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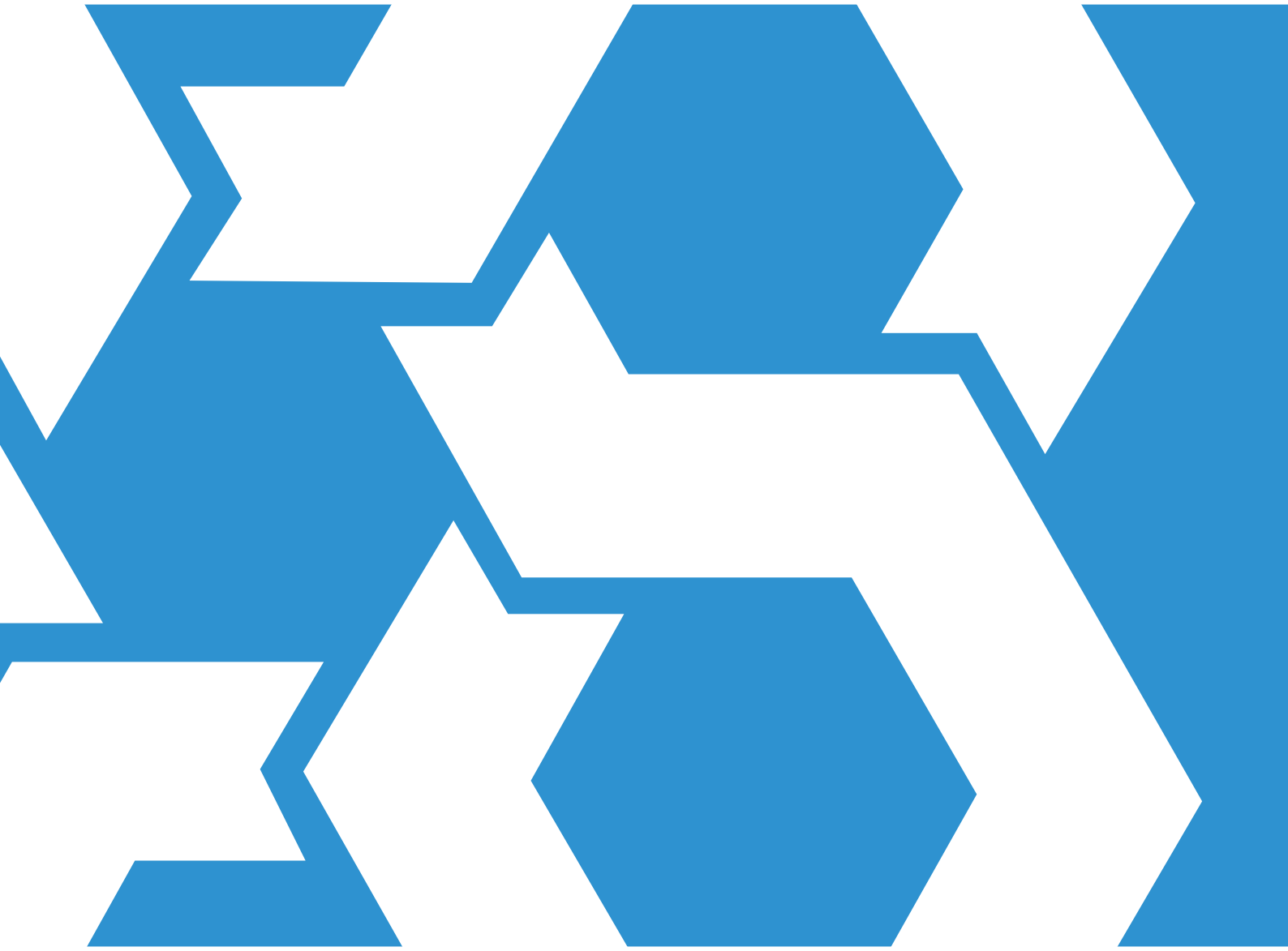
[Draft] IFRS S2 Climate-related Disclosures
Appendix B Industry-based disclosure requirements

Volume B38—Waste Management

Comments to be received by 29 July 2022



International Sustainability Standards Board

ED/2022/S2

This industry from Appendix B Industry-based disclosure requirements accompanies the Exposure Draft ED/2022/S2 *Climate-related Disclosures* (published March 2022; see separate booklet). It is published by the International Sustainability Standards Board (ISSB) for comment only. Comments need to be received by 29 July 2022 and should be submitted by email to commentletters@ifrs.org or online at https://www.ifrs.org/projects/open-for-comment/.

