metrics that would enable users of general purpose financial reports to understand the entity's exposure to and management of climate-related risks and opportunities that are associated with particular business models, activities or other common features that characterise participation in an industry.

BC135 The Exposure Draft proposed that an entity be required to disclose industry-based metrics. These industry-based metrics were derived from the SASB Standards following proposed targeted amendments, including the proposed introduction of disclosure requirements on financed and facilitated emissions for entities engaged in particular financial activities. The proposed amendments also include the enhancements to the international applicability of a subset of requirements in the SASB Standards. The ISSB decided to confirm and clarify the proposals on financed emissions and not to proceed with the requirements proposed on facilitated emissions (see paragraphs BC122–BC129).

BC136 Although respondents to the Exposure Draft generally agreed with using industry-based metrics, the ISSB received mixed views from respondents on some of the industry-based proposals. Users of general purpose financial reports who responded to the Exposure Draft said that industry-based disclosures enable better industry comparison between entities. Some preparers who responded to the Exposure Draft said that industry-based disclosures prepared in accordance with the SASB Standards are cost-effective. However, some preparers and some regulators questioned the completeness of the proposed disclosure topics and metrics, and whether some of the proposals would be relevant or applicable internationally.

BC137 As a result, the ISSB decided not to proceed with the specific industry-based disclosure topics and associated metrics proposed in the Exposure Draft as required disclosures (except for the requirements on financed emissions, see paragraphs BC122–BC129), and instead to provide those materials as the Industry-based Guidance that accompanies IFRS S2. Therefore, IFRS S2 requires that an entity discloses industry-based metrics, but the entity is not required to apply the particular metrics included in the guidance. However, the entity is required to refer to and consider the applicability of these industry-based materials. This approach is consistent with IFRS S1 and its requirements for an entity to refer to and consider the applicability of the SASB Standards in identifying sustainability-related risks and opportunities. Such consideration applies to sustainability-related risks and opportunities that could reasonably be expected to affect an entity's prospects and the disclosure of information about those risks and opportunities, including metrics.

BC138 The ISSB also signalled its intention that disclosures based on the Industry-based Guidance should at a future date become required disclosures, pending necessary amendments and subject to public consultation in accordance with the IFRS Foundation's due process.

Climate-related targets

BC139 Paragraph 33 of IFRS S2 requires an entity to disclose the quantitative or qualitative climate-related targets it has set, and any target it is required to meet by law or regulation, including information about the characteristics of the targets, how the entity sets and reviews the targets, how it monitors the targets and its performance against each target. Paragraph 33 of IFRS S2 requires an entity to disclose the characteristics of these targets, including whether the target applies to the entity in its entirety or to only a part of the entity. For example, an entity might disclose that a target relates only to its operations or value chain partners in some jurisdictions, or disclose that a target relates only to a particular product or category of products.

BC140 As explained in paragraph BC51, IFRS S2 differentiates between climate-related targets and greenhouse gas emissions targets. A climate-related target can be any target an entity has set to respond to climate-related risks and opportunities. A greenhouse gas emissions target is an example of a climate-related target. Paragraphs 33–35 of IFRS S2 outline the requirements that relate to all climate-related targets, whereas paragraph 36 of IFRS S2 focuses on requirements specifically relating to greenhouse gas emissions targets.

BC141 IFRS S2 requires an entity to disclose information about the climate-related targets it has set or is required to meet by law or regulation. For the avoidance of doubt, IFRS S2 does not require an entity to have climate-related targets (including greenhouse gas emissions targets). However, when an entity has climate-related targets, IFRS S2 requires the entity to disclose information about these targets. IFRS S2 also requires that if an entity discloses a net greenhouse gas emissions target, the entity is required to separately disclose its associated gross greenhouse gas emissions target. In particular, if the entity has a net greenhouse gas emissions target, the entity's disclosure must clearly explain the extent to which and how carbon credits are used to achieve its net greenhouse gas emissions targets. This approach reflects the ISSB's role in ensuring transparency about climate-related targets, including greenhouse gas emissions targets, if that information is material.

