



SUSTAINABILITY ACCOUNTING STANDARD
INFRASTRUCTURE SECTOR

WASTE MANAGEMENT

Sustainability Accounting Standard

Sustainable Industry Classification System™ (SICS™) #IF0201

Prepared by the
Sustainability Accounting Standards Board®

March 2016
Provisional Standard

WASTE MANAGEMENT

Sustainability Accounting Standard

About SASB

The Sustainability Accounting Standards Board (SASB) provides sustainability accounting standards for use by publicly-listed corporations in the U.S. in disclosing material sustainability information for the benefit of investors and the public. SASB standards are designed for disclosure in mandatory filings to the Securities and Exchange Commission (SEC), such as the Form 10-K and 20-F. SASB is an independent 501(c)3 non-profit organization. Through 2016, SASB is developing standards for 79 industries in 10 sectors.

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INTRODUCTION

Purpose & Structure

This document contains the SASB Sustainability Accounting Standard (SASB Standard) for the Waste Management industry.

SASB Sustainability Accounting Standards are comprised of **(1) disclosure guidance and (2) accounting standards on sustainability topics** for use by U.S. and foreign public companies in their annual filings (Form 10-K or 20-F) with the U.S. Securities and Exchange Commission (SEC). To the extent relevant, SASB Standards may also be applicable to other periodic mandatory filings with the SEC, such as the Form 10-Q, Form S-1, and Form 8-K.

SASB Standards identify sustainability topics at an industry level, which may constitute material information—depending on a company’s specific operating context—for a company within that industry. SASB Standards are intended to provide guidance to company management, which is ultimately responsible for determining which information is material and should therefore be included in its Form 10-K or 20-F and other periodic SEC filings.

SASB Standards provide companies with standardized sustainability metrics designed to communicate performance on industry level sustainability topics. When making disclosure on sustainability topics, companies can use SASB Standards to help ensure that disclosure is standardized and therefore decision-useful, relevant, comparable, and complete.

SASB Standards are intended to constitute “suitable criteria” as defined by AT 101.23 - 32¹ and referenced in AT 701², as having the following attributes:

- *Objectivity*—Criteria should be free from bias.
- *Measurability*—Criteria should permit reasonably consistent measurements, qualitative or quantitative, of subject matter.
- *Completeness*—Criteria should be sufficiently complete so that those relevant factors that would alter a conclusion about subject matter are not omitted.
- *Relevance*—Criteria should be relevant to the subject matter.

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. Certain industry players also provide environmental engineering and consulting services, mostly to large industrial clients. Major companies are vertically integrated, providing a range of services from collection to landfilling to recycling, while others provide specialized

¹ http://pcaobus.org/Standards/Attestation/Pages/AT101.aspx#at_101_fn7

² <http://pcaobus.org/Standards/Attestation/Pages/AT701.aspx>

services such as treating medical and industrial wastes. Most U.S.-listed companies in the industry operate exclusively within the U.S., while some companies have broadened their activities internationally.

Guidance for Disclosure of Sustainability Topics in SEC Filings

1. Industry-Level Sustainability Topics

For the Waste Management industry, SASB has identified the following sustainability disclosure topics:

- Greenhouse Gas Emissions
- Air Quality
- Fleet Fuel Management
- Management of Leachate & Hazardous Waste
- Workforce Health & Safety
- Labor Relations
- Recycling & Resource Recovery

2. Company-Level Determination and Disclosure of Material Sustainability Topics

Sustainability disclosures are governed by the same laws and regulations that govern disclosures by securities issuers generally. According to the U.S. Supreme Court, a fact is material if, in the event such fact is omitted from a particular disclosure, there is “a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the ‘total mix’ of the information made available.”^{3,4}

SASB has attempted to identify those sustainability topics that are reasonably likely to have a material effect on the financial condition or operating performance of companies within each SIC industry. SASB recognizes, however, that each company is ultimately responsible for determining what information should be disclosed within the context of Regulation S-K and other guidance.

Regulation S-K, which sets forth certain disclosure requirements associated with Form 10-K and other SEC filings, requires companies, among other things, to describe in the Management’s Discussion and Analysis of Financial Condition and Results of Operations (MD&A) section of Form 10-K “any known trends or uncertainties that have had or that the registrant reasonably expects will have a material favorable or unfavorable impact on net sales or revenues or income from continuing operations. If the registrant knows of events that will cause a material change in the relationship between costs and revenues (such as known future increases in costs of labor or materials or price increases or inventory adjustments), the change in the relationship shall be disclosed.”

Furthermore, Instructions to Item 303 state that the MD&A “shall focus specifically on material events and uncertainties known to management that would cause reported financial information not to be necessarily indicative of future operating results or of future financial condition.”²

³ TSC Industries v. Northway, Inc., 426 U.S. 438 (1976).

⁴ C.F.R. 229.303(Item 303)(a)(3)(ii).

The SEC has provided guidance for companies to use in determining whether a trend or uncertainty should be disclosed. The two-part assessment prescribed by the SEC, based on probability and magnitude, can be applied to the topics included within this standard:

- First, a company is not required to make disclosure about a known trend or uncertainty if its management determines that such trend or uncertainty is not reasonably likely to occur.
- Second, if a company's management cannot make a reasonable determination of the likelihood of an event or uncertainty, then disclosure is required unless management determines that a material effect on the registrant's financial condition or results of operation is not reasonably likely to occur.

3. Sustainability Accounting Standard Disclosures in Form 10-K

a. Management's Discussion and Analysis

For purposes of comparability and usability, companies should consider making disclosure on sustainability topics in the MD&A, in a sub-section titled "**Sustainability Accounting Standards Disclosures.**"⁵

b. Other Relevant Sections of Form 10-K

In addition to the MD&A section, it may be relevant for companies to disclose sustainability information in other sections of Form 10-K, including, but not limited to:

- **Description of business**—Item 101 of Regulation S-K requires a company to provide a description of its business and its subsidiaries. Item 101(c)(1)(xii) expressly requires disclosure regarding certain costs of complying with environmental laws:

Appropriate disclosure also shall be made as to the material effects that compliance with Federal, State and local provisions which have been enacted or adopted regulating the discharge of materials into the environment, or otherwise relating to the protection of the environment, may have upon the capital expenditures, earnings and competitive position of the registrant and its subsidiaries.

