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Item 26 – Transition to GRI Standards

Mock-up of Sustainability Reporting Standard 19: Emissions

Meeting	3-5 November 2015, Amsterdam
Project	Transition to GRI Standards
Description	As part of the move to become a standard setter, the Global Sustainability Standards Board (GSSB) has decided that the G4 Guidelines need to be transitioned to Sustainability Reporting Standards (GRI Standards). This paper presents the mock-up of Sustainability Reporting Standard 19: Emissions, formerly the G4 Emissions Aspect.

Contents

Clean version

About this version

This section presents a clean version of Sustainability Reporting Standard 19: Emissions, formerly the G4 Emissions Aspect.

For an overview of the changes applied, see the 'Summary of changes' on page 28 of this paper. This summary is to be read in conjunction with Item 18 – Transition to GRI Standards – Proposals and mock-ups in development, available for download on the GRI website (www.globalreporting.org).

New text in the mock-ups is a work-in-progress, and will continue to evolve. It is not a final proposal for wording. Instead, it is intended to convey the type of information that users will need. It is also a place to 'trial' different terms and formulations.

Decisions about the text, and firm proposals for it, will be made during the forthcoming phase of editorial review. This will include decisions on the tone of voice to be used in the GRI Standards, and the preferred ways to construct sentences and express ideas.

The use of verbs in the GRI Standards will also be covered during the editorial review. In G4, verbs such as 'can', 'may' or 'might' are used interchangeably. In keeping with standard-setting practice, these verbs will be given fixed meanings in the GRI Standards. Each mock-up has a section where the proposed meanings are explained.

In the mock-ups, these meanings have not yet been applied throughout the original G4 text. The editorial review will include an assessment of the intended meaning behind each verb used interchangeably in G4, and any repercussions that might arise from changing it.

The mock-ups use the standard GRI branding. The GRI Standards will have distinct branding, design and layout, including visuals and infographics.

GSSB decisions

Status of additional disclosure requirements contained within G4 guidance

The GSSB is asked to decide whether the Aspect-specific DMA guidance (see line numbers 230-231) should be mandatory or optional for this GRI Standard. If it is optional, it can be either presented within this GRI Standard (using formulations such as 'organizations are encouraged to disclose...') or in a separate guidance document.

Sustainability Reporting Standard 19: Emissions: [Publication Year]

Summary information for users of this GRI Standard

This Sustainability Reporting Standard (GRI Standard) is issued by the Global Sustainability Standards Board (GSSB). It is part of the set of GRI Sustainability Reporting Standards, or SRSs.

The GSSB is an independent operating entity within GRI. It has responsibility for setting globally-accepted sustainability reporting standards, according to a formally-defined due process, exclusively in the public interest.

The GSSB also develops materials to support and improve the use of the SRSs. This includes Guidance publications, FAQ documents and Interpretations, with the latter also developed according to due process. As a component of the due process, Basis for Conclusions documents are created for each GRI Standard.

The SRSs are designed to be used by organizations for compiling and reporting sustainability information[1]. The SRSs:

- set out disclosure requirements for sustainability information
- specify Reporting Principles, methods and practices to adhere to when formulating the disclosures

The SRSs are suitable for use by organizations of any size, type, sector or geographical location.

Using the SRSs in conjunction

Each GRI Standard in the set of SRSs has been designed to be used in conjunction with others. The exact combination of SRSs to be used by an organization depends on whether the organization is:

- preparing a report 'in accordance' with the SRSs, or
- making use of individual SRSs to report on a particular topic or topics

This GRI Standard is used in conjunction with the following SRSs, which are necessary for its application:

- SRS 1: Conceptual Framework
- SRS 2: Content Principles
- SRS 3: Quality Principles
- SRS 9-1: Management Approach Narrative
- SRS 9-2: Management Approach Indicators

SRS 1: Conceptual Framework gives essential information on using the SRSs. SRS 2: Content Principles and SRS 3: Quality Principles set out the Reporting Principles which underpin the practice of sustainability reporting, guiding choices on which information to report and how. Therefore, organizations are required to be familiar with SRS 1, SRS 2 and SRS 3 before using any other GRI Standard.

[1] Where the term 'sustainability' is used in the SRSs, it is intended to be understood as sustainable development. See the World Commission on Environment and Development. Our Common Future. Oxford: Oxford University Press, 1987, p.43.

Complete information on the combined use of SRSs is given in SRS 1: Conceptual Framework.

The types of disclosure required when using this GRI Standard

For every material sustainability topic, organizations are to report:

- their management approach for that topic
- the topic-specific Indicators presented in the GRI Standard for that topic

Therefore, organizations are to provide three types of disclosure:

Management approach narrative

This is reported using SRS 9-1: Management Approach Narrative.

The management approach narrative is an explanation of how an organization manages impacts and stakeholder concerns regarding a topic.

The disclosure requirements for the management approach narrative, set out in SRS 9-1, are not topic-specific and are designed to be applicable to different sustainability topics. Therefore, SRS 9-1 is used in conjunction with each topic-specific GRI Standard, in order to provide the management approach narrative for the topic in question.

Any additional topic-specific requirements for the management approach narrative are set out in the GRI Standard for that topic, in the section called Management Approach. When such topic-specific information is required, it is to be incorporated into the management approach narrative reported using SRS 9-1.

Management approach Indicators

These are reported using SRS 9-2: Management Approach Indicators.

The management approach Indicators reveal the extent to which an organization has implemented its management approach.

The management approach Indicators set out in SRS 9-2 are not topic-specific, and are designed to be applicable to different sustainability topics. Therefore, SRS 9-2 is used in conjunction with each topic-specific GRI Standard, in order to provide information on the extent to which an organization has implemented its management approach for that topic.

Topic-specific Indicators

These are presented in the section called Indicators in each topic-specific GRI Standard.

All text in a GRI Standard has equal authority.

Disclosure requirements in this GRI Standard are presented in **bold** font. Each disclosure requirement also has a unique identifier (e.g., SRS19-1, SRS19-2).

The specified methods and practices for formulating each disclosure are presented in regular font, following the disclosure requirements. Methods and practices that apply to all the Indicators in a GRI Standard are presented at the start of the Indicators section.

The verbs used in the text have the following meanings:

Can = Capability: a particular scenario or course of action is achievable or applicable.

May = Permission: a particular scenario or course of action is permitted when using the GRI Standard.

Might = Possibility: a particular scenario or course of action is possible.

Should = Recommendation: a particular scenario or course of action is recommended and encouraged.

Where a term is defined in the Terms and Definitions section of a GRI Standard, organizations are to adhere to that definition.

Where a document is referenced without its date of publication, the reference applies to the most recent edition.

Contents

Purpose

1 This GRI Standard sets out disclosure requirements on the topic of emissions. It specifies the methods and practices for formulating the disclosures, and gives background information to aid understanding of the topic.

2 Emissions are substances discharged into the air from a source. This GRI Standard specifies disclosure requirements on greenhouse gas (GHG) emissions, ozone-depleting substances (ODS), NO_X, SO_X, and other significant air emissions.

Greenhouse gas (GHG) emissions

3 The disclosures on GHG emissions in this GRI Standard are based on the reporting requirements of the 'GHG Protocol Corporate Accounting and Reporting Standard' and the 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard' provided by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).

4 The GHG Protocol includes a classification of GHG emissions called 'Scope' – Scope 1, Scope 2 and Scope 3. This classification is defined in the Terms and Definitions section of this GRI Standard.

5 This GRI Standard covers the GHGs covered by the UN 'Kyoto Protocol' and the WRI and WBCSD 'GHG Protocol Corporate Accounting and Reporting Standard':

(a) Carbon dioxide (CO_2)

(b) Methane (CH_4)

(c) Nitrous oxide (N_2O)

(d) Hydrofluorocarbons (HFCs)

(e) Perfluorocarbons (PFCs)

(f) Sulphur hexafluoride (SF_6)

(g) Nitrogen trifluoride (NF_3)

6 GHG emissions are a major contributor to climate change and are governed by the UN 'United Nations Framework Convention on Climate Change' and the subsequent UN 'Kyoto Protocol'. Some GHGs, including methane (CH_4), are also air pollutants that have significant adverse impacts on ecosystems, air quality, agriculture, and human and animal health.

7 As a result, different national and international regulations and incentive systems (such as tradable emission permits) aim to control the volume, and reward the reduction of GHG emissions. The combined information from an organization's disclosures on direct and indirect emissions indicates its costs in taxation or trading systems, and provides insight into its carbon footprint.

Ozone-depleting substances (ODS)

8 The ozone layer filters out most of the sun's biologically harmful ultraviolet (UV-B) radiation. Observed and projected ozone depletion due to ODS generates worldwide concern. The UNEP 'Montreal Protocol on Substances that Deplete the Ozone Layer' regulates the phase-out of ODS internationally.

NO_x, SO_x, and other significant air emissions

9 Air pollutants have adverse effects on climate, ecosystems, air quality, habitats, agriculture, and human and animal health. Deterioration of air quality, acidification, forest degradation, and public health concerns have led to local and international regulations to control air emissions. Reductions in regulated pollutants lead to improved health conditions for workers and neighboring communities. Reductions, or performance beyond compliance, can enhance relations with affected communities and workers, and the ability to maintain or expand operations. In regions with emission caps, the volume of emissions also has direct cost implications.

Terms and Definitions

Base year

10 A historical datum (such as a year) against which an organization's energy consumption is tracked over time.

Baseline

11 A starting point used for comparisons.

12 NOTE: For Indicators SRS16-4, SRS16-5 and SRS19-5, baseline is the projected energy consumption in the absence of any energy reduction activity.

Carbon dioxide equivalent

13 CO_2 (carbon dioxide) equivalent is the universal unit of measurement used to compare the emissions from various GHGs based on their global warming potential (GWP). The CO_2 equivalent for a gas is determined by multiplying the metric tons of the gas by the associated GWP.

CFC-11 equivalent

14 CFC-11 equivalent is a measure used to compare various substances based on their relative ozone depletion potential. The reference level of 1 is the potential of CFC-11 and CFC-12 to cause ozone depletion.

Direct GHG emissions (Scope 1)

15 Emissions from operations that are owned or controlled by the organization.

16 Direct (Scope 1) GHG emissions come from sources (physical units or processes that release GHG into the atmosphere) that are owned or controlled by the organization.

Energy indirect (Scope 2) GHG emissions

17 Emissions that result from the generation of purchased or acquired electricity, heating, cooling, and steam consumed by the organization.

GHG reductions

18 A decrease in GHG emissions or an increase in removal or storage of GHGs from the atmosphere, relative to baseline emissions. Primary effects will result in GHG reductions, as will some secondary effects. An initiative's total GHG reductions are quantified as the sum of its associated primary effect(s) and any significant secondary effects (which may involve decreases or countervailing increases in GHG emissions).

Global warming potential (GWP)

19 GWP values describe the radiative forcing impact of one unit of a given GHG relative to one unit of carbon dioxide over a given period of time. GWP values convert GHG emissions data for non-CO_2 gases into units of CO_2 equivalent.