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Introduction

This volume is part of Appendix B of [draft] IFRS S2 Climate-related Disclosures *and is an integral part of that [draft] Standard. It has the same authority as the other parts of that [draft] Standard.*

This volume sets out the requirements for identifying, measuring and disclosing information related to an entity's significant climate-related risks and opportunities that are associated with specific business models, economic activities and other common features that characterise participation in this industry.

The industry-based disclosure requirements are derived from SASB Standards (see paragraphs B10–B12 of [Draft] IFRS S2 *Climate-related Disclosures*). Amendments to the SASB Standards, described in paragraph B11, are marked up for ease of reference. New text is underlined and deleted text is struck through. The metric codes used in SASB Standards have also been included, where applicable, for ease of reference. For additional context regarding the industry-based disclosure requirements contained in this volume, including structure and terminology, application and illustrative examples, refer to Appendix B paragraphs B3–B17.

Waste Management

Industry Description

The Waste Management industry includes companies that collect, store, dispose of, recycle, or treat various forms of waste from residential, commercial, and industrial clients. Types of waste include municipal solid waste, hazardous waste, recyclable materials, and compostable or organic materials. Major companies are commonly vertically integrated, providing a range of services from waste collection to landfilling and recycling, while others provide specialized services such as treating medical and industrial wastes. Waste-to-energy operations are a distinct industry segment. Certain industry players also provide environmental engineering and consulting services, mostly to large industrial clients.

Sustainability Disclosure Topics & Metrics

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	(1) Gross global Scope 1 emissions, percentage covered under (2) emissions-limiting regulations, and (3) emissions-reporting regulations	Quantitative	Metric tons (t) CO_2-e, Percentage (%)	IF-WM-110a.1
	(1) Total landfill gas generated, (2) percentage flared, (3) percentage used for energy	Quantitative	Million British Thermal Units (MMBtu), Percentage (%)	IF-WM-110a.2
	Discussion of long-term and short-term strategy or plan to manage Scope 1 and lifecycle emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	IF-WM-110a.3
Fleet Fuel Management	(1) Fleet fuel consumed, (2) percentage natural gas, (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	IF-WM-110b.1
	Percentage of alternative fuel vehicles in fleet	Quantitative	Percentage (%)	IF-WM-110b.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of customers by category: (1) municipal, (2) commercial, (3) industrial, (4) residential, and (5) other [59]	Quantitative	Number	IF-WM-000.A
Vehicle fleet size	Quantitative	Number	IF-WM-000.B
Number of: (1) landfills, (2) transfer stations, (3) recycling centers, (4) composting centers, (5) incinerators, and (6) all other facilities [60]	Quantitative	Number	IF-WM-000.C
Total amount of materials managed, by customer category: (1) municipal, (2) commercial, (3) industrial, (4) residential, and (5) other [61]	Quantitative	Metric tons (t)	IF-WM-000.D

[59] Note to **IF-WM-000.A** – The scope of "residential" shall only include those residential customers that have direct contracts with the entity. For the purposes of this disclosure, residential customers serviced through contracts with a municipality shall be considered in the "municipal" category. The scope of each customer type shall be consistent with the entity's financial reporting.

[60] Note to **IF-WM-000.C** – Landfills include landfills that are active and landfills owned by the company that are closed. The scope of "all other facilities" excludes corporate offices. The scope of each customer type shall be consistent with the entity's financial reporting.

[61] Note to **IF-WM-000.D** – "Managed" is defined as the handling of discarded materials, whether those materials are treated or not. The scope of "residential" shall only include those residential customers that have direct contracts with the entity. For the purposes of this disclosure, residential customers serviced through contracts with a municipality shall be considered in the "municipal" category. The scope of each customer type shall be consistent with the entity's financial reporting.