- **Legal proceedings**—Item 103 of Regulation S-K requires companies to describe briefly any material pending or contemplated legal proceedings. Instructions to Item 103 provide specific disclosure requirements for administrative or judicial proceedings arising from laws and regulations that target discharge of materials into the environment or that are primarily for the purpose of protecting the environment.
- **Risk factors**—Item 503(c) of Regulation S-K requires filing companies to provide a discussion of the most significant factors that make an investment in the registrant speculative or risky, clearly stating the risk and specifying how a particular risk affects the particular filing company.

⁵ [SEC \[Release Nos. 33-8056; 34-45321; FR-61\] Commission Statement about Management's Discussion and Analysis of Financial Condition and Results of Operations](#): "We also want to remind registrants that disclosure must be both useful and understandable. That is, management should provide the most relevant information and provide it using language and formats that investors can be expected to understand. Registrants should be aware also that investors will often find information relating to a particular matter more meaningful if it is disclosed in a single location, rather than presented in a fragmented manner throughout the filing."

c. Rule 12b-20

Securities Act Rule 408 and Exchange Act Rule 12b-20 require a registrant to disclose, in addition to the information expressly required by law or regulation, “such further material information, if any, as may be necessary to make the required statements, in light of the circumstances under which they are made, not misleading.”

More detailed guidance on disclosure of material sustainability topics can be found in the **SASB Conceptual Framework**, available for download via <http://www.sasb.org/approach/conceptual-framework/>.

Guidance on Accounting for Sustainability Topics

For each sustainability topic included in the Waste Management industry Sustainability Accounting Standard, SASB identifies accounting metrics.

SASB recommends that each company consider using these sustainability accounting metrics when preparing disclosures on the sustainability topics identified herein;

As appropriate—and consistent with Rule 12b-20⁶—when disclosing a sustainability topic identified by this Standard, companies should consider including a narrative description of any material factors necessary to ensure completeness, accuracy, and comparability of the data reported. Where not addressed by the specific accounting metrics, but relevant, the registrant should discuss the following, related to the topic:

- The registrant’s **strategic approach** to managing performance on material sustainability issues;
- The registrant’s **relative performance** with respect to its peers;
- The **degree of control** the registrant has;
- Any **measures the registrant has undertaken** or **plans to undertake** to improve performance; and
- Data for the registrant’s **last three completed fiscal years** (when available).

SASB recommends that registrants use SASB Standards specific to their primary industry as identified in the [Sustainable Industry Classification System \(SICSTM\)](#). If a registrant generates significant revenue from multiple industries, SASB recommends that it also consider sustainability topics that SASB has identified for those industries and disclose the associated SASB accounting metrics.

In disclosing to SASB Standards, it is expected that registrants disclose with the same level of rigor, accuracy, and responsibility as they apply to all other information contained in their SEC filings.

⁶ SEC Rule 12b-20: “In addition to the information expressly required to be included in a statement or report, there shall be added such further material information, if any, as may be necessary to make the required statements, in the light of the circumstances under which they are made, not misleading.”

Users of the SASB Standards

The SASB Standards are intended to provide guidance for companies that engage in public offerings of securities registered under the Securities Act of 1933 (the Securities Act) and those that issue securities registered under the Securities Exchange Act of 1934 (the Exchange Act),⁷ for use in SEC filings, including, without limitation, annual reports on Form 10-K (Form 20-F for foreign issuers), quarterly reports on Form 10-Q, current reports on Form 8-K, and registration statements on Forms S-1 and S-3. Disclosure with respect to the SASB Standards is not required or endorsed by the SEC or other entities governing financial reporting, such as FASB, GASB, or IASB.

Scope of Disclosure

Unless otherwise specified, SASB recommends:

- That a registrant disclose on sustainability issues and metrics for itself and for entities that are consolidated for financial reporting purposes as defined by accounting principles generally accepted in the United States for consistency with other accompanying information within SEC filings;⁸
- That for consolidated entities, disclosures be made, and accounting metrics calculated, for the whole entity, regardless of the size of the minority interest; and
- That information from unconsolidated entities not be included in the computation of SASB accounting metrics. A registrant should disclose, however, information about unconsolidated entities to the extent that the registrant considers the information necessary for investors to understand the effect of sustainability topics on the company's financial condition or operating performance (typically, this disclosure would be limited to risks and opportunities associated with these entities).

Reporting Format

Use of Financial Data

In instances where accounting metrics, activity metrics, and technical protocols in this standard incorporate financial data (e.g., revenues, cost of sales, expenses recorded and disclosed for fines, etc.), such financial data shall be prepared in accordance with the accounting principles generally accepted in the United States of America ("US GAAP") and be consistent with the corresponding financial data reported within the registrant's SEC filings. Should accounting metrics, activity metrics and technical protocols in this standard incorporate disclosure of financial data that is not prepared in accordance with US GAAP, the registrant shall disclose such information in accordance with the SEC Regulation G.

⁷ Registration under the Securities Exchange Act of 1934 is required (1) for securities to be listed on a national securities exchange such as the New York Stock Exchange, the NYSE Amex, and the NASDAQ Stock Market or (2) if (A) the securities are equity securities and are held by more than 2,000 persons (or 500 persons who are not accredited investors) and (B) the company has more than \$10 million in assets.

⁸ See US GAAP consolidation rules (Section 810).

Activity Metrics and Normalization

SASB recognizes that normalizing accounting metrics is important for the analysis of SASB disclosures.

SASB recommends that a registrant disclose any basic business data that may assist in the accurate evaluation and comparability of disclosure, to the extent that they are not already disclosed in the Form 10-K (e.g., revenue, EBITDA, etc.).

Such data—termed “activity metrics”—may include high-level business data such as total number of employees, quantity of products produced or services provided, number of facilities, or number of customers. It may also include industry-specific data such as plant capacity utilization (e.g., for specialty chemical companies), number of transactions (e.g., for Internet media and services companies), hospital bed days (e.g., for health care delivery companies), or proven and probable reserves (e.g., for oil and gas exploration and production companies).

Activity metrics disclosed should:

- Convey contextual information that would not otherwise be apparent from SASB accounting metrics.
- Be deemed generally useful for an investor relying on SASB accounting metrics in performing their own calculations and creating their own ratios.
- Be explained and consistently disclosed from period to period to the extent they continue to be relevant. However, a decision to make a voluntary disclosure in one period does not obligate a continuation of that disclosure if it is no longer relevant or if a better metric becomes available.⁹

Where relevant, SASB recommends specific activity metrics that—at a minimum—should accompany SASB accounting metric disclosures.