Latest international agreement on climate change

BC142 Paragraph 33(h) of IFRS S2 requires an entity to explain how the latest international agreement on climate change, including jurisdictional commitments that arise from that agreement, has informed any climate-related targets. This requirement is intended to help users of general purpose financial reports understand how an entity is considering its exposure to risks and opportunities associated with the latest international agreement on climate change, including its exposure to risks and opportunities associated with jurisdictional commitments that arise from that agreement. Additionally, this requirement is designed to help users understand whether the entity's planned activities are consistent with the most up-to-date scientific consensus. For example, an entity might set a target to halve its Scope 1, Scope 2 and Scope 3 greenhouse gas emissions by a particular date because this reflects what the latest climate science deems necessary to meet the goals of the Paris Agreement, which the entity must meet to comply with the local laws and regulations set out by the jurisdiction in which the entity is based. In this example, the latest international agreement on climate change, including jurisdictional commitments that arise from that agreement, has informed the amount by which the entity aims to reduce its greenhouse gas emissions, the emissions scopes included in the greenhouse gas emissions target and the time frame over which the target applies.

BC143 The Exposure Draft proposed a requirement for an entity to disclose how its climate-related targets compare with the latest international agreement on climate change. The word 'compare' was intended to avoid a simple binary response that the target aligns with, or does not align with, the latest international agreement on climate change. However, some respondents to the Exposure Draft suggested that many entities would in fact be likely to respond to the wording by disclosing a binary response. Respondents were also unclear about what disclosure was required in determining how a target 'compares' with the latest international agreement on climate change. Finally, users of general purpose financial reports questioned whether a binary response would result in useful information about how a climate-related target compares with the latest international agreement on climate change. Therefore, the ISSB agreed to amend the wording of the requirement so that an entity is required to describe how any climate-related target is informed by the latest international agreement on climate change, including jurisdictional commitments that arise from that agreement.

BC144 IFRS S2 does not require an entity to align its climate-related targets with the latest international agreement on climate change, including with the jurisdictional commitments that arise from that agreement. Rather, IFRS S2 requires an entity to disclose information about how the target is informed by the latest international agreement on climate change, including jurisdictional commitments that arise from that agreement. This information helps users of general purpose financial reports understand whether and why the entity’s climate-related targets deviate from international consensus. For example, entities in particular sectors might not be able to align their climate-related targets with the latest international agreement. In this example, it would be helpful to users to understand why the climate-related targets deviate from the latest international agreement on climate change. In contrast, if an entity has established targets consistent with the latest international agreement on climate change (for example, as a result of regulations that apply to the entity’s operations) the disclosures provided would reflect that alignment.

BC145 The ‘latest international agreement on climate change’ is defined as the latest agreement between members of the UNFCCC, which sets norms and targets for a reduction in greenhouse gases. At the time IFRS S2 was issued, the latest such agreement was the Paris Agreement (April 2016) according to which signatories agreed to limit the increase in the global average temperature to well below 2 degrees Celsius above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5 degrees Celsius above pre-industrial levels.

BC146 The ISSB confirmed that when an entity discloses how its climate-related targets are informed by the latest international agreement, that description is also required to include consideration of applicable jurisdictional commitments that arise from that agreement. For example, an entity would consider nationally determined contributions (NDCs), which are a central element of the Paris Agreement. NDCs represent efforts by each country to reduce national greenhouse gas emissions and adapt to the effects of climate change.

BC147 Until the Paris Agreement is replaced, an entity is required to reference the objectives set out in the Paris Agreement when disclosing how the entity’s own targets are informed by the latest international agreement on climate change, including jurisdictional commitments that arise from that agreement. However, if the Paris Agreement is replaced, an entity would be required to disclose information about how its targets are informed by that new international agreement.

BC148 The requirement to explain how the latest international agreement on climate change has informed any climate-related targets applies to all relevant climate-related targets, not only greenhouse gas emissions targets. Although the latest international agreement on climate change—the Paris Agreement—primarily focuses on greenhouse gas emissions reduction, it also includes other objectives related to climate change that support greenhouse gas emissions reduction targets. For example, it includes goals related to adaptation to the adverse impacts of climate change and goals to increase finance flows consistent with a pathway towards lower greenhouse gas emissions. An entity might set climate-related targets that are informed by different aspects of the international agreement on climate change, which should be described in the entity’s disclosures. For example, an entity in the agriculture sector might have specific climate-related targets (for example, intermittent aeration) that are informed by its jurisdiction’s NDC measures for its agriculture sector.

