



**SASB
STANDARDS**

Now part of IFRS Foundation

Waste Management

Sustainability Accounting Standard

INFRASTRUCTURE SECTOR

Sustainable Industry Classification System® (SICS®) IF-WM

Under Stewardship of the International Sustainability Standards Board

INDUSTRY STANDARD | VERSION 2023-12



 **IFRS®**
Sustainability

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ABOUT THE SASB STANDARDS

As of August 2022, the International Sustainability Standards Board (ISSB) of the IFRS Foundation assumed responsibility for the SASB Standards. The ISSB has committed to maintain, enhance and evolve the SASB Standards and encourages preparers and investors to continue to use the SASB Standards.

IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information* (IFRS S1) requires entities to refer to and consider the applicability of disclosure topics in the SASB Standards when identifying sustainability-related risks and opportunities that could reasonably be expected to affect an entity's prospects. Similarly, IFRS S1 requires entities to refer to and consider the applicability of metrics in the SASB Standards when determining what information to disclose regarding sustainability-related risks and opportunities.

In June 2023, the ISSB amended climate-related topics and metrics in the SASB Standards to align them with the industry-based guidance accompanying IFRS S2 *Climate-related Disclosures*. In December 2023, the ISSB amended the non-climate-related topics and metrics in connection with the International Applicability of SASB Standards project.

Effective Date

This version 2023-12 of the Standard is effective for all entities for annual periods beginning or after January 1, 2025. Early adoption is permitted for all entities.

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INTRODUCTION

Overview of SASB Standards

The SASB Standards are a set of 77 industry-specific sustainability accounting standards (“SASB Standards” or “Industry Standards”), categorised pursuant to the [Sustainable Industry Classification System[®] \(SICS[®]\)](#).

SASB Standards include:

1. **Industry descriptions** – which are intended to help entities identify applicable industry guidance by describing the business models, associated activities and other common features that characterise participation in the industry.
2. **Disclosure topics** – which describe specific sustainability-related risks or opportunities associated with the activities conducted by entities within a particular industry.
3. **Metrics** – which accompany disclosure topics and are designed to, either individually or as part of a set, provide useful information regarding an entity’s performance for a specific disclosure topic.
4. **Technical protocols** – which provide guidance on definitions, scope, implementation and presentation of associated metrics.
5. **Activity metrics** – which quantify the scale of specific activities or operations by an entity and are intended for use in conjunction with the metrics referred to in point 3 to normalise data and facilitate comparison.

Entities using the SASB Standards as part of their implementation of ISSB Standards should consider the relevant ISSB application guidance.

For entities using the SASB Standards independently from ISSB Standards, the [SASB Standards Application Guidance](#) establishes guidance applicable to the use of all Industry Standards and is considered part of the Standards. Unless otherwise specified in the technical protocols contained in the Industry Standards, the guidance in the SASB Standards Application Guidance applies to the definitions, scope, implementation, compilation and presentation of the metrics in the Industry Standards.

Historically, the [SASB Conceptual Framework](#) set out the basic concepts, principles, definitions and objectives that guided the SASB Standards Board in its approach to setting standards for sustainability accounting.

Use of the Standards

SASB Standards are intended to aid entities in disclosing information about sustainability-related risks and opportunities that could reasonably be expected to affect the entity's cash flows, its access to finance or cost of capital over the short, medium or long term. An entity determines which Industry Standard(s) and which disclosure topics are relevant to its business, and which associated metrics to report. In general, an entity should use the SASB Standard specific to its primary industry as identified in [SICS[®]](#). However, companies with substantial business in multiple SICS[®] industries should refer to and consider the applicability of the disclosure topics and associated metrics in additional SASB Standards.

The disclosure topics and associated metrics contained in this Standard have been identified as those that are likely to be useful to investors. However, the responsibility for making materiality judgements and determinations rests with the reporting entity.

Industry Description

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

SUSTAINABILITY DISCLOSURE TOPICS & METRICS

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	(1) Gross global Scope 1 emissions, percentage covered under (2) emissions-limiting regulations and (3) emissions-reporting regulations	Quantitative	Metric tonnes (t) CO ₂ -e, Percentage (%)	IF-WM-110a.1
	(1) Total landfill gas generated, (2) percentage flared and (3) percentage used for energy	Quantitative	Million British Thermal Units (MMBtu), Percentage (%)	IF-WM-110a.2
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	IF-WM-110a.3
Fleet Fuel Management	(1) Fleet fuel consumed, (2) percentage natural gas and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	IF-WM-110b.1
	Percentage of alternative fuel vehicles in fleet	Quantitative	Percentage (%)	IF-WM-110b.2
Air Quality	Air emissions of the following pollutants: (1) NO _x (excluding N ₂ O), (2) SO _x , (3) volatile organic compounds (VOCs), and (4) hazardous air pollutants (HAPs)	Quantitative	Metric tonnes (t)	IF-WM-120a.1
	Number of facilities in or near areas of dense population	Quantitative	Number	IF-WM-120a.2
	Number of incidents of non-compliance associated with air quality permits, standards, and regulations	Quantitative	Number	IF-WM-120a.3
Management of Leachate & Hazardous Waste	(1) Total Toxic Release Inventory (TRI) releases, (2) percentage released to water	Quantitative	Metric tonnes (t), Percentage (%)	IF-WM-150a.1
	Number of corrective actions implemented for landfill releases	Quantitative	Number	IF-WM-150a.2
	Number of incidents of non-compliance associated with environmental impacts	Quantitative	Number	IF-WM-150a.3