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of customers by category: (1) municipal, (2) commercial, (3) industrial, (4) residential, and (5) other ¹⁰	Quantitative	Number	IF0201-A
Vehicle fleet size	Quantitative	Number	IF0201-B
Number of (1) landfills, (2) transfer stations, (3) recycling centers (4) composting centers, (5) incinerators, and (6) all other facilities ¹¹	Quantitative	Number	IF0201-C
Amount of materials managed by customer category (1) municipal, (2) commercial, (3) industrial, (4) residential, and (5) other ¹²	Quantitative	Metric tons (t)	IF0201-D

⁹ *Improving Business Reporting: Insights into Enhancing Voluntary Disclosures*, FASB Business Reporting Research Project, January 29, 2001.

¹⁰ Note to **IF0201-A**—The scope of “residential” shall only include those residential customers that have direct contracts with the registrant. For the purposes of this disclosure, residential customers serviced through contracts with a municipality shall be considered in the “municipal” category.

¹¹ Note to **IF0201-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.

¹² Note to **IF0201-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 registrant. For the purposes of this disclosure, residential customers serviced through contracts with a municipality shall be considered in the “municipal” category.

Units of Measure

Unless specified, disclosures should be reported in International System of Units (SI units).

Uncertainty

SASB recognizes that there may be inherent uncertainty when disclosing certain sustainability data and information. This may be related to variables such as the reliance on data from third-party reporting systems and technologies, or the unpredictable nature of climate events. Where uncertainty around a particular disclosure exists, SASB recommends that the registrant should consider discussing its nature and likelihood.

Estimates

SASB recognizes that scientifically based estimates, such as the reliance on certain conversion factors or the exclusion of *de minimis* values, may occur for certain quantitative disclosures. Where appropriate, SASB does not discourage the use of such estimates. When using an estimate for a particular disclosure, SASB expects that the registrant discuss its nature and substantiate its basis.

Timing

Unless otherwise specified, disclosure shall be for the registrant's fiscal year.

Limitations

There is no guarantee that SASB Standards address all sustainability impacts or opportunities associated with a sector, industry, or company, and therefore, a company must determine for itself the topics—sustainability-related or otherwise—that warrant discussion in its SEC filings.

Disclosure under SASB Standards is voluntary. It is not intended to replace any legal or regulatory requirements that may be applicable to user operations. Where such laws or regulations address legal or regulatory topics, disclosure under SASB Standards is not meant to supersede those requirements. Disclosure according to SASB Standards shall not be construed as demonstration of compliance with any law, regulation, or other requirement.

SASB Standards are intended to be aligned with the principles of materiality enforced by the SEC. However, SASB is not affiliated with or endorsed by the SEC or other entities governing financial reporting, such as FASB, GASB, or IASB.

Forward-looking Statements

Disclosures on sustainability topics can involve discussion of future trends and uncertainties related to the registrant's operations and financial condition, including those influenced by external variables (e.g., environmental, social, regulatory, and political). Companies making such disclosures should familiarize themselves with the safe harbor provisions of Section 27A of the Securities Act and Section 21E of the Exchange Act, which preclude civil liability for material misstatements or omissions in such statements if the registrant takes certain steps, including,

among other things, identifying the disclosure as “forward-looking” and accompanying such disclosure with “meaningful cautionary statements identifying important factors that could cause actual results to differ materially from those in the forward-looking statements.”

The following sections contain the disclosure guidance associated with each accounting metric such as guidance on definitions, scope, accounting, compilation, and presentation.

The term “shall” is used throughout this document to indicate those elements that reflect requirements of the Standard. The terms “should” and “may” are used to indicate guidance, which, although not required, provides a recommended means of disclosure.

Table 1. Sustainability Disclosure Topics & Accounting Metrics

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	(1) Gross global Scope 1 emissions, (2) percentage covered under emissions-limiting regulation, and (3) percentage covered under emissions-reporting regulation	Quantitative	Metric tons (t) CO ₂ -e, Percentage (%)	IF0201-01
	Total landfill gas generated, percentage flared, percentage used for energy	Quantitative	Million British Thermal Units (MMBtu), Percentage (%)	IF0201-02
	Description of long-term and short-term strategy or plan to manage Scope 1 emissions, emission-reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	IF0201-03
Air Quality	Air emissions of the following pollutants: NO _x (excluding N ₂ O), SO _x , non-methane volatile organic compounds (NMVOCs), and hazardous air pollutants (HAPs)	Quantitative	Metric tons (t)	IF0201-04
	Number of facilities in or near areas of dense population	Quantitative	Number	IF0201-05
	Number of incidents of non-compliance associated with air emissions	Quantitative	Number	IF0201-06
Fleet Fuel Management	Fleet fuel consumed, percentage renewable	Quantitative	Gigajoules, Percentage (%)	IF0201-07
	Percentage of alternative energy vehicles in fleet	Quantitative	Percentage (%)	IF0201-08
Management of Leachate & Hazardous Waste	Total Toxic Release Inventory (TRI) releases, percentage released to water	Quantitative	Metric tons (t), Percentage (%)	IF0201-09
	Number of corrective actions implemented for landfill releases	Quantitative	Number	IF0201-10
	Number of incidents of non-compliance associated with environmental impacts	Quantitative	Number	IF0201-11

Table 1. Sustainability Disclosure Topics & Accounting Metrics (cont.)

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	CODE
Workforce Health & Safety	(1) Total recordable injury rate (TRIR), (2) fatality rate, and (3) near miss frequency rate (NMFR) for (a) direct employees and (b) contract employees	Quantitative	Rate	IF0201-12
	Safety Measurement System BASIC percentiles for: (1) Unsafe Driving, (2) Hours-of-Service Compliance, (3) Driver Fitness, (4) Controlled Substances/Alcohol, (5) Vehicle Maintenance, and (6) Hazardous Materials Compliance	Quantitative	Percentile (%)	IF0201-13
	Number of vehicle accidents and incidents	Quantitative	Number	IF0201-14
Labor Relations	Percentage of active workforce covered under collective bargaining agreements	Quantitative	Percentage (%)	IF0201-15
	Number and duration of strikes and lockouts ¹³	Quantitative	Number, Days	IF0201-16
Recycling & Resource Recovery	Amount of waste incinerated, percentage hazardous, percentage used for energy recovery	Quantitative	Metric tons (t), Percentage (%)	IF0201-17
	Percentage of customers receiving (1) recycling and (2) composting services, by customer type	Quantitative	Percentage (%)	IF0201-18
	Amount of material (1) recycled and (2) composted	Quantitative	Metric tons (t)	IF0201-19
	Amount of electronic waste collected, percentage recovered through recycling	Quantitative	Metric tons (t), Percentage (%)	IF0201-20

¹³ Note to **IF0201-16**—The registrant shall describe the reason for each work stoppage (as stated by labor), the impact on production, and any corrective actions taken as a result.