Greenhouse Gas Emissions

Topic Summary

Landfill gas is a significant anthropogenic contributor to global greenhouse gas (GHG) emissions because it contains highly potent methane. As a result, landfill gas is frequently required to be limited by regulators. These emissions can be reduced through a variety of control technologies that require significant capital expenditures: landfill gas collection efficiency improvements, control devices, and increased methane oxidization. Methane collected through capture systems can be combusted in a flare, an engine, or a turbine to dramatically reduce the overall toxicity and potency of raw emissions. Landfill gas capture is particularly important for owners and operators of large landfills that have been the target of regulation. Companies that operate in the waste-to-energy segment of the industry are able to lower lifecycle emissions of waste through decreased future emissions from landfills and displaced energy generation, but face increased Scope 1 emissions from the operation of waste-to-energy facilities. Overall, GHG emissions pose regulatory risks for the industry, with potential impacts on operational costs and capital expenditures. There is also the potential for revenue generation through the sale of natural gas and energy from waste-to-energy facilities, as well as the ability to lower fuel purchases by using processed landfill gas to power operations. Performance on this issue can affect a company's ability to secure new permits and/or renew existing ones, which can impact revenue.

Metrics

IF-WM-110a.1. (1) Gross global Scope 1 emissions, percentage covered under (2) emissions-limiting regulations, and (3) emissions-reporting regulations

1 The entity shall disclose its (1) gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol —carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalents (CO_2-e), and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits, or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 Acceptable calculation methodologies include those that conform to the GHG Protocol as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples include, but are not limited to:

2.1.1 *GHG Reporting Guidance for the Aerospace Industry* published by International Aerospace Environmental Group (IAEG)

2.1.2 Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources published by the U.S. Environmental Protection Agency (EPA)

2.1.3 India GHG Inventory Program

2.1.4 ISO 14064-1

2.1.5 Petroleum Industry Guidelines for reporting GHG emissions, 2nd edition, 2011, published by IPIECA

2.1.6 Protocol for the quantification of greenhouse gas emissions from waste management activities published by Entreprises pour l'Environnement (EpE)

2.2 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which is generally aligned with the "financial control" approach defined by the GHG Protocol, and the approach published by the Climate Disclosure Standards Board (CDSB) described in REQ-07, "Organisational boundary," of the *CDSB Framework for reporting environmental information, natural capital and associated business impacts* (April 2018).

3 The entity shall disclose (2) the percentage of its gross global Scope 1 GHG emissions that are covered under an emissions-limiting regulation or program that is intended to directly limit or reduce emissions, such as cap-and-trade schemes, carbon tax/fee systems, and other emissions control (e.g., command-and-control approach) and permit-based mechanisms.

3.1 Examples of emissions-limiting regulations include, but are not limited to:

3.1.1 California Cap-and-Trade (California Global Warming Solutions Act)

3.1.2 European Union Emissions Trading Scheme (EU ETS)

3.1.3 Quebec Cap-and-Trade (Draft Bill 42 of 2009)

3.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO_2-e) that are covered under emissions-limiting regulations divided by the total amount of gross global Scope 1 GHG emissions (CO_2-e).

3.2.1 For emissions that are subject to multiple emissions-limiting regulations, the entity shall not account for those emissions more than once.

3.3 The scope of emissions-limiting regulations excludes emissions covered under voluntary emissions-limiting regulations (e.g., voluntary trading systems), as well as reporting-based regulations ~~[e.g., the U.S. Environmental Protection Agency (EPA) GHG Reporting Program]~~.

4 The entity shall disclose (3) the percentage of its gross global Scope 1 GHG emissions that are covered under emissions reporting-based regulations.

4.1 Emissions reporting-based regulations are defined as regulations that demand the disclosure of GHG emissions data to regulators and/or the public, but for which there is no limit, cost, target, or controls on the amount of emissions generated ~~(e.g., the U.S. EPA Greenhouse Gas Reporting Program)~~.

4.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO_2-e) that are covered under emissions reporting-based regulations divided by the total amount of gross global Scope 1 GHG emissions (CO_2-e).

4.2.1 For emissions that are subject to multiple emissions reporting-based regulations, the entity shall not account for those emissions more than once.

4.3 The scope of emissions reporting-based regulations does not exclude emissions covered under emissions-limiting regulations.