Ozone-depleting substance (ODS)

20 Any substance with an ozone depletion potential (ODP) greater than 0 that can deplete the stratospheric ozone layer. Most ODS are controlled under the UNEP 'Montreal Protocol on Substances that Deplete the Ozone Layer' and its amendments, and include CFCs, HCFCs, halons, and methyl bromide.

Other indirect GHG emissions (Scope 3)

21 Other indirect GHG emissions are all indirect emissions (not included in Scope 2) that occur outside of the organization, including both upstream and downstream emissions.

GHG emissions scope

22 Scope is a classification of the operational boundaries where GHG emissions occur. Scope classifies whether GHG emissions are created by the organization itself, or are created by other related organizations, for example, electricity suppliers or haulage companies, as follows:

23 Direct (Scope 1) emissions from operations that are owned or controlled by the organization

24 Energy Indirect (Scope 2) emissions result from the generation of purchased or acquired electricity, heating, cooling, and steam consumed within the organization

25 Other Indirect (Scope 3) emissions are all indirect emissions (not included in Scope 2) that occur outside of the organization, including both upstream and downstream emissions

26 Scopes 1, 2, and 3 of the GHG Protocol align with ISO 14064 definitions and the Indicators as follows:

(a) Scope 1 = direct GHG emissions (SRS19-1)

(b) Scope 2 = energy indirect GHG emissions (SRS19-2)

(c) Scope 3 = other indirect GHG emissions (SRS19-3)

27 The GHG Protocol prescribes reporting direct (Scope 1) emissions and energy indirect (Scope 2) emissions. Reporting other indirect (Scope 3) emissions is optional. The WRI and WBCSD 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard' prescribes reporting other indirect (Scope 3) emissions.

Significant air emissions

28 Air emissions that are regulated under international conventions and/or national laws or regulations, including those listed on environmental permits for the organization's operations.

Management Approach

29 Organizations are to use this GRI Standard in conjunction with SRS 9-1: Management Approach Narrative and SRS 9-2: Management Approach Indicators.

30 When using SRS 9-1 to report the management approach narrative, organizations are to incorporate the following additional information:

(a) When reporting on GHG emissions targets, identify whether offsets are used to meet the target. Specify the type, amount, criteria or scheme of which they are part.

Indicators

31 When reporting the Indicators for emissions of GHGs and ODS, organizations apply emission factors and GWP rates consistently for the data reported. Emission factors may originate from mandatory reporting requirements, voluntary reporting frameworks, or be developed by industry groups. Estimates of GWPs change over time as scientific research develops. Organizations may use the GWPs from Assessment Reports from the Intergovernmental Panel on Climate Change (IPCC). As the GWPs from the IPCC Second Assessment Report are used as the basis for international negotiations under the UN 'Kyoto Protocol', such rates may be used for disclosing GHG emissions where it does not conflict with national or regional reporting requirements. Organizations may also use the latest GWPs from the most recent IPCC Assessment Report. GWPs are expressed over a number of different time frames within the IPCC Assessment Reports. Organizations use the factors for the 100-year time span.

Greenhouse gas (GHG) emissions

SRS19-1 DIRECT GREENHOUSE GAS (GHG) EMISSIONS (SCOPE 1)

(a) Report gross direct (Scope 1) GHG emissions in metric tons of CO_2 equivalent, independent of any GHG trades, such as purchases, sales, or transfers of offsets or allowances.

(b) Report gases included in the calculation (whether CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3, or all).

(c) Report biogenic CO_2 emissions in metric tons of CO_2 equivalent separately from the gross direct (Scope 1) GHG emissions.

(d) Report the chosen base year, the rationale for choosing the base year, emissions in the base year, and the context for any significant changes in emissions that triggered recalculations of base year emissions.

(e) Report standards, methodologies, and assumptions used.

(f) Report the source of the emission factors used and the global warming potential (GWP) rates used or a reference to the GWP source.

(g) Report the chosen consolidation approach for emissions (equity share, financial control, operational control).

32 Direct (Scope 1) GHG emissions include, but are not limited to, the CO_2 emissions from the fuel consumption reported in Indicator G4-EN3.

33 This Indicator can be used in combination with Indicators SRS19-2 (energy indirect Scope 2 emissions) and SRS19-3 (other indirect Scope 3 emissions) to report total GHG emissions.

34 Direct (Scope 1) GHG emissions from sources owned or controlled by the organization include:

(a) Generation of electricity, heating, cooling and steam. These emissions result from combustion of fuels in stationary sources (such as boilers, furnaces, turbines) and from other combustion processes such as flaring

(b) Physical or chemical processing. Most of these emissions result from the manufacturing or processing of chemicals and materials (such as cement, steel, aluminum, ammonia, and waste processing)

(c) Transportation of materials, products, waste, employees, and passengers. These emissions result from the combustion of fuels in mobile combustion sources owned or controlled by the organization (such as trucks, trains, ships, airplanes, buses, cars)

(d) Fugitive Emissions. These emissions result from intentional or unintentional releases, such as equipment leaks from joints, seals, packing, and gaskets; methane emissions from coal mines and venting; hydrofluorocarbon (HFC) emissions from refrigeration and air conditioning equipment; and methane leakages from gas transport

35 Reference the calculation tools used. Organizations subject to different standards and methodologies should describe the approach to selecting them.

36 Select a consistent consolidation approach for emissions, and apply it to calculate the gross direct (Scope 1) GHG emissions. When possible, select an approach that is consistent with the approach used in Indicator SRS19-2. Organizations select the equity share, financial control, or operational control methods outlined in the WRI and WBCSD 'GHG Protocol Corporate Accounting and Reporting Standard'.

37 For recalculations of prior year emissions, organizations can follow the approach in the WRI and WBCSD 'GHG Protocol Corporate Accounting and Reporting Standard'.

38 Organizations may report biogenic CO_2 emissions; however, such emissions are reported separately and not added to the total direct (Scope 1) GHG emissions. These emissions refer to CO_2 emissions from combustion or biodegradation of biomass only, not to emissions of any other GHGs (such as CH_4 and N_2O), or to any GHG emissions that occur in the life cycle of biomass other than from combustion or biodegradation (such as GHG emissions from processing or transporting biomass).

39 Methodologies used to calculate the emissions may include:

(a) Direct measurement of energy source consumed (coal, gas) or losses (refills) of cooling systems and conversion to GHG (CO_2 equivalents)

(b) Mass balance calculations

(c) Calculation based on site-specific data (such as for fuel composition analysis)

(d) Calculation based on published criteria (emissions factors and GWPs)

(e) Estimations. If estimations are used due to a lack of default figures, the organization indicates the basis and assumptions on which figures were estimated

(f) Direct measurement of the GHG (such as continuous online analyzers)

40 Organizations can further disaggregate direct (Scope 1) GHG emissions data where this aids transparency or comparability over time. For example, they can disaggregate data by:

(a) Business unit or facility

(b) Country

(c) Source type (stationary combustion, process, fugitive)

(d) Activity type

41 Further details and guidance for this Indicator are available in the WRI and WBCSD 'GHG Protocol Corporate Accounting and Reporting Standard' and in documents from the IPCC.

SRS19-2 ENERGY INDIRECT GREENHOUSE GAS (GHG) EMISSIONS (SCOPE 2)

(a) Report gross energy indirect (Scope 2) GHG emissions in metric tons of CO_2 equivalent, independent of any GHG trades, such as purchases, sales, or transfers of offsets or allowances.

(b) Report gases included in the calculation, if available.

(c) Report the chosen base year, the rationale for choosing the base year, emissions in the base year, and the context for any significant changes in emissions that triggered recalculations of base year emissions.

(d) Report standards, methodologies, and assumptions used.

(e) Report the source of the emission factors used and the global warming potential (GWP) rates used or a reference to the GWP source, if available.

(f) Report the chosen consolidation approach for emissions (equity share, financial control, operational control).

42 An organization's energy indirect (Scope 2) GHG emissions result from the generation of the electricity, heating, cooling, and steam which it purchased from other organizations for its own consumption.

43 For many organizations the energy indirect (Scope 2) GHG emissions that result from the generation of purchased electricity are much greater than their direct GHG emissions.

44 This Indicator can be used in combination with Indicators SRS19-1 (Scope 1 emissions) and SRS19-3 (Scope 3 emissions) to report total GHG emissions.

45 Exclude other indirect (Scope 3) emissions. Other indirect (Scope 3) emissions are reported in Indicator SRS19-3.

46 Select a consistent consolidation approach for emissions, and apply it to calculate the gross energy indirect (Scope 2) GHG emissions. When possible, select an approach that is consistent with the approach used in Indicator SRS19-1. Organizations may select the equity share, financial control, or operational control methods outlined in the WRI and WBCSD 'GHG Protocol Corporate Accounting and Reporting Standard'.

47 Reference the calculation tools used. Organizations subject to different standards and methodologies should describe the approach to selecting them.

48 Organizations can further disaggregate energy indirect (Scope 2) GHG emissions data where this aids transparency or comparability over time. For example, they can disaggregate data by:

(a) Business unit or facility

(b) Country

(c) Source type (electricity, heating, cooling, and steam)

(d) Activity type

49 For recalculations of prior year emissions, organizations can follow the approach in the WRI and WBCSD 'GHG Protocol Corporate Accounting and Reporting Standard'.

SRS19-3 OTHER INDIRECT GREENHOUSE GAS (GHG) EMISSIONS (SCOPE 3)

(a) Report gross other indirect (Scope 3) GHG emissions in metric tons of CO_2 equivalent, excluding indirect emissions from the generation of purchased or acquired electricity, heating, cooling, and steam consumed by the organization (these indirect emissions are reported in Indicator SRS19-2). Exclude any GHG trades, such as purchases, sales, or transfers of offsets or allowances.

(b) Report gases included in the calculation, if available.

(c) Report biogenic CO_2 emissions in metric tons of CO_2 equivalent separately from the gross other indirect (Scope 3) GHG emissions.

(d) Report other indirect (Scope 3) emissions categories and activities included in the calculation.

(e) Report the chosen base year, the rationale for choosing the base year, emissions in the base year, and the context for any significant changes in emissions that triggered recalculations of base year emissions.

(f) Report standards, methodologies, and assumptions used.

(g) Report the source of the emission factors used and the global warming potential (GWP) rates used or a reference to the GWP source, if available.

50 For some organizations, GHG emissions from outside of the organization, or resulting from the use of their products, are much greater than their direct (Scope 1) GHG emissions or energy indirect (Scope 2) GHG emissions.

51 Other indirect (Scope 3) emissions are a consequence of the activities of the organization, but occur from sources not owned or controlled by the organization. Some examples of Scope 3 activities are the extraction and production of purchased materials; the transportation of purchased fuels in vehicles not owned or controlled by the organization; and the end use of products and services.

52 This Indicator can be used in combination with Indicators SRS19-1 (Scope 1 emissions) and SRS19-2 (Scope 2 emissions) to report total GHG emissions.