Greenhouse Gas Emissions

Description

Landfill gas (LFG) is a significant anthropogenic contributor to global greenhouse gas (GHG) emissions because it contains highly potent methane, whose emissions are limited by federal regulations. Given its potency, federal regulations limit LFG emissions. Many states also mandate monitoring and collection of LFG, including California, under its Assembly Bill 32. LFG emissions can be reduced through a variety of control technologies that require significant capital expenditure: LFG-collection-efficiency improvements, LFG-control devices, and increased methane oxidization. Methane collected through LFG capture systems can be combusted in a flare, an engine, or a turbine to dramatically reduce the overall toxicity and potency of raw LFG. LFG capture is particularly important for owners and operators of large landfills that have been the target of regulation. LFG emissions pose a regulatory risk 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 the ability to lower fuel purchases by using processed LFG to power operations. Performance on this issue can affect a company's ability to secure new permits and renew existing ones, which can have an impact on revenue.

Accounting Metrics

IF0201-01. (1) Gross global Scope 1 emissions, (2) percentage covered under emissions-limiting regulation, and (3) percentage covered under emissions-reporting regulation

.01 The registrant shall disclose gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride).

- Emissions of all gases shall be disclosed in metric tons of carbon dioxide equivalents (CO₂-e), calculated in accordance with published 100-year time horizon global warming potential (GWP) factors. To date, the preferred source for GWP factors is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2013).
- Gross emissions are GHGs emitted to the atmosphere before accounting for any GHG reduction activities, offsets, or other adjustments for activities in the reporting period that have reduced or compensated for emissions.
- Disclosure corresponds to section CC8.2 of the Carbon Disclosure Project (CDP) Questionnaire (2015) and REQ-04 of the Climate Disclosure Standards Board (CDSB) Framework for reporting environmental information & natural capital (2015).
 - The registrant shall consider the CDP Climate Change Questionnaire a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

.02 Scope 1 emissions are defined by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD) in [The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard](#), Revised Edition, March 2004 (hereafter, the "GHG Protocol").

- These emissions include direct emissions of GHGs from stationary or mobile sources that include, but are not limited to, waste-to-energy, landfill gas, and transportation (i.e., marine, road, or rail).
- Acceptable calculation methodologies include those that refer to the GHG Protocol as the basic reference but may provide additional industry or regionally specific guidance, where examples include, but are not limited to:
 - India GHG Inventory Programme
 - ISO 14064-1
- The registrant may choose to disclose the methodology or methodologies used to collect and calculate Scope 1 emissions.

.03 GHG emission data shall be consolidated according to the approach with which the registrant consolidates its financial reporting data, which is generally aligned with:

- The Financial Control approach defined by the GHG Protocol and referenced by the [CDP Guidance for companies reporting on climate change on behalf of investors & supply chain members 2015](#) (hereafter, the “CDP Guidance”).¹⁴
- The approach detailed in REQ-07, “Organisational boundary,” of the CDSB Framework (2015).¹⁵

.04 The registrant shall disclose the percentage of its emissions that are covered under a regulatory program that is intended to limit or reduce GHG emissions, such as the European Union Emissions Trading Scheme (E.U. ETS), Quebec Cap-and-Trade (Draft Bill 42 of 2009), California Cap-and-Trade (California Global Warming Solutions Act), New Source Performance Standards and Emissions Guidelines for Municipal Solid Waste Landfills, or other regulatory programs.

- Regulatory programs include cap-and-trade schemes, carbon tax/fee systems, and other emissions control (e.g., command-and-control approach) and permit-based mechanisms.
- Disclosure shall exclude emissions covered under voluntary trading systems and disclosure-based regulations (e.g., the U.S. Environmental Protection Agency (EPA) Greenhouse Gas Reporting Program).

¹⁴ “An organization has financial control over an operation if it has the ability to direct the financial and operating policies of the operation with a view to gaining economic benefits from its activities. Generally an organization has financial control over an operation for GHG accounting purposes if the operation is treated as a group company or subsidiary for the purposes of financial consolidation.” *Guidance for companies reporting on climate change on behalf of investors & supply chain members 2013*, p. 95.

¹⁵ This is based on the requirements of International Accounting Standards/International Financial Reporting Standards (IAS/IFRS) on consolidation and equity accounting and is consistent with how information relating to entities within a group or interest in joint ventures/associates would be included on consolidated financial statements, as further detailed in CDSB *Proposals for Boundary Setting in Mainstream Reports*.

- .05 The registrant shall disclose the percentage of its emissions that are covered under emissions reporting-based regulations (e.g., The U.S. EPA Greenhouse Gas Reporting Program).
- Emissions reporting regulations are defined as regulations that demand the disclosure of data to authorities and/or to the public, but for which there is no limit, cost, target, or controls on the amount of emissions generated.
- .06 The registrant should discuss any change in its emissions from the previous fiscal year, such as if the change was due to emissions reductions, divestment, acquisition, mergers, changes in output, and/or changes in calculation methodology.
- .07 In the case that current reporting of GHG emissions to the CDP or other entities (e.g., a national regulatory disclosure program) differs in terms of the methodology, calculation (e.g., different GWP factors), scope, and/or consolidation approach used, the registrant may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.
- .08 The registrant should discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations, mass balance calculations, etc.
- .09 The registrant should consult the most recent version of each document referenced in this standard at the time disclosure occurs.