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TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Labour Practices	Percentage of active workforce employed under collective agreements	Quantitative	Percentage (%)	IF-WM-310a.1
	(1) Number of work stoppages and (2) total days idle ¹	Quantitative	Number, Days idle	IF-WM-310a.2
Workforce Health & Safety	(1) Total recordable incident rate (TRIR), (2) fatality rate, and (3) near miss frequency rate (NMFR) for (a) direct employees and (b) contract employees	Quantitative	Rate	IF-WM-320a.1
	Number of road accidents and incidents	Quantitative	Number	IF-WM-320a.3
Recycling & Resource Recovery	(1) Amount of waste incinerated, (2) percentage hazardous, (3) percentage used for energy recovery	Quantitative	Metric tonnes (t), Percentage (%)	IF-WM-420a.1
	Percentage of customers receiving (1) recycling and (2) composting services, by customer type	Quantitative	Percentage (%)	IF-WM-420a.2
	Amount of material (1) recycled, (2) composted, and (3) processed as waste-to-energy	Quantitative	Metric tonnes (t)	IF-WM-420a.3
	(1) Amount of electronic waste collected, (2) percentage recovered through recycling	Quantitative	Metric tonnes (t), Percentage (%)	IF-WM-420a.4

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 ²	Quantitative	Number	IF-WM-000.A
Vehicle fleet size	Quantitative	Number	IF-WM-000.B
Number of: (1) landfills, (2) transfer stations, (3) recycling centres, (4) composting centres, (5) incinerators, and (6) all other facilities ³	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 ⁴	Quantitative	Metric tonnes (t)	IF-WM-000.D

¹ Note to **IF-WM-310a.2** – The disclosure shall include a description of the reason for each work stoppage, effect on operations, and any corrective actions taken.

² Note to **IF-WM-000.A** – The scope of ‘residential’ shall include only 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.

³ Note to **IF-WM-000.C** – Landfills include landfills that are active and landfills owned by the entity that are closed. The scope of ‘all other facilities’ excludes corporate offices. The scope of each customer type shall be consistent with the entity’s financial reporting.

⁴ Note to **IF-WM-000.D** – ‘Managed’ is defined as handling discarded materials, whether those materials are treated or not. The scope of residential shall include only 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

Landfills are a significant anthropogenic contributor to global greenhouse gas (GHG) emissions because they generate methane. As a result, regulators frequently require entities to limit landfill gas emissions. Entities can reduce these emissions through a variety of control technologies that require significant capital investments such as landfill gas collection efficiency improvements, control devices and increased methane oxidation. Entities can capture and combust methane using a flare, an engine or a turbine to reduce the overall toxicity and potency of raw emissions dramatically. Landfill gas capture is particularly important for owners and operators of large landfills that have been the focus of regulation. Entities that operate in the waste-to-energy industry segment may reduce waste lifecycle emissions through decreased future emissions from landfills and displaced energy generation, but they face increased Scope 1 emissions from waste-to-energy facilities operations. Overall, GHG emissions pose regulatory risks for the industry, with potential effects on operational costs and capital expenditures. Entities also may generate revenue through the sale of natural gas and energy from waste-to-energy facilities, as well as reduce fuel purchases by using processed landfill gas to power operations. Performance on this issue may affect an entity's ability to secure new permits or renew existing ones, which can affect revenue.

Metrics

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

- 1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).
 - 1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tonnes of carbon dioxide equivalent (CO₂-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).
 - 1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.
- 2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).
 - 2.1 Acceptable calculation methodologies include those that conform to the *GHG Protocol* as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples include:

- 2.1.1 *GHG Reporting Guidance for the Aerospace Industry* published by the International Aerospace Environmental Group (IAEG)
 - 2.1.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the U.S. Environmental Protection Agency (EPA)
 - 2.1.3 India GHG Inventory Program
 - 2.1.4 ISO 14064-1
 - 2.1.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by Ipieca
 - 2.1.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)
 - 2.2 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which generally is aligned with the 'financial control' approach defined by the *GHG Protocol*, and the approach published by the Climate Disclosure Standards Board (CDSB) that is described in REQ-07, 'Organisational boundary', of the *CDSB Framework for reporting environmental and social information*.
- 3 The entity shall disclose (2) the percentage of its gross global Scope 1 GHG emissions covered under an emissions-limiting regulation or programme intended to limit or reduce emissions directly, such as cap-and-trade schemes, carbon tax/fee systems, and other emissions control (for example, command-and-control approach) and permit-based mechanisms.
- 3.1 Examples of emissions-limiting regulations include:
 - 3.1.1 California Cap-and-Trade (California Global Warming Solutions Act)
 - 3.1.2 European Union Emissions Trading Scheme (EU ETS)
 - 3.1.3 Quebec Cap-and-Trade (Quebec Environment Quality Act)
 - 3.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO₂-e) covered under emissions-limiting regulations divided by the total amount of gross global Scope 1 GHG emissions (CO₂-e).
 - 3.2.1 For emissions subject to more than one emissions-limiting regulation, the entity shall not account for those emissions more than once.
 - 3.3 The scope of emissions-limiting regulations excludes emissions covered under voluntary emissions-limiting regulations (for example, voluntary trading systems), as well as reporting-based regulations.
- 4 The entity shall disclose (3) the percentage of its gross global Scope 1 GHG emissions covered under emissions reporting-based regulations.