5 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was due to emissions reductions, divestment, acquisition, mergers, changes in output, and/or changes in calculation methodology.

6 In the case that current reporting of GHG emissions to the CDP or other entity (e.g., a national regulatory disclosure program) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

7 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations, or mass balance calculations.

IF-WM-110a.2. (1) Total landfill gas generated, (2) percentage flared, (3) percentage used for energy

1 The entity shall disclose (1) the total amount, in millions of British Thermal Units (MMBtu), of landfill gas generated from its owned or operated facilities.

1.1 Landfill gas is defined~~, consistent with U.S. 40 CFR 98.6,~~ as gas produced as a result of anaerobic decomposition of waste materials in the landfill.

2 The entity shall disclose (2) the percentage of landfill gas that was flared.

2.1 The percentage shall be calculated as the amount (in MMBtu) of landfill gas that was flared divided by the total amount (in MMBtu) of landfill gas generated.

2.1.1 Flared landfill gas includes gas that is flared through air injection and is defined~~, consistent with U.S. 40 CFR 98.6,~~ as gas that is combusted through the use of an open flame with combustion air provided by uncontrolled ambient air around the flame and/or air that is blown into the flare to induce complete combustion.

3 The entity shall disclose (3) the percentage of landfill gas that was used for energy.

3.1 The percentage shall be calculated as the amount (in MMBtu) of landfill gas that was captured and used for energy divided by the total amount (in MMBtu) of landfill gas generated.

3.1.1 Landfill gas used for energy includes gas that is combusted for use in on-site energy or heat production, conveyed through pipelines for off-site combustion, and any other on-site or off-site use as a fuel.

4 The entity shall disclose the methodology used ~~use the calculation methodology in U.S. 40 CFR 98.340-348 Subpart HH~~ to calculate the amount of landfill gas generated, the percentage flared, and the percentage used for energy.

IF-WM-110a.3. Discussion of long-term and short-term strategy or plan to manage Scope 1 and lifecycle emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long-term and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined according to *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard,* Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss how lifecycle GHG emissions factor into its management of Scope 1 emissions and overall business strategy.

2.1 Relevant aspects to discuss include, but are not limited to:

2.1.1 The trade-offs between lifecycle emissions and Scope 1 emissions

2.1.2 How such trade-offs are evaluated within the context of the entity's business strategy and operational areas of focus (e.g., landfill gas management, waste-to-energy, recycling, composting)

2.1.3 The extent to which the trade-offs factor into the entity's business strategy, including identified areas of opportunity for growth and its capital expenditure strategy

2.1.4 Whether the short-term management of Scope 1 emissions or the long-term management of lifecycle emissions is prioritized by the entity

2.1.5 The impact of waste-to-energy (WTE) operations on lifecycle emissions versus Scope 1 emissions

2.2 The entity may disclose related quantitative measures, which may include, but are not limited to:

2.2.1 Avoided emissions (e.g., Protocol for the quantification of greenhouse gas emissions from waste management activities published by Entreprises pour l'Environnement)

2.2.2 Estimated future Scope 1 emissions from landfills

3 The entity shall discuss risks and opportunities arising out of lifecycle emissions and Scope 1 emissions, including, but not limited to:

3.1 Risks arising out of future Scope 1 emissions over the long-term resulting from landfills

3.2 Risks arising out of short-term increases in Scope 1 emissions resulting from WTE facilities

3.3 Opportunities arising out of long-term decreases in lifecycle emissions resulting from WTE facilities, recycling, and composting

4 The entity shall discuss its emission reduction target(s) and analyze its performance against the target(s), including the following, where relevant:

4.1 The scope of the emission reduction target (e.g., the percentage of total emissions to which the target is applicable);

4.2 Whether the target is absolute- or intensity-based, and the metric denominator, if it is an intensity-based target;

4.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated toward the achievement of the target;

4.4 The timelines for the reduction activity, including the start year, the target year, and the base year;

4.5 The mechanism(s) for achieving the target; and

4.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

5 The entity shall discuss the activities and investments required to achieve the plans and targets, and any risks or limiting factors that might affect achievement of the plans and/or targets.