IF0201-02. Total landfill gas generated, percentage flared, percentage used for energy

- .10 The registrant shall disclose the total amount, in millions of British Thermal Units (MMBtu) of landfill gas generated from its owned or operated facilities, where:
- Landfill gas is defined, consistent with 40 CFR 98.6, as gas produced as a result of anaerobic decomposition of waste materials in the landfill.
- .11 The registrant shall use the calculation methodology in 40 CFR 98.340-348 Subpart HH to calculate the amount of landfill gas generated, the percentage flared, and the percentage used for energy.
- .12 The registrant shall calculate the percentage of landfill gas that was flared as the total amount, in MMBtu, of landfill gas that was flared divided by the total amount of landfill gas generated, where:
- Flared landfill gas includes gas that is flared through air injection and is defined, consistent with 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.

- .13 The registrant shall calculate the percentage of landfill gas used for energy as the amount, in MMBtu, of landfill gas that was captured and used for energy divided by the total amount of landfill gas generated, where:
- 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.
- .14 In calculating energy generated from landfill gas, the registrant shall use higher heating values (HHV), also known as gross calorific values (GCV), which are directly measured or taken from the [U.S. EPA's Landfill Gas Energy: A Guide to Developing and Implementing Greenhouse Gas Reduction Programs](#).

IF0201-03. Description of long-term and short-term strategy or plan to manage Scope 1 emissions, emission-reduction targets, and an analysis of performance against those targets

- .15 The registrant shall discuss the following, where relevant:
- The scope, such as whether strategies, plans, and/or reduction targets pertain differently to different business units, geographies, or emissions sources;
 - Whether strategies, plans, and/or reduction targets are related to or associated with an emissions disclosure (reporting) or reduction program (e.g., E.U. ETS, Quebec Cap-and-Trade (Draft Bill 42 of 2009), California Cap-and-Trade (California Global Warming Solutions Act), etc.), including regional, national, international, or sectoral programs; and
 - The activities and investments required to achieve the plans, and any risks or limiting factors that might affect achievement of the plans and/or targets.
- .16 For emission-reduction targets, the registrant shall disclose:
- The percentage of emissions within the scope of the reduction plan;
 - The percentage reduction from the base year;
 - The base year is the first year against which emissions are evaluated toward the achievement of the target.
 - Whether the target is absolute or intensity based, and the metric denominator if it is an intensity-based target;
 - The timelines for the reduction activity, including the start year, the target year, and the base year. Disclosure shall be limited to activities that were ongoing (active) or reached completion during the fiscal year; and
 - The mechanism(s) for achieving the target, such as landfill gas flaring, landfill gas-to-energy projects, vehicle efficiency measures and/or programs, etc. Where necessary, the registrant shall discuss any circumstances in which the target base year emissions have been, or may be, recalculated retrospectively or where the target base year has been reset.

.17 Disclosure corresponds with:

- CDSB Framework REQ-01, “Management’s environmental policies, strategy and targets.”
- CDP Questionnaire (2015) CC3, “Targets and Initiatives.”

.18 Relevant initiatives to discuss may include, but are not limited to, landfill gas-to-energy projects, vehicle efficiency programs, and diversion of organics from landfills (e.g., composting), consistent with the [IPCC Fourth Assessment Report: Climate Change 2007: Working Group III: Mitigation of Climate Change](#).

Air Quality

Description

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

Accounting Metrics

IF0201-04. Air emissions of the following pollutants: NO_x (excluding N₂O), SO_x, non-methane volatile organic compounds (NMVOCs), and hazardous air pollutants (HAPs)

- .19 The registrant shall disclose its emissions of air pollutants (in metric tons) that are released to the atmosphere as a result of its activities, including:
 - Direct air emissions from point and non-point sources that include, but are not limited to, decomposition of organic material, combustion of waste, and transportation (i.e., marine, road, or rail).
- .20 The registrant shall disclose emissions released to the atmosphere by emissions type. Substances include:
 - Oxides of nitrogen (including NO and NO₂ and excluding N₂O) reported as NO_x.
 - Oxides of sulfur (SO₂ and SO₃) reported as SO_x.
 - Non-methane volatile organic compounds (NMVOCs), 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 by the U.S. EPA as having negligible photochemical reactivity.
 - Where regional and national definitions supersede EPA regulations, such as EC Directive 1999/13/EC and Schedule 1 of the Canadian Environmental Protection Act 1999, the registrant may refer to the relevant regulations on NMVOCs.
 - Hazardous air pollutants (HAPs) are defined by the EPA as those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects, birth defects, or adverse environmental effects, and are listed [here](#).

- .21 This scope does not include CO₂, CH₄, and N₂O, which are disclosed in IF0201-01 as Scope 1 GHG emissions.
- .22 Air emissions data shall be consolidated according to the approach with which the registrant consolidates its financial reporting data, which is aligned with the consolidation approach used for IF0201-01.
- .23 The registrant should discuss the calculation methodology for its emissions disclosure, such as whether data are from Emissions Factors used in the EPA document AP-42, "Compilation of Air Pollutant Emission Factors," EPA Landfill Gas Emissions Model (LandGEM), engineering and mass-balance equations, or continuous emissions monitoring systems (CEMS).

IF0201-05. Number of facilities in or near areas of dense population

- .24 Areas of dense population are defined as urbanized areas according to U.S. Census Bureau definitions contained in [Federal Register, Vol. 76, No. 164](#) (August 24, 2011).
 - Generally, these include urbanized areas with populations greater than 50,000.
 - A list of urbanized areas based on census results from 2010 is available [here](#).
- .25 The scope of facilities includes landfills (both active and closed) and incinerators owned or operated by the registrant that are located in a census tract or block considered to be in an urbanized area or within 5 kilometers of an urbanized area.
- .26 For facilities located outside of the U.S., the registrant shall use available census data to determine whether the facility is located in an urbanized area as defined by the U.S. Census Bureau.
 - In the absence of available or accurate census data, the registrant should use international population density data available from the Columbia University/NASA Socioeconomic Data and Applications Center's (SEDAC) Gridded Population of the World (GPW), v3.

IF0201-06. Number of incidents of non-compliance associated with air emissions

- .27 The registrant shall disclose the total number of instances of non-compliance associated with air emissions, including violations of a technology-based standard and exceedances of a quality-based standard.
- .28 The scope of disclosure includes incidents governed by federal, state, and local statutory permits and regulations including, but not limited to, the Clean Air Act and the Resource Conservation and Recovery Act (RCRA) and other federal, state, or local air quality legislation on odor, ozone precursors, and non-methane organic compounds produced by landfills.
- .29 The scope of disclosure includes incidents of non-compliance associated with odor.
- .30 An incident of non-compliance shall be disclosed regardless of whether it resulted in an enforcement action (e.g., fine, warning letter, etc.).