- 4.1 Emissions reporting-based regulations are defined as regulations that demand the disclosure of GHG emissions data to regulators or the public, but for which no limit, cost, target or controls on the amount of emissions generated exists.
- 4.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO₂-e) covered under emissions reporting-based regulations divided by the total amount of gross global Scope 1 GHG emissions (CO₂-e).
 - 4.2.1 For emissions subject to more than one emissions reporting-based regulation, the entity shall not account for those emissions more than once.
- 4.3 The scope of emissions reporting-based regulations does not exclude emissions covered under emissions-limiting regulations.
- 5 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.
- 6 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.
- 7 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

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

- 1 The entity shall disclose (1) the total amount, in millions of British Thermal Units (MMBtu), of landfill gas generated from its owned or operated facilities.
 - 1.1 Landfill gas is defined as gas produced because of anaerobic decomposition of waste materials in the landfill.
- 2 The entity shall disclose (2) the percentage of landfill gas that was flared.
 - 2.1 The percentage shall be calculated as the amount (in MMBtu) of landfill gas that was flared divided by the total amount (in MMBtu) of landfill gas generated.
 - 2.1.1 Flared landfill gas includes gas flared through air injection and is defined as gas that is combusted using an open flame with combustion air provided by uncontrolled ambient air around the flame, or air that is blown into the flare to induce complete combustion.
- 3 The entity shall disclose (3) the percentage of landfill gas used for energy.
 - 3.1 The percentage shall be calculated as the amount (in MMBtu) of landfill gas captured and used for energy divided by the total amount (in MMBtu) of landfill gas generated.

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

4 The entity shall disclose the methodology used to calculate the amount of landfill gas generated, the percentage flared and the percentage used for energy.

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

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

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

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).

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

2.1 Relevant aspects to discuss include:

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

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

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

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

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

2.2 The entity may disclose related quantitative measures, which may include:

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

2.2.2 Estimated future Scope 1 emissions from landfills

- 3 The entity shall discuss risks and opportunities arising out of lifecycle emissions and Scope 1 emissions, which may include:
 - 3.1 Risks arising from future Scope 1 emissions over the long-term resulting from landfills
 - 3.2 Risks arising from short-term increases in Scope 1 emissions resulting from WTE facilities
 - 3.3 Opportunities arising from long-term decreases in lifecycle emissions resulting from WTE facilities, recycling and composting
- 4 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:
 - 4.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);
 - 4.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;
 - 4.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;
 - 4.4 The time lines for the reduction activity, including the start year, the target year and the base year;
 - 4.5 The mechanism(s) for achieving the target; and
 - 4.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.
- 5 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.
- 6 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.
- 7 The entity shall discuss whether its strategies, plans, or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.
- 8 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Fleet Fuel Management

Topic Summary

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

Metrics

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

- 1 The entity shall disclose (1) the total amount of fuel consumed by its fleet vehicles as an aggregate figure, in gigajoules (GJ).
 - 1.1 The calculation methodology for fuel consumed shall be based on actual fuel consumed as opposed to design parameters.
 - 1.2 Acceptable calculation methodologies for fuel consumed may include methodologies based on:
 - 1.2.1 Adding fuel purchases made during the reporting period to beginning inventory at the start of the reporting period, minus any fuel inventory at the end of the reporting period
 - 1.2.2 Tracking fuel consumed by vehicle
 - 1.2.3 Tracking fuel expenses
- 2 The entity shall disclose (2) the percentage of fuel consumed that is natural gas.
 - 2.1 The percentage shall be calculated as the amount of natural gas consumed (in GJ) divided by the total amount of fuel consumed (in GJ).
- 3 The entity shall disclose (3) the percentage of fuel consumed that was renewable fuel.
 - 3.1 Renewable fuel generally is defined as fuel that meets all the following requirements:
 - 3.1.1 Produced from renewable biomass
 - 3.1.2 Used to replace or reduce the quantity of fossil fuel present in a transportation fuel, heating oil or jet fuel

3.1.3 Achieved net greenhouse gas (GHG) emissions reduction on a life cycle basis

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

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

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

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

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

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

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

1.1 Alternative fuel vehicles are defined as vehicles powered by biodiesel, denatured alcohol, electricity, hydrogen, methanol, mixtures containing up to 85% methanol or denatured ethanol, natural gas, or propane (liquefied petroleum gas). Alternative energy vehicles also include any vehicle achieving a significant reduction in petroleum consumption, advanced lean burn technology vehicles, fuel cell vehicles and hybrid electric vehicles.