Validated targets

BC149 Paragraph 34(a) of IFRS S2 requires an entity to explain whether a third party has validated the climate-related target it has set, or is required to meet by law or regulation, and the methodology for setting the target. The ISSB noted that ‘validation’ is a common term used in disclosing climate-related targets, especially in referring to whether the climate-related target is ‘science-based’. In other words, whether the climate-related target is in line with what the latest climate science says is necessary to meet the goals of the Paris Agreement. For example, the Science-based Targets Initiative (SBTi) provides a ‘target validation service’ for an entity to validate its greenhouse gas emissions reduction targets, as described in the SBTi’s *Target Validation Protocol for Near-term Targets* (Version 3.0, 2021). However, the ISSB recognised that ‘validation’ is a technical term in some industries and has a number of different meanings. For example, in the banking industry, validation relates to models and to specific procedures or applications, often carried out by third parties. For the avoidance of doubt, the ISSB confirmed that the use of the term ‘validation’ in IFRS S2 is only in reference to whether and how a climate-related target has been tested and confirmed—by a third party—in relation to the latest climate science. Additionally, IFRS S2 does not require an entity to obtain third-party validation for its climate-related targets. Instead, IFRS S2 requires the entity to disclose whether its climate-related targets have been validated by a third party.

Sectoral decarbonisation approach

BC150 Paragraph 36(d) of IFRS S2 requires an entity to disclose whether a climate-related target was derived using a sectoral decarbonisation approach. A sectoral decarbonisation approach, which is used by initiatives such as the SBTi, recognises that entities in different sectors will have specific challenges associated with the transition to a lower-carbon economy (for example, where greenhouse gas emissions are concentrated in the value chain will vary by sector). Therefore, a sectoral decarbonisation approach to setting greenhouse gas emissions targets takes a sector-by-sector approach to translate greenhouse gas emissions targets made at the international level (for example, established through the latest international agreement on climate change) into sector-based benchmarks, against which the performance of individual entities can be compared.

Carbon credits

BC151 Stakeholders are increasingly focusing on entities' transition plans and greenhouse gas emissions targets. Many entities set net greenhouse gas emissions targets and use carbon credits to fulfil their commitments. IFRS S2 is not designed to express a view on whether it is appropriate for an entity to use carbon credits in setting its greenhouse gas emissions targets or as part of its transition plans. The requirements set out in IFRS S2 are designed to provide transparency about an entity's planned use of carbon credits and information about those carbon credits.

BC152 The Exposure Draft used the term 'carbon offset' which has been amended to 'carbon credit'. The ISSB decided to use the term 'carbon credit' in IFRS S2 in the context of offsetting greenhouse gas emissions. A carbon credit is an instrument generated or bought by an entity to offset its greenhouse gas emissions. The ISSB noted that this term was more consistent with the language used by others, including in jurisdictional standards, and therefore agreed that changing the term would facilitate interoperability.

BC153 Many respondents to the Exposure Draft agreed that an entity should be required to disclose its intended use of carbon credits if that disclosure does not obscure information about the entity's planned efforts to reduce greenhouse gas emissions. Therefore, many respondents requested that an entity's planned use of carbon credits, as part of meeting any net greenhouse gas emissions target, is clearly distinguished from efforts to achieve the entity's gross greenhouse gas emissions targets. The requirements in paragraph 36(e) of IFRS S2 reflect users' need to gain insight into an entity's approach to reducing greenhouse gas emissions and the role of carbon credits in the entity's net greenhouse gas emissions targets.

BC154 Users of general purpose financial reports said that they need information about an entity's reliance on carbon credits, its approach to generating credits, and the credibility and integrity of the scheme from which the entity obtains the credits. This information is important to users because additional climate-related risks and opportunities arise from uncertainty about the suitability of some schemes, the available technology and future prices of carbon credits. For example, carbon capture and storage technology might prove ineffective, or regulations might change to discourage or ban entities from using specified carbon credit schemes in response to associated food shortage issues, regime changes or climate activism efforts. Therefore, IFRS S2 includes requirements that enable users to understand an entity's plan for reducing greenhouse gas emissions, whether and how the entity plans to use carbon credits and the quality of those credits.