.31 Violations, regardless of their measurement methodology or frequency, shall be disclosed. These include:

- For continuous emissions, limitations, standards, and prohibitions that are generally expressed as maximum daily, weekly, and monthly averages.
- For non-continuous emissions, limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge, and mass or concentrations of specified pollutants.
- False or inaccurate reporting.
- Failure to obtain permits.

Fleet Fuel Management

Description

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.

Accounting Metrics

IF0201-07. Fleet fuel consumed, percentage renewable

- .32 The registrant shall disclose total fuel consumption by fleet vehicles as an aggregate figure in gigajoules or their multiples.
 - The scope includes fuel consumed by vehicles owned or operated by the registrant.
- .33 Fuel consumption shall be based on actual fuel consumed (i.e., not based on design parameters).
- .34 Acceptable methods for calculating fuel consumption include adding fuel purchases, landfill gas, and fuel generation during the year to beginning inventory at the start of the year, less any fuel inventory at the end of the year, or tracking fuel consumption by vehicle or through expense reports.
- .35 The registrant shall disclose renewable fuel consumption as a percentage of its total fuel consumption.
 - Renewable fuel is defined, consistent with the EPA's Renewable Fuel Standard (40 CFR Section 80.1401), as a fuel that meets the following requirements:
 - Fuel that is produced from renewable biomass.
 - Fuel that is used to replace or reduce the quantity of fossil fuel present in a transportation fuel, heating oil, or jet fuel.
 - Fuel that has lifecycle greenhouse gas (GHG) emissions that are at least 20 percent less than baseline lifecycle GHG emissions, unless the fuel is exempt from this requirement pursuant to § 80.1403.
 - Fuels that qualify for Renewable Identification Numbers (RINs) under the EPA Renewable Fuel Standard are included in the scope of renewable energy.

- .36 In calculating energy consumption from fuels and biofuels, the registrant shall use higher heating values (HHV), also known as gross calorific values (GCV), which are directly measured or taken from the IPCC, the U.S. DOE, or the U.S. EIA.
- .37 The registrant shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels).

IF0201-08. Percentage of alternative energy vehicles in fleet

- .38 Alternative energy vehicles are defined by the Energy Policy Act and 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, and 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.
- .39 The registrant shall disclose the percentage as the number of alternative energy vehicles in its fleet divided by the total number of vehicles in its fleet.

Management of Leachate & Hazardous Waste

Description

Companies operating landfills are required to manage and reduce risks of potential ecological impacts, including those caused by leachate and hazardous waste. Poor management of landfills and other disposal sites can lead to contamination of the soil, groundwater, and other nearby water bodies. To mitigate risks to the environment and the health of local communities, companies must effectively contain and manage leachate, as well as hazardous waste. Companies that are unable to manage these risks are likely to receive regulatory penalties, lose brand value, worsen future business prospects, and face lawsuits.

Accounting Metrics

IF0201-09. Total Toxic Release Inventory (TRI) releases, percentage released to water

- .40 The registrant shall report its total toxic release inventory (TRI) in metric tons, where:
- A release is defined, consistent with 40 CFR 372.3, 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, where:
 - A toxic chemical includes any chemical or chemical category listed in 40 CFR 372.65 or foreign equivalent, including at a minimum the “Short Chemical List” established by the Organization for Economic Co-operation and Development (OECD) through [Guidance Document on Elements of a PRTR: Part I](#).
- .41 The registrant shall calculate the percentage released to water as the amount, in metric tons, of TRI releases to water divided by the total amount of TRI releases
- .42 The scope of disclosure is limited to those facilities owned or operated by the registrant that are covered under the reporting requirements of the EPA’s TRI regulations, or foreign equivalent, where covered facilities must:
- Have 10 or more full time employees;
 - Be regulated as an RCRA subtitle C Solid Waste Landfill or otherwise required to report its TRI per 40 CFR 372.23; and
 - Manufacture, process, or otherwise use a toxic chemical in excess of an applicable threshold set forth in 40 CFR 372.
- .43 The registrant shall calculate its total TRI and the percentage released to water consistent with the estimation methodologies employed to report its TRI information to the EPA.
- .44 The registrant should discuss the calculation methodology for its emissions disclosure, such as if data are from estimates of waste treatment efficiencies, actual operating data, engineering calculations, mass balance calculations, etc.

IF0201-10. Number of corrective actions implemented for landfill releases

- .45 The registrant shall disclose the number of corrective actions for landfill releases it has conducted at its facilities, where corrective actions are defined as control and cleanup of landfill releases of constituents detected at a statistically significant level above the established background level (as defined in Appendix I of 40 CFR Part 258) to achieve the groundwater protection standards in 40 CFR Part § 258.50 Subpart E—Ground-Water Monitoring and Corrective Action.
- .46 The scope of disclosure includes corrective actions implemented for active landfills and closed landfills.
- .47 The scope of disclosure includes corrective actions for Subtitle C landfills as defined in 40 CFR Part § 258.50 Subpart E—Ground-Water Monitoring and Corrective Action for municipal solid waste landfills and Subtitle D landfills as defined in 40 CFR Part § 264.100—Corrective Action Program.

IF0201-11. Number of incidents of non-compliance associated with environmental impacts

- .48 The registrant shall disclose the total number of instances of non-compliance, including violations of a technology-based standard and exceedances of a quality-based standard.
- .49 The scope of disclosure includes incidents associated with the environment, such as those related to enforcement of U.S. laws and regulations on ground and surface water contamination; hazardous waste transport, containment, or disposal; leachate treatment, transport, containment, or disposal; and public disclosure of contamination events, including violations of the U.S. Clean Water Act and the RCRA, among others.
- .50 The scope of disclosure excludes instances of non-compliance associated with air pollution and odor, which are covered in IF0201-06.
- .51 An incident of non-compliance shall be disclosed regardless of whether it resulted in an enforcement action (e.g., fine, warning letter, etc.).
- .52 Violations, regardless of their measurement methodology or frequency, shall be disclosed. These include:
 - For continuous emissions, limitations, standards, and prohibitions that are generally expressed as maximum daily, weekly, and monthly averages.
 - For non-continuous emissions, limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge, and mass or concentrations of specified pollutants.
 - False or inaccurate reporting.
 - Failure to obtain permits.