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

Air Quality

Topic Summary

Air pollution is the presence of air contaminants in such quantities and duration that they may be injurious to humans, animals, plants or property. It also includes contaminants that interfere with enjoyment of life or property. Therefore, odours and toxic gases, such as those emitted from landfills, landfill fires, waste incinerators and waste treatment plants, are considered air pollution. The financial consequences from excessive air emissions vary depending on the specific location of operations and the prevailing air emissions regulations, but they may include capital expenditures, increased operating costs, fines, and lawsuits from affected communities. Human health impacts and financial consequences of poor air quality management may be exacerbated by the proximity of waste management facilities to communities. Active management of air pollutants and odours—through technological and process improvements—therefore may mitigate regulatory exposure and associated future compliance costs from increasingly stringent air quality regulations, help entities secure and maintain permits, and protect their licence to operate.

Metrics

IF-WM-120a.1. Air emissions of the following pollutants: (1) NO_x (excluding N₂O), (2) SO_x, (3) volatile organic compounds (VOCs), and (4) hazardous air pollutants (HAPs)

- 1 The entity shall disclose its emissions of air pollutants, in metric tonnes per pollutant, released into the atmosphere.
 - 1.1 The scope of the disclosure includes air pollutants associated with the entity's direct air emissions resulting from all the entity's activities and sources of emissions, which may include stationary or mobile sources, production facilities, office buildings and transportation fleets.
- 2 The entity shall disclose its emissions of (1) oxides of nitrogen (NO_x), reported as NO_x.
 - 2.1 The scope of NO_x includes NO and NO₂ but excludes N₂O.
- 3 The entity shall disclose its emissions of (2) oxides of sulphur (SO_x), reported as SO_x.
 - 3.1 The scope of SO_x includes SO₂ and SO₃.
- 4 The entity shall disclose its emissions of (3) non-methane volatile organic compounds (VOCs).
 - 4.1 VOCs are defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate and methane, that participates in atmospheric photochemical reactions, except those designated under applicable jurisdictional laws or regulations as having negligible photochemical reactivity.

4.1.1 If applicable regulatory definitions of VOCs conflict with this definition, the entity may define VOCs in accordance with the applicable jurisdictional legal or regulatory definition. In this case, the entity shall identify the source of the definition.

5 The entity shall disclose its emissions of (4) hazardous air pollutants (HAPs).

5.1 HAPs are defined as pollutants known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects.

6 The entity may discuss the calculation method for its emissions disclosure, such as whether data is from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

IF-WM-120a.2. Number of facilities in or near areas of dense population

1 The entity shall disclose the total number of its facilities in or near areas of dense population defined as urbanised areas in the local jurisdiction.

1.1 Generically, urbanised areas include densely developed residential, commercial and other non-residential areas with a population greater than 50,000. The entity may refer to the United Nations Statistics Division list of the various national definitions for the word 'urban' in its *Demographic Yearbook 2005*, Table 6.

1.2 The scope of the disclosure includes facilities located in an urbanised area or those with boundaries within 5 kilometres of an urbanised area, which constitutes an exposed population that is likely to come into contact with air emissions.

1.3 In the absence of available or accurate census data, the entity may use global population density data available from the NASA Socioeconomic Data and Applications Centre's (SEDAC) *Gridded Population of the World* (GPW).

2 The scope of facilities includes landfills (both active and closed) and waste-to-energy facilities the entity owned or operated.

IF-WM-120a.3. Number of incidents of non-compliance associated with air quality permits, standards, and regulations

1 The entity shall disclose its total number of instances of air emissions non-compliance, including violations of technology-based standards and exceedances of quality-based standards.

2 The scope of the disclosure includes incidents governed by jurisdictional air emissions statutory permits and regulations and other applicable jurisdictional air quality laws or regulations regarding odour, ozone precursors and non-methane organic compounds produced by landfills.

3 The scope of the disclosure includes incidents of non-compliance associated with odour.

4 An incident of non-compliance shall be disclosed regardless of whether it resulted in an enforcement action (for example, a fine or warning letter).

- 5 All violations, regardless of their measurement method or frequency, shall be disclosed. These include violations for:
- 5.1 continuous emissions, with limitations, standards and prohibitions that are generally expressed as maximum daily, weekly average and monthly averages;
 - 5.2 non-continuous emissions, with limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge and mass or concentration of specified pollutants;
 - 5.3 false or inaccurate reporting; and
 - 5.4 failure to obtain permits.

Management of Leachate & Hazardous Waste

Topic Summary

Entities operating landfills must manage and reduce the risks of potential ecological impacts, including those caused by leachate and hazardous waste. Poor management of landfills and other disposal sites may contaminate soil, groundwater and nearby water bodies. To mitigate environmental and health risks to local communities, entities must effectively contain and manage leachate, as well as hazardous waste. Entities unable to manage these risks may suffer regulatory penalties, lose brand value, impair future business prospects and face lawsuits.

