



SUSTAINABILITY ACCOUNTING STANDARD
INFRASTRUCTURE SECTOR

ELECTRIC UTILITIES

Sustainability Accounting Standard

Sustainable Industry Classification System™ (SICS™) #IF0101
Prepared by the
Sustainability Accounting Standards Board®

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ELECTRIC UTILITIES

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 78 industries in 10 sectors.

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INTRODUCTION

Purpose & Structure

This document contains the SASB Sustainability Accounting Standard (SASB Standard) for the Electric Utilities 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 Electric Utilities industry is made up of companies that generate electricity; build, own, and operate transmission and/or distribution (T&D) lines; and sell electricity. Utilities generate electricity from a number of different sources, commonly including coal, natural gas, nuclear energy, hydropower, and renewable energy sources. The industry comprises companies operating both in regulated and deregulated energy markets. Companies with a monopoly over all elements of the value chain operate in highly structurally regulated markets. In deregulated markets, company structures can be disparate, with generation usually split from T&D, which gives customers a choice between power producers. In some markets, transmission is also deregulated, leaving regulated

¹ <http://pcaobus.org/Standards/Attestation/Pages/AT101.aspx>

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

utilities to operate only distribution. Regulated utilities have a unique business model in which they accept oversight from their local Public Utility Commission (PUC) on their pricing mechanisms and their allowed return on equity, among other types of regulation, in exchange for their license to operate as a monopoly. Electric utilities are also required to provide universally accessible and highly reliable service while balancing the protection of human life and the environment. While U.S.-listed electric utility companies include a few large companies based outside the U.S., the majority are U.S.-based and operate mainly in U.S. markets.

Note: The SASB standard for the Electric Utilities industry covers only activities related to electricity provision and not natural gas provision. Some utilities may operate in both electricity and natural gas markets. Utilities undertaking activities related to natural gas sourcing and distribution should also consider the separate SASB standard for the Gas Utilities industry (IF0102).

Guidance for Disclosure of Sustainability Topics in SEC Filings

1. Industry-Level Sustainability Topics

For the Electric Utilities industry, SASB has identified the following sustainability disclosure topics:

- Greenhouse Gas Emissions & Energy Resource Planning
- Air Quality
- Coal Ash Management
- Water Management
- Land Use & Community Relations
- Downstream Energy Stewardship
- Management of the Legal & Regulatory Environment
- Nuclear Safety & Emergency Management
- Grid Resiliency

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.

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

⁴ C.F.R. 229.303(item 303)(a)(3)(ii).

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

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

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."

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.

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 information related to 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 Electric Utilities 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).

⁶SEC 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.”

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.

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).

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).

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.

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.

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

| ACTIVITY METRIC | CATEGORY | UNIT OF MEASURE | CODE |
|---|--------------|--------------------------------------|----------|
| Population served | Quantitative | Number | IF0101-A |
| Length of transportation and distribution lines | Quantitative | Kilometers (km) | IF0101-B |
| Total electricity generated, percentage by major energy source, percentage in regulated markets ¹⁰ | Quantitative | Megawatt-Hours (Mwh), Percentage (%) | IF0101-C |

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.

¹⁰ Note to **IF0101-C**—Generation should be disclosed by each major energy sources, where such sources include coal, natural gas, nuclear, hydropower, other renewables, petroleum, and other gases.

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 & Energy Resource Planning | Gross global Scope 1 emissions, percentage covered under a regulatory program | Quantitative | Metric tons (t) CO ₂ -e, Percentage (%) | IF0101-01 |
| | 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 | IF0101-02 |
| Air Quality | Air emissions of the following pollutants: NO _x (excluding N ₂ O), SO _x , particulate matter (PM), Pb, and Hg; percentage of each in or near areas of dense population | Quantitative | Metric tons (t), Percentage (%) | IF0101-03 |
| Coal Ash Management | Amount of total waste and secondary materials generated from operations, percentage hazardous, percentage recycled | Quantitative | Metric tons (t), Percentage (%) | IF0101-04 |
| | Total number of coal combustion residual (CCR) impoundments, count by EPA Hazard Potential Classification broken down by EPA structural integrity assessment | Quantitative | Number | IF0101-05 |
| Water Management | (1) Total water withdrawn and (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress | Quantitative | Cubic Meters (m ³), Percentage (%) | IF0101-06 |
| | Number of incidents of non-compliance with water quality and/or quantity permits, standards, and regulations | Quantitative | Number | IF0101-07 |
| | Discussion of water management risks and description of strategies and practices to mitigate those risks | Discussion and Analysis | n/a | IF0101-08 |
| Land Use & Community Relations | (1) Number of projects with open applications, (2) number requiring environmental or social modification, and (3) percentage of modifications resulting from formal public interventions or protests ¹¹ | Quantitative | Number, Percentage (%) | IF0101-09 |
| | Discussion of community engagement processes to identify and mitigate concerns regarding project environmental and community impacts | Discussion and Analysis | n/a | IF0101-10 |

¹¹ Note to **IF0101-09**—The registrant shall discuss project applications that relate to a significant amount of transportation or generation capacity.

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

| TOPIC | ACCOUNTING METRIC | CATEGORY | UNIT OF MEASURE | CODE |
|---|---|-------------------------|--|-----------|
| Downstream Energy Stewardship | Percentage of electric load served by smart grid technology | Quantitative | Percentage (%) by Megawatt-Hours (Mwh) | IF0101-11 |
| | (1) Customer electricity savings from efficiency measures and (2) percentage of regulatory savings requirement achieved | Quantitative | Megawatt-Hours (Mwh), Percentage (%) | IF0101-12 |
| Management of the Legal & Regulatory Environment | Discussion of policies and processes to identify and manage potential ethical violations resulting from interactions with public utility commissions | Discussion and Analysis | n/a | IF0101-13 |
| | Amount of legal and regulatory fines, settlements, and rate reductions associated with allegations of overcharging customers ¹² | Quantitative | U.S. Dollars (\$) | IF0101-14 |
| | (1) Population served in markets subject to renewable portfolio standards (RPS) and (2) percentage fulfillment of RPS target ¹³ | Quantitative | Number, Percentage (%) | IF0101-15 |
| | Amount of energy generated through net metering contracts ¹⁴ | Quantitative | Megawatt-Hours (Mwh) | IF0101-16 |
| Nuclear Safety & Emergency Management | (1) Total amount of high-level radioactive waste stored on site and (2) total designed storage capacity | Quantitative | Metric tons (t) | IF0101-17 |
| | Total number of nuclear power units, broken down by Nuclear Regulatory Commission (NRC) Action Matrix Column | Quantitative | Number | IF0101-18 |
| | Discussion of efforts to manage nuclear safety and emergency preparedness | Discussion and Analysis | n/a | IF0101-19 |
| Grid Resiliency | Number of data security breaches ¹⁵ | Quantitative | Number | IF0101-20 |
| | (1) System Average Interruption Duration Index (SAIDI), (2) System Average Interruption Frequency Index (SAIFI), and (3) Customer Average Interruption Duration Index (CAIDI) ¹⁶ | Quantitative | Minutes, Number | IF0101-21 |

¹² Note to **IF0101-14**—The registrant shall briefly describe the nature, context, and corrective action taken as a result of the fine, settlement, or rate reduction.

¹³ Note to **IF0101-15**—The registrant shall discuss instances in which current RPS regulations are in place, whether these regulations are being met, and whether regulations require future increases in the registrant’s renewable energy portfolio.

¹⁴ Note to **IF0101-16**—The registrant shall discuss the markets it operates in that maintain regulatory caps on electricity generation from net metering contracts as well as markets that do not maintain such caps

¹⁵ Note to **IF0101-20**—The registrant shall describe the corrective actions taken in response to specific incidents, such as changes in operations, management, processes, products, business partners, training, or technology.

¹⁶ Note to **IF0101-21**—The registrant shall discuss notable service disruptions such as those that affected a significant number of customers or disruptions of extended duration.

Greenhouse Gas Emissions & Energy Resource Planning

Description

Electric utilities represent the largest source of greenhouse gas (GHG) emissions in the U.S. economy. These emissions, mainly carbon dioxide, methane, and nitrous oxide, are mostly by-products of fossil fuels combustion. The T&D segments of the Electric Utilities industry are responsible for a negligible amount of its emissions. Electric utility companies may face significant operating and capital expenditures for mitigating GHG emissions as environmental regulations become increasingly stringent. While many of these costs can be passed on to a utility's customers, some power generators, especially in deregulated markets, may not be able to recoup these costs. Companies can reduce GHG emissions from electricity generation mainly through careful planning of their infrastructure investments to ensure an energy mix capable of meeting the emissions requirements set forth by regulations and by implementing industry-leading technologies and processes. Being proactive in cost-effectively reducing GHG emissions can create a competitive advantage for companies and mitigate unanticipated regulatory compliance costs. Failure to properly estimate capital expenditure needs and permitting costs, or other difficulties in reducing GHG emissions, could result in significant negative impacts on returns in the future in the form of asset write-downs, costs of obtaining carbon credits, or unexpected increases in operating and capital expenditures.

Accounting Metrics

IF0101-01. Gross global Scope 1 emissions, percentage covered under a regulatory program

- .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 C C8.2 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, electricity generation, electricity transmission and distribution equipment (i.e., high voltage circuit breakers, switch gear, and transformers), and transportation (i.e., marine, road, or rail).
- .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”).¹⁷
 - The approach detailed in REQ-07, “Organisational boundary,” of the CDSB Framework (2015).¹⁸
- .04 The underlying technical approach to data collection, analysis, and disclosure shall be consistent with the CDP Guidance.
- The registrant shall consider the CDP Guidance as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.
- .05 The registrant shall disclose the percentage of its emissions that are covered under a regulatory program, such as the European Union Emissions Trading Scheme (E.U. ETS), Western Climate Initiative (WCI), California Cap-and-Trade (California Global Warming Solutions Act), or other regulatory programs.
- Regulatory programs include cap-and-trade schemes and carbon tax/fee systems.
 - Disclosure shall exclude emissions covered under voluntary trading systems and disclosure-based regulations (e.g., the U.S. Environmental Protection Agency (EPA) mandatory reporting rule).
- .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.

¹⁷ “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.

¹⁸ 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 per the CDSB *Climate Change Reporting Framework*.

- .07 In the case that current reporting of GHG emissions to the CDP or other entity (e.g., a national regulatory disclosure program) differs in terms of the scope and consolidation approach used, the 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.

IF0101-02. 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

- .10 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, RGGI, WCI, 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.
- .11 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 low-carbon electricity generation, energy efficiency measures, demand-response programs, energy conservation initiatives, etc. Where necessary, the registrant shall discuss any circumstances in which the target base year emissions have been, or may be, recalculated retrospectively or the target base year has been reset.

.12 Disclosure corresponds with:

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

.13 Relevant initiatives to discuss may include, but are not limited to, energy efficiency efforts, demand-response programs, and development of renewable energy portfolios consistent with the [IPCC Fourth Assessment Report: Climate Change 2007: Working Group III: Mitigation of Climate Change](#).

Air Quality

Description

Fuel combustion in electricity generation operations generates Hazardous Air Pollutants (HAPs), Criteria Air Pollutants (CAPs), and Volatile Organic Compounds (VOCs). HAPs, CAPs, and VOCs have more localized, but nonetheless significant, human health and environmental impacts compared with GHGs. As such they are regulated by the U.S. Environmental Protection Agency (EPA) under the Clean Air Act, as well as by state and local agencies, creating significant regulatory risks for electricity generators. This risk is higher for those operating near large communities. A utility's energy generation mix is the best indicator of its relative risk related to air quality. Harmful air emissions from operations may result in regulatory penalties that affect extraordinary expenses, higher regulatory compliance costs, and new capital expenditures to install best-in-class control technology.

Accounting Metrics

IF0101-03. Air emissions of the following pollutants: NO_x (excluding N₂O), SO_x, particulate matter (PM), Pb, and Hg; percentage of each in or near areas of dense population

- .14 The registrant shall disclose its emissions of air pollutants (in metric tons) that are released to the atmosphere as a result of its activities:
 - Direct air emissions from stationary or mobile sources including, but not limited to, electricity generation, electricity transmission and distribution equipment (i.e., high voltage circuit breakers, switch gear, and transformers), and transportation (i.e., marine, road, or rail).
- .15 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.
 - Particulate matter (PM), reported as the sum of PM₁₀ and PM_{2.5}, or all particulates less than 10 micrometers in diameter, where:
 - PM₁₀ is defined as inhalable coarse particles larger than 2.5 microns but smaller than 10 microns and PM_{2.5} is defined as fine particulate matter of 2.5 microns or less.
 - Mercury and mercury compounds, reported as Hg.
 - Lead and lead compounds, reported as Pb.
- .16 This scope does not include CO₂, CH₄, and N₂O, which are disclosed in IF0101-01 as Scope 1 GHG emissions.

- .17 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 IF0101-01.
- .18 The registrant shall disclose the percentage of its NO_x, SO_x, PM, Pb, and Hg emissions from its production facilities that are located in or near areas of dense population, which are defined as urbanized areas according to U.S. Census Bureau definitions contained in [Federal Register, Vol. 76. No. 164](#). (August 24, 2011).
- Generically, these include urbanized areas with populations greater than 50,000.
 - A list of urbanized areas based on census results from 2010 is available [here](#).
- .19 The scope of disclosure includes production facilities that are located in a census tract or block considered to be in an urbanized area or within 49 kilometers of an urbanized area.¹⁹
- .20 For production 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.
- .21 The registrant should discuss the calculation methodology for its emissions disclosure, such as whether data are from continuous emissions monitoring systems (CEMS), engineering calculations, mass balance calculations, etc.

¹⁹ The 49-kilometer radius is based on the definition of "exposed population" from the EPA's Office of Pollution Prevention and Toxics User's Manual for RSEI, Version 2.3.2., July 2013: "The exposed population is the population that is likely to come in contact with a chemical. The population differs depending on the exposure pathway modeled. For instance, the population exposed to chemicals released to air is the population in a circle with a radius of 49 km surrounding the facility."

Coal Ash Management

Description

Electricity generators must safely dispose of the hazardous by-products of their operations. Coal ash is a major source of waste that can have a significant effect on company value in the power generation segment. It is one of the largest industrial waste streams in the U.S. It contains heavy metal contaminants that have been associated with different cancers and other serious diseases, especially when they leach into ground water. Coal ash can have beneficial uses when recycled or reused, and companies that can find markets for this waste can benefit from higher revenues. If companies mismanage this waste, for example by failing to properly line disposal pools, they could face significant fines from regulatory agencies.

Accounting Metrics

IF0101-04. Amount of total waste and secondary materials generated from operations, percentage hazardous, percentage recycled

- .22 The amount of total waste and secondary materials from operations shall be calculated in metric tons as the sum of waste and secondary materials, where:
- Waste is defined according to 40 CFR 261.2.
 - Secondary materials are defined according to 40 CFR 241.2.
- .23 The percentage of hazardous waste and hazardous secondary materials shall be calculated as the weight of hazardous waste and hazardous secondary materials at the point of generation divided by the total weight of waste and secondary materials.
- Hazardous waste shall be defined according to Subtitle C of the U.S. Environmental Protection Agency's (EPA) Resource Conservation and Recovery Act (RCRA), consistent with 40 CFR 261.3.
 - Hazardous secondary materials shall be defined according to 40 CFR 260.10.
 - Hazardous wastes and hazardous secondary materials include those that display the following characteristics: ignitability, corrosivity, reactivity, or toxicity.
- .24 The percentage recycled shall be calculated as the weight (in metric tons) of waste and/or secondary material that was reused or reclaimed, plus the weight recycled or remanufactured (through treatment or processing) by the registrant, plus the amount sent externally for further recycling, divided by the total weight of waste and secondary material generated from operations, where:
- A waste and/or secondary material is recycled if it is reused, remanufactured, or reclaimed.
 - Reused materials are defined as those recovered products or components of products that are used for the same purpose for which they were conceived.

- Recycled and remanufactured materials are defined as waste materials that have been reprocessed or treated by means of production or manufacturing processes and made into a final product or made into a component for incorporation into a product.
- Reclaimed materials are defined as those processed to recover or regenerate a usable product, consistent with [RCRA hazardous waste regulation](#). Common reclamation activities involve recovery of spent solvents (e.g., recovery of acetone) or metals (e.g., recovery of lead).
- Materials sent for further recycling include those materials that are transferred to a third party for the express purpose of reuse, recycling, or refurbishment.
- The scope of recycled and remanufactured products includes primary recycled materials, co-products (outputs of equal value to primary recycled materials), and by-products (outputs of lesser value than primary recycled materials).
- Portions of products and materials that are disposed of in landfills are not considered recycled; only the portions of products that are directly incorporated into new products, co-products, or by-products shall be included in the percentage recycled.
- Materials incinerated, including for energy recovery, are not considered reused or recycled. Energy recovery is defined as the use of combustible waste as a means to generate energy through direct incineration, with or without other waste, but with recovery of the heat.

IF0101-05. Total number of coal combustion residual (CCR) impoundments, count by EPA Hazard Potential Classification broken down by EPA structural integrity assessment

.25 The registrant shall disclose the total number of coal combustion residual (CCR) impoundments, where:

- CCR impoundments are defined as those surface impoundments containing residuals of coal combustion, where:
 - A surface impoundment is defined, according to 40 CFR 257.2, as a facility or part of a facility that is a natural topographic depression, human-made excavation, or diked area formed primarily of earthen materials (although it may be lined with human-made materials) that is designed to hold an accumulation of liquid wastes or wastes containing free liquids and that is not an injection well.
- The scope of disclosure includes those CCR impoundments that the registrant currently owns and/or operates and those CCR impoundments that are inactive and/or closed, but for which the registrant retains oversight and/or financial responsibility.

.26 The registrant shall disclose a count of impoundments for each Hazard Potential Classification, broken down by structural integrity assessment rating, where:

- The EPA Hazard Potential Classifications, consistent with the [Federal Emergency Management Agency's \(FEMA\) Hazard Potential Classification System for Dams](#), define the potential for loss of

life or damage resulting from a dam failure, where classifications include High Hazard Potential, Significant Hazard Potential, Low Hazard Potential, and Less Than Low Hazard Potential.

- High Hazard Potential includes dams where failure or mis-operation will probably cause loss of human life, a listing of High Hazard Potential units can be found [here](#).
 - Significant Hazard Potential includes dams where failure or mis-operation would not result in probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns.
 - Low Hazard Potential includes dams where failure or mis-operation would not result in probable loss of human life and economic and/or environmental losses would be of low magnitude.
 - Less Than Low Hazard Potential includes dams that do not pose high, significant, or low hazard potential.
- The EPA structural integrity rating defines the expected performance of dams under applicable loading circumstances (static, hydraulic, and seismic), where ratings include Satisfactory, Fair, Poor, and Unsatisfactory.
 - Satisfactory is defined as those dams where acceptable performance is expected under all required loading circumstances and no existing or potential safety deficiencies are recognized.
 - Fair is defined as those dams where acceptable performance is expected under all required loading circumstances, yet minor deficiencies may exist that require remedial action and/or secondary studies or investigations.
 - Poor is defined as those dams where a safety deficiency is recognized for a required loading circumstance, remedial action is required, and further critical studies or investigations may be needed.
 - Unsatisfactory is defined as those dams, considered unsafe, where a deficiency is recognized that requires immediate or emergency remedial action.

.27 Where state, local, or internal assessments determine the hazard potential and/or structural integrity to be at higher risk of impact and/or failure than that determined by the EPA, the registrant shall disclose the more conservative (i.e., higher risk) classification and/or rating.

Additional References

For guidance on the “legitimate recycling” of hazardous waste, see 40 CFR 260.43.

[Coal Combustion Residuals Impoundment Assessment Reports](#)

Water Management

Description

Electricity generation is one of the largest consumers of water in the U.S. Water is used mainly for cooling purposes. This industry is facing increasing water-related supply and regulatory risks and there is serious potential for stranded assets. Power plants may not be able to operate at their full capacity, or at all, due to region-specific water constraints, as national water supplies tighten and electricity generation, agriculture, and municipal use increasingly compete for water supplies in the coming decade. The availability of water is a key factor to consider when calculating the future value of a utility's assets and evaluating existing proposals for new generation sources. Heightened water scarcity due to factors such as increasing consumption and reduced supplies as a result of climate change, which could result in more frequent or intense droughts, could prompt regulatory authorities to limit companies' ability to withdraw necessary amounts of water, especially in regions with high baseline water stress. Furthermore, companies must address water contamination risks and comply with related standards, such as the Clean Water Act. Companies are held to strict standards, especially related to the temperature allowance for discharged cooling water, as well as effluent controls.

Accounting Metrics

IF0101-06. (1) Total water withdrawn and (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress

- .28 The registrant shall disclose the amount of water (in thousands of cubic meters) that was withdrawn from all sources, where:
- Water sources include surface water (including water from wetlands, rivers, lakes, and oceans), groundwater, rainwater collected directly and stored by the registrant, wastewater obtained from other entities, municipal water supplies, or supply from other water utilities.
- .29 The registrant may choose to disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources, where:
- Fresh water may be defined according to the local statutes and regulations where the registrant operates. Where there is no regulatory definition, fresh water shall be considered to be water that has a solids (TDS) concentration of less than 1000 mg/l per the [Water Quality Association definition](#).
 - Water obtained from a water utility in compliance with U.S. [National Primary Drinking Water Regulations](#) can be assumed to meet the definition of fresh water.