BC155 If an entity discloses information about its planned use of carbon credits, IFRS S2 requires the entity to provide information about the type of credit, including whether the credit is nature-based or based on technological carbon removals. Disclosure about which method is associated with the carbon credit helps users of general purpose financial reports understand an entity's risk profile. For example, many technological solutions are currently uneconomical at commercial scales and will likely require substantial investment to be viable in the future. In contrast, nature-based approaches aim to enhance natural carbon sinks, such as through afforestation, soil-based carbon sequestration and the use of other biomass stores. Nature-based approaches are often more cost-effective than technological solutions, but might prompt concerns about 'permanence' and 'additionality' (these terms are explained in paragraph BC156), and about their secondary effects on other social and environmental issues, such as food production.

BC156 Stakeholder feedback identified ‘permanence’ and ‘additionality’ as two essential features for assessing the quality of carbon offset schemes. ‘Permanence’ refers to how long the greenhouse gas emissions will be safely removed from the atmosphere, and ‘additionality’ refers to whether any new climate benefits have been brought about by a particular investment that would not have occurred anyway. Although these metrics can be useful, assessing permanence and additionality is complex. Therefore, instead of requiring an entity to disclose its assessment of permanence and additionality, IFRS S2 requires the entity to disclose information about any other factors necessary for users of general purpose financial reports to understand the credibility and integrity of the credits the entity plans to use. This requirement was included to elicit information to enable users to assess additionality and permanence.

Effective date

BC157 In determining the effective date of IFRS S2, the ISSB considered feedback on the Exposure Draft. Most respondents provided suggestions on the effective date:

(a) some respondents suggested that IFRS S2 should be effective as soon as possible or within one year of being issued;

(b) many respondents suggested an effective date of two or more years after issuance; and

(c) some respondents suggested an effective date of three or more years after issuance.

BC158 A few users of general purpose financial reports asked for effective dates for IFRS S1 and IFRS S2 of no more than 12 months after issuance, noting that the proposed requirements build on well-established standards and frameworks. Many respondents commented on the urgency of creating a global baseline of sustainability-related financial disclosures, as well as the need for interoperability with similar proposals developed by the European Financial Reporting Advisory Group (EFRAG) and the US Securities and Exchange Commission (US SEC).

BC159 Respondents to the Exposure Draft also commented on the effective date of IFRS S1 relative to the effective date of IFRS S2. Most respondents said that IFRS S2 should have the same effective date as IFRS S1. Most respondents emphasised that to apply the requirements in IFRS S2, it is necessary to apply those requirements at the same time as the requirements set out in IFRS S1.

BC160 The International Accounting Standards Board (IASB) generally has had a practice of allowing a period of 12–18 months between the issuance of a new Standard and its effective date. The ISSB observed that in the IASB’s early standard-setting work, the period between the issuance of a new IFRS Accounting Standard and its effective date was 6–12 months. The IASB’s most recent IFRS Accounting Standards had periods of up to three years between issuance and the effective date.

BC161 However, the situation is different for the IASB and the ISSB. If the IASB sets an effective date for a new IFRS Accounting Standard, that date is relevant to those entities already applying IFRS Accounting Standards because—to continue to assert compliance with IFRS Accounting Standards—an entity must apply the IFRS Accounting Standards in accordance with the effective date requirements established by the IASB. Typically, jurisdictions applying IFRS Accounting Standards use the same effective dates as those set by the IASB. However, because the ISSB is issuing its first Standards, there will be a range of dates over which jurisdictions will adopt the IFRS Sustainability Disclosure Standards for the first time and regulators will subsequently require entities to apply the Standards.

BC162 The ISSB noted the importance of taking into account the preparedness of entities when setting the effective date for IFRS S1 and IFRS S2. The requirements will be new, and entities will need time to create or adjust internal systems, processes and controls to prepare the disclosures required by IFRS Sustainability Disclosure Standards. The length of this adoption period will depend, among other things, on an entity’s current approach to sustainability-related and climate-related risks and opportunities and the reporting of these, as well as on the entity’s circumstances, for example, its size and the requirements or regulations that apply. The ISSB has made a number of decisions, in particular introducing transition relief (see paragraphs C3–C5 of IFRS S2), to help preparers apply the requirements and comply with IFRS S2 at an earlier date than would otherwise be the case. Additionally, IFRS S2 is built on well-established standards and frameworks, which many entities will be familiar with and will have applied.