Metrics

IF-WM-150a.1. (1) Total Toxic Release Inventory (TRI) releases, (2) percentage released to water

- 1 The entity shall report its (1) total toxic release inventory (TRI), in metric tonnes.
 - 1.1 A release is defined as any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment (including abandonment or discarding of barrels, containers and other closed receptacles) of any toxic chemical.
 - 1.1.1 A toxic chemical includes any chemical or chemical category listed in, at a minimum, the *Short Chemical List* established by the Organisation for Economic Co-operation and Development (OECD) in *Guidance Document on Elements of a PRTR: Part I*.
- 2 The entity shall disclose (2) the percentage of TRI, by weight, released to water.
 - 2.1 The percentage shall be calculated as the weight of TRI releases to water divided by the total weight of TRI releases.
 - 2.2 The scope of the disclosure is limited to those facilities owned or operated by the entity that:
 - 2.2.1 have 10 or more full-time employees;
 - 2.2.2 are regulated under applicable jurisdictional laws or regulations; and
 - 2.2.3 manufacture, process or otherwise use a toxic chemical more than an applicable threshold set forth by the jurisdictional regulatory authority.
- 3 The entity shall calculate total TRI and the percentage released to water consistent with the estimation method employed to report its TRI information to applicable jurisdictional legal or regulatory authorities.
- 4 The entity may discuss the calculation method for its emissions disclosure, such as if data is from estimates of waste treatment efficiencies, actual operating data, engineering calculations or mass balance calculations.

IF-WM-150a.2. Number of corrective actions implemented for landfill releases

- 1 The entity shall disclose the total number of corrective actions for landfill releases conducted at its facilities.
 - 1.1 Corrective actions include the control and clean-up of landfill releases of constituents detected at a statistically significant level above the established background level, to meet air quality and groundwater protection standards defined in accordance with applicable jurisdictional laws or regulations.
 - 1.2 Examples of corrective actions include measuring site-specific field data, installing gas monitoring systems and conducting groundwater monitoring.
 - 1.2.1 Groundwater monitoring includes drilling observation wells, obtaining samples and conducting analytical procedures measuring the physical, chemical and biological effects of contaminants or their subsurface transportation.
- 2 The scope of the disclosure includes corrective actions such as monitoring and long-term control care methods that have been initiated for both active landfills and closed landfills. Corrective actions should be counted only in the reporting period in which it has been initiated to prevent double counting across reporting periods. A single corrective action for multiple landfill release shall be counted only once.
- 3 The entity shall disclose the applicable jurisdictional laws or regulations used to define corrective actions.
- 4 The entity may disaggregate the disclosure to characterise the corrective actions undertaken. Examples of such disaggregated categories include the size of the sites, the regions, the type of corrective actions, the contaminants involved and the severity of the releases preceding the corrective action implementation.

IF-WM-150a.3. Number of incidents of non-compliance associated with environmental impacts

- 1 The entity shall disclose the total number of instances of non-compliance associated with environmental impacts (excluding air pollution), including violations of technology-based standards and exceedances of quality-based standards.
- 2 The scope of the disclosure includes incidents associated with the environment, such as those related to the enforcement of applicable jurisdictional laws or regulations regarding ground and surface water contamination; hazardous waste transport, containment or disposal; leachate treatment, transport, containment or disposal; and public disclosure of contamination events, among others.
- 3 The scope of the disclosure excludes instances of non-compliance associated with air pollution and odour, which are disclosed in IF-WM-120a.3.
- 4 The scope of the disclosure shall only include incidents of non-compliance that resulted in a formal enforcement action.
 - 4.1 Formal enforcement actions are defined as statutorily recognised actions that address a violation or threatened violation of water quality laws, regulations, policies or orders, and include administrative penalty orders, administrative orders and judicial actions.

- 5 Violations, regardless of their measurement method or frequency, shall be disclosed. These include violations for:
- 5.1 continuous emissions, with limitations, standards and prohibitions that are generally expressed as maximum daily, weekly and monthly averages;
 - 5.2 non-continuous emissions, with limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge and mass or concentrations of specified pollutants;
 - 5.3 false or inaccurate reporting; and
 - 5.4 failure to obtain permits.

Labour Practices

Topic Summary

Organised labour is important in the Waste Management industry. Covering many workers, collective bargaining agreements protect workers' rights and establish wages. Waste management entities may be vulnerable to strikes, shutdowns and delays if labour concerns are managed ineffectively. Proper management of, and communication around, labour issues such as worker pay and working conditions may prevent conflicts with workers that may result in extended strikes, which can slow or stop operations and create reputational risk. Waste management entities need a long-term perspective on managing workers—including their pay and benefits—in a way that protects workers' rights and enhances productivity while ensuring the financial sustainability of an entity's operations.

Metrics

IF-WM-310a.1. Percentage of active workforce employed under collective agreements

- 1 The entity shall disclose the percentage of its employees in the active workforce employed under collective agreements during any part of the reporting period.
 - 1.1 The number of employees in the active workforce of an entity is calculated as the maximum number of unique employees it employed at any time during the reporting period.
 - 1.2 Collective agreements are defined as agreements between an entity and an employees' organisation on behalf of some or all employees of the entity concerning the engagement of employees, termination of employment, terms of employment, labour relations, and the rights and obligations of the organisations which are parties to the agreement.
 - 1.3 Employees are defined as individuals on the entity's payroll, whether they are full-time, short service, part-time, executive, labour, salary, seasonal, migrant, or hourly employees. Employees excludes contract workers.
 - 1.3.1 Contract workers are defined as individuals who are not on the entity's payroll, but whom are supervised by the entity, including independent contractors and those employed by third parties (for example, temp agencies and labour brokers).
- 2 The percentage shall be calculated as the number of employees in the active workforce who were employed under collective agreements during any part of the reporting period divided by the average number of workers employed during the reporting period.
- 3 The scope of the disclosure includes all employees employed by the entity, including full-time, part-time and temporary employees.