- .30 The registrant shall disclose the amount of water (in thousands of cubic meters) that was consumed in its operations, where water consumption is defined as:
- Water that evaporates during withdrawal, usage, and discharge;
 - Water that is directly or indirectly incorporated into the registrant's product or service; and
 - Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea.
- .31 The registrant shall analyze all of its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct (publicly accessible online [here](#)).
- .32 The registrant shall disclose its water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.
- .33 The registrant shall disclose its water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

IF0101-07. Number of incidents of non-compliance with water quality and/or quantity permits, standards, and regulations

- .34 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.
- .35 The scope of disclosure includes incidents governed by federal, state, and local statutory permits and regulations including, but not limited to, the discharge of a hazardous substance, violation of pretreatment requirements (when discharging to applicable publicly owned treatment works), maximum temperature-limit exceedance, exceedance of a groundwater standard, effluent limit exceedances (such as waste load allocation), and/or water withdrawal exceedances.
- .36 An incident of non-compliance shall be disclosed regardless of whether it resulted in an enforcement action (e.g., fine, warning letter, etc.).
- .37 An incident of non-compliance shall be disclosed regardless of the measurement methodology or frequency. These include violations:
- For continuous discharges, limitations, standards, and prohibitions that are generally expressed as maximum daily, weekly, and monthly averages.
 - For non-continuous discharges, limitations that are generally expressed in terms of total mass, maximum rate of discharge, frequency, and mass or concentration of specified pollutants.

IF0101-08. Discussion of water management risks and description of strategies and practices to mitigate those risks

- .38 The registrant shall discuss its risks associated with water withdrawals, water consumption, and discharge of water to the environment and describe how it manages these risks.
- .39 The registrant shall discuss, where applicable, risks to the availability of adequate, clean water resources.
- Relevant information to provide includes, but is not limited to:
 - Environmental constraints, such as operating in water-stressed regions, drought, interannual or seasonal variability, and risks due to the impact of climate change.
 - External constraints, such as volatility in water costs, stakeholder perceptions and concerns related to water withdrawals (e.g., those from local communities, non-governmental organizations, and regulatory agencies), direct competition with and impact from the actions of other users (commercial and municipal), restrictions to withdrawals due to regulations, and constraints on the registrant's ability to obtain and retain water rights or permits.
 - How risks may vary by withdrawal source, including wetlands, rivers, lakes, oceans, groundwater, rainwater, municipal water supplies, or supply from other water utilities.
- .40 The registrant shall discuss, where applicable, risks associated with its discharge of wastewater.
- Relevant information to provide includes, but is not limited to:
 - Environmental constraints, such as the ability to maintain compliance with regulations focused on the quality of effluent discharged to the environment, the ability to eliminate existing and emerging pollutants of concern, and the ability to maintain control over runoff and storm water discharges.
 - External constraints, such as increased liability and/or reputational risks, restrictions to discharges and/or increased operating costs due to regulation, stakeholder perceptions and concerns related to water discharges (e.g., those from local communities, non-governmental organizations, and regulatory agencies), and the ability to obtain discharge rights or permits.
 - How risks may vary by discharges to different sources, including wetlands, rivers, lakes, oceans, groundwater, rainwater, municipal water supplies, or other water utilities.
- .41 The registrant should include a discussion of the potential impacts that these risks may have on its operations and the timeline over which such risks are expected to manifest.
- Impacts may include, but are not limited to, those associated with costs, revenues, liabilities, continuity of operations, and reputation.

.42 The registrant shall provide a description of its short-term and long-term strategy or plan to manage these risks, including the following, where relevant:

- Any water management targets it has set, and an analysis of performance against those targets.
 - Water management targets can include water management goals that the registrant prioritizes to manage its risks and opportunities associated with water withdrawal, consumption, or discharge.
 - Targets can include, but are not limited to, those associated with reducing water withdrawals, reducing water consumption, reducing water discharges, and improving the quality of wastewater discharges.
- The scope of its strategy, plans, or targets, such as whether they pertain differently to different business units, geographies, or water-consuming operational processes.
- The activities and investments required to achieve the plans and targets, and any risks or limiting factors that might affect achievement of the plans and/or targets.

.43 For water management targets, the registrant shall additionally disclose:

- The percentage reduction or improvement from the base year, where:
 - The base year is the first year against which water management targets 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 water management plans, including the start year, the target year, and the base year.
- The mechanism(s) for achieving the target, including:
 - Efficiency efforts, such as the use of water recycling and/or closed-loop systems;
 - Product innovations such as redesigning products or services to require less water;
 - Process and equipment innovations, such as those that enable the use of less water in manufacturing or operations;
 - Use of tools and technologies (e.g., the [World Wildlife Fund Water Risk Filter](#), [WRI/WBCSD Global Water Tool](#), and [Water Footprint Network Footprint Assessment Tool](#)) to analyze water use, risk, and opportunities; and
 - Collaborations or programs in place with the community or other organizations.

- .44 Disclosure of strategies, plans, and targets shall be limited to activities that were ongoing (active) or reached completion during the fiscal year.
- .45 The registrant shall discuss whether its water management practices result in any additional lifecycle impacts or tradeoffs in its organization, including tradeoffs in land use, energy consumption, and greenhouse gas (GHG) emissions, and why the registrant chose these practices despite lifecycle tradeoffs.

Additional Resources

GRI-Global Reporting Initiative (GRI G4)
CDP 2015 Water Questionnaire
CEO Water Mandate
Global Water Footprint Assessment Standard

Land Use & Community Relations

Description

New power generation plants and the expansion of existing power plants can have significant land requirements. New transmission lines, especially those necessitated by the relatively remote locations of solar and wind farms, also require significant land rights. Placement decisions and effective engagement with stakeholders in the project area can have a significant impact on the amount of time it takes to bring a project to fruition. A utility's choice of energy generation can have a significant effect on the amount of community pushback it receives—the negligible air pollution of renewables can make certain communities more amenable to such plants than higher-polluting coal plants; conversely, certain stakeholders may be concerned about the aesthetics or impact on property values of a wind farm or transmission line in their community. Many projects require environmental and social impact assessments as part of the regulatory approval process. The more effectively a company can present the benefits of the project to relevant stakeholders and address potential community concerns, the faster projects are likely to be initiated and the company can start earning revenue. Uncertainty surrounding a company's ability to gain and maintain land-use permits and eminent domain rights can increase a company's risk profile and, subsequently, its capital costs.

Accounting Metrics

IF0101-09. (1) Number of projects with open applications (2) number requiring environmental or social modification, and (3) percentage of modifications resulting from formal public interventions or protests

- .46 The registrant shall disclose the number of its projects with open applications where:
- Projects with open applications include those projects with currently pending permit application decisions, including, but not limited to, projects undergoing siting, scoping, and/or environmental and/or social impact reviews, where:
 - Projects include the siting, development, and/or expansion of new and/or existing transmission, distribution, and generation assets.
 - Pending permit applications include, but are not limited to, those associated with land use, zoning, emissions, effluents, and property interests at the federal, state, or local levels.
 - The scope of disclosure includes permit applications that the registrant has submitted to the relevant regulatory agency and does not include applications that the registrant intends to submit but has not yet submitted.
- .47 The registrant shall disclose the number of open applications requiring modifications associated with environmental or social impacts (hereafter “modifications”).
- .48 A permit and/or license shall be considered modified when the issuing agency requires modification to or mitigation of the proposed project in order to grant approval of the permit or license.

- Examples of modifications associated with environmental or social impacts include:
 - Mitigated Action Plans (MAP) prepared by the U.S. Department of Energy (DOE) (a listing is available [here](#)) and modifications required by environmental impact statements or environmental impact assessments in accordance with the National Environmental Policy Act (NEPA);
 - Modifications required by state or local regulations such as Mitigated Negative Declarations (MND), established by the California Public Utilities Commission (CPUC); or
 - Mitigation required by an environmental impact report as established through the California Environmental Quality Act (CEQA).
- .49 The registrant shall calculate the percentage of projects that require modifications resulting from formal public interventions or protests as the number of projects for which modifications were or are required as a result of formal public interventions or protests divided by the total number of projects for which modifications were or are required.
- .50 Formal public interventions or protests are defined by the relevant federal, state, or local law, but are generally considered to be instances where an administrative law judge is required to preside over an evidentiary proceeding brought forth by interested parties, where:
- Parties are defined by the relevant federal, state, or local law, but are generally considered to be the applicant and those persons or organizations legally permitted to intervene or protest in an application proceeding.
- .51 Relevant federal and state laws governing the intervention process include, but are not limited to:
- Florida [Power Plant Siting Act](#)
 - New York [Public Service Law: Article VII](#)
 - Massachusetts [Rules for the Conduct of Adjudicatory Proceedings](#)
 - California [Public Utilities Commission General Order Number 131-D](#)
 - United States [18 CFR 385](#)
- .52 The scope of disclosure shall include those projects with open applications to which the registrant is a party, including projects overseen by the registrant directly or through joint venture, but not including project applications to which the registrant is not a party.
- .53 The registrant should discuss any modifications or abandonments of projects during the current year as required by applications closed during a prior period or through the course of the current year.

Note to **IF0101-09**

- .54 The registrant shall discuss project applications that relate to a significant amount of transmission, distribution, or generation capacity.
- .55 For such projects, the registrant shall provide:
- A description of the project and any risk of required modifications, including community or stakeholder protests to the original application.
 - The total generation or transportation capacity (in megawatts) potentially affected by modifications, including whether the initial capacity was reduced, the location and siting altered, and any other mitigation techniques and technologies required.
 - Any cost to remedy modifications and/or public interventions.

IF0101-10. Discussion of community engagement processes to identify and mitigate concerns regarding project environmental and community impacts

- .56 The registrant shall discuss its process for engaging communities in which it operates to identify concerns regarding the environmental and social impacts associated with its existing or proposed projects, where:
- Environmental impacts may include, but are not limited to, ecological impacts of construction, air emissions, and risk of avian deaths.
 - Community impacts may include, but are not limited to, property value, visual aesthetics, rights of way, and human health and safety.
- .57 The registrant shall discuss the following, where relevant:
- Its community engagement processes for the various stages of permitting, construction, and commissioning, such as the siting and pre-permit application stage, the initial permit review stage, the subsequent review and public comment stages (e.g., public comments on environmental impact statements), the stages during construction, and throughout the operating life of its assets.
 - Its policy to undertake self-initiated environmental and/or social impact assessments and mitigation efforts.
 - The environmental and community impacts specifically addressed through its engagement processes.
 - The risks and opportunities associated with its projects, including, but not limited to, permit delays, project modifications, expanded infrastructure, and increased energy reliability.

- The underlying references for its procedures, such as codes, guidelines, standards, or regulations, and whether these were developed by the registrant, an industry organization, a third-party organization (e.g., a non-governmental organization), a governmental agency, or some combination of these groups.
- Its community engagement activities for the period under reporting and the projects that such activities relate to.

Downstream Energy Stewardship

Description

Energy efficiency efforts, while possibly reducing direct revenues from the sale of electricity where they reduce customer demand, are often economically beneficial to electric utilities, as they can help utilities reduce operation and maintenance costs through decreased electricity usage on the grid. Energy efficiency efforts include educating and incentivizing customers to be more efficient with their electricity usage (such as through demand-response programs), encouraging decoupling measures in utilities' area of operations (if they are not decoupled already), and investing in smart grid technology. Many PUCs expect these actions from companies and can deny rate increase requests for new infrastructure builds if they believe that a company has not first tried these other methods to meet their electricity obligations. From a societal perspective, energy efficiency serves as a low-cost method to reduce GHG emissions and can help lower customer utility bills.

Accounting Metrics

IF0101-11. Percentage of electric load served by smart grid technology

.58 The registrant shall disclose the percentage of its electric load (in megawatt hours) served by smart grid technology, where:

- According to the National Institute of Standards and Technology (NIST) [Smart Grid Interoperability Standards](#), characteristics of the smart grid include:
 - Increased use of digital information and controls technology to improve reliability, security, and efficiency of the electric grid;
 - Dynamic optimization of grid operations and resources, with full cybersecurity;
 - Deployment and integration of distributed resources and generation, including renewable resources;
 - Development and incorporation of demand response, demand-side resources, and energy efficiency resources; and
 - Deployment of "smart" technologies for metering, communications concerning grid operations and status, and distribution automation, among others.
- Examples of smart grid technologies include, but are not limited to, demand-response systems, distribution automation, smart inverters, advanced metering equipment, and other smart home and intelligent building control products.

.59 The percentage of load served by smart grid technology shall be calculated as the total amount of energy load (in megawatt hours) served by smart grid technology divided by the total amount of energy load (in megawatt hours), where:

- The electric load served by smart grid technology is defined as the amount of electricity delivered to the registrant's customers that incorporates the use of smart grid technologies to meet the electricity demand of the consumer.

.60 The registrant may choose to discuss the smart grid technology through which its electric load is served, including discussion of technologies in use, customer type (e.g., residential, commercial, or industrial), and whether technologies are owned by the utility or the customer.

IF0101-12. (1) Customer electricity savings from efficiency measures and (2) percentage of regulatory savings requirement achieved

.61 The registrant shall disclose the total amount of electricity savings delivered to customers (in megawatt hours) from energy efficiency measures during the fiscal year.

.62 Electricity savings shall be defined as the difference between the actual amount of energy consumption and that which would have been consumed had efficiency measures not been installed.

.63 Electricity savings shall be calculated according to the state or local evaluation, measurement, and verification (EM&V) regulations where such savings occur. Examples of state regulations include, but are not limited to:

- California Public Utility Commission (CPUC) [Decision 09-09-047](#)
- New York [Case 07-M-0458](#)
- Public Utility Commission of Texas (PUCT) [Substantive Rule 25.181](#)

.64 Where state or local regulations do not exist, the registrant shall calculate energy savings consistent with the measurement and verification methods outlined by the Department of Energy's (DOE) Federal Energy Management Program (FEMP) [M&V Guidelines: Measurement and Verification for Federal Energy Projects, Version 3.0.](#)

.65 The registrant shall not include electricity savings achieved during previous fiscal years in its calculation of customer electricity savings from efficiency measures, including where state regulations allow for such carryforward.

.66 The percentage of regulatory savings achieved shall be calculated as those customer electricity savings (in megawatts) from efficiency measures delivered to meet regulatory electricity savings requirements plus any such savings carried forward (as allowed by regulations) from prior periods, divided by the total amount of electricity savings from efficiency measures required to be delivered by regulations. Relevant regulations include, but are not limited to:

- Massachusetts Department of Public Utilities [Three Year Energy Efficiency Plan 12-100 to 12-111](#)
- CPUC [Decision 14-10-046](#)

- Texas [Senate Bill 1125](#)
 - Illinois [Power Agency Act 220 ILCS 5/8-103](#)
- .67 The registrant shall consider guidance on regulations as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.
- .68 The scope of electricity savings from efficiency measures includes savings delivered directly by the registrant and, where regulations provide, savings substantiated through purchases of efficiency savings credits.
- For any savings from efficiency measures delivered directly by the registrant, any efficiency savings credits must be retained (i.e., not sold) and retired on behalf of the registrant in order for the registrant to claim them delivered electricity savings.
 - For efficiency savings credits purchased, the agreement must explicitly include and convey that credits be retained and retired on behalf of the registrant in order for the registrant to claim them.
- .69 Relevant regulations governing efficiency savings credits include:
- Nevada [Regulation of Public Utilities Chapter 704](#)
 - Connecticut [House Bill 7432](#)
 - Pennsylvania [Act 129](#)
- .70 The registrant shall not include savings achieved, during the fiscal year, that exceed those required by regulations in its calculation of the percentage of savings required by regulations.
- .71 The registrant should disclose instances where it has not been able to deliver a sufficient amount of electricity savings as required by regulations, including a disclosure of the amount of savings delivered subject to the regulation and the amount of savings required by the regulation.
- .72 The registrant may choose to disclose any electricity savings delivered that exceed those required by regulations that resulted in the registrant receiving energy efficiency performance incentives.

Additional References

[Massachusetts Technical Reference Manual for Estimating Savings from Energy Efficiency Measures](#)

[Energy Division & Program Administrator Energy Efficiency Evaluation, Measurement and Verification Plan Version 5](#)

[New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs](#)

[Texas Deemed Savings, Installation & Efficiency Standards](#)

Further information regarding state regulations on energy efficiency measures can be found through the American Council for an Energy-Efficient Economy's [State Scorecard Rank](#)

Management of the Legal & Regulatory Environment

Description

Companies do not have total control over the outcome of legislation, but they engage policymakers at the local, state, and federal levels by making financial contributions and lobbying, which are legally recognized ways of impacting legislative processes. Lobbying on some issues, such as attempting to slow the growth of a particular type of energy generation that may be beneficial to society, can have significant sustainability implications. While successful lobbying can result in positive short-term gains, the potential long-term adverse environmental and social impacts of certain types of lobbying may result in a reversal of these benefits to reflect the balance of corporate and public interest in these issues. This could create a more burdensome or uncertain regulatory environment. An examination of the larger regulatory landscape is important to ensure that the regulatory environment is not being skewed for short-term gain at the expense of long-term shareholder and societal interests. Projects undertaken by electric utilities tend to require large investments that can sometimes be amortized over decades, making them susceptible to future regulatory changes. Furthermore, as electric utility companies enjoy a natural monopoly in some markets, their activities are tightly regulated by PUCs to ensure that companies do not abuse this position through unfair pricing, discriminatory service, or other means. Electric utilities face numerous and constantly changing regulations from their PUCs in all aspects of their operations, including rates charged, access to T&D lines offered to other power generators, and the siting and construction of new infrastructure. Negotiations with PUCs can create the potential for improper and illegal contact between employees and PUC members. To manage their legal and regulatory environment and avoid potentially value-destroying outcomes, utilities therefore need strong internal controls to ensure compliance with all applicable laws, as well as a long-term regulatory strategy that is aligned with societal interests.

Accounting Metrics

IF0101-13. Discussion of policies and processes to identify and manage potential ethical violations resulting from interactions with public utility commissions

- .73 The registrant shall discuss the policies and processes it has established to identify and manage ethical violations resulting from interactions with public utility commissions (PUC) where:
- Ethical violations are considered those instances where the registrant or the registrant's employee(s) are found to be out of compliance with codes of conduct and ethics as promulgated through regulations or through the registrant's internal framework.
 - Relevant policies to discuss include, but are not limited to, board oversight of interactions with regulators (including oversight of political contributions), linking executive compensation to regulatory compliance, and programs to protect whistleblowers.
 - Relevant processes include, but are not limited to, training programs for employees that interact with PUC representatives, audits of interactions with PUC representatives, and engagement with the public throughout the regulatory decision-making process.

- .74 The registrant shall describe any corrective actions it has implemented as a result of incidents arising from ethical violations with a PUC. This may include, but is not limited to, specific changes to the utility's oversight of employee-PUC engagement, efforts to preemptively identify potential ethical dilemmas, and educational programs for employees.
- .75 The registrant should disclose instances in which management's relations with PUC(s) were found to be out of compliance with regulations and/or breach the public trust, including, where relevant:
- A description of significant lapses in control of management's relationship with PUCs and the events preceding such instances;
 - Any subsequent legal or regulatory proceedings, including a description of the nature (e.g., guilty plea, deferred agreement, or non-prosecution agreement) of fines and settlements; and
 - Other significant outcomes such as denied rate cases.

IF0101-14. Amount of legal and regulatory fines, settlements, and rate reductions associated with allegations of overcharging customers

- .76 The registrant shall disclose the amount (excluding legal fees) of all fines, settlements, or rate reductions associated with overcharging customers, such as those related to enforcement of U.S. laws and regulations on utility rate making, overcharging, and crediting customers, including violations of the U.S. Federal Power Act and relevant state-level public utilities commission acts, among others.
- .77 Disclosure shall include administrative judge decisions (e.g., bench decision, recommended decision, final decision, etc.), civil actions (e.g., civil judgment, settlements, or regulatory penalties), and criminal actions (e.g., criminal judgment, penalties, or restitutions) taken by any entity (government, businesses, or individuals).
- .78 The scope of disclosure is limited to those instances brought forth by customers and/or regulators alleging that the registrant overcharged customers external to the rate case process established for normal course of business.

Note to **IF0101-14**

- .79 The registrant shall briefly describe the nature (e.g., guilty plea, deferred agreement, or non-prosecution agreement) and context (e.g., overcharging due to improper rate case formulation, billing errors, rate commitments, etc.) of fines, settlements, and rate reductions.
- .80 The registrant shall describe any corrective actions it has implemented as a result of each incident. This may include, but is not limited to, specific changes in billing processes, rate-making, or public communications and commitments.