BC163 The ISSB decided that setting an effective date for annual reporting periods beginning on or after 1 January 2024 is consistent with the ISSB's current pace in meeting users' urgent need for sustainability-related and climate-related financial disclosures. The ISSB also decided to permit early application of IFRS S2, but clarified that early application is allowed only for entities applying both IFRS S1 and IFRS S2 at the same time. The ISSB decided that if an entity applies the Standards early, it is required to disclose that fact.

Note from the HKICPA: *The proposed effective date for [draft] HKFRS S2 is for annual reporting periods beginning on or after 1 August 2025. Please refer to Part II (i) of the explanatory memorandum accompanying this [draft] standard for the reasons for setting such a proposed effective date.*

BC164 The ISSB expects there will be a learning curve for many entities when they apply IFRS S2 for the first time. The ISSB agreed that on balance the potential risk of lower quality disclosures in the first years of application should not discourage entities from disclosing climate-related financial disclosures because of the urgent need for such disclosures. The ISSB noted that in order to assert compliance, an entity must comply with all requirements of the IFRS Sustainability Disclosure Standards. A qualified statement of compliance with the IFRS Sustainability Disclosure Standards is prohibited if an entity only applies some aspects of the Standards. The requirement for an entity to comply with all requirements in the IFRS Sustainability Disclosure Standards reflects the importance of communicating to users of general purpose financial reports whether the entity has been selective in its approach to reporting sustainability-related financial information or whether the entity has applied all of the requirements. However, the ISSB noted that as long as compliance with the Standards is not asserted, an entity could start applying some aspects of IFRS S2 to provide more limited disclosures.

Transition

Comparative information

BC165 The ISSB decided to provide relief for an entity from the requirement to disclose comparative information in the first annual reporting period in which it applies IFRS S2. Permitting an entity to report on only that period enables it to provide users of general purpose financial reports with the information they need sooner. This relief therefore allows the requirements to become effective sooner than if comparative information were required.

Method for measuring greenhouse gas emissions

BC166 The Exposure Draft proposed that an entity disclose its absolute gross greenhouse gas emissions generated during the reporting period, measured in accordance with the GHG Protocol Corporate Standard. In response to the Exposure Draft, most respondents agreed with this proposed requirement. Some respondents raised concerns about requiring greenhouse gas emissions to be measured in accordance with the GHG Protocol Corporate Standard partly because some entities already use other methods for measuring greenhouse gas emissions. Respondents to the Exposure Draft stated that in these cases there could be a cost burden for an entity applying the proposals in the Exposure Draft if the entity was already using a method that is different from the GHG Protocol Corporate Standard.

BC167 Therefore, the ISSB decided to introduce a relief available to an entity if it has been using a method for measuring greenhouse gas emissions that is different from the GHG Protocol Corporate Standard in the annual reporting period immediately preceding the date of the entity's initial application of IFRS S2. In those cases, the entity need not use the GHG Protocol Corporate Standard in the first annual reporting period in which it applies IFRS S2. This relief is available to an entity using a method other than the GHG Protocol Corporate Standard, even if the entity is not required to use that method by a jurisdictional authority. For the avoidance of doubt, this relief is temporary and available only in the first annual reporting period in which an entity applies IFRS S2. In other words, if an entity uses a method for measuring its greenhouse gas emissions that is different from the GHG Protocol Corporate Standard in the annual reporting period immediately preceding the entity's date of initial application of IFRS S2, it is permitted to continue using its existing method for the first annual reporting period in which the entity applies IFRS S2.