53 Identify the indirect emissions that occur outside of the organization that are not reported under Indicator SRS19-2. This includes both upstream and downstream emissions. Indirect emissions might also come from the organization's waste decomposing processes, process-related emissions during the manufacturing of purchased goods, and fugitive emissions in facilities not owned or controlled by the organization.

54 Assess which of the organization's activities cause indirect emissions, and calculate the amounts involved.

55 When deciding the relevance of these activities, consider whether the activity's emissions:

(a) Contribute significantly to the organization's total anticipated Scope 3 emissions

(b) Offer potential for reductions that could be undertaken or influenced by the organization

(c) Contribute to the organization's exposure to climate change- related risks such as financial, regulatory, supply chain, product and customer, litigation, and reputational risks

(d) Are deemed material by key stakeholders (such as customers, suppliers, investors, or civil society)

(e) Result from outsourced activities which were previously performed in-house, or activities that are typically performed in-house by other organizations in the same sector

(f) Have been identified as significant in sector-specific guidance

(g) Meet any additional criteria for determining relevance, developed by the organization or by organizations in its sector

56 When reporting emissions for this Indicator, organizations may disaggregate data by the following categories and activities:

Upstream

1. Purchased goods and services
2. Capital goods
3. Fuel- and energy-related activities (those that are not included in Scope 1 or Scope 2 emissions)
4. Upstream transportation and distribution
5. Waste generated in operations
6. Business travel
7. Employee commuting
8. Upstream leased assets

Other upstream

Downstream

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
15. Investments

Other downstream

57 For each category and activity above, provide a figure in CO_2 equivalent or an explanation of why certain data are not included.

58 The upstream/downstream categories and activities including their numbering correspond to the categories and activities documented in the WRI and WBCSD

'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard'. The numbering has been maintained consistent for the ease of reference between G4 and the WRI and WBCSD 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard'.

59 Organizations may report biogenic CO_2 emissions; however, such emissions are expected to be reported separately and not added to the total other indirect (Scope 3) emissions. These emissions refer to CO_2 emissions from combustion or biodegradation of biomass only, not to emissions of any other GHGs (such as CH_4 and N_2O), or to any GHG emissions that occur in the life cycle of biomass other than from combustion or biodegradation (such as GHG emissions from processing or transporting biomass).

60 Organizations can further disaggregate other indirect (Scope 3) emissions data where this aids transparency or comparability over time. For example, they can disaggregate data by:

(a) Business unit or facility

(b) Country

(c) Source type

(d) Activity type

61 For recalculations of prior year emissions, organizations can follow the approach in the WRI and WBCSD 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard'.

62 Reference the calculation tools used. Organizations subject to different standards and methodologies should describe the approach to selecting them.

63 Further details on the compilation of this Indicator are available in the WRI and WBCSD 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard'.

SRS19-4 GREENHOUSE GAS (GHG) EMISSIONS INTENSITY

(a) Report the GHG emissions intensity ratio.

(b) Report the organization-specific metric (the ratio denominator) chosen to calculate the ratio.

(c) Report the types of GHG emissions included in the intensity ratio: direct (Scope 1), energy indirect (Scope 2), other indirect (Scope 3).

(d) Report gases included in the calculation.

64 Intensity ratio defines an organization's GHG emissions in the context of an organization-specific metric.

65 GHG emissions intensity expresses the GHG emissions per unit of activity, output, or any other organization-specific metric. Many organizations track environmental performance with intensity ratios. Intensity ratios are often called normalized environmental impact data.

66 Intensity ratios can include but are not limited to:

(a) Product emission intensity (such as metric tons of CO_2 emissions per unit produced)

(b) Service intensity (such as metric tons of CO_2 emissions per function or per service)

(c) Sales intensity (such as metric tons of CO_2 emissions per sales)

67 In combination with an organization's absolute GHG emissions, disclosed in Indicators SRS19-1, SRS-19-2, and SRS19-3, GHG emissions intensity helps to contextualize the organization's efficiency, including in relation to other organizations.

68 Select an appropriate ratio denominator to represent the per-unit output, activity, or any other organization-specific metric. This can include but is not limited to:

(a) Units of product

(b) Production volume (metric ton, liter, MWh)

(c) Size (m^2 floor space)

(d) Number of full-time employees

(e) Monetary units (revenue, sales)

69 Organizations can report several GHG emissions intensity ratios where this aids transparency or comparability. For example, they may calculate separate ratios by:

(a) Business unit or facility

(b) Country

(c) Source type

(d) Activity type

70 Intensity is calculated by dividing the absolute emissions (the numerator) by the organization-specific metric (the denominator).

71 If reporting combined direct (Scope 1) and indirect (Scope 2) intensity ratios, add together the figures reported in Indicators SRS19-1 and SRS19-2 to determine the total absolute amount of GHG emissions. Alternatively, use the GHG emissions figures reported in Indicators SRS19-1 and SRS19-2 separately.

72 Organizations may report the other indirect (Scope 3) GHG emissions intensity ratio with this Indicator; however, this ratio is expected to be presented separately, and not combined with the direct (Scope 1) or energy indirect (Scope 2) intensity ratios.

SRS19-5 REDUCTION OF GREENHOUSE GAS (GHG) EMISSIONS

(a) Report the amount of GHG emissions reductions achieved as a direct result of initiatives to reduce emissions, in metric tons of CO_2 equivalent.

(b) Report gases included in the calculation (whether CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3, or all).

(c) Report the chosen base year or baseline and the rationale for choosing it.

(d) Report standards, methodologies, and assumptions used.

(e) Report whether the reductions in GHG emissions occurred in direct (Scope 1), energy indirect (Scope 2), other indirect (Scope 3) emissions.

73 This Indicator can be used in combination with Indicators SRS19-1, SRS19-2, and SRS19-3 to monitor the reduction of GHG emissions with reference to the organization's targets, or to regulations and trading systems at international or national levels.

74 Initiatives can include but are not limited to:

(a) Process redesign

(b) Conversion and retrofitting of equipment

(c) Fuel switching

(d) Changes in employee behavior

(e) Offsets

75 Organizations with many initiatives for reducing GHG emissions may prioritize reporting the initiatives that were implemented in the reporting period, and that have the potential to contribute significantly to reducing emissions. Initiatives and their reduction targets may be described in the management approach for the Emissions topic.

76 Organizations may choose to report reductions disaggregated by initiatives or groups of initiatives.

77 Report the GHG emissions reductions separately for direct (Scope 1), energy indirect (Scope 2), and other indirect (Scope 3) emissions. Reductions in emissions that result from reduced production capacity or outsourcing are not included in this Indicator.

78 Reductions from offsets should be reported separately from other reductions.

79 Organizations may choose to use either inventory or project method for accounting for emissions reductions. Inventory method compares emissions reductions to a base year while project method compares emissions reductions to a baseline. Further details on the inventory and project reduction accounting methods are available in the WRI and WBCSD 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard' and WRI and WBCSD 'GHG Protocol for Project Accounting'.

80 Reference the calculation tools used. Organizations subject to different standards and methodologies should describe the approach to selecting them.

Ozone-depleting substances (ODS) emissions

SRS19-6 EMISSIONS OF OZONE-DEPLETING SUBSTANCES (ODS)

(a) Report production, imports, and exports of ODS in metric tons of CFC-11 equivalent.

(b) Report substances included in the calculation.

(c) Report standards, methodologies, and assumptions used.

(d) Report the source of the emission factors used.

81 Measuring ODS production, imports, and exports enables an assessment of how well an organization complies with legislation and manages its risks. This is particularly relevant for organizations that produce or use ODS in their processes, products and services and must now transition to new technologies to comply with phase-out commitments. The organization's results on ODS phase-out help to indicate its level of technology leadership, and its competitive position in markets for products and services affected by ODS rules.

82 This Indicator covers the production, import, and export of substances covered in Annexes A, B, C, and E of the UNEP 'Montreal Protocol on Substances that Deplete the Ozone Layer' as well as any other ODS produced, imported, or exported by the organization.

83 Calculate the production of ODS as the amount of ODS produced, minus the amount destroyed by approved technologies and minus the amount entirely used as feedstock in the manufacture of other chemicals. Exclude ODS recycled and reused.

84 Organizations can further disaggregate ODS data where this aids transparency or comparability over time. For example, they may disaggregate data by:

(a) Business unit or facility

(b) Country

(c) Source type

(d) Activity type

85 Organizations may report ODS data for the relevant substances separately or together.

86 Reference the calculation tools used. Organizations subject to different standards and methodologies should describe the approach to selecting them.

NO_x, SO_x, and other significant air emissions

SRS19-7 NO_X, SO_X, AND OTHER SIGNIFICANT AIR EMISSIONS

(a) Report the amount of significant air emissions, in kilograms or multiples for each of the following:

(i) NO_X

(ii) SO_X

(iii) Persistent organic pollutants (POP)

(iv) Volatile organic compounds (VOC)

(v) Hazardous air pollutants (HAP)

(vi) Particulate matter (PM)

(vii) Other standard categories of air emissions identified in relevant regulations

(b) Report standards, methodologies, and assumptions used.

(c) Report the source of the emission factors used.

87 Reference the calculation tools used. Organizations subject to different standards and methodologies should describe the approach to selecting them. Since calculating certain air emissions (such as NO_X) requires complex quantification efforts, indicate the methodology used for calculations, selecting one of the following approaches:

(a) Direct measurement of emissions (such as online analyzers)

(b) Calculation based on site-specific data

(c) Calculation based on published emission factors

(d) Estimation (if estimations are used due to a lack of default figures, indicate the basis on which figures were estimated)

88 Organizations can further disaggregate air emissions data where this aids transparency or comparability over time. For example, they may disaggregate data by:

(a) Business unit or facility

606 (b) Country

607 (c) Source type

608 (d) Activity type

References

89 The following documents informed the development of this GRI Standard. Organizations are encouraged to be familiar with these documents, as they can improve understanding of the disclosure requirements.

(a) British Standards Institution (BSI), *Assessing the Life-Cycle Greenhouse Gas Emissions of Goods and Services PAS 2050,* 2011.

(b) Carbon Disclosure Project (CDP), *Investor CDP Information Request,* updated annually.

(c) Intergovernmental Panel on Climate Change (IPCC), *Climate Change 1995: The Science of Climate Change, Contribution of Working Group I to the Second Assessment Report of the Intergovernmental Panel on Climate Change,* 1995.

(d) Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change,* 2007.

(e) United Nations Economic Commission for Europe (UNECE) Convention, 'Geneva Protocol concerning the Control of Emissions of Volatile Organic Compounds or their Transboundary Fluxes', 1991.

(f) United Nations Economic Commission for Europe (UNECE) Convention, 'Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone', 1999.

(g) United Nations Economic Commission for Europe (UNECE) Convention, 'Helsinki Protocol on the Reduction of Sulphur Emissions or their Transboundary Fluxes', 1985.