IF-WM-310a.2. (1) Number of work stoppages and (2) total days idle

1 The entity shall disclose (1) the number of work stoppages involving 1,000 or more workers lasting one full shift or longer.

1.1 The scope of work stoppages includes strikes and lockouts.

1.1.1 A strike is defined as a temporary stoppage of work by a group of employees (not necessarily union members) to express a grievance or enforce a demand.

1.1.2 A lockout is defined as a temporary withholding or denial of employment during a labour dispute to enforce terms of employment upon a group of employees.

2 The entity shall disclose (2) the total days idle because of work stoppages.

2.1 'Days idle' is defined as the aggregate number of workdays lost because of work stoppages.

2.2 Total days idle shall be calculated as the sum of the products of the number of workers involved in each work stoppage and the number of days each respective work stoppage was in effect.

Note to IF-WM-310a.2

1 The entity shall describe the reason for each work stoppage (as stated by labour), the effect on operations and any corrective actions taken as a result.

Workforce Health & Safety

Topic Summary

The industry's hazardous working conditions make safety a critical issue for waste management operations, and accidents can have a significant impact on workers. The Waste Management industry has higher fatality rates than most industries. Fatalities and other injuries are caused primarily by transportation incidents, contact with hazardous objects and equipment, and exposure to harmful substances. Additionally, temporary workers may be at increased risk because of a lack of training or industry experience. Poor health and safety records may result in fines and penalties, increased regulatory compliance costs and more stringent oversight. Waste management entities must ensure facilities and vehicles are operated with the highest safety standards and that the number of injuries and accidents is minimised through a strong safety culture. Entities that develop proactive safety management plans and training requirements for employees and contractors, including conducting regular audits, may improve workforce safety and minimise the chance of safety-related financial repercussions.

Metrics

IF-WM-320a.1. (1) Total recordable incident rate (TRIR), (2) fatality rate, and (3) near miss frequency rate (NMFR) for (a) direct employees and (b) contract employees

- 1 The entity shall disclose (1) its total recordable incident rate (TRIR) for work-related injuries and illnesses.
 - 1.1 An injury or illness is considered a recordable incident if it results in death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness. Additionally, a significant injury or illness diagnosed by a physician or other licensed health care professional is considered a recordable incident, even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness.
 - 1.1.1 First aid is defined as emergency care or treatment for an ill or injured person before regular medical aid can be provided.
 - 1.1.2 The entity may use applicable jurisdictional criteria for definitions of a recordable incident and a non-recordable incident such as first aid. The entity shall disclose the legal, regulatory or industry framework used as the source for these criteria and definitions.
- 2 The entity shall disclose (2) its fatality rate for work-related fatalities.
- 3 The entity shall disclose (3) its near miss frequency rate (NMFR) for work-related near misses.
 - 3.1 Employees that operate entity vehicles as their primary job function are excluded from the scope of the NMFR.

- 3.2 A near miss is defined as an unplanned incident in which no property or environmental damage or personal injury occurred, but where damage or personal injury easily could have occurred but for a slight circumstantial shift. The entity may disclose its process for classifying, identifying and reporting near misses.
- 4 All disclosed rates shall be calculated as: $(\text{statistic count} \times 200,000) / \text{total number of hours worked by all employees in the year reported}$.
- 4.1 The '200,000' in the rate calculation represents the total number of hours 100 full-time workers working 40 hours per week for 50 weeks per year can provide annually.
- 5 The scope of the disclosure includes work-related incidents only.
- 5.1 Work-related incidents are injuries and illnesses resulting from events or exposures in the work environment.
- 5.2 The work environment is the establishment and other locations where one or more employees are working or are present as a condition of their employment.
- 5.3 The work environment includes not only physical locations, but also the equipment or materials used by the employee during the course of work.
- 5.4 Incidents that occur while an employee is travelling are work-related if, at the time of the injury or illness, the employee was engaged in work activities in the interest of the employer.
- 5.5 A work-related incident must be a new case, not a previously recorded injury or illness being updated.
- 6 The entity shall disclose the rates for each of these employee categories:
- 6.1 direct employees, defined as individuals on the entity's payroll, whether they are full-time, short service, part-time, executive, labour, salary, seasonal, migrant or hourly employees; and
- 6.2 contract employees, defined as individuals who are not on the entity's payroll, but whom the entity supervises or manages, including independent contractors and those employed by third parties (for example, temp agencies and labour brokers).
- 7 The scope of the disclosure includes all employees regardless of employee location or type of employment (except for employees that operate entity vehicles as their primary job function, which are excluded from the scope of the NMFR).

IF-WM-320a.3. Number of road accidents and incidents

- 1 The entity shall disclose the total number of road accidents and incidents involving direct or contracted employees during hours of employment.
- 1.1 Direct employees are defined as individuals on the entity's payroll, whether they are full-time, short service, part-time, executive, labour, salary, seasonal, migrant or hourly employees.