IF0101-15. (1) Population served in markets subject to renewable portfolio standards (RPS) and (2) percentage fulfillment of RPS target

- .81 The registrant shall disclose the population it serves located in markets subject to renewable portfolio standards (RPS), where:
- An RPS is defined as a regulatory mandate to increase production of electricity from renewable resources such as wind, solar, biomass, and other alternatives to fossil and nuclear electric power generation.
- .82 Relevant state RPSs include, but are not limited to:
- California [Public Utilities Code Section 399.11-399.32](#)
 - Massachusetts [General Laws Part I Title II Chapter 25A Section 11F](#)
 - New York [Case 03-E-0188](#)
 - Texas [Utilities Code Title 2 Subtitle B Chapter 39 Subchapter z Section 39.904](#)
 - A full listing of state RPSs can be accessed through the National Conference of State Legislatures ([here](#)).
- .83 The registrant shall consider such guidance as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.
- .84 The registrant shall disclose its fulfillment of RPS targets as a percentage on a sales (in megawatt hours) weighted basis.
- .85 The registrant shall calculate its percentage fulfillment of RPS targets as the amount of renewable electricity sold (in megawatt hours) in markets with RPS regulations divided by the amount of renewable electricity (in megawatt hours) that would need to be sold to achieve the registrant's target compliance obligation set forth through the relevant RPS regulations.
- .86 The registrant should disclose the populations it serves that are located in markets where RPSs are voluntary, including a disclosure of the percentage fulfillment of voluntary RPSs.

Note to **IF0101-15**

- .87 The registrant shall discuss instances in which current RPS regulations are in place, including whether these regulations are being met and whether regulations require future increases to the registrant's renewable energy portfolio.

.88 The registrant should discuss instances in which it does not meet current RPS regulations or may be at risk of not being able to meet future RPS regulations, including a discussion of:

- The reasons for not meeting RPS regulations;
- The population where RPS standards are not met or likely not to be met; and
- Any punitive fines or settlements stemming from failure to meet RPS regulations.

IF0101-16. Amount of energy generated through net metering contracts

.89 The registrant shall disclose the total amount of energy (in megawatt hours) generated through net metering contracts, where:

- Net metering regulations provide financial credits for the registrant’s customers for small-scale generation of electricity.

.90 Relevant net metering regulations include, but are not limited to:

- California [Assembly Bill Number 2466 Chapter 540](#)
- New York [Public Service Article 4 Section 66-J](#)
- Massachusetts [General Laws Part I Title XXII Chapter 164 Section 139](#)
- Illinois Public [Act 095-0420](#)

Note to **IF0101-16**

.91 The registrant shall discuss the markets it operates in that maintain regulatory caps on electricity generation from net metering contracts as well as markets that do not maintain such caps, including a discussion of instances when such caps were utilized or when an absence of regulatory caps on electricity generation from net metering contracts affected grid reliability.

.92 The registrant may choose to discuss any markets where new net metering laws or changes to existing laws are proposed, including a description of the registrant’s stance and lobbying efforts regarding such laws.

Nuclear Safety & Emergency Management

Description

Owners of nuclear power plants in the U.S. have operated for decades without a public safety incident. They carry private insurance and enjoy significantly limited liability, as part of the Price-Anderson Act, if an incident were to occur. However, owners of nuclear energy generation plants still face related risks as, even if the probability is small, the outcome of a nuclear accident would be serious and is difficult to predict. Utilities could face a loss of their license to operate, either entirely or in the operation of nuclear plants. The latter would hurt a company's competitive position and make it more difficult to meet GHG emission standards. Companies in this space need to be vigilant about safety upgrades in their facilities and maintain robust emergency preparedness training for their staff. It is also important for a company to develop a culture of safety in order to reduce the probability that radioactive leakage will occur. If a leak is to occur, companies with a strong safety culture can effectively detect and respond to such incidents. A culture that engages and empowers employees to work with management to prevent and effectively deal with accidents is likely to help companies mitigate costs and maintain their license to operate. Besides the safety of power plant operations, storage of nuclear waste also poses ongoing risks to companies that own nuclear power plants. The U.S. Congress has yet to confirm a national repository for nuclear waste, which has left many utilities storing spent nuclear waste on-site. Because the toxic lifespan of spent nuclear fuel is about one million years, a long-term storage solution is needed for the significant amounts of waste produced annually. The lack of a national program both increases company costs related to storing the waste and further opens companies up to the risks mentioned above in the event of a leak and release of radioactive material.

Accounting Metrics

IF0101-17. (1) Total amount of high-level radioactive waste stored on site and (2) total designed storage capacity

- .93 The registrant shall disclose the total amount (in metric tons) of high-level radioactive waste stored on its owned and/or operated sites.
- High-level radioactive waste is defined, according to 10 CFR 72.3, as the highly radioactive material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations; and (2) other highly radioactive material that the U.S. Nuclear Regulatory Commission (NRC) determines by rule, consistent with existing law, to require permanent isolation.
 - Owned or operated sites are defined, according to 10 CFR 72.3, as those real properties owned either in whole or in part or operated by the registrant, on which Independent Spent Fuel Storage Installation(s) (ISFSI) are located, where:
 - An ISFSI is defined as a complex designed and constructed for the interim storage of spent nuclear fuel, solid reactor-related Greater-than-Class C (GTCC) waste, and other radioactive materials associated with spent fuel and reactor-related GTCC waste storage.

- .94 The registrant shall disclose total designed storage capacity (in metric tons) at its owned and/or operated sites.
- The designed storage capacity is defined, according to 10 CFR 72.3, as the quantity of spent fuel (in metric tons), high-level radioactive waste (in metric tons), or reactor-related GTCC waste (in metric tons); the maximum burn-up of the spent fuel in MWD/MTU, the terabequerel (curie) content of the waste, and the total heat generation in Watts (Btu/hour) that the storage installation is designed to accommodate.
- .95 The registrant should disclose if significant amounts of high-level radioactive waste were transported off its owned or operated sites to government- or third-party-owned sites during the fiscal year.
- .96 The registrant may choose to disclose the amount of high-level radioactive waste and designed storage capacity by owned and/or operated site.

IF0101-18. Total number of nuclear power units, broken down by Nuclear Regulatory Commission (NRC) Action Matrix Column

- .97 The registrant shall disclose the total number of nuclear power units that it owns and/or operates, where:
- A nuclear power unit is defined, consistent with 10 CFR 50, as a nuclear reactor and associated equipment necessary for electric power generation, including those structures, systems, and components required to provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public.
- .98 The registrant shall provide a breakdown of nuclear power units that it owns and/or operates by [Nuclear Regulatory Commission \(NRC\) Action Matrix Column](#).
- .99 Relevant Action Matrix Columns include, in order of increasing significance:
- Licensee Response Column
 - Regulatory Response Column
 - Degraded Cornerstone Column
 - Multiple/Repetitive Degraded Cornerstone Column
 - Unacceptable Performance Column

IF0101-19. Discussion of efforts to manage nuclear safety and emergency preparedness

- .100 The registrant shall discuss its efforts to manage nuclear safety and emergency preparedness, including its efforts to identify, report, and assess initiating events and event sequences relating to nuclear safety and emergency preparedness, where:

- Initiating events are defined, consistent with 10 CFR 63, as natural or human-induced events that cause an event sequence.
- An event sequence is defined as a series of actions and/or occurrences within the natural and engineered components of a geologic repository operations area that could potentially lead to exposure of individuals to radiation. An event sequence includes one or more initiating events and associated combinations of repository system component failures, including those produced by the action or inaction of operating personnel.
- Disclosure may focus broadly on nuclear safety and emergency management systems, but shall specifically address the systems in place to avoid and manage initiating events, accidents, emergencies, and incidents that could have catastrophic impacts on human health, the local community, and the environment.

.101 The registrant shall discuss how it manages nuclear safety and emergency preparedness, such as through training, rules and guidelines (and their enforcement), implementation of emergency plans (consistent with those developed in accordance with 10 CFR 50.47), and use of technology.

.102 The registrant shall discuss its efforts to create and maintain a culture of nuclear safety and emergency preparedness, including its alignment with the [Nuclear Regulatory Commission's \(NRC\) Safety Culture Policy Statement](#) and efforts to institute the traits of a positive safety culture, where the traits of a positive safety culture include:

- Leadership safety values and actions
- Problem identification and resolution
- Personal accountability
- Work process
- Continuous learning
- Environment for raising concerns
- Effective safety communications
- Respectful work environment
- Questioning attitude

.103 The registrant may choose to discuss implementation of the [Institute of Nuclear Power Operations \(INPO\) Principles for a Strong Nuclear Safety Culture](#) and or the [International Atomic Energy Agency's \(IAEA\) Best Practices in the Utilization and Dissemination of Operating Experience at Nuclear Power Plants](#).

Grid Resiliency

Description

Electric utilities own or operate critical infrastructure that forms the basis of modern society. Systemic or economy-wide disruptions may be created if this infrastructure is not prepared to handle major disruptions. Disruptions can be caused by extreme weather events, natural disasters, and cyber-attacks. As the frequency and/or intensity of extreme weather events associated with climate change continues to increase, all segments of the industry, and especially companies with major T&D operations, will face increasing physical threats to their network infrastructure. Likewise, electric utility operations are increasingly integrating software and online tools, which could result in threats to the electricity infrastructure from increasingly sophisticated cyber-attacks. These factors could result in frequent or significant service disruptions and outages and a significant increase in the operational costs and capital expenses needed to repair or upgrade damaged or compromised equipment. Companies can protect shareholder value with practices that minimize the probability and magnitude of systemic impacts from extreme weather events and cyber-attacks and by actively submitting compelling rate cases to improve the reliability, resilience, and quality of their infrastructure and services.

Accounting Metrics

IF0101-20 Number of data security breaches

- .104 The registrant shall calculate and disclose the total number of data security breaches, which are defined as instances of unauthorized acquisition, access, use, or disclosure of protected information.
- .105 The scope of disclosure shall be limited to data security breaches, cybersecurity risks, and incidents that resulted in the registrant's business processes deviating from its expected outcomes for confidentiality, integrity, and availability.
 - The scope of disclosure shall include incidents of unauthorized acquisition or acquisition without valid authorization, resulting from deficiencies or failures of people, processes, or technology.
 - The scope of disclosure shall exclude disruptions of service due to equipment failures.
- .106 Disclosure shall include incidents in which encrypted data were acquired with an encryption key that was also acquired.
- .107 The registrant may delay disclosure if a law enforcement agency has determined that notification impedes a criminal investigation until the law enforcement agency determines that such notification does not compromise the investigation.

.108 Disclosure shall be additional but complementary to the U.S. Security and Exchange Commission’s (SEC) [CF Disclosure Guidance: Topic No. 2, Cybersecurity](#).

- At a minimum, this includes instances when the costs or other consequences associated with one or more known incidents—or the risk of potential incidents—represents a material event, trend, or uncertainty that is reasonably likely to have a material effect on the registrant’s results of operations, liquidity, or financial condition, or would cause reported financial information to not be necessarily indicative of future operating results or financial condition (e.g., theft of intellectual property, service disruptions, reduced revenue, increased cybersecurity protection expenditure, litigation costs, etc.).

Note to **IF0101-20**

.109 The registrant shall describe the corrective actions taken in response to specific incidents, such as implementation of the National Institute of Standards and Technology (NIST) [Framework for Improving Critical Infrastructure Cybersecurity](#), including changes in operations, management, processes, products, business partners, training, or technology.

.110 All disclosure shall be sufficient such that it is specific to the risks the registrant faces, but disclosure itself will not compromise the registrant’s ability to maintain data privacy and security.

IF0101-21. (1) System Average Interruption Duration Index (SAIDI), (2) System Average Interruption Frequency Index (SAIFI), and (3) Customer Average Interruption Duration Index (CAIDI)

.111 The registrant shall disclose its System Average Interruption Duration Index (SAIDI) (in minutes), where:

- The SAIDI is defined as the total duration of an interruption for the average customer during the period under reporting.

.112 The registrant shall calculate its SAIDI as the total number of customers interrupted multiplied by the duration of interruptions (i.e., restoration time) divided by the total number of customers served, written as $\Sigma(r_i * N_i) / N_T$, where:

- Σ = Summation function
- r_i = Restoration time, in minutes
- N_i = Total number of customers interrupted
- N_T = Total number of customers served

.113 The registrant shall disclose its System Average Interruption Frequency Index (SAIFI), where:

- SAIFI is defined as the average number of times that a system customer experiences an outage during the period under reporting.

.114 The registrant shall calculate its SAIFI as the total number of customers interrupted divided by the total number of customers served, written as $\Sigma(N_i) / N_T$, where:

- Σ = Summation function
- r_i = Restoration time, in minutes
- N_i = Total number of customers interrupted
- N_T = Total number of customers served

.115 The registrant shall disclose its Customer Average Interruption Duration Index (CAIDI), where:

- The CAIDI is defined as the average amount of time required to restore service once an outage has occurred.

.116 The registrant shall calculate its CAIDI as the total number of customers interrupted multiplied by the duration of interruptions (i.e., restoration time) divided by the sum of the number of customers interrupted, written as $\Sigma(r_i * N_i) / \Sigma(N_i)$, where:

- Σ = Summation function
- r_i = Restoration time, in minutes
- N_i = Total number of customers interrupted

Note to **IF0101-21**

.117 The registrant shall discuss notable service disruptions such as those that affected a significant number of customers or disruptions of extended duration.

.118 For such disruptions, the registrant should provide:

- Description and cause of the service disruption;
- The total generation or transportation capacity (in megawatts) and population affected by the disruption;
- The costs (in U.S. dollars) associated with the service disruption;
- Actions taken to mitigate the potential for future service interruptions; and
- Any other significant outcomes (e.g., legal proceedings, related fatalities).

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SUSTAINABILITY ACCOUNTING STANDARD
INFRASTRUCTURE SECTOR

GAS UTILITIES

Sustainability Accounting Standard

Sustainable Industry Classification System™ (SICS™) #IF0102
Prepared by the
Sustainability Accounting Standards Board®

October 2015

Exposure Draft Standard for Public Comment

GAS UTILITIES

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 investor 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 78 industries in 10 sectors.

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INTRODUCTION

Purpose & Structure

This document contains the SASB Sustainability Accounting Standard (SASB Standard) for the Gas Utilities 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 Gas Utilities industry is made up of gas distribution and marketing companies. Gas distribution involves operating local, low-pressure pipes to transfer natural gas from larger transmission pipes to residential and commercial end users. Gas marketing companies are gas brokers that aggregate natural gas into quantities that fit the needs of their different customers and then deliver it. A relatively smaller portion of this industry is involved in propane gas distribution, thus this standard focuses mainly on natural gas distribution. Both types of gas are commonly used for heating and cooking by residential, commercial, and industrial customers. In structurally regulated markets, the utility is granted a full monopoly over the distribution and sale of natural gas. A Public Utility Commission (PUC) must approve the rates utilities charge to avoid the abuse of their monopoly position. In

¹ <http://pcaobus.org/Standards/Attestation/Pages/AT101.aspx>

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

deregulated markets, distribution and marketing are legally separated and customers have a choice of whom to buy their gas from. In this case, a utility is only guaranteed a monopoly over distribution, and is legally required to transmit all gas equitably along its pipes for a fixed fee. This standard focuses on the U.S. market, where a majority of the population is served by an investor-owned utility.

Note: The SASB Gas Utilities industry does not include gas transmission companies that transport highly pressurized natural gas over long distances from the wellhead. Gas transmission companies are included in the Oil & Gas – Midstream industry (NR0102) in the Non-Renewable Resources sector

Guidance for Disclosure of Sustainability Topics in SEC Filings

1. Industry-Level Sustainability Topics

For the Gas Utilities industry, SASB has identified the following sustainability disclosure topics:

- Downstream Emissions Management
- Operational Safety & Emergency Management
- Distribution Network Resiliency

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 SICs 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.”

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

⁴ C.F.R. 229.303(Item 303)(a)(3)(ii).

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

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.

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.”

- **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.

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 Gas Utilities 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 \(SICS™\)](#). 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.

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.”

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.

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 |
|---|--------------|---|----------|
| Population served | Quantitative | Number | IF0102-A |
| Amount of natural gas delivered and percentage to (1) residential customers (2) commercial customers (3) industrial customers, and (4) transferred to a third-party | Quantitative | Million British Thermal Units (MMBtu), Percentage (%) | IF0102-B |
| Length of distribution pipelines | Quantitative | Kilometers (km) | IF0102-C |

Units of Measure

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

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

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 |
|--|---|-------------------------|---|-----------|
| Downstream Emissions Management | (1) Customer gas savings from efficiency measures and (2) percentage of regulatory savings requirement achieved | Quantitative | Million British Thermal Units (MMBtu), Percentage (%) | IF0102-01 |
| | Amount of natural gas leakage | Quantitative | Million British Thermal Units (MMBtu) | IF0102-02 |
| | Percentage of distribution pipeline that is (1) cast and/or wrought iron and (2) unprotected steel | Quantitative | Percentage (%) by kilometers (km) | IF0102-03 |
| | Discussion of impacts on operations from emissions regulations and description of efforts to manage risks and/or opportunities presented | Discussion and Analysis | n/a | IF0102-04 |
| Operational Safety & Emergency Management | Number of (1) reportable pipeline incidents, (2) Corrective Action Orders (CAO), and (3) Notices of Probable Violation (NOPV) ¹⁰ | Quantitative | Number | IF0102-05 |
| | Average response time for gas emergencies | Quantitative | Minutes | IF0102-06 |
| | Percentage of pipeline operators currently qualified to perform covered tasks | Quantitative | Percentage (%) | IF0102-07 |
| | Discussion of management systems used to integrate a culture of safety and emergency preparedness throughout project lifecycles | Discussion and Analysis | n/a | IF0102-08 |
| Distribution Network Resiliency | (1) Number of service interruptions, (2) population affected, and (3) average duration ¹¹ | Quantitative | Number, Minutes | IF0102-09 |
| | Number of data security breaches ¹² | Quantitative | Number | IF0102-10 |
| | Discussion of efforts to identify and mitigate risks of technological and physical service disruptions | Discussion and Analysis | n/a | IF0102-11 |

¹⁰ Note to **IF0102-05**—The registrant shall discuss notable incidents such as those that affected a significant number of customers, created extended disruptions to service, or resulted in serious injury or death.

¹¹ Note to **IF0102-09**—The registrant shall discuss notable service interruptions such as those that affected a significant population or those of extended duration.

¹² Note to **IF0102-10**—The registrant shall describe the corrective actions taken in response to specific incidents, such as changes in operations, management, processes, products, business partners, training, or technology.

Downstream Emissions Management

Description

Gas utilities can mitigate the environmental impact of their operations in two main ways: by reducing fugitive greenhouse gas (GHG) emissions and by incentivizing their customers to be more energy efficient (e.g., by offering weatherization programs). Aging infrastructure is a major cause of leaks. There is a careful balance in this industry between the timely update of this vast array of pipes and investing in leak-detection technology while avoiding placing an undue cost burden on customers. An increased regulatory emphasis on preventing methane leakages will be an opportunity to increase shareholder returns through an accelerated pipeline upgrade schedule. A decrease in the amount of gas flowing through pipes could delay the infrastructure upgrade schedules and would likely reduce operations and maintenance costs. However, especially for companies operating in decoupled markets, successfully implementing these energy-efficiency efforts can be financially rewarding.

Accounting Metrics

IF0102-01. (1) Customer gas savings from efficiency measures and (2) percentage of regulatory savings requirement achieved

- .01 The registrant shall disclose the total amount of gas savings delivered to customers, in million British thermal units (MMBtu) that resulted from energy efficiency measures during the fiscal year.
- .02 Gas savings shall be defined as the difference between the actual amount of energy consumption and that which would have been consumed had efficiency measures not been implemented.
- .03 Gas savings shall be calculated according to the state or local evaluation, measurement, and verification (EM&V) regulations where such savings occur, where examples of state regulations include, but are not limited to:
 - California Public Utility Commission (CPUC) [Decision 09-09-047](#)
 - New York [Case 07-M-0458](#)
 - Minnesota [Statutes 216B.241](#)
- .04 Where state or local regulations do not exist, the registrant shall calculate gas savings consistent with the measurement and verification methods outlined by the Department of Energy's (DOE) Federal Energy Management Program (FEMP) [M&V Guidelines: Measurement and Verification for Federal Energy Projects, Version 3.0](#).
- .05 The registrant shall not include gas savings achieved during previous fiscal years in its calculation of customer gas savings from efficiency measures, including where state regulations allow for such carryforward.

- .06 The percentage of regulatory savings achieved shall be calculated as those customer gas savings (in MMBtu) from efficiency measures delivered to meet regulatory gas savings requirements plus any such savings carried forward (as allowed by regulations) from prior periods, divided by the total amount of gas savings from efficiency measures required to be delivered by regulations, where relevant regulations include, but are not limited to:
- Massachusetts Department of Public Utilities [Three Year Energy Efficiency Plan 12-100 to 12-111](#)
 - CPUC [Decision 14-10-046](#)
 - Minnesota [Statutes 216B.241](#)
 - Illinois [Public Act 096-0033](#)
- .07 The registrant shall consider guidance on regulations as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.
- .08 The scope of gas savings from efficiency measures includes savings delivered directly by the registrant, where regulations provide savings substantiated by purchases of efficiency savings credits.
- For any savings from efficiency measures delivered directly by the registrant, any efficiency savings credits must be retained (i.e., not sold) and retired on behalf of the registrant in order for the registrant to claim them as delivered gas savings.
 - For efficiency savings credits that are purchased, the agreement must explicitly include and convey that credits be retained and retired on behalf of the registrant in order for the registrant to claim them.
- .09 Relevant regulations governing efficiency savings credits include:
- Nevada [Regulation of Public Utilities Chapter 704](#)
 - Connecticut [House Bill 7432](#)
- .10 The registrant shall not include savings achieved that exceed those required by regulations in its calculation of the percentage of savings required by regulations.
- .11 The registrant shall disclose instances in which it has not been able to deliver a sufficient amount of gas savings as required by regulations, including a disclosure of the amount of gas savings delivered subject to the regulation and the amount of gas savings required by the regulation.
- .12 The registrant may choose to disclose any gas savings delivered that exceed those required by regulations that resulted in the registrant receiving rewards from energy efficiency performance incentives.