(h) United Nations Economic Commission for Europe (UNECE) Convention, 'Sofia Protocol concerning the Control of Emissions of Nitrogen Oxides or their Transboundary Fluxes', 1988.

(i) United Nations Environment Programme (UNEP) Convention, 'Stockholm Convention on Persistent Organic Pollutants (POPs)', Annex A, B, and C, 2009.

(j) United Nations Environment Programme (UNEP), 'Montreal Protocol on Substances that Deplete the Ozone Layer', 1987.

(k) United Nations Environment Programme (UNEP), *Standards and Codes of Practice to Eliminate Dependency on Halons - Handbook of Good Practices in the Halon Sector,* 2001.

(l) United Nations Environment Programme (UNEP) and World Meteorological Organization (WMO), *Integrated Assessment of Black Carbon and Tropospheric Ozone,* 2011.

(m) United Nations (UN) Framework Convention, 'United Nations Framework Convention on Climate Change', 1992.

(n) United Nations (UN) Protocol, 'Kyoto Protocol to the United Nations Framework Convention on Climate Change', 1997.

(o) World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'GHG Protocol Corporate Accounting and Reporting Standard', Revised Edition, 2004.

(p) World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard', 2011.

(q) World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'GHG Protocol for Project Accounting', 2005.

(r) World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'GHG Protocol Product Life Cycle Accounting and Reporting Standard', 2011.

(s) World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'Greenhouse Gas Protocol Accounting Notes, No. 1, Accounting and Reporting Standard Amendment', 2012.

Tracked version

About this version

This section presents a tracked version of Sustainability Reporting Standard 19: Emissions, formerly the G4 Emissions Aspect.

It includes a summary of the changes applied. This summary is to be read in conjunction with Item 18 – Transition to GRI Standards – Proposals and mock-ups in development, available for download on the GRI website (www.globalreporting.org).

New text in the mock-ups is a work-in-progress, and will continue to evolve. It is not a final proposal for wording. Instead, it is intended to convey the type of information that users will need. It is also a place to 'trial' different terms and formulations.

Decisions about the text, and firm proposals for it, will be made during the forthcoming phase of editorial review. This will include decisions on the tone of voice to be used in the GRI Standards, and the preferred ways to construct sentences and express ideas.

The use of verbs in the GRI Standards will also be covered during the editorial review. In G4, verbs such as 'can', 'may' or 'might' are used interchangeably. In keeping with standard-setting practice, these verbs will be given fixed meanings in the GRI Standards. Each mock-up has a section where the proposed meanings are explained.

In the mock-ups, these meanings have not yet been applied throughout the original G4 text. The editorial review will include an assessment of the intended meaning behind each verb used interchangeably in G4, and any repercussions that might arise from changing it.

The mock-ups use the standard GRI branding. The GRI Standards will have distinct branding, design and layout, including visuals and infographics.

Summary of changes

Formatting legend

Blue underlined: New, amended or combined text (i.e., several G4 texts remade into one)
Regular text: Existing text or text that has been moved
~~**Red strike through:**~~ Text deleted permanently
~~**Regular strike through:**~~ Text deleted from its G4 location and moved elsewhere

Relocating G4 content

- Guidance text from Indicators G4-EN15 (see line numbers 969-984 and 992-994), G4-EN16 (see line numbers 1098-1106 and 1112-1114), G4-EN17 (see line numbers 1192-1195, 1204-1207 and 1211-1220), G4-EN19 (see line numbers 1397-1400), G4-EN20 (see line numbers 1462-1464),

and G4-EN21 (see line numbers 1523-1529) has been relocated to the 'Purpose' section of this GRI Standard, and repurposed to develop a description of this topic (see line numbers 802-865)

- Guidance text that applies to multiple Indicators has been relocated to the introduction of the 'Indicators' section of this GRI Standard (see line numbers 939-948). This text was previously found under Indicators G4-EN15 (see line numbers 1046-1055), G4-EN16 (see line numbers 1141-1150) and G4-EN17 (see line numbers 1284-1293)
- A definition of 'GHG emissions scope' has been created (see line numbers 907-923) using existing text found in the 'Introduction' section of the Emissions Aspect (see line numbers 819-834)
- Definitions have been consolidated in the section 'Terms and Definitions'
- References have been consolidated in the section 'References'

Eliminating the unnecessary duplication of G4 content

- Duplicated content has been deleted from the definition of 'direct GHG emissions (Scope 1)' (see line numbers 886-887), and from Indicators G4-EN15 (see line numbers 985-986, 1011-1015, 1022-1023 and 1030), G4-EN16 (see line numbers 1116-1117, 1120-1122, 1128-1129 and 1130-1131), G4-EN17 (see line numbers 1277-1278 and 1281-1282), G4-EN18 (see line numbers 1339-1340), G4-EN19 (see line numbers 1405 and 1426-1427), G4-EN20 (see line numbers 1475 and 1486-1487), and G4-EN21 (see line numbers 1533-1538)

Removing unnecessary G4 guidance

- Section headings from guidance text have been removed ('GUIDANCE', 'Relevance', 'Compilation', 'Definitions', 'Documentation sources', 'References')
- Content from 'Documentation sources' sections has been deleted
- Guidance text of questionable relevance for a standard has been deleted from Indicator G4-EN17 (see line numbers 1198-1199). Guidance text that states the obvious about the relevance of Indicator G4-EN21 (see line numbers 1530-1531) has been deleted

Grouping G4 disclosure requirements that deal with widely-applicable processes

- The Aspect-specific DMA that deals with widely-applicable processes (see line numbers 933-934) has been relocated to SRS 9-1 Management Approach Narrative

Updating G4 content

- References to G4 disclosure requirements have been updated

~~Aspect: Emissions~~

Sustainability Reporting Standard 19: Emissions: [Publication Year]

Summary information for users of this GRI Standard

This Sustainability Reporting Standard (GRI Standard) is issued by the Global Sustainability Standards Board (GSSB). It is part of the set of GRI Sustainability Reporting Standards, or SRSs.

The GSSB is an independent operating entity within GRI. It has responsibility for setting globally-accepted sustainability reporting standards, according to a formally-defined due process, exclusively in the public interest.

The GSSB also develops materials to support and improve the use of the SRSs. This includes Guidance publications, FAQ documents and Interpretations, with the latter also developed according to due process. As a component of the due process, Basis for Conclusions documents are created for each GRI Standard.

The SRSs are designed to be used by organizations for compiling and reporting sustainability information[2]. The SRSs:

- set out disclosure requirements for sustainability information
- specify Reporting Principles, methods and practices to adhere to when formulating the disclosures

The SRSs are suitable for use by organizations of any size, type, sector or geographical location.

Using the SRSs in conjunction

Each GRI Standard in the set of SRSs has been designed to be used in conjunction with others. The exact combination of SRSs to be used by an organization depends on whether the organization is:

- preparing a report 'in accordance' with the SRSs, or
- making use of individual SRSs to report on a particular topic or topics

This GRI Standard is used in conjunction with the following SRSs, which are necessary for its application:

- SRS 1: Conceptual Framework
- SRS 2: Content Principles
- SRS 3: Quality Principles
- SRS 9-1: Management Approach Narrative
- SRS 9-2: Management Approach Indicators

SRS 1: Conceptual Framework gives essential information on using the SRSs. SRS 2: Content Principles and SRS 3: Quality Principles set out the Reporting Principles which underpin the practice of sustainability reporting, guiding choices on which information to report and how. Therefore, organizations are required to be familiar with SRS 1, SRS 2 and SRS 3 before using any other GRI Standard.

[2] Where the term 'sustainability' is used in the SRSs, it is intended to be understood as sustainable development. See the World Commission on Environment and Development. Our Common Future. Oxford: Oxford University Press, 1987, p.43.

Complete information on the combined use of SRSs is given in SRS 1: Conceptual Framework.

The types of disclosure required when using this GRI Standard

For every material sustainability topic, organizations are to report:

- their management approach for that topic
- the topic-specific Indicators presented in the GRI Standard for that topic

Therefore, organizations are to provide three types of disclosure:

Management approach narrative

This is reported using SRS 9-1: Management Approach Narrative.

The management approach narrative is an explanation of how an organization manages impacts and stakeholder concerns regarding a topic.

The disclosure requirements for the management approach narrative, set out in SRS 9-1, are not topic-specific and are designed to be applicable to different sustainability topics. Therefore, SRS 9-1 is used in conjunction with each topic-specific GRI Standard, in order to provide the management approach narrative for the topic in question.

Any additional topic-specific requirements for the management approach narrative are set out in the GRI Standard for that topic, in the section called Management Approach. When such topic-specific information is required, it is to be incorporated into the management approach narrative reported using SRS 9-1.

Management approach Indicators

These are reported using SRS 9-2: Management Approach Indicators.

The management approach Indicators reveal the extent to which an organization has implemented its management approach.

The management approach Indicators set out in SRS 9-2 are not topic-specific, and are designed to be applicable to different sustainability topics. Therefore, SRS 9-2 is used in conjunction with each topic-specific GRI Standard, in order to provide information on the extent to which an organization has implemented its management approach for that topic.

Topic-specific Indicators

These are presented in the section called Indicators in each topic-specific GRI Standard.

All text in a GRI Standard has equal authority.

Disclosure requirements in this GRI Standard are presented in **bold** font. Each disclosure requirement also has a unique identifier (e.g., SRS19-1, SRS19-2).

The specified methods and practices for formulating each disclosure are presented in regular font, following the disclosure requirements. Methods and practices that apply to all the Indicators in a GRI Standard are presented at the start of the Indicators section.

The verbs used in the text have the following meanings:

Can = Capability: a particular scenario or course of action is achievable or applicable.

May = Permission: a particular scenario or course of action is permitted when using the GRI Standard.

Might = Possibility: a particular scenario or course of action is possible.

Should = Recommendation: a particular scenario or course of action is recommended and encouraged.

Where a term is defined in the Terms and Definitions section of a GRI Standard, organizations are to adhere to that definition.

Where a document is referenced without its date of publication, the reference applies to the most recent edition.

Contents

Purpose

This GRI Standard sets out disclosure requirements on the topic of emissions. It specifies the methods and practices for formulating the disclosures, and gives background information to aid understanding of the topic.

Emissions are substances discharged into the air from a source. ~~In the Guidelines, the Emissions Aspect includes Indicators on~~This GRI Standard specifies disclosure requirements on greenhouse gas (GHG) emissions~~, as well as~~ ozone-depleting substances (ODS), NO_X, SO_X, and other significant air emissions.

Greenhouse gas (GHG) emissions

~~Reporting of GHG emissions is based on the reporting requirements of the WRI and WBCSD 'GHG Protocol Corporate Accounting and Reporting Standard' (GHG Protocol).~~ The disclosures on GHG emissions in this GRI Standard are~~In the Guidelines, the reporting of GHG emissions is~~ based on the reporting requirements of the 'GHG Protocol Corporate Accounting and Reporting Standard'~~130~~ and the 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard' provided by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).

The GHG Protocol includes a classification of GHG emissions called 'Scope' – Scope 1, Scope 2 and Scope 3. This classification is defined in the Terms and Definitions section of this GRI Standard.