Workforce Health & Safety

Description

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

Accounting Metrics

IF0201-12. (1) Total recordable injury rate (TRIR), (2) fatality rate, and (3) near frequency rate (NMFR) for (a) direct employees and (b) contract employees

- .53 Registrants whose workforce is entirely U.S.-based shall disclose their total recordable injury rate (TRIR) and fatality rate as calculated and reported in the Occupational Safety and Health Administration's (OSHA) Form 300.
- OSHA guidelines provide details on determining whether an event is a recordable occupational incident and definitions for exemptions for incidents that occur in the work environment but are not occupational.
- .54 Registrants whose workforce includes non-U.S.-based employees shall calculate their TRIR and fatality rate according to the U.S. Bureau of Labor Statistics [guidance](#) and/or using the U.S. Bureau of Labor Statistics [calculator](#).
- .55 The registrant shall disclose its near miss frequency rate (NMFR) for all employees that do not operate company vehicles as their main job function, where a near miss is defined as an 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 scope of NMFR is limited to employees who do not operate company vehicles as their main job function. Employees who operate vehicles as their main job function include, but are not limited to, those classified under the following EEO-1 job titles:
 - Motor Vehicle Operators, All Other (EEO-1 code 53-3099)
 - Driver/Sales Workers (EEO-1 code 53-3031)

- Heavy and Tractor-Trailer Truck Drivers (EEO-1 code 53-3032)
 - Light Truck or Delivery Services Drivers (EEO-1 code 53-3033)
 - The registrant should refer to organizations such as the National Safety Council (NSC) for guidance on implementing near miss reporting.
 - The registrant should disclose its process for classifying, identifying, and reporting near miss incidents.
- .56 The registrant shall disclose its TRIR, fatality rate, and NMFR for each of the following employee categories:
- Direct employees, defined as those employees on the registrant’s payroll, whether they are labor, executive, hourly, salary, part-time, seasonal, or migrant workers.
 - Contract employees, defined as those who are not on the registrant’s payroll, but who are supervised by the registrant on a day-to-day basis, including independent contractors and those employed by third parties (e.g., temp agencies, labor brokers, etc.).
- .57 The scope includes all employees, domestic and foreign.
- .58 Rates shall be calculated as: (statistic count / total hours worked)*200,000.
- The rate for seasonal and migrant employees is calculated as [(seasonal employees statistic count + migrant employees statistic count) / (seasonal employees total hours worked + migrant employees hours worked)]*200,000.

IF0201-13. Safety Measurement System BASIC percentiles for: (1) Unsafe Driving, (2) Hours-of-Service Compliance, (3) Driver Fitness, (4) Controlled Substances/Alcohol, (5) Vehicle Maintenance, and (6) Hazardous Materials Compliance

- .59 The registrant shall disclose the percentile score calculated by the Federal Motor Carrier Safety Administration (FMCSA) Safety Measurement System (SMS) for the following Behavior Analysis and Safety Improvement Categories (BASICS):
- Unsafe Driving
 - Hours-of-Service (HOS) Compliance
 - Driver Fitness
 - Controlled Substances/Alcohol
 - Vehicle Maintenance
 - Hazardous Materials (HM) Compliance
- .60 The registrant shall disclose its percentile in each BASIC for the month ending the most recent fiscal year.

.61 The registrant may choose to discuss its percentile in relation to FMCSA’s Intervention Thresholds, which are as follows:

BASIC category	Intervention Thresholds		
	Passenger	HM	General
Unsafe Driving, HOS Compliance	≥50%	≥60%	≥65%
Driver Fitness, Controlled Substances/Alcohol, Vehicle Maintenance	≥65%	≥75%	≥80%
HM Compliance	≥80%	≥80%	≥80%

IF0201-14. Number of vehicle accidents and incidents

.62 The registrant shall disclose the total aggregate number of vehicle accidents and incidents involving its direct and/or contracted employees during hours of employment, where:

- Direct employees are defined as those employees on the registrant’s payroll, whether they are labor, executive, hourly, salary, part-time, seasonal, or migrant workers.
- Contract employees are defined as those who are not on the registrant’s payroll, but who are supervised by the registrant on a day-to-day basis, including independent contractors and those employed by third parties (e.g., temp agencies, labor brokers, etc.).

.63 An accident is defined, consistent with 49 CFR 390.50, as an occurrence involving a commercial motor vehicle operating on a highway in interstate or intrastate commerce that results in:

- A fatality;
- Bodily injury to a person who, as a result of the injury, immediately receives medical treatment away from the scene of the accident; or
- One or more motor vehicles incurring disabling damage as a result of the accident, requiring the motor vehicle(s) to be transported away from the scene by a tow truck or other motor vehicle.

.64 An accident does not include:

- An occurrence involving only boarding and alighting from a stationary motor vehicle; or
- An occurrence involving only the loading or unloading of cargo.

.65 An incident is defined as any event involving a licensed motor vehicle while on business use that results in an OSHA-recordable injury, vehicle damage, or other property damage.

Labor Relations

Description

Organized labor plays an important role in the Waste Management industry. Many workers are covered under collective bargaining agreements that protect workers' rights and establish wages. High unionization rates leave waste management companies vulnerable to shutdowns and delays due to worker strikes if labor concerns are not addressed effectively. Proper management of and communication around issues such as worker pay and working conditions can prevent conflicts with workers that could lead to extended strikes, which can slow or shut down operations and create reputational risk. Waste management companies need a long-term perspective on managing workers, including their pay and benefits, in a way that protects workers' rights and enhances their productivity while ensuring the financial sustainability of a company's operations.

Accounting Metrics

IF0201-15. Percentage of active workforce covered under collective bargaining agreements

.66 The registrant shall indicate the percentage of employees in the active workforce who were covered under collective bargaining agreements during any part of the fiscal year, where:

- Active workforce is defined as the maximum number of unique employees employed at any time during the fiscal year.
- Collective bargaining agreements are defined, consistent with the [U.S. Department of Labor](#) (DOL) definition, as a mechanism or tool of negotiation by which a union has a collective interest in negotiations to the benefit of several employees.

IF0201-16. Number and duration of strikes and lockouts

.67 The registrant shall disclose the number of work stoppages and the total duration, in worker days idle, of work stoppages involving 1,000 or more workers and lasting one full shift or longer, consistent with the Bureau of Labor Statistics definition of "major work stoppages."