IF0102-02. Amount of natural gas leakage

- .13 The registrant shall disclose the amount, in million British thermal units (MMBtu), of natural gas lost or unaccounted for due to leakage from the distribution system, where:
 - Gas leakage is defined as any release of natural gas from the gas system into the atmosphere, whether intentional or unintentional, whether hazardous or non-hazardous, consistent with the definition provided in [California Public Utilities Commission Safety and Enforcement Division: Survey of Natural Gas Leakage Abatement Best Practices](#).
- .14 The scope of this disclosure does not include gas that is lost or unaccounted for through non-leakage events (e.g., pressure and temperature measurement errors).
- .15 The registrant shall calculate the amount of leakage according to federal, state, or local regulations or voluntary initiatives where such leakage occurs, where relevant guidance includes, but is not limited to:
 - California [Senate Bill 1371](#)
 - The U.S. Environmental Protection Agency's (EPA) [Methane Emissions from the Natural Gas Industry: Equipment Leaks](#)
- .16 Where relevant regulations or initiatives do not exist, appropriate measurement and calculation techniques and technologies include, but are not limited to:
 - Acoustic leak detectors and quantifiers
 - Hi-flow samplers
 - Calibrated vent bags
 - Vane and/or hot wire anemometers
 - Ultrasonic flow meters
 - Turbine meters
- .17 The registrant should disclose the technique(s) it employs to measure leakage, the amount of leakage calculated according to each technique it employs, and the regulations to which its gas leakage is subject.
- .18 The registrant may choose to disclose voluntary initiatives, such as the [EPA's Natural Gas STAR](#), that it has engaged in to reduce natural gas leakage.

IF0102-03. Percentage of distribution pipeline that is (1) cast and/or wrought iron and (2) unprotected steel

- .19 The registrant shall disclose the percentage, by length (in kilometers), of its natural gas pipelines that are (1) cast and/or wrought iron and (2) unprotected steel, where:
- A distribution pipeline is defined according to 49 CFR 192.3 as a pipeline other than a gathering or transmission line, where:
 - A gathering line is defined as a pipeline that transports gas from a current production facility to a transmission line or main; and
 - A transmission line is defined as a pipeline, other than a gathering line, that (1) transports gas from a gathering line or storage facility to a distribution center, storage facility, or large-volume customer that is not downstream from a distribution center; (2) operates at a hoop stress of 20 percent or more of the specified minimum yield strength (SMYS); or (3) transports gas within a storage field.
 - Cast and/or wrought iron is defined as iron that is heated to its melting point and poured into molds, and cannot be molded or screwed.
 - Unprotected steel is defined as steel with no form of corrosion protection.
- .20 The percentage of cast and/or wrought iron distribution pipelines shall be calculated as the total length (in kilometers) of cast and/or wrought iron pipelines that the registrant owns or operates divided by the total length (in kilometers) of distribution pipelines that the registrant owns or operates.
- .21 The percentage of unprotected steel distribution pipelines shall be calculated as the total length (in kilometers) of unprotected steel pipelines that the registrant owns or operates divided by the total length (in kilometers) of distribution pipelines that the registrant owns or operates.
- .22 The registrant may choose to discuss its pipeline replacement rates, its use of polyethylene pipes, or other efforts to improve the emissions and safety of its distribution pipelines.

IF0102-04. Discussion of impacts on operations from emissions regulations and description of efforts to manage risks and/or opportunities presented

- .23 The registrant shall discuss the impacts of local, regional, and federal environmental regulations on its operations, including a description of its efforts to manage resulting risks and/or opportunities.
- .24 Relevant risks to discuss include, but are not limited to, risks that may increase the price of natural gas or the registrant's regulatory burden, such as those resulting from state and federal regulations on fugitive emissions from pipelines, effects of regulations on emissions from electric generation, and those risks associated with regulations on upstream emissions, among others.

- .25 Relevant opportunities to discuss include those associated with regulations that may create an incentive for natural gas use, such as regulations on the carbon intensity of energy sources, regulations requiring capital expenditures to be captured through rates, and other regulations that create an incentive to use natural gas for heating.
- .26 The registrant shall discuss its efforts to manage the risks and opportunities associated with emissions regulations, where relevant efforts include, but are not limited to, the replacement of aging pipelines, engagement with regulators on the development and implementation of regulations, and programs to assist customers with transitioning to natural gas.
- .27 The scope shall include existing, emerging, and known future regulations.
- .28 For specific pieces of legislation and regulation, the registrant shall disclose whether its position is of support or opposition.
- .29 With respect to the emerging or potential future regulatory and political environment, the registrant shall discuss its view of:
- Which outcome is most likely to come to fruition;
 - The likelihood the outcome will occur (i.e., a qualitative assessment of certainty or uncertainty);
 - The time horizon over which it expects the outcome to occur; and
 - The expected magnitude of the impact (e.g., a one-time, acute impact on costs; an ongoing moderate impact on ability to serve customers, etc.).
- .30 The registrant should describe whether its stance might align with or differ from its peers, other companies, or the official stance of its trade organization(s), and discuss any relevant reasons for alignment or divergence.

Operational Safety & Emergency Management

Description

Operating a vast network of pipelines requires proper inspection, maintenance, and retrofitting to prevent emergency situations. All pipes, especially as they age, have the potential to leak and cause violent explosions and fires. Significant events, particularly fatal accidents, could create one-time costs from fines and corrective actions as well as contingent liabilities for remediation or damages in lawsuits. These factors could also erode a company's social license to operate. In many parts of the country, concerns about aging infrastructure have caused gas utilities to look for ways to expedite the pipe replacement approval process, especially in cases where pipelines are located near densely populated areas. Investment in sophisticated technology that allows for cost-effective monitoring of leaks is vital to mitigating these risks, and it provides the added benefit of helping companies reduce fugitive emissions and thereby reduce regulatory risks and operation and maintenance costs (as discussed in the Downstream Emissions Management topic). It is also important for a company to develop a culture of safety at all levels of the organization in order to reduce the probability that accidents and other health and safety incidents will occur. If accidents and other emergencies do occur, companies with a strong safety culture can effectively detect and respond to such incidents. A culture that engages and empowers employees to work with management to safeguard their own health, safety, and well-being and prevent accidents is likely to help companies mitigate costs, ensure workforce productivity, and maintain their license to operate.

Accounting Metrics

IF0102-05. Number of (1) reportable pipeline incidents, (2) Corrective Action Orders (CAO), and (3) Notices of Probable Violation (NOPV)

- .31 The registrant shall disclose the number of U.S. Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) reportable pipeline incidents, where:
- Reportable incidents are defined as events that involve a release of gas from a pipeline and that result in one or more of the following consequences: a death or personal injury necessitating in-patient hospitalization; estimated property damage of \$50,000 or more, including losses to the operator, losses to others, or both, but excluding the cost of gas lost; an unintentional estimated gas loss of three million cubic feet or more; or an event that is significant in the judgment of the operator, consistent with the definition provided in 49 CFR 191.
- .32 The registrant shall disclose the number of PHMSA Corrective Action Orders (CAO) received, where:
- A CAO is issued when a particular pipeline facility is found to be hazardous to life, property, or the environment, where corrective action may include suspended or restricted use of the facility, physical inspection, testing, repair, replacement, or other appropriate action, consistent with the definition provided by 49 CFR 190.233.

- .33 The registrant shall disclose the number of Notices of Probable Violation (NOPV) received, where:
- An NOPV is defined as the beginning of an enforcement proceeding that contains a statement of the provisions of the laws, regulations, or orders that the respondent is alleged to have violated and a statement of the evidence upon which the allegations are based, consistent with the definition provided in 49 CFR 190.207.

Note to **IF0102-05**

- .34 The registrant shall discuss notable incidents such as those that affected a significant number of customers, created extended disruptions to service, or resulted in a PHMSA "Serious Incident", where:
- PHMSA serious incidents are defined as incidents that resulted in a fatality or an injury requiring in-patient hospitalization.
- .35 For such incidents, the registrant should provide:
- A description and cause of the incident;
 - The total population affected by the incident;
 - The costs (in U.S. dollars) associated with the incident;
 - Actions taken to mitigate the potential for future service interruptions; and
 - Any other significant outcomes (e.g., legal proceedings, serious injuries, and/or fatalities).

IF0102-06. Average response time for gas emergencies

- .36 The registrant shall disclose the average response time (in minutes) to gas emergencies, where:
- Gas emergencies shall be defined, consistent with 49 CFR 192.615, as instances in which gas is detected inside or near a building, a fire is located near or directly involving a pipeline facility, an explosion occurs near or directly involving a pipeline facility, a natural disaster occurs, or any other instance that the registrant or regulators deem to require immediate response.
- .37 The average response time is calculated as the total sum of time taken to appropriately respond to gas emergencies divided by the number of emergencies, where:
- Appropriate responses to gas emergencies are defined by the registrant's emergency plans, developed in accordance with 49 CFR 192.615.
- .38 The registrant may choose to discuss its gas emergency response plans, the influence of regulations and service-area geographies on such plans, and the resulting implications for its average response time to gas emergencies.

IF0102-07. Percentage of pipeline operators currently qualified to perform covered tasks

.39 The registrant shall disclose the percentage of its pipeline operators currently qualified to perform covered tasks, where:

- Pipeline operators are defined as those people who engage in the transportation of gas, consistent with 49 CFR 192.3.

.40 A pipeline operator is considered qualified to perform covered tasks when the individual has been evaluated, can perform the assigned covered task, and can recognize and react to abnormal operating conditions, consistent with the definition provided by 49 CFR 192.803, where:

- Evaluation is defined as a process, established and documented by the registrant, that determines an individual's ability to perform a covered task by any of the following:
 - Written examination;
 - Oral examination;
 - Work performance history review;
 - Observation during performance on the job, on-the-job training, or simulations; or
 - Other forms of assessment.
- Abnormal operating conditions are defined as conditions identified by the operator that may indicate a malfunction of a component or deviation from normal operations that may indicate a condition exceeding design limits or result in a hazard(s) to persons, property, or the environment.
- A covered task is defined, consistent with 49 CFR 192.801, as an activity, identified by the operator, that is performed on a pipeline facility, is an operations or maintenance task, is performed as a requirement of maintaining Minimum Federal Safety Standards, and affects the operation or integrity of a pipeline.

.41 For operations governed by state or local regulations more stringent than those federal regulations described in IF0102-07.40 the registrant shall determine the qualification of its pipeline operators according to such regulations, where more stringent regulations include, but are not limited to:

- Natural Gas Safety Rules of the Florida Public Service Commission, [Chapter 25-12](#)
- Illinois Administrative Code: [Title 83: Public Utilities, Chapter I: Illinois Commerce Commission Subchapter D: Gas](#)
- Michigan Compiled Law: [R 460.20420 Safety Procedures For Abnormal Operating Conditions \(Source Gas\)](#)
- Missouri Code of State Regulations: [Title 4 Rules of Department of Economic Development, Division 240 Public Service Commission, Chapter 40 Gas Utilities and Gas Safety Standards](#)

- .42 The registrant shall consider such guidance as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.
- .43 The scope of disclosure includes both direct employee and contract employee pipeline operators, where:
- Direct employees are all the employees on the registrant’s payroll, whether they are labor, executive, hourly, salary, part-time, seasonal, or migrant workers.
 - Contract employees are 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.).

IF0102-08. Discussion of management systems used to integrate a culture of safety and emergency preparedness throughout project lifecycles

- .44 The registrant shall discuss the management systems it has used to integrate a culture of safety and emergency preparedness throughout project lifecycles.
- .45 Discussion shall include how the registrant integrates a culture of safety and emergency preparedness throughout its project lifecycles, such as through training, oversight of workforce, rules and guidelines for communicating risks, and use of technology.
- .46 The registrant shall include efforts to mitigate risks and promote emergency preparedness, such as coordinating with third parties (e.g., sewer line and buried power line developers), performing timely pipeline inspections, repairing aging infrastructure, and maintaining current pipeline operator certifications.
- .47 Disclosure may focus broadly on safety and emergency management systems, but shall specifically address operations in High Consequence Areas and the systems to avoid and manage emergencies, accidents, and incidents that could have catastrophic impacts on human health, the local community, and the environment.
- .48 The project lifecycle includes, at a minimum, pipeline construction, operations, and maintenance.

Additional References

National Association of Pipeline Safety Representatives: [Compendium of State Pipeline Safety Requirements & Initiatives Providing Increased Public Safety Levels compared to Code of Federal Regulations](#)

Distribution Network Resiliency

Description

Gas utilities own and operate infrastructure that people and businesses rely on for critical functions such as heating. Regional disruptions could occur if gas utilities are not prepared to handle cyber-attacks, which could threaten a particular utility's license to operate, especially if frequent or significant service disruptions result in significant economic damage or loss. Responding to these issues could require an increase in capital expenditures and operations and maintenance costs if a company needs to upgrade compromised equipment. Companies can protect shareholder value by implementing practices and encouraging a culture that improves the detection of and response to attacks, as well as by submitting compelling rate cases for improving the reliability, resilience, and quality of their infrastructure and services.

Accounting Metrics

IF0102-09. (1) Number of service interruptions, (2) population affected, and (3) average duration

- .49 The registrant shall disclose the number of service interruptions, the population affected by such interruptions, and the average duration of an interruption.
- .50 The average duration of an interruption shall be calculated as the total duration (in minutes) of service interruptions divided by the number of service interruptions.
- .51 The registrant may choose to disclose the number of interruptions and the related population that was affected by those interruptions that were intentionally employed by the registrant.

Note to **IF0102-09**

- .52 The registrant shall discuss notable service interruptions such as those that affected a significant population or those of extended duration.
- .53 For such interruptions, the registrant should provide:
 - Description and cause of the service interruption;
 - The costs (in U.S. dollars) associated with the service interruption;
 - Actions taken to mitigate potential for future service interruptions; and
 - Any other significant outcomes (e.g., legal proceedings, related fatalities).

IF0102-10. Number of data security breaches

- .54 The registrant shall calculate and disclose the total number of data security breaches, which are defined as instances of unauthorized acquisition, access, use, or disclosure of protected information.

- .55 The scope of disclosure shall be limited to data security breaches, cybersecurity risks, and incidents that resulted in the registrant’s business processes deviating from its expected outcomes for confidentiality, integrity, and availability.
- The scope of disclosure shall include incidents of unauthorized acquisition or acquisition without valid authorization, resulting from deficiencies or failures of people, processes, or technology.
 - The scope of disclosure shall exclude disruptions of service due to equipment failures.
- .56 Disclosure shall include incidents in which encrypted data were acquired with an encryption key that was also acquired.
- .57 The registrant may delay disclosure if a law enforcement agency has determined that notification impedes a criminal investigation until the law enforcement agency determines that such notification does not compromise the investigation.
- .58 Disclosure shall be additional but complementary to the U.S. Security and Exchange Commission’s (SEC) [CF Disclosure Guidance: Topic No. 2, Cybersecurity](#).
- At a minimum, this includes instances when the costs or other consequences associated with one or more known incidents—or the risk of potential incidents—represents a material event, trend, or uncertainty that is reasonably likely to have a material effect on the registrant’s results of operations, liquidity, or financial condition, or would cause reported financial information to not be necessarily indicative of future operating results or financial condition (e.g., theft of intellectual property, service disruptions, reduced revenue, increased cybersecurity protection expenditure, litigation costs, etc.).

Note to **IF0102-10**

- .59 The registrant shall describe the corrective actions taken in response to specific incidents, such as implementation of the National Institute of Standards and Technology (NIST) [Framework for Improving Critical Infrastructure Cybersecurity](#), including changes in operations, management, processes, products, business partners, training, or technology.
- .60 All disclosure shall be sufficient such that it is specific to the risks the registrant faces, but disclosure itself will not compromise the registrant’s ability to maintain data privacy and security.

IF0102-11. Discussion of efforts to identify and mitigate risks of technological and physical service disruptions

- .61 The registrant shall discuss its efforts to identify and mitigate risks associated with technological and/or physical service disruptions, where:
- Technological risks include, among others, threats to data security and technologies that could result in service disruption(s).
 - Physical risks include, among others, threats to the registrant’s physical infrastructure as a consequence of both man-made and natural events that could result in service disruption(s).

- .62 For technological risks, the registrant shall describe how it identifies and prioritizes threats and vulnerabilities in its information systems that pose a threat to data security and other technologies employed, where:
- A threat is defined as any circumstance or event with the potential to adversely impact organizational operations (including mission, functions, image, or reputation), organizational assets, individuals, other organizations, or national security through an information system via unauthorized access, destruction, disclosure, or modification of information and/or denial of service.
 - A vulnerability is defined as a weakness in an information system, system security procedures, internal controls, or implementation that could be exploited by a data security threat source.
- .63 The registrant should discuss trends it has observed in the type, frequency, and origination of technological attacks that pose a threat to service continuity.
- .64 All disclosure shall be sufficient such that it is specific to the risks the registrant faces but disclosure itself will not compromise the registrant's ability to maintain data privacy and technological security.
- .65 The registrant may choose to describe the degree to which its management approach is aligned with an external standard or framework for managing technological risks, such as:
- ISO/IEC 27001:2013 – Information technology – Security techniques – Information security management systems – Requirements
 - "[Framework for Improving Critical Infrastructure Cybersecurity, Version 1.0](#)," February 12, 2014, National Institute of Standards and Technology (NIST)
- .66 For physical risks, the registrant shall describe how it identifies and prioritizes the potential for physical infrastructure to cause service disruptions.
- Relevant physical risks to discuss include, but are not limited to, those relating to the age, geographic location, and physical qualities of the registrant's distribution infrastructure.
- .67 The registrant may choose to discuss any constraints on its efforts to identify and mitigate the risk of technological and physical service disruptions, including the effects of the rate-making procedure on its ability to replace aging infrastructure, enhance cyber security, and increase infrastructure resiliency.

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SUSTAINABILITY ACCOUNTING STANDARD
INFRASTRUCTURE SECTOR

WATER UTILITIES

Sustainability Accounting Standard

Sustainable Industry Classification System™ (SICS™) #IF0103
Prepared by the
Sustainability Accounting Standards Board®

October 2015

Exposure Draft Standard for Public Comment

WATER UTILITIES

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 78 industries in 10 sectors.

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INTRODUCTION

Purpose & Structure

This document contains the SASB Sustainability Accounting Standard (SASB Standard) for the Water Utilities 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

Companies in the Water Utilities industry own and operate water supply and wastewater treatment systems or provide operational services and other specialized services to system owners. Water supply systems include the sourcing, treatment, and distribution of water to residences and businesses. Wastewater systems collect and treat wastewater, including sewage, greywater, industrial waste fluids, and storm water runoff, before discharging the resulting effluent back into the environment. Publicly listed companies in the industry include both small domestic utilities and large global players.

¹ <http://pcaobus.org/Standards/Attestation/Pages/AT101.aspx>

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

Guidance for Disclosure of Sustainability Topics in SEC Filings

1. Industry-Level Sustainability Topics

For the Water Utilities industry, SASB has identified the following sustainability disclosure topics:

- Energy Management
- Effluent Quality Management
- Water Scarcity
- Drinking Water Quality
- Fair Pricing & Access
- Downstream Water Efficiency
- Network Resiliency & Impacts of Climate Change

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

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:

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

⁴ C.F.R. 229.303(Item 303)(a)(3)(ii).

- 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.

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

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.”

necessary to make the required statements, in light of the circumstances under which they are made, not misleading.”

More detailed guidance on disclosure of 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 Water Utilities 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.

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

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.”

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.

Activity Metrics and Normalization

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

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).

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 |
|---|--------------|--|----------|
| Population served | Quantitative | Number | IF0103-A |
| Volume of water delivered and percentage sourced from a third party ¹⁰ | Quantitative | Cubic meters (m ³), Percentage (%) | IF0103-B |
| Volume of wastewater treated | Quantitative | Cubic meters (m ³) | IF0103-C |
| Length of transportation and distribution lines | Quantitative | Kilometers (km) | IF0103-D |

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,

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

¹⁰ Note to **IF0103-B**—The amount of water delivered includes drinking water, industrial process water, and recycled water.