~~Scope is a classification of the operational boundaries where GHG emissions occur. Scope classifies whether GHG emissions are created by the organization itself, or are created by other related organizations, for example, electricity suppliers or haulage companies, as follows:~~

- ~~Direct (Scope 1) emissions from operations that are~~ owned ~~or controlled by the organization~~
- ~~Energy Indirect (Scope 2) emissions result from the generation of purchased or acquired electricity, heating, cooling, and steam consumed within the organization~~
- ~~Other Indirect (Scope 3) emissions are all indirect emissions (not included in Scope 2) that occur outside of the organization, including both upstream and downstream emissions~~

~~Scopes 1, 2, and 3 of the GHG Protocol align with ISO 14064 definitions and the GRI Indicators as follows:~~

- ~~Scope 1 = direct GHG emissions (GRI Indicator G4-EN15)~~
- ~~Scope 2 = energy indirect GHG emissions (GRI Indicator G4-EN16)~~
- ~~Scope 3 = other indirect GHG emissions (GRI Indicator G4-EN17)~~

~~The GHG Protocol prescribes reporting direct (Scope 1) emissions and energy indirect (Scope 2) emissions. Reporting other indirect (Scope 3) emissions is optional. The WRI and WBCSD 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard' prescribes reporting other indirect (Scope 3) emissions.~~

This ~~Indicator~~ GRI Standard covers ~~the disclosure of the direct (Scope 1) GHG emissions, in CO_2 equivalents, of~~ the GHGs covered by the UN 'Kyoto Protocol' and the WRI and WBCSD 'GHG Protocol Corporate Accounting and Reporting Standard':

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulphur hexafluoride (SF_6)
- Nitrogen trifluoride (NF_3)

GHG emissions are a major contributor to climate change and are governed by the UN 'United Nations Framework Convention on Climate Change'~~100~~ and the subsequent UN 'Kyoto Protocol'. Some GHGs, including methane (CH_4), are also air pollutants that have significant adverse impacts on ecosystems, air quality, agriculture, and human and animal health.

As a result, different national and international regulations and incentive systems (such as tradable emission permits) aim to control the volume, and reward the reduction of GHG emissions. ~~The combination~~The combined information from an organization's disclosures o~~f~~n direct and indirect emissions ~~provides insights into the~~indicates its cost~~s~~ in ~~implications of~~ taxation or trading systems, and~~. It also~~ provides insight into ~~an organization's~~its carbon footprint ~~and environmental performance~~.

Ozone-depleting substances (ODS)

The ozone layer filters out most of the sun's biologically harmful ultraviolet (UV-B) radiation. Observed and projected ozone depletion due to ODS generates worldwide concern. The UNEP 'Montreal Protocol on Substances that Deplete the Ozone Layer' regulates the phase-out of ODS internationally.

NO_x, SO_x, and other significant air emissions

Air pollutants have adverse effects on climate, ecosystems, air quality, habitats, agriculture, and human and animal health. Deterioration of air quality, acidification, forest degradation, and public health concerns have led to local and international regulations to control air emissions. Reductions in regulated pollutants lead to improved health conditions for workers and neighboring communities. Reductions, or performance beyond compliance, can enhance relations with affected communities and workers, and the ability to maintain or expand operations. In regions with emission caps, the volume of emissions also has direct cost implications.

Terms and Definitions

Base year

A historical datum (such as a year) against which an organization's energy consumption is tracked over time.

Baseline

A starting point used for comparisons.

NOTE: For Indicators ~~G4-EN6~~SRS16-4, ~~G4-EN7~~SRS16-5 and ~~G4-EN19~~SRS19-5, baseline is the projected energy consumption in the absence of any energy reduction activity.

Carbon dioxide equivalent

CO_2 (carbon dioxide) equivalent is the universal unit of measurement used to compare the emissions from various GHGs based on their global warming potential (GWP). The CO_2 equivalent for a gas is determined by multiplying the metric tons of the gas by the associated GWP.

CFC-11 equivalent

CFC-11 equivalent is a measure used to compare various substances based on their relative ozone depletion potential. The reference level of 1 is the potential of CFC-11 and CFC-12 to cause ozone depletion.

Direct GHG emissions (Scope 1)

Emissions from operations that are owned or controlled by the organization.

Direct (Scope 1) GHG emissions come from sources (physical units or processes that release GHG into the atmosphere) that are owned or controlled by the organization.

~~Direct (Scope 1) GHG emissions include, but are not limited to, the CO_2 emissions from the fuel consumption reported in Indicator G4-EN3.~~

Energy indirect (Scope 2) GHG emissions

Emissions that result from the generation of purchased or acquired electricity, heating, cooling, and steam consumed by the organization.

GHG reductions

A decrease in GHG emissions or an increase in removal or storage of GHGs from the atmosphere, relative to baseline emissions. Primary effects will result in GHG reductions, as will some secondary effects. An initiative's total GHG reductions are quantified as the sum of its associated primary effect(s) and any significant secondary effects (which may involve decreases or countervailing increases in GHG emissions).

Global warming potential (GWP)

GWP values describe the radiative forcing impact of one unit of a given GHG relative to one unit of carbon dioxide over a given period of time. GWP values convert GHG emissions data for non-CO_2 gases into units of CO_2 equivalent.

Ozone-depleting substance (ODS)

Any substance with an ozone depletion potential (ODP) greater than 0 that can deplete the stratospheric ozone layer. Most ODS are controlled under the UNEP 'Montreal Protocol on Substances that Deplete the Ozone Layer'~~120~~ and its amendments, and include CFCs, HCFCs, halons, and methyl bromide.

Other indirect GHG emissions (Scope 3)

Other indirect GHG emissions are all indirect emissions (not included in Scope 2) that occur outside of the organization, including both upstream and downstream emissions.

GHG emissions scope

Scope is a classification of the operational boundaries where GHG emissions occur. Scope classifies whether GHG emissions are created by the organization itself, or are created by other related organizations, for example, electricity suppliers or haulage companies, as follows:

- Direct (Scope 1) emissions from operations that are owned or controlled by the organization
- Energy Indirect (Scope 2) emissions result from the generation of purchased or acquired electricity, heating, cooling, and steam consumed within the organization
- Other Indirect (Scope 3) emissions are all indirect emissions (not included in Scope 2) that occur outside of the organization, including both upstream and downstream emissions

Scopes 1, 2, and 3 of the GHG Protocol align with ISO 14064 definitions and the ~~GRI~~ Indicators as follows:

- Scope 1 = direct GHG emissions (~~GRI Indicator G4-EN15~~SRS19-1)
- Scope 2 = energy indirect GHG emissions (~~GRI Indicator G4-EN16~~SRS19-2)
- Scope 3 = other indirect GHG emissions (~~GRI Indicator G4-EN17~~SRS19-3)

The GHG Protocol prescribes reporting direct (Scope 1) emissions and energy indirect (Scope 2) emissions. Reporting other indirect (Scope 3) emissions is optional. The WRI and WBCSD 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard' prescribes reporting other indirect (Scope 3) emissions.

Significant air emissions

Air emissions that are regulated under international conventions and/or national laws or regulations, including those listed on environmental permits for the organization's operations.

Management Approach

Organizations are to use this GRI Standard in conjunction with SRS 9-1: Management Approach Narrative and SRS 9-2: Management Approach Indicators.

When using SRS 9-1 to report the management approach narrative, organizations are to incorporate the following additional information:

~~**Aspect-specific Guidance for G4-DMA-b**~~

~~Explain whether the organization is subject to any country, regional, or industry regulations and policies for emissions. Provide examples of such regulations and policies.~~

~~In addition to using the DMA Guidance for reporting on targets, w~~When reporting on GHG emissions targets, identify whether offsets are used to meet the target. Specify the type, amount, criteria or scheme of which they are part.

Indicators

When reporting the Indicators for emissions of GHGs and ODS, ~~possible,~~ organizations apply emission factors and GWP rates consistently for the data reported ~~under the Emissions Aspect~~. Emission factors may originate from mandatory reporting requirements, voluntary reporting frameworks, or be developed by industry groups. Estimates of GWPs change over time as scientific research develops. Organizations may use the GWPs from *Assessment Reports* from the Intergovernmental Panel on Climate Change (IPCC). As the GWPs from the IPCC *Second Assessment Report* are used as the basis for international negotiations under the UN 'Kyoto Protocol', such rates may be used for disclosing GHG emissions where it does not conflict with national or regional reporting requirements. Organizations may also use the latest GWPs from the most recent IPCC *Assessment Report*. GWPs are expressed over a number of different time frames within the IPCC *Assessment Reports*. Organizations use the factors for the 100-year time span.

Greenhouse gas (GHG) emissions

SRS19-1 ~~G4-EN15~~

DIRECT GREENHOUSE GAS (GHG) EMISSIONS (SCOPE 1)

a. **Report gross direct (Scope 1) GHG emissions in metric tons of CO_2 equivalent, independent of any GHG trades, such as purchases, sales, or transfers of offsets or allowances.**
b. **Report gases included in the calculation (whether CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3, or all).**
c. **Report biogenic CO_2 emissions in metric tons of CO_2 equivalent separately from the gross direct (Scope 1) GHG emissions.**
d. **Report the chosen base year, the rationale for choosing the base year, emissions in the base year, and the context for any significant changes in emissions that triggered recalculations of base year emissions.**
e. **Report standards, methodologies, and assumptions used.**
f. **Report the source of the emission factors used and the global warming potential (GWP) rates used or a reference to the GWP source.**
g. **Report the chosen consolidation approach for emissions (equity share, financial control, operational control).**

~~GUIDANCE~~

~~Relevance~~

~~This Indicator covers the disclosure of the direct (Scope 1) GHG emissions, in CO_2 equivalents, of the GHGs covered by the UN 'Kyoto Protocol' and the WRI and WBCSD 'GHG Protocol Corporate Accounting and Reporting Standard':~~

- ~~Carbon dioxide (CO_2)~~
- ~~Methane (CH_4)~~

- ~~Nitrous oxide (N_2O)~~
- ~~Hydrofluorocarbons (HFCs)~~
- ~~Perfluorocarbons (PFCs)~~
- ~~Sulphur hexafluoride (SF_6)~~
- ~~Nitrogen trifluoride (NF_3)~~

~~GHG emissions are a major contributor to climate change and are governed by the UN 'United Nations Framework Convention on Climate Change'[100] and the subsequent UN 'Kyoto Protocol'. Some GHGs, including methane (CH_4), are also air pollutants that have significant adverse impacts on ecosystems, air quality, agriculture, and human and animal health. As a result, different national and international regulations and incentive systems (such as tradable emission permits) aim to control the volume, and reward the reduction of GHG emissions.~~

~~Direct (Scope 1) GHG emissions come from sources (physical units or processes that release GHG into the atmosphere) that are owned or controlled by the organization.~~

Direct (Scope 1) GHG emissions include, but are not limited to, the CO_2 emissions from the fuel consumption reported in Indicator G4-EN3.