- Worker days idle is calculated as the product of days idle and number of workers involved.

.68 The scope of disclosure includes work stoppage due to disputes between labor and management, including strikes and lockouts.

Note to IF0201-16

.69 The registrant shall describe the reason for each work stoppage (as stated by labor), the impact on production, and any corrective actions taken as a result.

Recycling & Resource Recovery

Description

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 companies play a critical role in the circular economy by separating and recovering reusable materials such as paper, glass, metal, organic materials, and electronic waste. Pressures from new regulations, customer demand, and the increasing costs of extracting virgin materials are initiating the move toward a circular economy. As a result, waste management companies are facing a decrease in the amount of landfilled waste and an expanding recycling market. Cradle-to-cradle approaches initiated by other industries in the economy have the potential to break down if the recovery and recycling infrastructure or its technologies do not exist. Companies that provide recycling and other resource recovery services will be better able to address changing consumer needs, thereby positioning themselves for revenue growth while playing a critical role in reducing the environmental impact of the wider economy.

Accounting Metrics

IF0201-17. Amount of waste incinerated, percentage hazardous, percentage used for energy recovery

- .70 The registrant shall disclose the amount, in metric tons, of waste incinerated at its owned or operated facilities, where:
- Incineration is defined, consistent with 40 CFR 240, as the controlled process in which combustible solid, liquid, or gaseous wastes are burned and changed into noncombustible gases.
 - Waste includes both solid waste, as defined by 40 CFR 261.2, and hazardous waste, as defined by 40 CFR 261.3.
- .71 The registrant shall calculate the percentage of hazardous waste incinerated as the total amount, in metric tons, of hazardous waste that was incinerated divided by the total amount of waste incinerated.
- .72 The registrant shall calculate the percentage of waste incinerated that was used for energy recovery as the total amount, in metric tons, of waste incinerated for energy recovery at its owned or operated facilities divided by the total amount of waste incinerated, where:
- Energy recovery is defined, consistent with 40 CFR 60, as the process of recovering thermal energy from combustion for useful purposes including, but not limited to, steam generation or process heating.
- .73 For the purpose of this disclosure, waste incinerated for energy recovery shall include recovery from both solid and hazardous wastes.
- .74 The registrant should disclose the technologies (e.g., mass burn facilities, modular systems, refuse-derived fuel systems, etc.) and practices employed in the incineration of waste.

IF0201-18. Percentage of customers receiving (1) recycling and (2) composting services, by customer type

.75 The registrant shall disclose the percentage of its customers by customer category that receive recycling or composting services, where customer categories include:

- Municipal
- Commercial
- Industrial
- Residential, where scope of “residential” shall only include those residential customers that have direct contracts with the registrant. For the purposes of this disclosure, residential customers serviced through contracts with a municipality shall be considered in the “municipal” category.
- All other customers

.76 Recycling programs are considered to be those operations whereby the registrant collects, transports, or otherwise partakes in the process of recycling materials, where:

- The process of recycling includes that of solid and hazardous materials.
- The recycling of solid materials, consistent with the definition provided in 40 CFR 261.2, results in materials that are:
 - Used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed;
 - Used or reused as effective substitutes for commercial products; or
 - Returned to the original process from which they are 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 there is no placement on the land.
- The recycling of hazardous materials, consistent with the definition provided in 40 CFR 240.43, results in materials that:
 - Contribute valuable ingredients to a product or intermediate;
 - Replace a catalyst or carrier in the recycling process;
 - Are the source of a valuable constituent recovered in the recycling process; or
 - Are used as an effective substitute for a commercial product.

- .77 For the purposes of this disclosure, waste to energy (WTE) shall be included in the scope of recycled material. WTE includes the conversion of non-recyclable waste materials into useable heat, electricity, or fuel through a variety of processes, including combustion, gasification, pyrolyzation, anaerobic digestion, and landfill gas (LFG) recovery.
- .78 The registrant should discuss the types of recycling it offers, such as single-stream and multi-stream services, including the number of customers served by each.
- .79 The registrant shall disclose the number of customers served through its composting programs.
- .80 Compost is defined by the U.S. Compost Council as the product resulting from the controlled biological decomposition of organic material that has been sanitized through the generation of heat and stabilized to the point that it is beneficial to plant growth.
- .81 Compost is defined by applicable state laws where the registrant operates.
- .82 Natural decay of organic solid waste under uncontrolled conditions is not included in the scope of composting.

IF0201-19. Amount of material (1) recycled and (2) composted

- .83 The registrant shall disclose the amount, in metric tons, of material that it collected for recycling.
- .84 Material collected for recycling includes both solid materials, as defined according to 40 CFR 241.2, and hazardous materials, defined according to 40 CFR 260.10.
- .85 Recycled solid materials, consistent with the definition provided in 40 CFR 261.2, include those materials that are:
 - Used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed;
 - Used or reused as effective substitutes for commercial products;
 - Returned to the original process from which they are 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 there is no placement on the land; or
 - 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.
- .86 Recycled hazardous materials, consistent with the definition provided in 40 CFR 240.43, include those materials that:
 - Contribute valuable ingredients to a product or intermediate;

- Replace a catalyst or carrier in the recycling process;
- Are the source of a valuable constituent recovered in the recycling process; or
- Are used as an effective substitute for a commercial product.

.87 For the purposes of this disclosure, WTE shall be included in the scope of recycled material. WTE includes 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 LFG recovery.

.88 The registrant shall disclose the amount, in metric tons, of material that it composted.

.89 Compost is defined by the U.S. Compost Council as the product resulting from the controlled biological decomposition of organic material that has been sanitized through the generation of heat and stabilized to the point that it is beneficial to plant growth.

.90 Compost is defined by applicable state laws where the registrant operates.

.91 Natural decay of organic solid waste under uncontrolled conditions is not included in the scope of composting.

IF0201-20. Amount of electronic waste collected, percentage recovered through recycling

.92 The registrant shall disclose the amount, in metric tons, of electronic waste collected, where:

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

.93 The registrant shall calculate the percentage of materials recovered through recycling as the amount, in metric tons, of materials recovered from electronic waste divided by the total amount of electronic waste collected.

.94 Recycled materials, consistent with the definition provided in 40 CFR 261.2, include those materials that are:

- Used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed;
- Used or reused as effective substitutes for commercial products;
- Returned to the original process from which they are 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 there is no placement on the land; or
- 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.

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