BC168 If an entity takes advantage of this relief, the entity is permitted to continue to use that relief for the purposes of presenting that information as comparative information in subsequent reporting periods. For example, if an entity's date of initial application is 1 January 2024 and it measures its greenhouse gas emissions using a method other than the GHG Protocol Corporate Standard, the entity is permitted to use this method in its annual reporting period ending on 31 December 2024. For the period ending on 31 December 2025 (the following year):

(a) the entity should disclose its measurement of greenhouse gas emissions for the period ending on 31 December 2024 using the method other than the GHG Protocol Corporate Standard (meaning the entity does not need to recalculate its 2024 greenhouse gas emissions using the GHG Protocol Corporate Standard);

(b) for the avoidance of doubt, the entity should disclose its measurement of greenhouse gas emissions for the period ending on 31 December 2025 using the GHG Protocol Corporate Standard; and

(c) as required in paragraph 29(a)(iii) of IFRS S2, the entity should disclose the approach it uses to measure its greenhouse gas emissions (noting the different approaches used in 2024 and 2025).

BC169 For the avoidance of doubt, the relief described in paragraphs BC166–BC168 is separate from the relief provided for an entity that is required by a jurisdictional authority to use a method that is different from the GHG Protocol Corporate Standard (see paragraph BC88).

Scope 3 greenhouse gas emissions

BC170 In their comments on the Exposure Draft, most users of general purpose financial reports and respondents from multilateral organisations agreed with the proposal to require all entities to disclose absolute gross Scope 3 greenhouse gas emissions. Many preparers also broadly agreed with the proposal. However, they and other respondents expressed a range of concerns about particular aspects of the proposed requirements. The feedback indicated:

(a) data availability challenges, including concerns raised by respondents that, for example, an entity might be unable to collect data because it does not control the entities in its value chain and therefore is unable to obtain the greenhouse gas emissions data that is required; and

(b) data quality challenges, including concerns raised by respondents that, for example, an entity might be unable to report greenhouse gas emissions data of a sufficient quality to provide decision-useful information to users because measurement methods used by entities are still developing, which means the data disclosed might not be accurate or consistent between entities.

BC171 Although the ISSB decided to proceed with requiring the disclosure of Scope 3 greenhouse gas emissions, it decided to provide temporary relief to entities. In doing so, the ISSB decided that an entity need not disclose its Scope 3 greenhouse gas emissions as part of its sustainability-related financial disclosures in the first annual reporting period in which the entity applies IFRS S2. The temporary relief is granted in response to data availability challenges highlighted by respondents in the public consultation. The ISSB noted that by requiring disclosure of Scope 1 and Scope 2 greenhouse gas emissions earlier than Scope 3 greenhouse gas emissions, the temporary data availability challenge will be addressed to a significant degree. The ISSB noted this partly because some entities in a reporting entity's supply chain will be subject to the proposed requirement to disclose their Scope 1 and Scope 2 greenhouse gas emissions, and partly because the relief will give a reporting entity more time to work with the entities in its value chain to estimate its Scope 3 greenhouse gas emissions.

BC172 A later effective date for this information is consistent with the proposed rules on climate-related disclosures in the US SEC Climate proposal, which proposes an additional year before the rules mandate reporting of Scope 3 greenhouse gas emissions. The later effective date is also consistent with the Aotearoa New Zealand Climate Standards, which provide an exemption from Scope 3 greenhouse gas emissions disclosures in an entity's first reporting period (although disclosure in the interim is encouraged).

BC173 If an entity takes advantage of the Scope 3 greenhouse gas emissions relief, the entity is permitted to continue to use that relief for the purposes of presenting that information as comparative information in subsequent reporting periods. For example, if an entity's date of initial application is 1 January 2024 and it does not disclose its Scope 3 greenhouse gas emissions in its annual reporting period ending on 31 December 2024, then the entity is not required to disclose that information as comparative information in its annual reporting period ending on 31 December 2025.

Other transition considerations

BC174 The reliefs permit, but do not require, an entity to take advantage of the reliefs provided. In other words, in the first annual reporting period in which an entity applies IFRS S2, the entity is not prevented from:

(a) disclosing comparative information;

(b) measuring its greenhouse gas emissions in accordance with the GHG Protocol Corporate Standard, even if the entity has not used the GHG Protocol Corporate Standard as a method for measuring its greenhouse gas emissions prior to the issuance of IFRS S2; and

(c) disclosing its Scope 3 greenhouse gas emissions.