This Indicator ~~may~~can be used in combination with Indicators ~~G4-EN16~~SRS19-2 (energy indirect Scope 2 emissions) and ~~G4-EN17~~SRS19-3 (other indirect Scope 3 emissions) to report ~~an organization's~~ total GHG emissions.

~~The combination of direct and indirect emissions provides insights into the cost implications of taxation or trading systems. It also provides insight into an organization's carbon footprint and environmental performance.~~

~~Compilation~~

~~Identify d~~Direct (Scope 1) GHG emissions ~~of GHGs~~ from sources owned or controlled by the organization~~,~~ include~~ing~~:

- Generation of electricity, heating, cooling and steam. These emissions result from combustion of fuels in stationary sources (such as boilers, furnaces, turbines) and from other combustion processes such as flaring
- Physical or chemical processing. Most of these emissions result from the manufacturing or processing of chemicals and materials (such as cement, steel, aluminum, ammonia, and waste processing)
- Transportation of materials, products, waste, employees, and passengers. These emissions result from the combustion of fuels in mobile combustion sources owned or controlled by the organization (such as trucks, trains, ships, airplanes, buses, cars)
- Fugitive Emissions. These emissions result from intentional or unintentional releases, such as equipment leaks from joints, seals, packing, and gaskets; methane emissions from coal mines and venting; hydrofluorocarbon (HFC) emissions from refrigeration and air conditioning equipment; and methane leakages from gas transport

~~Using the sources identified, calculate the organization's gross direct GHG emissions using relevant GWP rates, in CO_2 equivalents, during the reporting period. Exclude any GHG trades, such as purchases, sales, or transfers of offsets or allowances.~~

~~Organizations are expected to report standards, methodologies, and assumptions used to calculate and measure emissions, with a r~~Reference ~~to~~ the calculation tools used. Organizations subject to different standards and methodologies should describe the approach to selecting them.

Select a consistent consolidation approach for emissions, and apply it to calculate the gross direct (Scope 1) GHG emissions. When possible, select an approach that is consistent with the approach used in Indicator ~~G4-EN16~~SRS19-2. Organizations select the equity share, financial control, or operational control methods outlined in the WRI and WBCSD 'GHG Protocol Corporate Accounting and Reporting Standard'.

~~Select and identify the base year for which emissions data are available, and identify the reasons for selecting that particular year.~~ For recalculations of prior year emissions, organizations ~~may~~can follow the approach in the WRI and WBCSD 'GHG Protocol Corporate Accounting and Reporting Standard'.

Organizations may report biogenic CO_2 emissions; however, such emissions are reported separately and not added to the total direct (Scope 1) GHG emissions. These emissions refer to CO_2 emissions from combustion or biodegradation of biomass only, not to emissions of any other GHGs (such as CH_4 and N_2O), or to any GHG emissions that occur in the life cycle of biomass other than from combustion or biodegradation (such as GHG emissions from processing or transporting biomass).

~~Information on offsets may be reported in the DMA for the Emissions Aspect.~~

Methodologies used to calculate the emissions may include:

- Direct measurement of energy source consumed (coal, gas) or losses (refills) of cooling systems and conversion to GHG (CO_2 equivalents)
- Mass balance calculations
- Calculation based on site-specific data (such as for fuel composition analysis)
- Calculation based on published criteria (emissions factors and GWPs)
- Estimations. If estimations are used due to a lack of default figures, the organization indicates the basis and assumptions on which figures were estimated
- Direct measurement of the GHG (such as continuous online analyzers)

Organizations ~~may~~can further disaggregate direct (Scope 1) GHG emissions data where this aids transparency or comparability over time. For example, they ~~may~~can disaggregate data by:

- Business unit or facility
- Country
- Source type (stationary combustion, process, fugitive)
- Activity type

~~When possible, organizations apply emission factors and GWP rates consistently for the data reported under the Emissions Aspect. Emission factors may originate from mandatory reporting requirements, voluntary reporting frameworks, or be developed by industry groups. Estimates of GWPs change over time as scientific research develops. Organizations may use the GWPs from *Assessment Reports* from the Intergovernmental Panel on Climate Change (IPCC). As the GWPs from the IPCC *Second Assessment Report* are used as the basis for international negotiations under the UN 'Kyoto Protocol', such rates may be used for disclosing GHG emissions where it does not conflict with national or regional reporting requirements. Organizations may also use the latest GWPs from the most recent IPCC *Assessment Report*.~~

~~GWPs are expressed over a number of different time frames within the IPCC *Assessment Reports*. Organizations use the factors for the 100-year time span.~~

Further details and guidance for this Indicator are available in the WRI and WBCSD 'GHG Protocol Corporate Accounting and Reporting Standard' and in documents from the IPCC.

~~**Definitions**~~

~~See Glossary in *Implementation Manual*, p. 244~~

- ~~Base year~~
- ~~Carbon dioxide equivalent~~
- ~~Direct GHG emissions (Scope 1)~~
- ~~Global warming potential (GWP)~~

~~**Documentation sources**~~

~~Potential sources of information on direct (Scope 1) GHG emissions include part of the data reported in Indicator G4-EN3.~~

~~**References**~~

- ~~Carbon Disclosure Project (CDP), *Investor CDP Information Request*, updated annually.~~
- ~~Intergovernmental Panel on Climate Change (IPCC), *Climate Change 1995: The Science of Climate Change, Contribution of Working Group I to the Second Assessment Report of the Intergovernmental Panel on Climate Change*, 1995.~~
- ~~Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, 2007.~~
- ~~United Nations (UN) Protocol, 'Kyoto Protocol to the United Nations Framework Convention on Climate Change', 1997.~~
- ~~World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'GHG Protocol Corporate Accounting and Reporting Standard', Revised Edition, 2004.~~
- ~~World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'Greenhouse Gas Protocol Accounting Notes, No. 1, Accounting and Reporting Standard Amendment', 2012.~~

SRS19-2~~G4-EN16~~

ENERGY INDIRECT GREENHOUSE GAS (GHG) EMISSIONS (SCOPE 2)

a. **Report gross energy indirect (Scope 2) GHG emissions in metric tons of CO_2 equivalent, independent of any GHG trades, such as purchases, sales, or transfers of offsets or allowances.**
b. **Report gases included in the calculation, if available.**
c. **Report the chosen base year, the rationale for choosing the base year, emissions in the base year, and the context for any significant changes in emissions that triggered recalculations of base year emissions.**
d. **Report standards, methodologies, and assumptions used.**

e. Report the source of the emission factors used and the global warming potential (GWP) rates used or a reference to the GWP source, if available.

f. Report the chosen consolidation approach for emissions (equity share, financial control, operational control).

~~**GUIDANCE**~~

~~**Relevance**~~

~~This Indicator covers the disclosure of energy indirect (Scope 2) GHG emissions, in CO_2 equivalents, of the GHGs covered by the UN 'Kyoto Protocol' and the WRI and WBCSD 'GHG Protocol Corporate Accounting and Reporting Standard'.~~

~~GHG emissions are a major contributor to climate change and are governed by the UN 'United Nations Framework Convention on Climate Change'[100] and the subsequent UN 'Kyoto Protocol'. Some GHGs, including methane (CH_4), are also air pollutants that have significant adverse impacts on ecosystems, air quality, agriculture, and human and animal health. As a result, different national and international regulations and incentive systems (such as tradable emission permits) aim to control the volume, and reward the reduction of GHG emissions.~~

An organization's energy indirect (Scope 2) GHG emissions result from the generation of the electricity, heating, cooling, and steam which it purchased from other organizations for its own consumption.

For many organizations the energy indirect (Scope 2) GHG emissions that result from the generation of purchased electricity are much greater than their direct GHG emissions.

This Indicator ~~may~~can be used in combination with Indicators ~~G4-EN15~~SRS19-1 (Scope 1 emissions) and ~~G4-EN17~~SRS19-3 (Scope 3 emissions) to report ~~an organization's~~ total GHG emissions. ~~The combination of direct and indirect emissions provides insights into the cost implications of taxation or trading systems. It also provides insight into an organization's environmental footprint and performance.~~

~~**Compilation**~~

~~Identify indirect emissions of GHGs that result from the generation of the electricity, heating, cooling, and steam which is purchased or acquired for own consumption by the organization.~~

Exclude other indirect (Scope 3) emissions. O~~These o~~ther indirect (Scope 3) emissions are reported in Indicator ~~G4-EN17~~SRS19-3.

~~Calculate the gross energy indirect GHG emissions that result from the generation of purchased electricity, heating, cooling, and steam. Exclude any GHG trades, such as purchases, sales, or transfers of offsets or allowances.~~

Select a consistent consolidation approach for emissions, and apply it to calculate the gross energy indirect (Scope 2) GHG emissions. When possible, select an approach that is consistent with the approach used in Indicator ~~G4-EN15~~SRS19-1. Organizations may select the equity share, financial control, or operational control methods outlined in the WRI and WBCSD 'GHG Protocol Corporate Accounting and Reporting Standard'.

~~Select and report a base year for which emissions data are available, and specify the reasons for selecting that particular year.~~

~~Organizations are expected to report standards, methodologies, and assumptions used to calculate and measure emissions, with a r~~Reference ~~to~~ the calculation tools used. Organizations subject to different standards and methodologies should describe the approach to selecting them.

Organizations ~~may~~can further disaggregate energy indirect (Scope 2) GHG emissions data where this aids transparency or comparability over time. For example, they ~~may~~can disaggregate data by:

- Business unit or facility
- Country
- Source type (electricity, heating, cooling, and steam)
- Activity type

For recalculations of prior year emissions, organizations ~~may~~can follow the approach in the WRI and WBCSD 'GHG Protocol Corporate Accounting and Reporting Standard'.