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 |
|------------------------------------|---|-------------------------|--|-----------|
| Energy Management | Total energy consumed, percentage grid electricity, percentage renewable | Quantitative | Gigajoules (GJ), Percentage (%) | IF0103-01 |
| Effluent Quality Management | Number of incidents of non-compliance with water effluent quality permits, standards, and regulations | Quantitative | Number | IF0103-02 |
| | Discussion of strategies to manage effluent contaminants of emerging concern | Discussion and Analysis | n/a | IF0103-03 |
| Water Scarcity | Total fresh water sourced from regions with High or Extremely High Baseline Water Stress and percentage purchased from a third party | Quantitative | Cubic meters (m ³), Percentage (%) | IF0103-04 |
| | Volume of recycled water delivered | Quantitative | Cubic meters (m ³) | IF0103-05 |
| | Discussion of risks associated with the availability of water resources and description of strategies and practices to mitigate those risks | Discussion and Analysis | n/a | IF0103-06 |
| Drinking Water Quality | Number of (1) health-based drinking water quality violations and (2) non-health-based drinking water quality violations ¹¹ | Quantitative | Number | IF0103-07 |
| | Amount of legal and regulatory fines and settlements associated with drinking water contamination ¹² | Quantitative | U.S. Dollars (\$) | IF0103-08 |
| | Discussion of strategies to manage drinking water contaminants of emerging concern | Discussion and Analysis | n/a | IF0103-09 |
| Fair Pricing & Access | Number of formal customer complaints regarding pricing of and/or access to water received, percentage withdrawn | Quantitative | Number, Percentage (%) | IF0103-10 |
| | (1) Drinking water and (2) sanitation coverage rates for population served in developing countries | Quantitative | Percentage (%) by population | IF0103-11 |
| | Discussion of how considerations of fair pricing and access are integrated into determinations of rate structures | Discussion and Analysis | n/a | IF0103-12 |

¹¹ Note to **IF0103-07**—The registrant shall discuss notable violations such as EPA Tier 1 events, those that affected a significant number of customers, or those of extended duration.

¹² Note to **IF0103-08**—The registrant shall briefly describe the nature and context of the fines and settlements.

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

| TOPIC | ACCOUNTING METRIC | CATEGORY | UNIT OF MEASURE | CODE |
|---|--|-------------------------|--|-----------|
| Downstream Water Efficiency | Water pipe replacement rate ¹³ | Quantitative | Rate | IF0103-13 |
| | (1) Customer water savings from efficiency measures and (2) percentage of regulatory savings requirement achieved | Quantitative | Cubic meters (m ³), Percentage (%) | IF0103-14 |
| | Volume of non-revenue real water losses | Quantitative | Cubic meters (m ³) | IF0103-15 |
| Network Resiliency & Impacts of Climate Change | Water treatment capacity located in FEMA Special Flood Hazard Areas or foreign equivalent | Quantitative | Cubic meters (m ³) per day | IF0103-16 |
| | Volume of sanitary sewer overflows, percentage recovered | Quantitative | Cubic meters (m ³), Percentage (%) | IF0103-17 |
| | (1) Number of service interruptions, (2) population affected, and (3) average duration ¹⁴ | Quantitative | Number, Minutes | IF0103-18 |
| | Discussion of efforts to identify and manage risks and opportunities related to the impact of climate change on distribution network | Discussion and Analysis | n/a | IF0103-19 |

¹³ Note to **IF0103-13**—The registrant shall discuss its strategies and challenges regarding the replacement of water pipes.

¹⁴ Note to **IF0103-18**— The registrant shall discuss notable service interruptions such as those that affected a significant population or those of extended duration.

Energy Management

Description

Companies in the Water Utilities industry require significant energy inputs throughout the value chain to deliver usable water to the end customer or provide wastewater services. Raw water extraction, conveyance, treatment, and distribution are all energy-intensive activities that are critical components of the industry's value-adding services. The energy intensity of water utilities is likely to increase in the future as water tables fall. Alternative treatment of water, such as recycling and desalination, can also require more energy. Purchased grid electricity is the most common energy input, with on-site generation occurring in more remote locations to power equipment and backup systems. Electricity purchases from the grid create environmental concerns, such as indirect impacts on climate through Scope 2 emissions. Efficient energy usage is essential for competitive advantage in this industry. Together with decisions about the use of alternative fuels, renewable energy, and on-site generation of electricity, energy efficiency can play an important role in influencing both the costs and reliability of the energy supply.

Accounting Metrics

CN0103-01. Total energy consumed, percentage grid electricity, percentage renewable

- .01 The registrant shall disclose total energy consumption from all sources as an aggregate figure in gigajoules or their multiples.
 - The scope includes energy purchased from sources external to the organization or produced by the organization itself (self-generated).
 - The scope includes only energy consumed by entities owned or controlled by the organization.
 - The scope includes energy from all sources including direct fuel usage, purchased electricity, and heating, cooling, and steam energy.
- .02 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 Intergovernmental Panel on Climate Change (IPCC), the U.S. Department of Energy (DOE), or the U.S. Energy Information Administration (EIA).
- .03 The registrant shall disclose purchased grid electricity consumption as a percentage of its total energy consumption.
- .04 The registrant shall disclose renewable energy consumption as a percentage of its total energy consumption.

- .05 The scope of renewable energy includes renewable fuel the registrant consumes and renewable energy the registrant directly produces, purchases through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs), or for which Green-e Energy Certified RECs are paired with grid electricity.
- For any renewable electricity generated on-site, any RECs must be retained (i.e., not sold) and retired on behalf of the registrant in order for the registrant to claim them as renewable energy.
 - For renewable PPAs, the agreement must explicitly include and convey that RECs be retained and retired on behalf of the registrant in order for the registrant to claim them as renewable energy.
 - The renewable portion of the electricity grid mix that is outside of the control or influence of the registrant is excluded from disclosure.¹⁵
 - Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, consistent with U.S. Environmental Protection Agency (EPA) [definitions](#), such as geothermal, wind, solar, hydro, and biomass.
- .06 For the purposes of this disclosure, the scope of renewable energy from hydro and biomass sources is limited to the following:
- Energy from hydro sources that are certified by the Low Impact Hydropower Institute or that are eligible for a state Renewable Portfolio Standard.
 - Energy from biomass sources is limited to materials certified to a third-party standard (e.g., Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification, or American Tree Farm System), materials considered “eligible renewables” according to the Green-e Energy National Standard Version 2.5 (2014), and materials that are eligible for a state Renewable Portfolio Standard.
- .07 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) and conversion of kWh to gigajoules (for energy data including electricity from solar or wind energy).

¹⁵ SASB recognizes that RECs reflect the environmental attributes of renewable energy that have been introduced to the grid.

Effluent Quality Management

Description

Water and wastewater treatment facilities produce effluent, or discharge, that poses environmental risks. Effluent includes residuals and solids that consist of chemicals used in the treatment process and contaminants removed from raw water or wastewater inputs. Effluent is discharged from treatment facilities into surface water, including oceans, rivers, and lakes, or pumped into groundwater. Environmental risks vary depending on the treatment process, but generally, proper treatment and disposal should mitigate threats to ecosystems and human health. An emerging issue is the presence of endocrine-disrupting chemicals, which wastewater treatment facilities are not typically designed to address. Thus the chemicals may still be present in effluent when it is discharged back into the environment. As public and regulatory scrutiny on effluent quality increases, companies will need to innovate and ensure that effluent released is not harmful to the environment or human health. In addition, extreme weather events like flooding can lead to overflow of wastewater systems and release of untreated effluent. As climate change leads to a greater likelihood of extreme weather events, companies will need to improve strategic management of these risks. The realization of environmental risks, such as exceeding maximum discharge limits in effluent, may jeopardize a utility's community acceptance, and thus its continued social license to operate.

Accounting Metrics

IF0103-02. Number of incidents of non-compliance with water effluent quality permits, standards, and regulations

- .08 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, where:
- For purpose of this disclosure, violations of the Safe Drinking Water Act (SDWA) and violations of other drinking water quality standards shall be excluded.
 - The scope of disclosure includes incidents governed by federal, state, and local statutory permits and regulations including, but not limited to, the discharge of a hazardous substance, failure to monitor wastewater effluent, and effluent limit exceedances (e.g., waste load allocation or whole effluent toxicity).
- .09 An incident of non-compliance shall be disclosed regardless of whether it resulted in an enforcement action (e.g., fine, warning letter, etc.).
- .10 An incident of non-compliance shall be disclosed regardless of the measurement methodology or frequency. These include violations:
- For continuous discharges, limitations, standards, and prohibitions that are generally expressed as maximum daily, weekly, and monthly averages.
 - For non-continuous discharges, limitations that are generally expressed in terms of total mass, maximum rate of discharge, frequency, and mass or concentration of specified pollutants.

IF0103-03. Discussion of strategies to manage effluent contaminants of emerging concern

- .11 The registrant shall discuss its strategy and approach to managing effluent contaminants that may be of emerging human health and/or environmental concern to the public, regulators, and/or others (e.g., non-governmental organizations, scientific researchers, etc.), where:
 - Effluent contaminants of emerging concern may include, but are not limited to, those contaminants identified by the EPA in [Treating Contaminants of Emerging Concern](#), such as residuals of pharmaceuticals, personal care products, flame retardants, detergents, pesticides, hormones, and other compounds including those that disrupt the endocrine system.
- .12 At a minimum, the registrant shall discuss the actions it takes to assess wastewater effluents for hazard characteristics and risk traits and the treatment processes it employs to manage such hazards and risks.
- .13 Relevant actions to discuss include the practices employed to determine and monitor effluents of emerging concern, including a discussion of the contaminants of emerging concern in the effluent stream that are currently being monitored and any thresholds the registrant may have developed for acceptable concentrations of such effluents.
- .14 Relevant wastewater treatment processes include, but are not limited to, conventional wastewater treatment and advanced wastewater treatment technologies such as granular activated carbon, ozonation, advanced oxidation, membrane treatment, and/or investments in research and development of treatment technologies or methods for emerging contaminants.
- .15 The registrant shall discuss the risks and/or opportunities associated with the potential for emerging contaminants to come under effluent regulations.
 - Relevant information to provide includes, but is not limited to:
 - Identification of the emerging contaminants most likely to come under regulation;
 - Current ability to treat and/or manage such contaminants; and
 - Risks (e.g., potential for fines) and opportunities (e.g., potential for infrastructure expansions to be covered by rates)

Water Scarcity

Description

Water supply systems obtain raw water from groundwater or surface water sources. Such water supplies may either be accessed directly or purchased from a third party, often a government entity, through water rights. Drought conditions, overconsumption by different parties, water contamination, and ecosystem health are all factors that can jeopardize access to adequate water supplies. The increasing risk of any of these factors, such as more extreme or frequent drought conditions due to climate change, may lead to mandated water restrictions. Such restrictions may be implemented at the water supply system level and/or at the user level. The financial impacts of such restrictions may manifest in different ways, depending on rate structure, but are most likely to impact company value through decreased revenue. Water scarcity may also lead to increases in the price of purchased water, which could result in higher costs and/or revenues for companies in this industry.

Accounting Metrics

IF0103-04. Total fresh water sourced from regions with High or Extremely High Baseline Water Stress and percentage purchased from a third party

- .17 The registrant shall disclose the amount of fresh water (in thousands of cubic meters) that was sourced from regions with High or Extremely High Baseline Water Stress:
 - Water sources include surface water (including water from wetlands, rivers, and lakes), groundwater, or water supplied from other water utilities.
 - Fresh water may be defined according to the local statutes and regulations where the registrant operates. Where there is no regulatory definition, fresh water shall be considered to be water that has a solids (TDS) concentration of less than 1000 mg/l per the [Water Quality Association definition](#).
 - Water obtained from a water utility in compliance with U.S. [National Primary Drinking Water Regulations](#) can be assumed to meet the definition of fresh water.
- .18 The registrant shall analyze all of its operations for water risks and identify the amount of water sourced from locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct (publicly accessible online [here](#)).
- .19 The registrant shall calculate the percentage of fresh water purchased from a third parties as the total amount (in thousands of cubic meters) of fresh water purchased from a third party that was sourced from regions with High or Extremely High Baseline Water Stress divided by the total amount of water sourced from regions with High or Extremely High Baseline Water Stress.

IF0103-05. Volume of recycled water delivered

- .20 The registrant shall disclose the volume (in cubic meters) of water it has recycled and delivered to its customers.
- .21 Recycled water shall be defined as wastewater that has been treated to meet specific water quality criteria with the intent of being used for a range of purposes, including, but not limited to:
 - Potable reuse, such as direct augmentation of the drinking water supply and indirect augmentation of a drinking water source where an environmental buffer precedes drinking water treatment.
 - Non-potable reuse, such as recreational landscape irrigation, agricultural reuse, industrial process reuse, and environmental reuse (e.g., wetland enhancement and groundwater recharge).
- .22 The amount of recycled water delivered shall be calculated according to the state and local regulations where the recycling occurs. Examples of such regulations include, but are not limited to:
 - California State Water Resources Control Board: [Regulations Related to Recycled Water](#)
 - Florida Administrative Code [Chapter 62-610](#) and [Chapter 62-600](#)
 - Arizona Administrative Code [Title 18, Chapter 11, Article 3: Reclaimed Water Quality Standards](#)
- .23 Where state regulations have not established criteria for wastewater recycling but where such practices are legal, recycled water shall meet the Suggested Regulatory Guidelines as set forth in Chapter 4.4.2 of the [EPA's 2012 Guidelines for Water Reuse](#).

IF0103-06. Discussion of risks associated with the availability of water resources and description of strategies and practices to mitigate those risks

- .24 The registrant shall discuss its risks associated with the availability of water resources, including a description of how it manages such risks.
- .25 The registrant shall discuss, where applicable, risks to the availability of adequate, clean water sources.
 - Relevant information to provide includes, but is not limited to:
 - Environmental constraints, such as water resources in water-stressed regions, drought, interannual or seasonal variability, and risks due to the impact of climate change.
 - External constraints, such as stakeholder perceptions and concerns related to water sources (e.g., those from local communities, non-governmental organizations, and regulatory agencies), restrictions to water delivery due to regulations, and constraints on the registrant's ability to obtain and retain water rights or permits.
 - How risks may vary by water source, including wetlands, rivers, lakes, oceans, groundwater, rainwater, municipal water supplies, or supply from other water utilities.

- .26 The registrant shall include a discussion of the potential impacts that these risks may have on its operations and the timeline over which such risks are expected to manifest.
- Impacts may include, but are not limited to, those associated with costs, revenues, liabilities, continuity of operations, access to water, and reputation.
- .27 The registrant shall provide a description of its short-term and long-term strategy or plans to manage these risks, including the following, where relevant:
- The scope of its strategy, plans, or targets, such as whether they pertain differently to different business units (e.g., residential versus industrial), geographies, or regulatory frameworks (e.g., rate structures, mandated water-use restrictions, etc.).
 - The activities and investments established to address water sourced from areas of water stress or scarcity and any risks or limiting factors that might affect the ability to address water scarcity.
 - The efforts to secure and retain reliable long-term water supplies through senior water rights, permits, and/or allocations, including the registrant's ability to secure water (e.g., through purchase from a third party) should it not be able to retain sufficient allocations.
- .28 Disclosure of strategies, plans, and infrastructure investments shall be limited to activities that were ongoing (active) or reached completion during the fiscal year.
- .29 The registrant shall discuss if its management of water scarcity results in any additional lifecycle impacts or tradeoffs, including tradeoffs in land use (e.g., development of water storage facilities such as reservoirs), energy consumption, and greenhouse gas (GHG) emissions, and why the registrant chose these practices despite lifecycle tradeoffs.

Additional Resources

WaterReuse: [State Policy and Regulations](#)

Drinking Water Quality

Description

A core function of companies in the Water Utilities industry is to mitigate human health risks through provision of safe drinking water. Companies have a critical responsibility to ensure that water is reliably delivered to end customers and to maintain an adequate standard of quality that conforms to applicable regulations and is in line with customer expectations. In order to protect human health and safeguard company value, companies seek to protect water sources from contamination, which reduces treatment processes and costs. Comprehensive treatment processes are designed, developed, and maintained to meet water quality standards. The finished water output is routinely monitored for compliance and safety. Natural events, such as forest fires and flooding, can impact the quality of water sources as well as drinking water. As climate change increases these risks to water quality, such risks will be even more pertinent for companies to address. Challenges to water quality are even higher in developing economies. Overall, the industry invests significant resources and effort to consistently deliver safe drinking water to customers. Instances when a company fails to provide water of adequate quality to its customers may have severe consequences to its value. Such consequences may include regulatory fines, litigation, increased operating costs or capital expenditures, reputational risk, and asset or business seizure.

Accounting Metrics

IF0103-07. Number of (1) health-based drinking water quality violations and (2) non-health-based drinking water quality violations

- .30 The registrant shall disclose the total number of instances of health-based drinking water non-compliance, including violations of a technology-based standard and exceedances of a quality-based standard.
- .31 The scope of disclosure includes incidents governed by international, federal, state, and local statutory permits and regulations including, but not limited to, maximum contaminant level (MCL) violations, maximum residual distribution level (MRDL) violations, or treatment technique (TT) violations.
- .32 Relevant regulations and permits include, but are not limited to:
 - The U.S. Safe Drinking Water Act, Tier 1 and Tier 2 violations, where:
 - Tier 1 violations are defined, according to 40 CFR 141.201, as those violations of the national primary drinking water regulations (NPDWR) requiring public notice with significant potential to have serious adverse effects on human health as a result of short-term exposure.
 - Tier 2 violations are defined, according to 40 CFR 141.201, as those violations of the NPDWR requiring public notice with potential to have serious adverse effects on human health.
 - The [European Drinking Water Directive](#)

- .33 The registrant shall report instances of non-conformance with the [World Health Organization \(WHO\) Guidelines for Drinking-water Quality](#), where drinking water quality standards do not meet the stringency set forth therein.
- .34 The registrant shall disclose the total number of instances of non-health-based non-compliance, including violations of monitoring, reporting, or other non-health-based standards.
- .35 The scope of disclosure includes incidents governed by international, federal, state, and local statutory permits and regulations including, but not limited to, water quality testing violations, timely reporting of water quality results, and public communication violations.
- .36 Relevant regulations and permits include, but are not limited to:
 - The U.S. Safe Drinking Water Act Tier 3 violations, where:
 - Tier 3 violations are defined according to 40 CFR 141.201 as those violations of the NPDWR not included in Tier 1 and Tier 2 that require public notice but are not considered to have a direct impact on human health (e.g., failing to take a required sample on time).

Note to **IF0103-07**

- .37 The registrant shall discuss notable violations such as EPA Tier 1 events, those that affected a significant number of customers, or those of extended duration.
- .38 For such violations, the registrant should provide:
 - Description and cause of the violation;
 - The population affected by the disruption;
 - The costs (in U.S. dollars) associated with resolving the violation;
 - Actions taken to mitigate potential for future violations; and
 - Any other significant outcomes (e.g., legal proceedings, related fatalities).

IF0103-08. Amount of legal and regulatory fines and settlements associated with drinking water contamination

- .39 The registrant shall disclose the amount (excluding legal fees) of all fines or settlements associated with drinking water contamination, such as those related to enforcement of U.S. laws and regulations on drinking water treatment, source protection, operator training, and public disclosure of contamination events, including violations of the U.S. Safe Drinking Water Act and the European Drinking Water Directive, among others.

- .40 Disclosure shall include civil actions (e.g., civil judgment, settlements, or regulatory penalties) and criminal actions (e.g., criminal judgment, penalties, or restitutions) taken by any entity (government, businesses, or individuals).

Note to **IF0103-08**

- .41 The registrant shall briefly describe the nature (e.g., guilty plea, deferred agreement, or non-prosecution agreement) and context (e.g., maximum contaminant level (MCL), maximum residual distribution level (MRDL), treatment technique (TT), etc.) of fines and settlements.
- .42 The registrant shall describe any corrective actions it has implemented as a result of each incident. This may include, but is not limited to, specific changes in drinking water treatment, management, training, or public communication.

IF0103-09. Discussion of strategies to manage drinking water contaminants of emerging concern

- .43 The registrant shall discuss its strategy and approach to managing drinking water contaminants that are not subject to regulation at the present time but may be of emerging human health and/or environmental concern to the public, regulators, and/or others (e.g., non-governmental organizations, scientific researchers, etc.), where:
- Drinking water contaminants of emerging concern include, but are not limited to, residuals of pharmaceuticals, personal care products, pesticides, detergents, hormones, and other compounds, including those that disrupt the endocrine system.
- .44 At a minimum, the registrant shall discuss the actions it takes to assess drinking water contaminants for hazard characteristics, risk traits, and treatment processes and strategies it employs to manage such hazards and risks.
- .45 Relevant actions to discuss include the practices employed to determine and monitor contaminants of emerging concern, including a discussion of the contaminants of emerging concern that are currently being monitored, whether such contaminants are included in the Environmental Protection Agency's (EPA) [Contaminant Candidate List 3](#) (CCL3), any thresholds the registrant may have developed for acceptable concentrations of such contaminants, and engagement in partnerships or initiatives to address contaminants of emerging concern, such as engagement in the EPA's [Unregulated Contaminant Monitoring Program](#).
- .46 Relevant drinking water treatment processes and strategies include, but are not limited to, conventional drinking water treatment and advanced drinking water treatment technologies, such as granular activated carbon, ozonation, ultraviolet disinfection, membrane treatment, and/or investments in research and development of treatment technologies or methods for emerging contaminants.

.47 The registrant shall discuss the risks and/or opportunities associated with the potential for emerging contaminants to come under drinking water regulations.

- Relevant information to provide includes, but is not limited to:
 - Identification of the emerging contaminants most likely to come under regulation;
 - Current ability to treat and/or manage such contaminants; and
 - Risks (e.g., potential for fines) and opportunities (e.g., potential for infrastructure expansions to be covered by rates).