- 1.2 Contract employees are defined as individuals who are not on the entity's payroll, but who the entity supervises or manages on a regular basis, including independent contractors and those employed by third parties (for example, temp agencies and labour brokers).
- 1.3 An accident is defined as an occurrence involving a commercial vehicle operating on a road and engaging in commercial activities that results in one or more of vehicles incurring disabling damage because of the accident, requiring the vehicle(s) to be transported away from the scene by a tow truck or another vehicle or to be abandoned.
- 1.4 An accident does not include:
 - 1.4.1 an occurrence involving only boarding and alighting from a stationary vehicle; or
 - 1.4.2 an occurrence involving only the loading or unloading of cargo.
- 1.5 An incident is defined as any event involving a licensed vehicle while on business use resulting in a recordable incident, vehicle damage or other property damage.
 - 1.5.1 An injury or illness is considered a recordable incident if it results in death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness. Additionally, a significant injury or illness diagnosed by a physician or other licensed health care professional is considered a recordable incident, even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness.
 - 1.5.2 First aid is defined as emergency care or treatment for an ill or injured person before regular medical aid can be provided.
 - 1.5.3 The entity may use applicable jurisdictional criteria for definitions of recordable incident and first aid.
- 2 The minimum scope of the disclosure includes accidents and incidents reported to an applicable jurisdictional authority.

Recycling & Resource Recovery

Topic Summary

Recycling, reuse, composting and incineration are general methods of diverting waste from landfills. Landfill diversion can mitigate some of the environmental impacts of landfills and reduce the need for landfill expansion. Additionally, waste management entities play a critical role in the circular economy by separating and recovering reusable materials such as paper, glass, metal, organic materials and electronic waste. New regulations, customer demand and the increasing costs of extracting virgin materials are encouraging the development of a circular economy. As a result, waste management entities are facing a decrease in landfilled waste and an expanding recycling market. Cradle-to-cradle approaches initiated by other industries may fail if the recovery and recycling infrastructure or technologies do not exist. Entities that provide recycling and other resource recovery services will address changing consumer needs better, thereby positioning themselves for revenue growth while playing a critical role in reducing the environmental impact of the wider economy.

Metrics

IF-WM-420a.1. (1) Amount of waste incinerated, (2) percentage hazardous, (3) percentage used for energy recovery

- 1 The entity shall disclose (1) the total weight, in metric tonnes, of waste incinerated at owned or operated facilities.
 - 1.1 Incineration is defined as the controlled process in which combustible solid, liquid or gaseous wastes are burned and changed into non-combustible gases.
 - 1.2 Waste includes both solid waste and hazardous waste.
 - 1.3 Solid waste is defined under applicable jurisdictional laws or regulations where the waste was located.
 - 1.3.1 The entity may use the categories of solid waste defined in the United Nations Environment Programme's (UNEP) *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal* (Basel Convention), Annex IX, List B.
 - 1.3.2 More generally, within the context of this metric, solid waste may be defined as any discarded material abandoned through incineration without recycling or reclamation, excluding hazardous waste, domestic sewage, industrial wastewater discharges, irrigation return flows, and other non-hazardous industrial liquids, effluents and condensates.
 - 1.4 Hazardous waste is defined under applicable jurisdictional laws or regulations where the waste was located.
 - 1.4.1 The entity may use definitions from the Basel Convention.
 - 1.4.2 Hazardous materials include those that display these characteristics: ignitability, corrosivity, reactivity or toxicity.

- 2 The entity shall disclose (2) the percentage of hazardous waste, by weight, incinerated during the reporting year.
 - 2.1 The percentage of hazardous waste incinerated shall be calculated as the total weight of hazardous waste incinerated divided by the total weight of waste incinerated.
- 3 The entity shall disclose (3) the percentage of waste incinerated, by weight, and used for energy recovery.
 - 3.1 Energy recovery is defined as using combustible waste to generate energy through direct incineration with or without other waste but with recovery of the heat.
 - 3.2 The percentage of waste incinerated and used for energy recovery shall be calculated as the total weight of waste incinerated for energy recovery at its owned or operated facilities divided by the total weight of waste incinerated.
 - 3.2.1 For the purpose of this disclosure, waste incinerated for energy recovery shall include recovery from both solid and hazardous wastes.
- 4 The entity shall disclose the technologies (for example, mass burn facilities, modular systems, refuse-derived, or fuel systems) and practices employed in the incineration of waste.
- 5 The entity shall disclose the frameworks used to define solid and hazardous waste and disaggregate the quantities and percentages defined in accordance with each applicable framework.
- 6 The entity may disclose the quantity of solid and hazardous waste incinerated by regions or by the composition of the waste.

IF-WM-420a.2. Percentage of customers receiving (1) recycling and (2) composting services, by customer type

- 1 The entity shall disclose the percentage of its customers, by customer category, that receive (1) recycling, and separately, (2) composting services.
 - 1.1 Customer categories include:
 - 1.1.1 municipal;
 - 1.1.2 commercial;
 - 1.1.3 industrial;
 - 1.1.4 residential; and
 - 1.1.5 all other customers.
 - 1.2 The scope of the residential customer category is limited to 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 municipal customers.