~~When possible, organizations apply emission factors and GWP rates consistently for the data reported under the Emissions Aspect. Emission factors may originate from mandatory reporting requirements, voluntary reporting frameworks, or be developed by industry groups. Estimates of GWPs change over time as scientific research develops. Organizations may use the GWPs from *Assessment Reports* from the Intergovernmental Panel on Climate Change (IPCC). As the GWPs from the *Second Assessment Report* are used as the basis for international negotiations under the UN 'Kyoto Protocol', such rates may be used for disclosing GHG emissions where it does not conflict with national or regional reporting requirements. Organizations may also use the latest GWPs from the most recent IPCC Assessment Report. GWPs are expressed over a number of different time frames within the IPCC *Assessment Reports*. Organizations use the factors for the 100-year time span.~~

~~Definitions~~

~~See Glossary in *Implementation Manual*, p. 244~~

- ~~Base year~~
- ~~Carbon dioxide equivalent~~
- ~~Energy indirect (Scope 2) GHG emissions~~
- ~~Global warming potential (GWP)~~

~~Documentation sources~~

~~Potential sources of information on energy indirect (Scope 2) emissions include electricity, heating, cooling, and steam consumption reported in Indicator G4-EN3.~~

~~References~~

- ~~Carbon Disclosure Project (CDP), *Investor CDP Information Request*, updated annually.~~
- ~~Intergovernmental Panel on Climate Change (IPCC), *Climate Change 1995: The Science of Climate Change, Contribution of Working Group I to the Second Assessment Report of the Intergovernmental Panel on Climate Change*, 1995.~~
- ~~Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, 2007.~~

- ~~United Nations (UN) Protocol, 'Kyoto Protocol to the United Nations Framework Convention on Climate Change', 1997.~~
- ~~World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'GHG Protocol Corporate Accounting and Reporting Standard', Revised Edition, 2004~~

SRS19-3~~G4-EN17~~
OTHER INDIRECT GREENHOUSE GAS (GHG) EMISSIONS (SCOPE 3)

a. Report gross other indirect (Scope 3) GHG emissions in metric tons of CO_2 equivalent, excluding indirect emissions from the generation of purchased or acquired electricity, heating, cooling, and steam consumed by the organization (these indirect emissions are reported in Indicator SRS19-2~~G4-EN16~~). Exclude any GHG trades, such as purchases, sales, or transfers of offsets or allowances.

b. Report gases included in the calculation, if available.

c. Report biogenic CO_2 emissions in metric tons of CO_2 equivalent separately from the gross other indirect (Scope 3) GHG emissions.

d. Report other indirect (Scope 3) emissions categories and activities included in the calculation.

e. Report the chosen base year, the rationale for choosing the base year, emissions in the base year, and the context for any significant changes in emissions that triggered recalculations of base year emissions.

f. Report standards, methodologies, and assumptions used.

g. Report the source of the emission factors used and the global warming potential (GWP) rates used or a reference to the GWP source, if available.

~~GUIDANCE~~

~~Relevance~~

~~GHG emissions are a major contributor to climate change and are governed by the UN 'United Nations Framework Convention on Climate Change'[100] and the subsequent UN 'Kyoto Protocol'. Some GHGs, including methane (CH_4), are also air pollutants that have significant adverse impacts on ecosystems, air quality, agriculture, and human and animal health.~~

For some organizations, GHG emissions from outside of the organization, or resulting from the use of their products, are much greater than their direct (Scope 1) GHG emissions or energy indirect (Scope 2) GHG emissions. ~~Measuring and communicating efforts to reduce other indirect (Scope 3) emissions can demonstrate leadership in combating climate change.~~

Other indirect (Scope 3) emissions are a consequence of the activities of the organization, but occur from sources not owned or controlled by the organization. Some examples of Scope 3 activities are the extraction and production of purchased materials; the transportation of purchased fuels in vehicles not owned or controlled by the organization; and the end use of products and services.

~~In the Guidelines, the reporting of GHG emissions is based on the reporting requirements of the 'GHG Protocol Corporate Accounting and Reporting Standard'[130] and the 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard' provided by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).~~

This Indicator ~~may~~can be used in combination with Indicators ~~G4-EN15~~SRS19-1 (Scope 1 emissions) and ~~G4-EN16~~SRS19-2 (Scope 2 emissions) to report ~~an organization's~~ total GHG emissions.

~~**Compilation**~~

~~This Indicator covers the disclosure of the other indirect (Scope 3) emissions, in CO_2 equivalents, of the GHGs covered by the UN 'Kyoto Protocol' and the WRI and WBCSD 'GHG Protocol Corporate Accounting and Reporting Standard'[130]:~~

- ~~Carbon dioxide (CO_2)~~
- ~~Methane (CH_4)~~
- ~~Nitrous oxide (N_2O)~~
- ~~Hydrofluorocarbons (HFCs)~~
- ~~Perfluorocarbons (PFCs)~~
- ~~Sulphur hexafluoride (SF_6)~~
- ~~Nitrogen trifluoride (NF_3)~~

Identify the indirect emissions that occur outside of the organization that are not reported under Indicator ~~G4-EN16~~SRS19-2. This includes both upstream and downstream emissions. Indirect emissions ~~may~~ might also come from the organization's waste decomposing processes, process-related emissions during the manufacturing of purchased goods, and fugitive emissions in facilities not owned or controlled by the organization.

Assess which of the organization's activities cause indirect emissions, and calculate the amounts involved.

When deciding the relevance of these activities, consider whether the activity's emissions:

- Contribute significantly to the organization's total anticipated Scope 3 emissions
- Offer potential for reductions that could be undertaken or influenced by the organization
- Contribute to the organization's exposure to climate change- related risks such as financial, regulatory, supply chain, product and customer, litigation, and reputational risks
- Are deemed material by key stakeholders (such as customers, suppliers, investors, or civil society)
- Result from outsourced activities which were previously performed in-house, or activities that are typically performed in-house by other organizations in the same sector
- Have been identified as significant in sector-specific guidance
- Meet any additional criteria for determining relevance, developed by the organization or by organizations in its sector

When reporting emissions for this Indicator, organizations may disaggregate data by the following categories and activities:

Upstream

1. Purchased goods and services
2. Capital goods
3. Fuel- and energy-related activities (those that are not included in Scope 1 or Scope 2 emissions)
4. Upstream transportation and distribution
5. Waste generated in operations
6. Business travel

7. Employee commuting
8. Upstream leased assets

Other upstream

Downstream

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
15. Investments

Other downstream

For each category and activity above, provide a figure in CO_2 equivalent or an explanation of why certain data are not included.

The upstream/downstream categories and activities including their numbering correspond to the categories and activities documented in the WRI and WBCSD 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard'. The numbering has been maintained consistent for the ease of reference between G4 and the WRI and WBCSD 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard'.

Organizations may report biogenic CO_2 emissions; however, such emissions are expected to be reported separately and not added to the total other indirect (Scope 3) emissions. These emissions refer to CO_2 emissions from combustion or biodegradation of biomass only, not to emissions of any other GHGs (such as CH_4 and N_2O), or to any GHG emissions that occur in the life cycle of biomass other than from combustion or biodegradation (such as GHG emissions from processing or transporting biomass).

Organizations ~~may~~can further disaggregate other indirect (Scope 3) emissions data where this aids transparency or comparability over time. For example, they ~~may~~can disaggregate data by:

- Business unit or facility
- Country
- Source type
- Activity type

~~Organizations are expected to choose and report a base year for which emissions data are available, and specify their reasons for choosing that particular year.~~ For recalculations of prior year emissions, organizations ~~may~~can follow the approach in the WRI and WBCSD 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard'.

~~Organizations are expected to report standards, methodologies, and assumptions used to calculate and measure emissions, with a r~~Reference ~~to~~ the calculation tools used. Organizations subject to different standards and methodologies should describe the approach to selecting them.

~~Where possible, organizations are expected to apply emission factors and GWP rates consistently for the data reported under the Emissions Aspect. Emission factors may originate from mandatory reporting~~

requirements, voluntary reporting frameworks, or be developed by industry groups. Estimates of GWPs change over time as scientific research develops. Organizations may use the GWPs from *Assessment Reports* from the Intergovernmental Panel on Climate Change (IPCC). As the GWPs from the *Second Assessment Report* are used as the basis for international negotiations under the UN 'Kyoto Protocol', such rates may be used for disclosing GHG emissions where it does not conflict with national or regional reporting requirements. Organizations may also use the latest GWPs from the most recent IPCC *Assessment Report*. GWPs are expressed over a number of different time frames within the IPCC *Assessment Reports*. Organizations should use the factors for the 100-year time span.

Further details on the compilation of this Indicator are available in the WRI and WBCSD 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard'.

Definitions

See Glossary in *Implementation Manual*, p. 244

- Base year
- Carbon dioxide equivalent
- Global warming potential (GWP)
- Other indirect GHG emissions (Scope 3)

Documentation sources

Potential sources of information on other indirect (Scope 3) emissions include the energy consumption outside of the organization reported in Indicator G4-EN4. Other potential sources of information include those provided by external suppliers of products and services. For certain types of indirect emissions such as business travel, the organization may need to combine its own records with data from external sources to arrive at an estimate.

References

- British Standards Institution (BSI), *Assessing the Life Cycle Greenhouse Gas Emissions of Goods and Services PAS 2050*, 2011.
- Carbon Disclosure Project (CDP), *Investor CDP Information Request*, updated annually.
- Intergovernmental Panel on Climate Change (IPCC), *Climate Change 1995: The Science of Climate Change, Contribution of Working Group I to the Second Assessment Report of the Intergovernmental Panel on Climate Change*, 1995.
- Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, 2007.
- United Nations (UN) Protocol, 'Kyoto Protocol to the United Nations Framework Convention on Climate Change', 1997.
- World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard', 2011.
- World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'GHG Protocol Product Life Cycle Accounting and Reporting Standard', 2011.

- ~~World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'Greenhouse Gas Protocol Accounting Notes, No. 1, Accounting and Reporting Standard Amendment', 2012.~~

SRS19-4~~G4-EN18~~
GREENHOUSE GAS (GHG) EMISSIONS INTENSITY

a. Report the GHG emissions intensity ratio.
b. Report the organization-specific metric (the ratio denominator) chosen to calculate the ratio.
c. Report the types of GHG emissions included in the intensity ratio: direct (Scope 1), energy indirect (Scope 2), other indirect (Scope 3).
d. Report gases included in the calculation.

~~GUIDANCE~~

~~Relevance~~

Intensity ratio defines an organization's GHG emissions in the context of an organization-specific metric. ~~Intensity is calculated by dividing the absolute emissions (the numerator) by an organization-specific metric (the denominator).~~

GHG emissions intensity expresses the GHG emissions per unit of activity, output, or any other organization-specific metric. Many organizations track environmental performance with intensity ratios. Intensity ratios are often called normalized environmental impact data.

Intensity ratios ~~may~~can include but are not limited to:

- Product emission intensity (such as metric tons of CO_2 emissions per unit produced)
- Service intensity (such as metric tons of CO_2 emissions per function or per service)
- Sales intensity (such as metric tons of CO_2 emissions per sales)

In combination with an organization's absolute GHG emissions, disclosed in Indicators ~~G4-EN15~~SRS19-1, ~~G4-EN16~~SRS-19-2, and ~~G4-EN17~~SRS19-3, GHG emissions intensity helps to contextualize the organization's efficiency, including in relation to other organizations.

~~Compilation~~

Select an appropriate ratio denominator to represent the per-unit output, activity, or any other organization-specific metric. This ~~may~~can include but is not limited to:

- Units of product
- Production volume (metric ton, liter, MWh)
- Size (m^2 floor space)
- Number of full-time employees
- Monetary units (revenue, sales)

Organizations ~~may~~can report several GHG emissions intensity ratios where this aids transparency or comparability. For example, they may calculate separate ratios by:

- Business unit or facility
- Country
- Source type
- Activity type

Intensity is calculated by dividing the absolute emissions (the numerator) by the organization-specific metric (the denominator).