Fair Pricing & Access

Description

Reliable access to clean water is commonly viewed as a basic human right. Pricing that communities perceive to be fair and affordable is a component of this right. As a result, structuring water rates in a manner that the community perceives as fair is critical to the value of water utility companies. Companies that are able to work with regulators to implement rate structures that increase levels of community acceptance are likely to find greater opportunities in the U.S. and around the world—especially in light of the underfunded nature of water infrastructure, where private capital can play a role. Inadequate access to water and pricing that is perceived as unfair can create risk of de-privatization.

Accounting Metrics

IF0103-10. Number of formal customer complaints regarding pricing of and/or access to water received, percentage withdrawn

- .48 The registrant shall disclose the number of formal customer complaints it received during the fiscal year regarding its prices structures and/or access to and availability of its water supply.
- .49 Formal customer complaints shall be considered as those instances in which customers have brought forth a complaint that involves an evidentiary proceeding before a public utility commission (PUC) administrative law judge (ALJ) or other PUC moderator, which may be available through public databases such as:
 - A database of formal customer complaints made to the Pennsylvania PUC is available [here](#).
 - A database of formal proceedings overseen by the California PUC is available [here](#).
 - A listing of consumer complaints made to the New York Department of Public Services is available [here](#).
- .50 The registrant shall calculate the percentage of formal customer complaints withdrawn as the total number of customer complaints that were withdrawn divided by the total number of customer complaints it received, where:
 - Withdrawn complaints are defined as those complaints that were withdrawn by the customer or dismissed by the PUC or ALJ.
- .51 The registrant should disclose any complaints made during the prior period and withdrawn during the current period as well as complaints made during the current period that are not resolved at the date of reporting.

IF0103-11. (1) Drinking water and (2) sanitation coverage rates for population served in developing countries

- .52 The registrant shall disclose the drinking water and wastewater coverage rates for the population served by its operations in developing countries, where:
- Developing countries are defined, consistent with the [World Bank definition](#), as countries in which the majority live on far less money, with far fewer basic public services, than the population in highly industrialized countries, including those countries that are considered [Heavily Indebted Poor Countries \(HIPC\)](#), [Middle-Income Countries \(MIC\)](#), [Low-Income Countries Under Stress \(LICUS\)](#), and [Small States](#) by the World Bank.
 - The registrant should consider such guidance as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.
- .53 Drinking water coverage rates shall be calculated as the number of people to whom the utility delivers access to safe drinking water divided by the total population covered by the registrant's operations, where:
- Safe drinking water is defined, consistent with the United Nations (U.N.) Millennium Development Goal (MDG) 7, as water with microbial, chemical, and physical characteristics that meet [World Health Organization \(WHO\) Guidelines for Drinking-water Quality](#) or the relevant national standards for drinking water quality.
 - Access is defined, consistent with the U.N. MDG 7, as having a source that is less than one kilometer away from its place of use where it is possible to reliably obtain at least 20 liters of water per person per day.
 - The population covered by the registrant's operations includes the total population of the registrant's service area and is not limited to the registrant's current customer base.
- .54 Sanitation coverage rates shall be calculated as the number of people to whom the utility delivers, at a minimum, basic sanitation services divided by the total population covered by the registrant's operations, where:
- Basic sanitation is defined, consistent with U.N. MDG 7, as ensuring hygienic excreta and sillage disposal and a clean and healthful living environment, where examples of appropriate facilities include, but are not limited to, public sewer connections, septic system connections, pour-flush latrines, simple pit latrines, and ventilated improved pit latrines.
- .55 The scope of disclosure includes the registrant's operations where it maintains responsibility for the delivery and infrastructure developments of drinking water and wastewater treatment services.

- .56 Relevant agreements within the scope of this disclosure, consistent with the [World Bank's Types of Public-Private Partnership Agreements](#), include, but are not limited to:
- [Lease and affermage contracts](#) (limited to those instances where the registrant is responsible for collecting additional surcharges from customers to fund investments in infrastructure)
 - [Concessions, Build-Operate-Transfer \(BOT\), and Design-Build-Operate \(DBO\) contracts](#)
 - [Joint venture contracts](#)
 - [Privatization contracts](#)
- .57 The registrant may choose to disclose how drinking water and sanitation rates vary based on the form of contract employed.

IF0103-12. Discussion of how considerations of fair pricing and access are integrated into determinations of rate structures

- .58 The registrant shall discuss how considerations of fair pricing and access are integrated into the development and design of the rate structure determination for the registrant's market-based and regulated operations.
- .59 The registrant shall discuss whether it considers the effects of rate structures on water pricing and consumer access, including whether the development of rate structures occurs through rate cases made to a public utility commission, contract negotiations, or other rate-setting mechanisms and whether such practice takes place in developed markets or emerging markets.
- .60 The registrant shall discuss the basic framework of the various rate structures (e.g., increasing block rates, seasonal rates, water surcharges, uniform rate structure, flat-fee rates, etc.) it employs or is subject to, the number of customers associated with each rate structure, how rate structures may vary between emerging market and developed economies, and how the rate structure affects the registrants ability to deliver fair prices and access to its customers.
- .61 Relevant rate structure implications on fair pricing and access include, but are not limited to, constraints on or allowances for the registrant's ability to deliver assistance to low-income customers, expand and maintain infrastructure, and implement water conservation strategies.

Downstream Water Efficiency

Description

Water and wastewater companies develop, maintain, and operate complex interconnected infrastructure networks. Water entering the distribution network as raw water undergoes a treatment process to reach a certain water quality level. Significant volumes of treated water are lost in the distribution network because of infrastructure failures—primarily, leaking pipes and service connections. An additional component of downstream water efficiency is how utilities work with regulators to reduce risk and increase long-term success in the context of the increasing need for resource efficiency. Water efficiency and conservation are prevalent themes in water utility rate-making, especially in water-scarce regions.

Accounting Metrics

IF0103-13. Water pipe replacement rate

- .62 The registrant shall disclose its water pipe replacement rate for the distribution network(s) that it owns and/or operates.
- .63 The registrant shall calculate the water pipe replacement rate as the total length (in kilometers) of pipe replaced during the fiscal year divided by the total length (in kilometers) of water pipes in its distribution network.

Note to IF0103-13

- .64 The registrant shall discuss its strategies and challenges regarding the replacement of water pipes.
- .65 Relevant strategies to discuss include, but are not limited to, assessment of pipe integrity, maintenance and repair of existing pipes, and rate cases to support pipe replacement.
- .66 Relevant challenges to discuss include, but are not limited to, the impacts of pipe materials (e.g., cast iron, ductile iron, polyvinyl chloride, etc.), ability to finance replacement through rates, and the age of the current distribution network.

IF0103-14. (1) Customer water savings from efficiency measures and (2) percentage of regulatory savings requirement achieved

- .67 The registrant shall disclose the total volume of water savings (in cubic meters) from water efficiency measures installed or otherwise supported by the registrant during the fiscal year.
- .68 Water savings shall be defined as the difference between the actual amount of water consumption and that which would have been consumed had efficiency measures not been installed.

- .69 Water savings shall be calculated according to the state or local evaluation, measurement, and verification (EM&V) regulations where such savings occur. Relevant regulations include, but are not limited to:
- California Public Utilities Commission [Decision 07-12-050](#)
- .70 Where state or local regulations do not exist, the registrant shall calculate water savings consistent with the measurement and verification methods outlined by Efficiency Valuation Organization's [International Performance Measurement and Verification Protocol: Concepts and Options for Determining Energy and Water Savings, Volume 1](#) (2012).
- .71 The registrant shall not include water savings achieved during previous fiscal years in its calculation of customer water savings from efficiency measures, including where state regulations allow for such carryforward.
- .72 The percentage of regulatory savings achieved shall be calculated as those customer water savings (in cubic meters from efficiency measures delivered to meet regulatory water savings requirements plus any such savings carried forward (as allowed by regulations) from prior periods, divided by the total amount of water savings from efficiency measures required to be delivered by regulations. Relevant regulations include, but are not limited to:
- The California [Water Conservation Act of 2009](#)
- .73 The registrant shall consider such guidance as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.
- .74 The registrant shall not include savings achieved, during the fiscal year, that exceed those required by regulations in its calculation of the percentage of savings required by regulations.
- .75 The registrant should disclose instances in which it has not been able to deliver a sufficient amount of water savings as required by regulations, including a disclosure of the amount of savings delivered subject to the regulation and the amount of savings required by the regulation
- .76 The registrant may choose to disclose any water savings delivered that exceed those required by regulations that resulted in the registrant receiving rewards from water efficiency performance incentives.

IF0103-15. Volume of non-revenue real water losses

- .77 The registrant shall disclose the amount, in cubic meters, of water unaccounted for due to real losses from the distribution system, where:
- Real losses are defined, consistent with the [American Water Works Association Water Audit Method](#), as volumes lost through leaks, breaks and overflows on mains, service reservoirs, and service connections, up to the point of customer metering.

- .78 The registrant shall calculate the amount of real losses according to federal, state, or local regulations or voluntary initiatives where such loss occurs. Relevant guidance includes, but is not limited to:
- California [Senate Bill 555](#)
 - Texas [Water Code Section 16.012](#)
 - Georgia [Senate Bill 370](#)
 - The American Water Works Association M36 Manual
- .79 The registrant should disclose the technique(s) it employs to measure non-revenue water from real losses and the amount calculated according to each technique it employs.
- .80 The registrant may choose to disclose voluntary initiatives, such as the [EPA's WaterSense](#) program, that it has engaged in to manage non-revenue water from real losses.

Network Resiliency & Impacts of Climate Change

Description

Water supply and wastewater disposal are basic services for which maintaining continuity is of utmost importance. The increasing frequency and severity of storms challenge water and wastewater treatment facilities and can affect the continuity of service. Intense precipitation may lead to sewage volumes that exceed the capacity of treatment facilities and result in release of untreated effluent. Salt water intrusion, forest fires and other natural events can impact the quality of water source. Additionally, there may be system failures that impact continuity of service. Minimizing current and future risks of service disruptions can require additional capital expenditure and operational expenses. Companies that address these risks through redundancies and strategic planning will be better able to serve customers and protect shareholder value.

Accounting Metrics

IF0103-16. Water treatment capacity located in FEMA Special Flood Hazard Areas or foreign equivalent

- .81 The registrant shall disclose the capacity, in cubic meters per day, of its water treatments facilities that are located in special flood hazard areas, where:
- [FEMA Special Flood Hazard Areas](#) (SFHA) are defined as land areas covered by the floodwaters of the base flood on [National Flood Insurance Program \(NFIP\) maps](#). An SFHA is an area where the NFIP's floodplain management regulations must be enforced and where the mandatory purchase of flood insurance applies. SFHAs include Zones A, AO, AH, A1-30, AE, A99, AR, AR/A1-30, AR/AE, AR/AO, AR/AH, AR/A, VO, V1-30, VE, and V. Examples of Special Flood Hazard Areas include coastal floodplains, floodplains along major rivers, and areas subject to flooding from ponding in low-lying areas.
 - The scope of disclosure includes U.S.-based facilities that are designated by FEMA as SFHAs, as well as non-U.S.-based facilities.
 - For non-U.S.-based facilities that fall outside of the scope of FEMA, the foreign equivalent is an area that will be inundated by a flood event that has a one-percent chance of being equaled or exceeded in any given year (i.e., the 100-year floodplain).

IF0103-17. Volume of sanitary sewer overflows (SSO), percentage recovered

- .82 The registrant shall disclose the number and volume, in cubic meters, of sanitary sewer overflows (SSO), originating from sewer systems under the registrant's operational control, where:
- SSOs are defined, consistent with the [Sewage Overflow Community Right-To-Know Act](#) as those overflows, spills, releases, or diversions of wastewater from a sanitary sewer system.

.83 The registrant shall report the percentage recovered as the volume, in cubic meters, of sewage discharged to the environment that was recovered divided by the total amount of sewage discharged to the environment through SSOs, where:

- The recovered volume is defined as the amount of sewage discharged that was captured and returned to the sanitary sewer system or private lateral or collection system.

.84 Relevant state databases listing SSOs include, but are not limited to:

- [Maryland Reported Sewer Overflow Database](#)
- [California SSO Incident Map](#)
- [Michigan Event Discharge Information](#)

.85 The registrant should discuss programs and initiatives, including those programs overseen by state and local governments and those developed internally by the registrant, that it is involved in to reduce the number and volume of SSOs and its efforts to mitigate any such occurrences.

IF0103-18. (1) Number of service interruptions, (2) population affected, and (3) average duration

.86 The registrant shall disclose the number of interruptions to its drinking water supply services, the total population affected by such interruptions, and the average duration of an interruption, where:

- A service interruption is defined as those incidents of complete water shutoff, low flow restrictions, boil water advisory, and water main flushing, and excludes those incidents where a reduction of service occurs but normal activities (dishwashing, showering, laundry washing, toilet flushing etc.) are maintained.
- The total population affected is defined as those people who experienced service interruptions.
- The average duration of an interruption shall be calculated as the total duration (in minutes) of service interruptions divided by the number of service interruptions.

.87 The registrant may choose to disclose the number of interruptions that were intentionally planned or scheduled by the registrant, the size of the population affected, and the duration of those interruptions.

Note to IF0103-18

.88 The registrant shall discuss notable service interruptions such as those that affected a significant population or those of extended duration.

.89 For such interruptions, the registrant should provide:

- Description and cause of the service interruption;
- The costs (in U.S. dollars) associated with the service interruption;

- Actions taken to mitigate the potential for future service interruptions; and
- Any other significant outcomes (e.g., legal proceedings, related fatalities).

IF0103-19. Discussion of efforts to identify and manage risks and opportunities related to the impact of climate change on distribution network

- .90 The registrant shall discuss its efforts to identify and manage risks and opportunities associated with the impact of climate change on the distribution network, where:
- Risks include, among others, threats to the registrant’s physical infrastructure as a consequence of climate change related events (e.g., rising sea levels, increasing storm intensity, and impacts of drought) that could result in service disruption(s).
 - Opportunities include the need for infrastructure improvements within the registrant’s current service area and the opportunity to expand its service area through privatization of municipal water infrastructure.
- .91 The registrant shall describe how it identifies and prioritizes the potential for risks to, and vulnerabilities of, its distribution network.
- Relevant risks and vulnerabilities to discuss include, but are not limited to, those relating to the age, geographic location, and physical qualities of the registrant’s distribution infrastructure.
- .92 The registrant shall describe its efforts to manage the risks and opportunities associated with its distribution network including, but not limited to, infrastructure development, current storm tracking, global gridded climate models, and the use of redundant systems to assure service continuity.
- .93 The registrant may choose to discuss its efforts to manage risks and opportunities associated with its distribution network in the context of the rate case and rate making political environment, including the effects on the registrant’s ability to expand, maintain, and enhance the resiliency of its distribution network.

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SUSTAINABILITY ACCOUNTING STANDARD
INFRASTRUCTURE SECTOR

WASTE MANAGEMENT

Sustainability Accounting Standard

Sustainable Industry Classification System™ (SICS™) #IF0201
Prepared by the
Sustainability Accounting Standards Board®

October 2015

Exposure Draft Standard for Public Comment

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 78 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 domestic companies that collect, store, dispose of, recycle, or treat various forms of waste from residential, commercial, and industrial clients. Types of waste include hazardous waste, recyclable materials, compostable or organic materials, and other solid waste. Certain industry players also provide environmental engineering and consulting services, mostly to large industrial clients. Major players are vertically integrated, providing a range of services from collection and landfilling to recycling, while others provide specialized services such as treatment of medical and industrial wastes.

¹ <http://pcaobus.org/Standards/Attestation/Pages/AT101.aspx>

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

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:

- Landfill Gas Management
- Air Quality
- Fleet Fuel Management
- Land Use & Ecological Impacts
- Workforce Health & Safety
- Labor Relations
- Recycling & Resource Recovery
- Management of the Legal & Regulatory Environment

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

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:

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

⁴ C.F.R. 229.303(Item 303)(a)(3)(ii).

- 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

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.

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

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.”

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.

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

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.”

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.

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.).

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).

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 |
|---|--------------|-----------------|----------|
| Population served | Quantitative | Number | IF0201-A |
| Vehicle fleet size | Quantitative | Number | IF0201-B |
| Number of operations facilities ¹⁰ | Quantitative | Number | IF0201-C |
| Amount of materials managed | Quantitative | Metric tons (t) | IF0201-D |

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.

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

¹⁰ Note to **IF0201-C**—Operations facilities include landfills (both active and closed), transfer stations, and recycling centers.

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 |
|--|--|-------------------------|--|-----------|
| Landfill Gas Management | Gross global Scope 1 emissions, percentage covered under a regulatory program | 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), percentage of each in or near areas of dense population | Quantitative | Metric tons (t), Percentage (%) | IF0201-04 |
| | Amount of legal and regulatory fines and settlements associated with air pollution and odor ¹¹ | Quantitative | U.S. Dollars (\$) | IF0201-05 |
| Fleet Fuel Management | Fleet fuel consumed, percentage renewable | Quantitative | Gigajoules, Percentage (%) | IF0201-06 |
| Land Use & Ecological Impacts | Total Toxic Release Inventory (TRI) releases, percentage released to water | Quantitative | Metric tons (t), Percentage (%) | IF0201-07 |
| | Volume of leachate generated, percentage treated to regulatory standards | Quantitative | Cubic meters (m ³), Percentage (%) | IF0201-08 |
| | Amount of legal and regulatory fines and settlements associated with environmental impacts ¹² | Quantitative | U.S. Dollars (\$) | IF0201-09 |
| 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 | IF0201-10 |
| | Number of vehicle accidents and incidents | Quantitative | Number | IF0201-11 |
| Labor Relations | Percentage of active workforce covered under collective bargaining agreements | Quantitative | Percentage (%) | IF0201-12 |
| | Number and duration of strikes and lockouts ¹³ | Quantitative | Number, Days | IF0201-13 |

¹¹ Note to **IF0201-05**—The registrant shall briefly describe the nature and context of the fines and settlements.

¹² Note to **IF0201-09**—The registrant shall briefly describe the nature and context of the fines and settlements.

¹³ Note to **IF0201-13**—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.

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

| TOPIC | ACCOUNTING METRIC | CATEGORY | UNIT OF MEASURE | CODE |
|---|--|-------------------------|---------------------------------|-----------|
| Recycling & Resource Recovery | Amount of waste incinerated, percentage hazardous, percentage used for energy recovery | Quantitative | Metric tons (t), Percentage (%) | IF0201-14 |
| | Number of customers served through (1) recycling and (2) composting programs | Quantitative | Number | IF0201-15 |
| | Amount of material (1) recycled and (2) composted | Quantitative | Metric tons (t) | IF0201-16 |
| | Amount of electronic waste collected, percentage recovered through recycling | Quantitative | Metric tons (t), Percentage (%) | IF0201-17 |
| Management of the Legal & Regulatory Environment | Discussion of positions on the regulatory and political environment related to environmental and social factors and description of efforts to manage risks and opportunities presented | Discussion and Analysis | n/a | IF0201-18 |

Landfill Gas Management

Description

Landfill emissions or landfill gas (LFG) is a significant anthropogenic contributor to global greenhouse gas (GHG) emissions due to the presence of highly potent methane. Given its potency, federal regulations limit emissions of LFG, and it is likely that those regulations will become more stringent over time. Separate state laws also require monitoring and collection of LFG, such as California's AB32. 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 captured 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 targeted by regulation. LFG emissions pose a regulatory risk for the industry, with potential impacts on operational costs and capital expenditures. Performance on this issue can impact a company's ability to secure new permits and renew existing ones, which can have an impact on revenue.

Accounting Metrics

IF0201-01. Gross global Scope 1 emissions, percentage covered under a regulatory program

- .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 C C8.2 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).

- .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 underlying technical approach to data collection, analysis, and disclosure shall be consistent with the CDP Guidance.
- The registrant shall consider the CDP Guidance as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.
- .05 The registrant shall disclose the percentage of its emissions that are covered under a regulatory program, such as the European Union Emissions Trading Scheme (E.U. ETS), Western Climate Initiative (WCI), California Cap-and-Trade (California Global Warming Solutions Act), or other regulatory programs.
- Regulatory programs include cap-and-trade schemes and carbon tax/fee systems.
 - Disclosure shall exclude emissions covered under voluntary trading systems and disclosure-based regulations (e.g., the U.S. Environmental Protection Agency (EPA) mandatory reporting rule).
- .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 entity (e.g., a national regulatory disclosure program) differs in terms of the scope and 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.

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*.

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 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.
- .12 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 offsite combustion, and any other on-site or off-site use as a fuel.
- .13 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. Environmental Protection Agency's \(EPA\) Landfill Gas Energy: A Guide to Developing and Implementing Greenhouse Gas Reduction Programs](#).
- .14 The registrant should discuss the calculation methodology for its landfill gas generation, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations, mass balance calculations, etc.