- 1.3 The scope of each customer type shall be consistent with the entity's financial reporting.
- 2 Recycling services are defined as operations whereby the entity collects, transports or otherwise participates in the process of recycling materials.
 - 2.1 The process of recycling includes solid and hazardous materials.
 - 2.2 The recycling of solid materials results in materials that are:
 - 2.2.1 used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed;
 - 2.2.2 used or reused as effective substitutes for commercial products; or
 - 2.2.3 returned to the original process from which they were generated without first being reclaimed or land-disposed. The material must be returned as a substitute for feedstock materials. In cases where the original process to which the material is returned is a secondary process, the materials must be managed such that no placement on the land occurs.
 - 2.3 The recycling of hazardous materials results in materials that:
 - 2.3.1 contribute valuable ingredients to a product or intermediate;
 - 2.3.2 replace a catalyst or carrier in the recycling process;
 - 2.3.3 are the source of a valuable constituent recovered in the recycling process; or
 - 2.3.4 are used as an effective substitute for a commercial product.
- 3 For the purposes of this disclosure, waste-to-energy (WTE) shall be excluded from the scope of recycled material.
 - 3.1 WTE is defined as the conversion of non-recyclable waste materials into useable heat, electricity or fuel through a variety of processes, including combustion, gasification, pyrolysis, anaerobic digestion and landfill gas (LFG) recovery.
 - 3.2 WTE using anaerobic digestion may be considered within the scope of recycled material if the residual materials resulting from the anaerobic digestion process are used in a productive manner (for example, compost or fertiliser) as opposed to landfilling.
- 4 The entity may discuss the types of recycling it offers, such as single-stream and multi-stream services, including the number of customers served by each.
- 5 Composting services are defined as operations whereby the entity collects, transports or otherwise partakes in the process of composting materials.
 - 5.1 Compost is defined by either:
 - 5.1.1 the applicable jurisdictional laws or regulations where the composting services are provided; or

5.1.2 as the product resulting from the controlled biological decomposition of organic material sanitised through the generation of heat and stabilised to the point that it is beneficial to plant growth.

5.2 The scope of compost excludes natural decay of organic solid waste under uncontrolled conditions.

IF-WM-420a.3. Amount of material (1) recycled, (2) composted, and (3) processed as waste-to-energy

1 The entity shall disclose (1) the weight, in metric tonnes, of material collected for recycling.

1.1 Material collected for recycling includes both solid materials and hazardous materials.

1.2 Recycled solid materials include materials that are:

1.2.1 used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed;

1.2.2 used or reused as effective substitutes for commercial products;

1.2.3 used in a manner that constitutes disposal or used to produce products that are applied to the land; burned for energy recovery; used to produce a fuel or contained in fuels; or accumulated speculatively; or

1.2.4 returned to the original process from which they were generated without first being reclaimed or land-disposed.

1.3 Materials returned to the original process must be used as a substitute for feedstock materials. In cases where the original process to which the materials are returned is a secondary process, the materials must be managed such that there is no placement on the land.

1.4 Recycled hazardous materials include those materials that:

1.4.1 contribute valuable ingredients to a product or intermediate;

1.4.2 replace a catalyst or carrier in the recycling process;

1.4.3 are the source of a valuable constituent recovered in the recycling process; or

1.4.4 are used as an effective substitute for a commercial product.

1.5 For the purposes of this disclosure, waste-to-energy (WTE) shall be excluded from the scope of recycled material.

2 The entity shall disclose (2) the weight, in metric tonnes, of material composted.

2.1 Compost is defined by either:

2.1.1 the applicable jurisdictional laws or regulations where the composting services are provided; or

2.1.2 as the product resulting from the controlled biological decomposition of organic material sanitised through the generation of heat and stabilised to the point that it is beneficial to plant growth.

2.2 The scope of compost excludes natural decay of organic solid waste under uncontrolled conditions.

3 The entity shall disclose (3) the weight, in metric tonnes, of material that was used as an input in WTE operations.

3.1 WTE is defined as the conversion of non-recyclable waste materials into useable heat, electricity or fuel through a variety of processes, including combustion, gasification, pyrolysis, anaerobic digestion and landfill gas (LFG) recovery.

IF-WM-420a.4. (1) Amount of electronic waste collected, (2) percentage recovered through recycling

1 The entity shall disclose (1) the weight, in metric tonnes, of electronic waste collected.

1.1 Electronic waste includes waste from electronic products such as computers, televisions, phones, stereos, copiers and fax machines, among others.

2 The entity shall disclose (2) the percentage of materials, by weight, recovered from electronic waste through recycling.

2.1 The percentage shall be calculated as the weight of recycled materials recovered from electronic waste divided by the total weight of electronic waste collected.

2.2 Recycled materials include those materials that are:

2.2.1 used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed;

2.2.2 used or reused as effective substitutes for commercial products;

2.2.3 used in a manner that constitutes disposal or used to produce products that are applied to the land; burned for energy recovery; used to produce a fuel or contained in fuels; or accumulated speculatively; or

2.2.4 returned to the original process from which they were generated without first being reclaimed or land-disposed.

2.3 Materials returned to the original process must be used as a substitute for feedstock materials. In cases where the original process to which the materials are returned is a secondary process, the materials must be managed such that there is no placement on the land.



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