If reporting combined direct (Scope 1) and indirect (Scope 2) intensity ratios, add together the figures reported in Indicators ~~G4-EN15~~SRS19-1 and ~~G4-EN16~~SRS19-2 to determine the total absolute amount of GHG emissions. Alternatively, use the GHG emissions figures reported in Indicators ~~G4-EN15~~SRS19-1 and ~~G4-EN16~~SRS19-2 separately.

Organizations may report the other indirect (Scope 3) GHG emissions intensity ratio with this Indicator; however, this ratio is expected to be presented separately, and not combined with the direct (Scope 1) or energy indirect (Scope 2) intensity ratios.

~~**Documentation sources**~~

~~Potential sources of information for the numerator include invoices, measurements or calculations, or estimations. Potential sources of information for the denominator include sector and country level guidance on GHG emissions reporting.~~

~~**References**~~

- ~~Carbon Disclosure Project (CDP), *Investor CDP Information Request*, updated annually.~~
- ~~World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'GHG Protocol Corporate Accounting and Reporting Standard', Revised Edition, 2004.~~
- ~~World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'Greenhouse Gas Protocol Accounting Notes, No. 1, Accounting and Reporting Standard Amendment', 2012.~~

SRS19-5~~G4-EN19~~
REDUCTION OF GREENHOUSE GAS (GHG) EMISSIONS

a. Report the amount of GHG emissions reductions achieved as a direct result of initiatives to reduce emissions, in metric tons of CO_2 equivalent.
b. Report gases included in the calculation (whether CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3, or all).
c. Report the chosen base year or baseline and the rationale for choosing it.
d. Report standards, methodologies, and assumptions used.
e. Report whether the reductions in GHG emissions occurred in direct (Scope 1), energy indirect (Scope 2), other indirect (Scope 3) emissions.

~~**GUIDANCE**~~

~~**Relevance**~~

~~GHG emissions are a major contributor to climate change and are governed by the UN 'United Nations Framework Convention on Climate Change'[100] and the subsequent UN 'Kyoto Protocol'. As a result, different national and international regulations and incentive systems (such as tradable emission permits) aim to control the volume, and reward the reduction of GHG emissions.~~

This Indicator ~~may~~ can be used in combination with Indicators ~~G4-EN15~~SRS19-1, ~~G4-EN16~~SRS19-2, and ~~G4-EN17~~SRS19-3 to monitor the reduction of GHG emissions with reference to the organization's targets, or to regulations and trading systems at international or national levels.

~~Compilation~~

~~Identify initiatives that have been implemented which have reduced the generation of GHG emissions.~~

Initiatives ~~may~~can include but are not limited to:

- Process redesign
- Conversion and retrofitting of equipment
- Fuel switching
- Changes in employee behavior
- Offsets

Organizations with many initiatives for reducing GHG emissions may prioritize reporting the initiatives that were implemented in the reporting period, and that have the potential to contribute significantly to reducing emissions. Initiatives and their reduction targets may be described in the ~~DMA~~management approach for the Emissions ~~Aspect~~topic.

Organizations may choose to report reductions disaggregated by initiatives or groups of initiatives.

Report the GHG emissions reductions separately for direct (Scope 1), energy indirect (Scope 2), and other indirect (Scope 3) emissions. Reductions in emissions that result from reduced production capacity or outsourcing are not included in this Indicator.

Reductions from offsets should be reported separately from other reductions.

Organizations may choose to use either inventory or project method for accounting for emissions reductions. Inventory method compares emissions reductions to a base year while project method compares emissions reductions to a baseline. Further details on the inventory and project reduction accounting methods are available in the WRI and WBCSD 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard' and WRI and WBCSD 'GHG Protocol for Project Accounting'.

~~Organizations are expected to report standards, methodologies, and assumptions used to calculate and measure reduction of GHG emissions, with a r~~Reference ~~to~~ the calculation tools used. Organizations subject to different standards and methodologies should describe the approach to selecting them.

~~Definitions~~

~~See Glossary in *Implementation Manual*, p. 244~~

- ~~Base year~~
- ~~Baseline~~
- ~~GHG reductions~~

~~**Documentation sources**~~

~~Potential information sources include the data reported in Indicators G4-EN15, G4-EN16, and G4-EN17, from emissions measurements, from estimates, or calculated from accounting data. Information on initiatives is likely to be maintained by the parties responsible for environmental management, such as energy or facilities managers.~~

~~**References**~~

- ~~Carbon Disclosure Project (CDP), *Investor CDP Information Request*, updated annually.~~
- ~~United Nations (UN) Protocol, 'Kyoto Protocol to the United Nations Framework Convention on Climate Change', 1997.~~
- ~~World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'GHG Protocol Corporate Accounting and Reporting Standard', Revised Edition, 2004.~~
- ~~World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard', 2011.~~
- ~~World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'GHG Protocol for Project Accounting', 2005.~~
- ~~World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'Greenhouse Gas Protocol Accounting Notes, No. 1, Accounting and Reporting Standard Amendment', 2012.~~

Ozone-depleting substances (ODS) emissions

SRS19-6~~G4-EN20~~
EMISSIONS OF OZONE-DEPLETING SUBSTANCES (ODS)

a. Report production, imports, and exports of ODS in metric tons of CFC-11 equivalent.
b. Report substances included in the calculation.
c. Report standards, methodologies, and assumptions used.
d. Report the source of the emission factors used.

~~**GUIDANCE**~~

~~**Relevance**~~

~~The ozone layer filters out most of the sun's biologically harmful ultraviolet (UV-B) radiation. Observed and projected ozone depletion due to ODS generates worldwide concern. The UNEP 'Montreal Protocol on Substances that Deplete the Ozone Layer' regulates the phase-out of ODS internationally.~~

Measuring ODS production, imports, and exports enables an assessment of how well an organization complies with legislation and manages its risks. This is particularly relevant for organizations that produce or use ODS in their processes, products and services and must now transition to new technologies to comply with phase-out commitments. The organization's results on ODS phase-out help to indicate its level of technology leadership, and its competitive position in markets for products and services affected by ODS rules.

~~Compilation~~

This Indicator covers the production, import, and export of substances covered in Annexes A, B, C, and E of the UNEP 'Montreal Protocol on Substances that Deplete the Ozone Layer' as well as any other ODS produced, imported, or exported by the organization.

~~Identify ODS produced, imported, or exported by the organization.~~

Calculate the production of ODS as the amount of ODS produced, minus the amount destroyed by approved technologies and minus the amount entirely used as feedstock in the manufacture of other chemicals. Exclude ODS recycled and reused.

Organizations ~~may~~can further disaggregate ODS data where this aids transparency or comparability over time. For example, they may disaggregate data by:

- Business unit or facility
- Country
- Source type
- Activity type

Organizations may report ODS data for the relevant substances separately or together.

~~Organizations are expected to report standards, methodologies, and assumptions used to calculate and measure ODS data, with a r~~Reference ~~to~~ the calculation tools used. Organizations subject to different standards and methodologies should describe the approach to selecting them.

~~Definitions~~

~~See Glossary in *Implementation Manual*, p. 244~~

- ~~CFC-11 equivalent~~
- ~~Ozone-depleting substance (ODS)~~

~~Documentation sources~~

~~Potential sources of information include emissions measurements, calculations from accounting data and defaults, or estimations.~~

~~References~~

- ~~Intergovernmental Panel on Climate Change (IPCC), *Climate Change 1995: The Science of Climate Change, Contribution of Working Group I to the Second Assessment Report of the Intergovernmental Panel on Climate Change*, 1995.~~
- ~~Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, 2007.~~
- ~~United Nations Environment Programme (UNEP), 'Montreal Protocol on Substances that Deplete the Ozone Layer', 1987.~~
- ~~United Nations Environment Programme (UNEP), *Standards and Codes of Practice to Eliminate Dependency on Halons - Handbook of Good Practices in the Halon Sector*, 2001.~~

NO_x, SO_x, and other significant air emissions

SRS19-7~~G4-EN21~~

NO_X, SO_X, AND OTHER SIGNIFICANT AIR EMISSIONS

a. Report the amount of significant air emissions, in kilograms or multiples for each of the following:
- **NO_X**
- **SO_X**
- **Persistent organic pollutants (POP)**
- **Volatile organic compounds (VOC)**
- **Hazardous air pollutants (HAP)**
- **Particulate matter (PM)**
- **Other standard categories of air emissions identified in relevant regulations**

b. Report standards, methodologies, and assumptions used.

c. Report the source of the emission factors used.

~~GUIDANCE~~

~~Relevance~~

~~Air pollutants have adverse effects on climate, ecosystems, air quality, habitats, agriculture, and human and animal health. Deterioration of air quality, acidification, forest degradation, and public health concerns have led to local and international regulations to control air emissions. Reductions in regulated pollutants lead to improved health conditions for workers and neighboring communities. Reductions, or performance beyond compliance, can enhance relations with affected communities and workers, and the ability to maintain or expand operations. In regions with emission caps, the volume of emissions also has direct cost implications.~~

~~This Indicator can also measure the scale of the organization's air emissions and demonstrate the relative size and importance of these emissions compared with those of other organizations.~~

~~Compilation~~

~~Identify significant air pollutants emitted by the organization and sources of significant air emissions release to the environment.~~

~~Using the air pollutants and their sources identified above, calculate the amount of significant air emissions released to the environment.~~

~~Organizations are expected to report standards, methodologies, and assumptions used to calculate and measure air emissions, with a r~~Reference ~~to~~ the calculation tools used. Organizations subject to different standards and methodologies should describe the approach to selecting them. Since calculating certain air emissions (such as NO_X) requires complex quantification efforts, indicate the methodology used for calculations, selecting one of the following approaches:

- Direct measurement of emissions (such as online analyzers)
- Calculation based on site-specific data

- Calculation based on published emission factors
- Estimation (if estimations are used due to a lack of default figures, indicate the basis on which figures were estimated)

Organizations ~~may~~can further disaggregate air emissions data where this aids transparency or comparability over time. For example, they may disaggregate data by:

- Business unit or facility
- Country
- Source type
- Activity type

~~**Definitions**~~

~~See Glossary in *Implementation Manual*, p. 244~~

- ~~Significant air emissions~~

~~**Documentation sources**~~

~~Potential sources of information include emissions measurements, calculations from accounting data and defaults, or estimations.~~

~~**References**~~

- ~~United Nations Economic Commission for Europe (UNECE) Convention, 'Geneva Protocol concerning the Control of Emissions of Volatile Organic Compounds or their Transboundary Fluxes', 1991.~~
- ~~United Nations Economic Commission for Europe (UNECE) Convention, 'Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone', 1999.~~
- ~~United Nations Economic Commission for Europe (UNECE) Convention, 'Helsinki Protocol on the Reduction of Sulphur Emissions or their Transboundary Fluxes', 1985.~~
- ~~United Nations Economic Commission for Europe (UNECE) Convention, 'Sofia Protocol concerning the Control of Emissions of Nitrogen Oxides or their Transboundary Fluxes', 1988.~~
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The following documents informed the development of this GRI Standard. Organizations are encouraged to be familiar with these documents, as they can improve understanding of the disclosure requirements.

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