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, RGGI, WCI, 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

Apart from GHGs, which have global impacts, other air emissions from waste management practices can have significant localized human health and environmental impacts. In addition, odors from waste management facilities can create nuisance for neighboring communities. Emissions of air pollutants typically stem from landfills, waste incineration, and hazardous waste. Financial impacts from air emissions will vary depending on the specific location of operations and the prevailing air emissions regulations, but can include capital expenditures, increased operating costs, fines, and lawsuits from affected communities. Active management of the issue—through technological and process improvements—can mitigate the impacts of increasingly stringent air quality regulations. 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. Management of air pollutants and odors therefore can help companies secure 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), percentage of each in or near areas of dense population

- .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. Environmental Protection Agency (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 shall disclose the percentage of its NO_x, SO_x, NMVOC, and HAP emissions from its production facilities that are located in or near areas of dense population, which are defined as urbanized areas according to U.S. Census Bureau definitions contained in [Federal Register, Vol. 76, No. 164](#). (August 24, 2011).
- Generically, these include urbanized areas with populations greater than 50,000.
 - A list of urbanized areas based on census results from 2010 is available [here](#).
- .24 The scope of disclosure includes production facilities that are located in a census tract or block considered to be in an urbanized area or within 49 kilometers of an urbanized area.¹⁶
- .25 For production 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.
- .26 The registrant should discuss the calculation methodology for its emissions disclosure, such as whether data are from continuous emissions monitoring systems (CEMS), engineering calculations, mass balance calculations, etc.

¹⁶ The 49-kilometer radius is based on the definition of "exposed population" from the U.S. EPA's Office of Pollution Prevention and Toxics User's Manual for RSEI, Version 2.3.2., July 2013: "The exposed population is the population that is likely to come in contact with a chemical. The population differs depending on the exposure pathway modeled. For instance, the population exposed to chemicals released to air is the population in a circle with a radius of 49 km surrounding the facility."

IF0201-05. Amount of legal and regulatory fines and settlements associated with air pollution and odor

- .27 The registrant shall disclose the amount (excluding legal fees) of all fines or settlements associated with air pollution and odor, such as those related to enforcement of federal, state, and local laws and regulations on odor, ozone precursors, and non-methane organic compounds produced by landfills, including violations of the U.S. Clean Air Act and the Resource Conservation and Recovery Act (RCRA), among others.
- .28 Disclosure shall include civil actions (e.g., civil judgment, settlements, or regulatory penalties) and criminal actions (e.g., criminal judgment, penalties, or restitutions) taken by any entity (government, businesses, or individuals).

Note to **IF0201-05**

- .29 The registrant shall briefly describe the nature (e.g., guilty plea, deferred agreement, or non-prosecution agreement) and context (e.g., noxious odors, emissions exceedances, etc.) of fines and settlements.
- .30 The registrant shall describe any corrective actions it has implemented as a result of each incident. This may include, but is not limited to, specific changes in landfill gas management, training, or public communication.

Fleet Fuel Management

Description

Many companies in the Waste Management industry own and operate large vehicle fleets for waste collection. Fossil fuel costs, and the volatility of these costs, act as major incentives for waste management companies to focus on fuel economy and the use of renewable fuels. Optimized routing and upgrading the fuel efficiency of fleets can help reduce vehicle emissions and fuel costs, which are significant portions of operating expenses. Other strategies include the use of LFG to fuel operations and vehicles. This strategy is useful in two ways: it diverts potent LFG emissions for beneficial use and reduces fuel purchases. A cleaner-burning fleet may also be seen as more favorable by communities living near waste management facilities with heavy traffic.

Accounting Metrics

IF0201-06. Fleet fuel consumed, percentage renewable

- .31 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.
- .32 Fuel consumption shall be based on actual fuel consumed (i.e., not based on design parameters).
- .33 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.
- .34 The registrant shall disclose renewable fuel consumption as a percentage of its total fuel consumption.
 - Renewable fuel is defined, consistent with the U.S. Environmental Protection Agency's (EPA) 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.
- .35 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 Intergovernmental Panel on Climate Change (IPCC), the U.S. Department of Energy (DOE), or the U.S. Energy Information Administration (EIA).
- .36 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).

Land Use & Ecological Impacts

Description

Mismanagement of landfills and other disposal sites can lead to contamination of the soil, ground water, and neighboring surface water bodies, which can carry the pollutants a long distance. In order to mitigate risks to the environment and the health of local communities, companies must monitor leaks and contain pollutants such as leachate from municipal solid waste landfills and hazardous waste from Subtitle C landfills. Companies that are unable to manage these risks are likely to receive regulatory penalties, lose brand value, and face lawsuits.

Accounting Metrics

IF0201-07. Total Toxic Release Inventory (TRI) releases, percentage released to water

- .37 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](#).
- .38 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
- .39 The scope of disclosure is limited to those facilities owned or operated by the registrant that are covered under the reporting requirements of the U.S. Environmental Protection Agency’s (EPA) TRI regulations, or foreign equivalent, where covered facilities must:
- Have 10 or more full time employees;
 - Be regulated as a Resource Conservation and Recovery Act (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.
- .40 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.
- .41 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.

IF0201-08. Volume of leachate generated, percentage treated to regulatory standards

- .42 The registrant shall disclose the total volume, in cubic meters, of leachate generated from its owned and/or operated facilities, where:
- Leachate is defined, consistent with 40 CFR 258, as a liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste.
- .43 The registrant shall calculate the percentage treated to regulatory standards as the volume, in cubic meters, of leachate treated to regulatory standards, divided by the total amount of leachate produced, where:
- Regulatory standards include those developed by federal, state, and local statutory governments, including, but not limited to, regulations on the discharge of a hazardous substance, pretreatment requirements set forth by 40 CFR 403 and local regulations, exceedances of groundwater protection standards, and/or effluent limit exceedances (such as waste load allocation).
- .44 The scope of disclosure includes leachate that was captured by the registrant and that which was released or migrated to ground and surface waters.
- .45 The registrant should discuss the calculation methodology for its leachate generation disclosure, such as if data are from estimates developed through the EPA's [Water Balance Method](#) or [Hydraulic Evaluation of Landfill Performance model \(HELP\)](#), actual monitoring data, engineering calculations, etc.

IF0201-09. Amount of legal and regulatory fines and settlements associated with environmental impacts

- .46 The registrant shall disclose the amount (excluding legal fees) of all fines or settlements associated with environmental impacts, such as those related to enforcement of U.S. laws and regulations on ground and surface water contamination; hazardous waste transport, containment, or disposal; and public disclosure of contamination events, including violations of the U.S. Clean Water Act and the Resource Conservation and Recovery Act (RCRA), among others.
- .47 Disclosure shall include civil actions (e.g., civil judgment, settlements, or regulatory penalties) and criminal actions (e.g., criminal judgment, penalties, or restitutions) taken by any entity (government, businesses, or individuals).

Note to IF0201-09

- .48 The registrant shall briefly describe the nature (e.g., guilty plea, deferred agreement, or non-prosecution agreement) and context (e.g., hazardous chemical releases, effluent exceedances, and groundwater degradation, etc.) of fines and settlements.
- .49 The registrant shall describe any corrective actions it has implemented as a result of each incident. This may include, but is not limited to, specific changes in leachate treatment, landfill management, capital deployment, or public communications.

Workforce Health & Safety

Description

Hazardous working conditions make safety critical to waste management operations, and accidents can have a great impact on workers. The Waste Management industry has high fatality rates compared to other industries. Fatal injuries are mostly due to transportation incidents, contact with objects and equipment, and exposure to harmful substances. Additionally, temporary workers may be at higher risk due to 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. Creating a safety culture is highly important. Companies that develop proactive safety management plans and training requirements for their employees and contractors and conduct regular audits will improve safety records and minimize resulting financial repercussions.

Accounting Metrics

IF0201-10. (1) Total recordable injury rate (TRIR), (2) fatality rate, and (3) near frequency rate (NMFR) for (a) direct employees and (b) contract employees

- .50 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.
- .51 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](#).
- .52 The registrant shall disclose its near miss frequency rate (NMFR), 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 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.

- .53 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.).
- .54 The scope includes all employees, domestic and foreign.
- .55 Rates shall be calculated as: $(\text{statistic count} / \text{total hours worked}) * 200,000$.
- The rate for seasonal and migrant employees is calculated as $[(\text{seasonal employees statistic count} + \text{migrant employees statistic count}) / (\text{seasonal employees total hours worked} + \text{migrant employees hours worked})] * 200,000$.

IF0201-11. Number of vehicle accidents and incidents

- .56 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.).
- .57 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.
- .58 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.
- .59 An incident is defined as any event involving a licensed motor vehicle while on business use that results in an Occupational Safety and Health Administration (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 worker rights and negotiate wages. High unionization rates leave waste management companies vulnerable to shut downs 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 periods of 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 worker rights and enhances their productivity while ensuring the financial sustainability of a company's operations.

Accounting Metrics

IF0201-12. Percentage of active workforce covered under collective bargaining agreements

.60 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.

IF0201-13. Number and duration of strikes and lockouts

.61 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.

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

Note to IF0201-13

.63 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 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 positioned to address changing consumer needs, thereby positioning themselves for revenue growth while playing a critical role in reducing the environmental impact on the wider economy.

Accounting Metrics

IF0201-14. Amount of waste incinerated, percentage hazardous, percentage used for energy

- .64 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.
- .65 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.
- .66 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.
- .67 For the purpose of this disclosure, waste incinerated for energy recovery shall include recovery from both solid and hazardous wastes.
- .68 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.

IF0201-15. Number of customers served through (1) recycling and (2) composting programs

.69 The registrant shall disclose the number of customers it serves through its recycling programs, where:

- Customers are considered to include individuals served through residential and municipal programs and businesses served through commercial and industrial programs.

.70 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.

.71 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.

.72 The registrant shall disclose the number of customers served through its composting programs.

- .73 Composting programs are considered to be those operations whereby the registrant collects, transports, or otherwise partakes in the process of composting materials, where:
- Composting is defined as the controlled process by which organic material is decomposed by microorganisms into a biologically stable organic material that is suitable for use as a soil amendment.

IF0201-16. Amount of material (1) recycled and (2) composted

- .74 The registrant shall disclose the amount, in metric tons, of material that it collected for recycling.
- .75 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.
- .76 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.
- .77 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.
- .78 The registrant shall disclose the amount, in metric tons, of material that it composted.
- .79 Composted materials are those that undergo a controlled process through which organic material is decomposed by microorganisms into a biologically stable organic material that is suitable for use as a soil amendment.

IF0201-17. Amount of electronic waste collected, percentage recovered through recycling

- .80 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.
- .81 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.
- .82 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.

Management of the Legal & Regulatory Environment

Description

The interaction of waste management companies with their legal and regulatory environment can have significant impacts on shareholder value. These impacts can be the result of strategic spending on lobbying and political contributions or changes in laws or policies that can affect their operations. In particular, trends toward landfill diversion and climate change regulations are important for waste management companies to consider. Given the broader move toward a circular economy and the scientific consensus around climate change, efforts to delay or negatively influence related regulations may prove counterproductive in the long term by creating regulatory and investment uncertainty or leading to higher costs in the future. Efforts to unfairly influence environmental laws and regulations may affect companies' reputations and social license to operate. Companies with a clear strategy for engaging policymakers and regulators that accounts for societal externalities and is aligned with their goals and activities for long-term sustainable outcomes could benefit from a stronger long-term license to operate. Such companies will likely be better prepared for medium- to long-term regulatory adjustments to deal with global, high-impact issues such as climate change.

Accounting Metrics

IF0201-18. Discussion of positions on the regulatory and political environment related to environmental and social factors and description of efforts to manage risks and opportunities presented

- .83 The registrant shall identify risks and opportunities it faces related to legislation, regulation, rule-making, actions of individual politicians, and the overall political environment (hereafter referred to collectively as "regulatory and political environment") related to environmental and social factors.
- The scope shall include existing, emerging, and known future risks and opportunities.
 - The scope shall include risks and opportunities that may exist within the U.S. at the local, state, and federal level.
 - The registrant may discuss risks and opportunities in international markets.
 - The regulatory and political environment related to environmental and social factors includes that which addresses leachates, landfill gas, toxic substances, climate change, collective bargaining, wages, and materials recovery.
- .84 Relevant risks include, but are not limited to, risk of increased compliance costs; risk of policy reversal (e.g., scope of employment regulations); increasingly stringent climate change initiatives; risk to reputation due to registrant's stance and actions related to the regulatory and political environment; risk that the regulatory and political environment may not be aligned with long-term strategy; and risk of misalignment with customers', investors', and other stakeholders' expectations.

- .85 Relevant opportunities include, but are not limited to, improved financial conditions (e.g., through regulatory incentives to purchase recycling services or energy from landfill gas), preferential market status (including state and local contracts) due to environmental and social practices that are aligned with the regulatory and political environment, enhanced brand reputation due to the registrant's stance and actions related to the regulatory and political environment, and other benefits due to alignment of the registrant's long-term strategy with the regulatory and political environment.
- .86 For each risk and opportunity associated with the regulatory and political environment the registrant has identified, it shall disclose:
- For specific pieces of legislation, regulation, or candidates, whether its position is of support or opposition.
 - For general environmental and social topics such as clean air and water, waste, and other topics associated with the general lobbying issue codes defined by the Lobbying Disclosure Act of 1995, a description of the type of regulation or legislation that the registrant supports or opposes.
- .87 The registrant shall discuss its efforts to manage risks and opportunities associated with each aspect of the regulatory and political environment it has identified, where relevant efforts to discuss include the use of each of the following:
- Direct lobbying, defined, consistent with 26 CFR 56, as an attempt to influence any legislation through communication with a member or employee of a legislative body, or with a government official or employee who participates in formulating legislation.
 - Grassroots lobbying, defined, consistent with 26 CFR 56, as an attempt to influence any legislation through an attempt to affect the opinions of the general public or any segment thereof.
 - Direct or indirect contributions or expenditures in support of, or opposition to, a candidate for public office or a ballot measure.
 - Any payments made to trade associations or tax-exempt entities that may be used (where permitted) for lobbying, to make campaign contributions, or to otherwise exert influence on a political campaign or ballot measure.
 - The scope includes political organizations, classified under Section 527 of the Internal Revenue Code, that seek to influence the "selection, nomination, election, or appointment of any individual to Federal, State, or local public office or office in a political organization, or the election of Presidential electors."
 - The scope includes advocacy organizations, commonly classified as social welfare organizations under Section 501(c)(4) of the Internal Revenue Code.

- Other interactions with regulators and regulatory agencies, such as through legislative testimony, or employment of former members of congress, regulatory agencies, and other public servants.
- Any direct or indirect political expenditure (one-time or recurring) that must be reported to the Federal Election Commission (FEC), the Internal Revenue Service (IRS), or a state disclosure agency.

.88 In addition to its efforts to influence the regulatory and political environment, the registrant shall discuss its overall strategy to manage risks and opportunities associated with each aspect of the regulatory and political environment it has identified, such as the following actions or activities:

- Any changes it has made or plans to make to its business structure or model;
- The development of new technologies or services; and
- Any changes it has made or plans to make to its operational process, control, or organizational structures.

.89 With respect to the emerging or potential future regulatory and political environment, the registrant shall discuss its view of:

- Which outcome is most likely to come to fruition;
- The likelihood the outcome will occur (i.e., a qualitative assessment of certainty or uncertainty);
- The time horizon over which it expects the outcome to occur; and
- The expected magnitude of the impact (e.g., a one-time acute impact on costs, an ongoing moderate impact on ability to retain employees, etc.).

.90 The registrant should describe if its stance might align with or differ from its peers, other companies, and the official stance of its trade organization(s) and discuss any relevant reasons for alignment or divergence.

.91 The registrant may choose to disclose the total amount of its political spending and a list of the recipients, which includes:

- Any direct or indirect contributions or expenditures in support of, or opposition to, a candidate for public office or a ballot measure.
- Any payments made to trade associations or tax-exempt entities that are used to influence a political campaign (including advocacy organizations, commonly classified as social welfare organizations under Section 501(c)(4) of the Internal Revenue Code, or business leagues, chambers of commerce, boards of trade, and similar organizations classified under Section 501(c)(6) of the Internal Revenue Code).
- Any direct or indirect political expenditure (one-time or recurring) that must be reported to the Federal Election Commission, the Internal Revenue Service, or a state disclosure agency.
- Any direct or indirect contributions to registered lobbyists or lobbying organizations, including contributions made to trade organizations that contribute to political lobbying efforts.

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SUSTAINABILITY ACCOUNTING STANDARD
INFRASTRUCTURE SECTOR

ENGINEERING & CONSTRUCTION SERVICES

Sustainability Accounting Standard

Sustainable Industry Classification System™ (SICS™) #IF0301
Prepared by the
Sustainability Accounting Standards Board®

October 2015

Exposure Draft Standard for Public Comment

ENGINEERING & CONSTRUCTION SERVICES

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 78 industries in 10 sectors.

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INTRODUCTION

Purpose & Structure

This document contains the SASB Sustainability Accounting Standard (SASB Standard) for the Engineering & Construction Services 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 Engineering & Construction industry provides design, consulting, contracting, construction, and other related services that support various infrastructure projects related to transportation, energy transmission and generation, buildings, and other civil engineering projects. The industry’s customers include infrastructure owners and developers in the public and private sectors. Large companies in this industry operate and generate revenue globally and typically specialize in multiple segments.

¹ <http://pcaobus.org/Standards/Attestation/Pages/AT101.aspx>

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

Guidance for Disclosure of Sustainability Topics in SEC Filings

1. Industry-Level Sustainability Topics

For the Engineering & Construction Services industry, SASB has identified the following sustainability disclosure topics:

- Ecological Impacts of Construction
- Community Relations
- Structural Integrity & Safety
- Workforce Health & Safety
- Climate Impacts of Business Mix
- Lifecycle Impact of Buildings
- Business Ethics
- Bidding & Consulting Integrity

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 SICs 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 Engineering & Construction Services 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 projects under development | Quantitative | Number | IF0301-A |
| Number of commissioned projects | Quantitative | Number | IF0301-B |
| Total backlog | Quantitative | U.S. dollars (\$) | IF0301-C |

Units of Measure

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

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

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 |
|---|---|-------------------------|-------------------|-----------|
| Ecological Impacts of Construction | Number of incidents of non-compliance with environmental permits, standards, and regulations | Quantitative | Number | IF0301-01 |
| | Backlog cancellations associated with ecological impacts | Quantitative | U.S. Dollars (\$) | IF0301-02 |
| | Description of integration of environmental policies and practices throughout all project stages | Discussion and Analysis | n/a | IF0301-03 |
| Community Relations | (1) Revenue and (2) backlog associated with IFC category A projects ¹⁰ | Quantitative | U.S. Dollars (\$) | IF0301-04 |
| | Discussion of process to manage risks and opportunities associated with community rights and interests | Discussion and Analysis | n/a | IF0301-05 |
| Structural Integrity & Safety | Amount of defect- and safety-related rework expenses | Quantitative | U.S. Dollars (\$) | IF0301-06 |
| | Amount of legal and regulatory fines and settlements associated with defect- and safety-related incidences | Quantitative | U.S. Dollars (\$) | IF0301-07 |
| Workforce Health & Safety | (1) Total recordable injury rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees | Quantitative | Rate | IF0301-08 |
| Climate Impacts of Business Mix | Percentage of backlog for (1) hydrocarbon-related projects and (2) renewable energy projects | Quantitative | Percentage (%) | IF0301-09 |
| | Percentage of backlog for non-energy projects associated with greenhouse gas mitigation | Quantitative | Percentage (%) | IF0301-10 |
| | Amount of backlog cancellations associated with hydrocarbon-related projects | Quantitative | U.S. Dollars (\$) | IF0301-11 |

¹⁰ Note to **IF0301-04**—The registrant shall discuss the environmental and social risks, and the management of such risks, associated with projects that are assigned to Category A.

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

| TOPIC | ACCOUNTING METRIC | CATEGORY | UNIT OF MEASURE | CODE |
|---|---|-------------------------|---------------------------|-----------|
| Lifecycle Impact of Buildings | Number of (1) commissioned buildings certified and (2) buildings under development seeking certification to a multi-attribute green building standard | Quantitative | Number | IF0301-12 |
| | Description of process to incorporate use-phase energy and water efficiency considerations into project planning and design | Discussion and Analysis | n/a | IF0301-13 |
| Business Ethics | (1) Number of active projects and (2) backlog in countries that have the 20 lowest rankings in Transparency International's Corruption Perception Index ¹¹ | Quantitative | Number, U.S. Dollars (\$) | IF0301-14 |
| | Amount of legal and regulatory fines and settlements associated with charges of bribery or corruption ¹² | Quantitative | U.S. Dollars (\$) | IF0301-15 |
| | Description of policies and practices for prevention of corruption and bribery throughout the value chain | Discussion and Analysis | n/a | IF0301-16 |
| Bidding & Consulting Integrity | Amount of legal and regulatory fines and settlements associated with professional integrity ¹³ | Quantitative | U.S. Dollars (\$) | IF0301-17 |
| | Description of policies and processes for assuring professional integrity associated with project bids and proposals | Discussion and Analysis | n/a | IF0301-18 |

¹¹ Note to **IF0301-14**—The registrant shall provide a brief description of its approach to managing ethical risks specific to the countries referenced above where the registrant has projects under development and/or backlog.

¹² Note to **IF0301-15**—Disclosure shall include a description of fines and settlements and corrective actions implemented in response to events.

¹³ Note to **IF0301-17**—Disclosure shall include a description of fines and settlements and corrective actions implemented in response to events.

Ecological Impacts of Construction

Description

The construction phase of infrastructure projects can have significant ecological impacts. Construction activities can disrupt local ecosystems through biodiversity impacts, emissions to air, discharges to water, natural resource consumption, generation of waste, and use of hazardous chemicals. As a result, engineering and construction companies could be directly exposed to costly project delays, cancellations, and environmental permitting issues as well as fines, penalties, legal settlements, and other costs or liabilities. The early integration of comprehensive, forward-looking environmental policies and practices into project design and construction can help reduce the ecological impacts of activities and the accompanying financial risks.