6 The entity shall discuss the scope of its strategies, plans, and/or reduction targets, such as how they relate to different business units, geographies, or emissions sources.

7 The entity shall discuss whether its strategies, plans, and/or reduction targets are related to, or associated with, emissions limiting and/or emissions reporting-based programs or regulations (e.g., the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international, or sectoral programs.

8 Disclosure of strategies, plans, and/or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Fleet Fuel Management

Topic Summary

Many companies in the Waste Management industry own and operate large vehicle fleets for waste collection and transfer. The fuel consumption of vehicle fleets is a significant industry expense, both in terms of operating costs and associated capital expenditures. Fossil fuel consumption can contribute to environmental impacts, including climate change and pollution. These environmental impacts have the potential to affect waste management companies through regulatory exposure and the competitiveness of new contract proposals. Hedging fuel purchases is a common tool used to manage fleet-fuel risks; however, more and more waste management companies are upgrading to more fuel-efficient fleets or switching to natural gas vehicles. A cleaner-burning fleet may also be seen as more favorable by communities living near waste management facilities with heavy traffic.

Metrics

IF-WM-110b.1. (1) Fleet fuel consumed, (2) percentage natural gas, (3) percentage renewable

1 The entity shall disclose (1) the total amount of fuel consumed by its fleet vehicles as an aggregate figure, in gigajoules (GJ).

1.1 The calculation methodology for fuel consumed shall be based on actual fuel consumed as opposed to design parameters.

1.2 Acceptable calculation methodologies for fuel consumed include, but are not limited to, methodologies based on:

1.2.1 Adding fuel purchases made during the reporting period to beginning inventory at the start of the reporting period, less any fuel inventory at the end of the reporting period

1.2.2 Tracking fuel consumed by vehicle

1.2.3 Tracking fuel expenses

2 The entity shall disclose (2) the percentage of fuel consumed that is natural gas.

2.1 The percentage shall be calculated as the amount of natural gas consumed (in GJ) divided by the total amount of fuel consumed (in GJ).

3 The entity shall disclose (3) the percentage of fuel consumed that was renewable fuel.

3.1 Renewable fuel is generally defined~~, consistent with the U.S. Renewable Fuel Standard (U.S. 40 CFR 80.1401),~~ as fuel that meets all of the following requirements:

3.1.1 Produced from renewable biomass;

3.1.2 Used to replace or reduce the quantity of fossil fuel present in a transportation fuel, heating oil, or jet fuel; and

3.1.3 Achieved net ~~Has lifecycle~~ greenhouse gas (GHG) emissions reduction on a life cycle basis ~~that are at least 20 percent less than baseline lifecycle GHG emissions, unless the fuel is exempt from this requirement pursuant to U.S. 40 CFR 80.1403~~.

3.2 The entity shall disclose the standard or regulation used to determine if a fuel is renewable.

~~The scope of renewable fuel includes fuel that qualifies for Renewable Identification Numbers (RINs) under the U.S. Renewable Fuel Standard.~~

3.3 The percentage shall be calculated as the amount of renewable fuel consumed (in GJ) divided by the total amount of fuel consumed (in GJ).

4 The scope of disclosure is limited to fuel consumed by vehicles owned or operated by the entity.

5 In calculating energy consumption from fuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are directly measured or taken from the Intergovernmental Panel on Climate Change~~, the U.S. Department of Energy, or the U.S. Energy Information Agency~~.

6 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage.

IF-WM-110b.2. Percentage of alternative fuel vehicles in fleet

1 The entity shall disclose the percentage of its fleet vehicles that are alternative fuel vehicles.

1.1 Alternative fuel vehicles are defined ~~by the U.S. Energy Policy Act and the U.S. Natural Defense Authorization Act of 2008~~ as vehicles powered by biodiesel, denatured alcohol, electricity, hydrogen, methanol, mixtures containing up to 85 percent methanol or denatured ethanol, natural gas, or propane (liquefied petroleum gas). Alternative energy vehicles also include any vehicle achieving a significant reduction in petroleum consumption, advanced lean burn technology vehicles, fuel cell vehicles, and hybrid electric vehicles.

1.2 The percentage shall be calculated as the number of alternative energy vehicles in its fleet divided by the total number of vehicles in its fleet.