Accounting Metrics

IF0301-01. Number of incidents of non-compliance with environmental permits, standards, and regulations

- .01 The registrant shall disclose the total number of instances of non-compliance, including violations of technology-based standards and exceedances of quality-based standards.
- .02 The scope of disclosure includes incidents governed by federal, state, and local statutory permits and regulations, including, but not limited to, the discharge of a hazardous substance, violation of wastewater pretreatment requirements, effluent limit exceedances (such as waste load allocation), water withdrawal exceedances, and/or violation of air quality and/or emissions regulations.
- .03 An incident of non-compliance shall be disclosed regardless of whether it resulted in an enforcement action (e.g., fine, warning letter, etc.).
- .04 An incident of non-compliance, regardless of the measurement methodology or frequency, shall be disclosed. These include violations for:
 - Continuous discharges, limitations, standards, and prohibitions that are generally expressed as maximum daily, weekly, and monthly averages.
 - Non-continuous discharges, limitations that are generally expressed in terms of total mass, maximum rate of discharge, frequency, and mass or concentration of specified pollutants.

IF0301-02. Backlog cancellations associated with ecological impacts

- .05 The registrant shall disclose the amount of its total backlog, in U.S. dollars, that was subject to cancellation during the fiscal year for reasons related to or associated with ecological impacts, where:
 - Backlog is defined by the registrant, consistent with its existing public disclosure of backlog.

- Backlog cancellations are defined as the amount of backlog canceled, reduced, terminated, deferred such that it no longer meets the registrant’s definition of backlog, or removed from the backlog for any reason other than conversion to revenue or foreign exchange rate fluctuations.
 - Backlog cancellations include those that occur for reasons including, but not limited to, a customer’s failure to obtain necessary project permitting or financing, a customer’s voluntary project cancellation, and reduction in project scope due to financial constraints.
- Backlog cancellations for reasons related to or associated with ecological impacts are defined as those cancellations that can reasonably be determined to relate, in whole or in part, to ecological impacts or risks of ecological impacts associated with projects, including, but not limited to, biodiversity impacts, emissions to air, discharges to water, natural resource consumption, waste management, and hazardous chemical usage.

.06 The registrant may choose to discuss specific backlog cancellations, including root cause and corrective actions to prevent future backlog cancellations.

IF0301-03. Description of integration of environmental policies and practices throughout all project stages

.07 The registrant shall provide a description of its process used to integrate environmental policies and practices throughout all project stages, where:

- Environmental policies and practices include policies and practices that relate to ecological impacts, biodiversity impacts, emissions to air, discharges to water, natural resource consumption, waste management, and hazardous chemical usage.
- The scope of project stages includes all project stages from the origins of a project through project commissioning, which may include, but is not limited to, feasibility studies, proposals, design and planning, subcontractor procurement, and construction.

.08 The registrant shall discuss its approach to operating in compliance with all applicable environmental regulations.

.09 The registrant shall discuss the use of codes, guidelines, and standards that address the integration of environmental policies and practices, where applicable. Relevant codes, guidelines, and standards may include, but are not limited to:

- The Equator Principles;
- United Nations Development Programme’s Performance Standards on Environmental and Social Sustainability;
- International Finance Corporation’s Environmental and Social Performance Standards and Guidance Notes;

- Institute for Sustainable Infrastructure’s (ISI) Envision® rating system;
- U.S. Green Building Council’s LEED® certification; and
- BREEAM.

.10 Where applicable and relevant, the registrant shall describe differences between policies and practices for its different operating regions, project types, business segments, etc.

Community Relations

Description

The long-term nature and large scale of many infrastructure projects can lead to a wide range of community impacts. Competition for local resources, displacement of local communities, human rights violations, and pollution are examples of negative impacts. On the positive side, infrastructure projects can provide opportunities for economic development through local job creation, the development of institutional capacity in emerging markets, and improvements in productivity. Companies in the industry that engage and communicate with potentially affected communities early in the design process, including through the use of comprehensive social and environmental impact assessments, and incorporate community rights, interests, and concerns into project design may reduce the risks of costly project delays and cancellations.

Accounting Metrics

IF0301-04. (1) Revenue and (2) backlog associated with IFC category A projects

- .11 The registrant shall disclose its revenue associated with projects that the company was associated with in any capacity during the fiscal year that are categorized by the International Finance Corporation (IFC) as environmental and social Category A, where:
 - Category A projects are [defined](#) as, “Projects expected to have significant adverse social and/or environmental impacts that are diverse, irreversible, or unprecedented.”
- .12 The registrant shall disclose its backlog, as of the end of the fiscal year, that is associated with projects categorized by the IFC as environmental and social Category A projects.
 - Backlog is defined by the registrant, consistent with its existing public disclosure of backlog.
- .13 The scope of disclosure includes all projects that have been assigned an environmental and social category by the IFC, regardless of whether financing has been or is proposed to be provided by the IFC.

Note to IF0301-04

- .14 The registrant shall discuss the environmental and social risks, and the management of such risks, associated with projects that are assigned to Category A.
- .15 For such projects, the registrant shall provide:
 - A description of the project and any risk of required modifications, including community or stakeholder protests.
 - Any cost to remedy modifications and/or public interventions.

IF0301-05. Discussion of process to manage risks and opportunities associated with community rights and interests

- .16 The registrant shall describe its processes, procedures, and practices to manage risks and opportunities associated with the rights and interests of communities in areas where it conducts business, where community rights and interests include:
- Economic rights and interests, including the right to employment, fair wages, payment transparency, and respect for infrastructure and agricultural land.
 - Environmental rights and interests, including the right to clean local air and water, as well as safe discharge and disposal of waste.
 - Social rights and interests, including the rights to adequate health care, education, and housing.
 - Cultural rights and interests, including the right to protection of places of cultural significance (e.g., sacred sites or burial sites).
- .17 The registrant shall disclose the following, as relevant:
- Lifecycle stages to which its practices apply, such as feasibility studies, proposals, design and planning, subcontractor procurement, and construction.
 - The community rights and interests (enumerated above) specifically addressed by the registrant's practices.
 - The underlying references for its procedures, including whether they are codes, guidelines, standards, or regulations and whether they were developed by the registrant, an industry organization, a third-party organization (e.g., a non-governmental organization), a governmental agency, or some combination of these groups.
- .18 Risks and opportunities include, but are not limited to: non-technical delays, availability and development of local content, availability and access to adequate infrastructure, community actions related to resource nationalism, and challenges associated with resettlement and access to land.
- .19 The registrant shall disclose the degree to which its policies and practices are aligned with the IFC's Performance Standards on Environmental and Social Sustainability, January 1, 2012, specifically including:
- Performance Standard 4 – Community Health, Safety, and Security
 - Performance Standard 5 – Land Acquisition and Involuntary Resettlement
 - Performance Standard 8 – Cultural Heritage
- .20 The discussion shall include how practices apply to business partners such as contractors, sub-contractors, suppliers, and joint venture partners.

.21 The registrant should describe its efforts to eliminate or mitigate country, regional and/or community risks and/or address community concerns.

- Country, regional, and/or community risks include, but are not limited to: corruption, business legal structure, political stability, regulation, resource nationalism, ethnic conflict, stability of the local market, labor force (skills) availability, resettlement and access to land, quality of access to infrastructure (e.g., ports, roads, and shipping channels), and/or general license to operate.
- These risks are likely to manifest differently at the country (national), regional (state), community (local) levels and at different project stages.
- This risk differs from sovereign risk, which is defined as the potential for a central bank or government-backed entity to willingly or unwillingly default on debt obligations or significantly alter key economic variables such as foreign exchange rates, import ratios, and money supply.
- The registrant should identify and describe country risks specific to its projects and unique operating context.
- This may include the identification of country, regional, and community risks and/or the discussion of specific projects.
- This may include discussion of how the registrant has mitigated these risks through community engagement partnerships, blended value projects, etc.
- Discussion should be additional to broad country risk classification (e.g., OECD Prevailing Country Risk classification, Standard & Poor's Country Risk ratings, World Economic Forum Global Competitiveness Index, etc.).
- Discussion may include, but is not limited to:
 - The use of a social impact assessment (SIA) that evaluates, manages, and mitigates risks.
 - Efforts to engage with stakeholders, build consensus, and collaborate with communities.

Structural Integrity & Safety

Description

Whether providing engineering, design, architectural, consulting, inspection, construction, or maintenance services, companies in this industry have a professional responsibility to ensure the safety and integrity of their work. Errors and inadequate quality in infrastructure project design and construction can cause significant personal injury and economic harm. Companies that perform poorly on structural integrity and safety can therefore face potentially high costs and legal liabilities, as well as reputational damage that could hurt growth prospects. Meeting or setting new industry standards for quality and establishing internal control procedures to address potential design issues are key practices that can help companies reduce risks.

Accounting Metrics

IF0301-06. Amount of defect- and safety-related rework expenses

- .22 The registrant shall disclose the total amount of rework costs incurred, in U.S. dollars, including costs associated with labor, materials, design, equipment, and subcontractors, where:
- Rework is defined, consistent with the Construction Industry Institute's definition, as activities in the field that have to be done more than once in the field or activities that remove work previously installed as part of the project.
 - For the purposes of this disclosure, the scope of rework costs excludes costs resulting from client- or project-owner-driven modifications including, but not limited to, change orders, revisions to scope, or revisions to design.
- .23 The registrant should discuss projects with significant rework costs relative to actual or projected total project costs. Relevant context to provide may include, but is not limited to:
- Root causes of rework;
 - Corrective actions implemented; and
 - Financial impacts to company.

IF0301-07. Amount of legal and regulatory fines and settlements associated with defect- and safety-related incidences

- .24 The registrant shall disclose the amount in U.S. dollars (excluding legal fees) of all fines or settlements associated with defect- and safety-related incidences and allegations.
- .25 Disclosure shall include civil actions (e.g., civil judgment, settlements, or regulatory penalties) and criminal actions (e.g., criminal judgment, penalties, or restitutions) taken by any entity (government, businesses, or individuals).

.26 The registrant should discuss incidences that resulted in significant fines and settlements. Relevant context to provide may include, but is not limited to:

- Root causes of incident;
- Corrective actions implemented; and
- Financial impacts to company.

Workforce Health & Safety

Description

Construction, maintenance and repair services, and other on-site activities require a substantial amount of manual labor. In performing this work, employees and contractors may be exposed to heavy machinery accidents, falls, and other safety-related accidents. Additionally, temporary workers may be at higher risk due to lack of training or industry experience. The impacts of failing to protect worker health and safety include fines and penalties, loss of contracts, higher regulatory compliance costs from more stringent oversight, higher insurance premiums, exclusion from bidding for government contracts, lower employee morale and productivity, and project delays and downtime, which raise project costs. Companies that seek to properly train employees and build a strong safety culture could reduce their risk profile, while potentially gaining a competitive advantage in new project bids and proposals thanks to strong workforce health and safety track records.

Accounting Metrics

IF0301-08. (1) Total recordable injury rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees

- .27 Registrants whose workforce is entirely U.S.-based shall disclose their total recordable injury rate (TRIR) and fatality rate, as calculated and reported in Occupational Safety and Health Administration (OSHA) Form 300.
 - OSHA guidelines provide details for the determination of whether an event is a recordable occupational incident as well as definitions for exemptions for incidents that occur in the work environment, but are not occupational.
- .28 Registrants whose workforce includes non-U.S.-based employees shall calculate their TRIR according to the U.S. Bureau of Labor Statistics guidance and/or using the U.S. Bureau of Labor Statistics calculator.
- .29 The registrant shall disclose its TRIR separately for its direct employees and contract employees, where:
 - Direct employees are all employees on the registrant's payroll, whether they are labor, executive, hourly, salary, part-time, seasonal, or migrant workers.
 - Contract employees are 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.).
- .30 The scope includes all employees, domestic and foreign.
- .31 Rates shall be calculated as: $(\text{statistic count} / \text{total hours worked}) * 200,000$.

Climate Impacts of Business Mix

Description

Infrastructure projects often have significant direct and indirect impacts on greenhouse gas (GHG) emissions when they are being used or operated. Infrastructure projects that are likely to contribute to GHG emissions include hydrocarbon production and consumption projects, and those that are likely to mitigate emissions include mass transit systems, carbon storage, and renewable energy projects. The extent to which companies specialize in, or are concentrated on, projects with significant GHG implications is often connected to the risks and opportunities embedded in company backlogs and future revenues. Risks may manifest through project delays, cancellations, and diminished long-term revenue growth opportunities, while opportunities may include competitive advantages that arise from focus on growing markets. These company impacts may be driven by climate change-related public policy, including emissions reductions policies and subsidies, and an overall societal focus on GHG emissions mitigation.

Accounting Metrics

IF0301-09. Percentage of backlog for (1) hydrocarbon-related projects and (2) renewable energy projects

- .32 The registrant shall disclose the percentage of backlog associated with hydrocarbon-related projects.
- The percentage shall be calculated as backlog associated with hydrocarbon-related projects divided by total backlog.
 - The scope of hydrocarbon-related projects includes any type of project directly associated with the hydrocarbon value chain, including, but not limited to: hydrocarbon exploration, extraction, development, production, transportation, infrastructure services, infrastructure maintenance, power generation, and downstream services.
- .33 The registrant shall disclose the percentage of backlog associated with renewable energy projects.
- The percentage shall be calculated as backlog associated with renewable power generation projects divided by total backlog.
 - Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, consistent with U.S. Environmental Protection Agency (EPA) [definitions](#), such as geothermal, wind, solar, hydro, and biomass.

IF0301-10. Percentage of backlog for non-energy projects associated with greenhouse gas mitigation

- .34 The registrant shall disclose the percentage of backlog for non-energy projects associated with greenhouse gas mitigation.
- The percentage shall be calculated as backlog that is not directly associated with the energy value-chain that is motivated by, or undertaken in response to, GHG emissions mitigation divided by total backlog.
 - The scope of the numerator shall exclude all backlog directly associated with the energy value chain, which may be equivalent to backlog included in IF0301-08, with the exception of fossil fuel-related decommissioning projects.
 - The scope of the numerator shall only include projects that are significantly motivated by, or undertaken in response to, GHG emissions mitigation. Such GHG emissions mitigation is not required to be the primary project motivation, but it must be a significant motivating factor for project development and implementation.
 - The scope of the numerator shall only include projects that provide significant GHG mitigation relative to a baseline scenario, or baseline emissions, defined as the GHG emissions that may occur without project implementation.
 - The registrant may use or reference all or part of the "[European Investment Bank Induced GHG Footprint](#)" methodology for assessing relative emissions (including absolute emissions and/or baseline emissions).
 - The registrant may use alternative methodologies or proprietary methodologies for assessing GHG mitigation.
 - Examples of projects that may be included in the numerator include, but are not limited to: mass transportation systems; alternative, low-carbon transportation systems; carbon capture and storage; fossil fuel-related decommissioning projects; and energy efficiency infrastructure retrocommissionings.
- .35 Backlog is defined by the registrant, consistent with its existing public disclosure of backlog.
- .36 The registrant may choose to provide a discussion of the sustainability implications of backlog in oil and gas projects and/or non-renewable power generation projects, including, but not limited to, project descriptions, categorizations by resource type, expected sustainability impacts, and risks related to project completion and/or conversion to revenue. For example, if the registrant's backlog in non-renewable power generation projects is associated with natural gas power generation projects, the registrant may choose to provide supplemental disclosures describing this proportion of backlog and the sustainability impacts of such projects relative to alternatives or baseline scenarios.
- .37 The registrant may choose to exclude backlog associated with decommissioning projects.
- .38 If the sum of the three percentages above does not equate to 100% of the registrant's backlog associated with energy projects, the registrant shall disclose the cause of the discrepancy.

IF0301-11. Amount of backlog cancellations associated with hydrocarbon-related projects

- .39 The registrant shall disclose the amount of its total backlog, in U.S. dollars, associated with hydrocarbon-related projects of any type that was subject to cancellation during the fiscal year for any reason, where:
- Backlog is defined by the registrant, consistent with its existing public disclosure of backlog.
 - Backlog cancellations are defined as the amount of backlog canceled, reduced, terminated, deferred such that it no longer meets the registrant's definition of backlog, or removed from the backlog for any reason other than conversion to revenue or foreign exchange rate fluctuations.
 - Backlog cancellations include those that occur for any reason, including, but not limited to, a customer's failure to obtain necessary project permitting or financing, a customer's voluntary project cancellation, and reduction in project scope due to financial constraints.
 - Hydrocarbon-related projects are defined as any project directly related to the production, servicing, transportation, or consumption of hydrocarbons for use in the energy value chain. Examples include, but are not limited to, any project directly associated with oil or gas production, transportation, refining, and fossil fuel-based electricity generation.
- .40 The registrant may choose to exclude backlog associated with decommissioning projects.
- .41 The registrant may choose to discuss specific backlog cancellations, including the root cause and corrective actions to prevent future backlog cancellations.

Lifecycle Impact of Buildings

Description

As buildings are among the largest users of natural resources and contribute to GHG emissions, the market for the design and construction of buildings is increasingly demanding that engineering and construction companies address sustainability impacts that arise during the construction and use of buildings. Using environmentally friendly materials and designing for energy and water efficiency can reduce a building's energy and water use, divert waste from landfills, increase occupant satisfaction rates, increase rental and lease rates, and decrease maintenance costs. In this regard, "green" certifications present opportunities for companies to establish a competitive advantage, meet the needs of growing markets, and strengthen reputation.

Accounting Metrics

IF0301-12. Number of (1) commissioned buildings certified and (2) buildings under development seeking certification to a multi-attribute green building standard

- .42 The registrant shall disclose the number of buildings commissioned during the fiscal year that were certified to a third-party multi-attribute sustainability standard.
- .43 Third-party sustainability standards shall be considered within the scope of disclosure if, at a minimum, they address the following aspects of building design and construction:
 - Energy efficiency;
 - Water conservation;
 - Material and resource efficiency; and
 - Indoor environmental quality.
- .44 The scope of third-party multi-attribute sustainability standards includes, but is not limited to, the following: LEED®, BREEAM®, and Green Globes®.
- .45 The registrant shall disclose the number of buildings under development during the fiscal year that were seeking certification to a multi-attribute green building standard.
 - The scope of disclosure includes all buildings actively under development, including, but not limited to, the design and construction stages.
- .46 The registrant shall disclose the sustainability standard(s) to which commissioned buildings are certified or seeking certification.
- .47 The registrant may choose to discuss sustainability standards or guidelines that it implements into its building design and construction that are not third-party verified.

IF0301-13. Description of process to incorporate use-phase energy and water efficiency considerations into project planning and design

- .48 The registrant shall provide a description of the process it uses to incorporate use-phase energy and water efficiency considerations into project planning and design.
- Relevant context includes, but is not limited to:
 - The actions taken to incorporate such considerations;
 - The context of incorporating such considerations, including the markets the registrant participates in and the relevant markets impact on the use-phase energy and water performance of buildings;
 - The competitive landscape of incorporating such considerations; and
 - How the registrant communicates long-term cost-benefit analyses to project owners or developers.
- .49 The registrant shall discuss its approach to assessing risks associated with use-phase energy and water efficiency considerations, including internal policies, practices, and procedures.
- .50 The registrant shall discuss the use of codes, guidelines, and standards that address use-phase energy and water efficiency, where applicable.

Business Ethics

Description

Companies in the industry face risks associated with corrupt practices. This is due to the global operations of many companies and the competitive process necessary to secure contracts with private and public entities. Violations of anti-bribery laws, such as paying corrupt government officials in order to gain project contracts, can result in investigations by authorities in multiple jurisdictions as well as large fines and settlement costs. Moreover, companies with poor track records can be barred from working on future projects, resulting in lost revenue. Developing an ethical culture through employee training, effective governance structures, and internal controls is critical for companies to retain their social license to operate.

Accounting Metrics

IF0301-14. (1) Number of active projects and (2) backlog in countries that have the 20 lowest rankings in Transparency International's Corruption Perception Index

- .51 The registrant shall disclose the number of active projects located in the countries with the 20 lowest rankings in Transparency International's Corruption Perception Index (CPI).
- .52 The registrant shall disclose the amount of backlog, in U.S. dollars, for projects located in the countries with the 20 lowest rankings in Transparency International's Corruption Perception Index (CPI).
 - Backlog is defined by the registrant, consistent with its existing public disclosure of backlog.
- .53 The 20 lowest numerical ranks shall be used to generate the scope of countries; therefore, due to the fact that multiple countries share many ranks, the scope may include more than 20 countries.
- .54 The registrant shall use the most current version of the CPI via Transparency International's publicly accessible [website](#).
- .55 The registrant may choose to provide discussion around projects under development or backlog that are located in countries with low rankings in the index but that present low business ethics risks. The registrant may choose to provide similar discussion for operations located in countries that do not have one of the 20 lowest rankings in the index but that present unique or high business ethics risks.

Note to **IF0301-14**

- .56 The registrant shall provide a brief description of its approach to managing ethical risks specific to the countries referenced above where the registrant has projects under development and/or backlog.

IF0301-15. Amount of legal and regulatory fines and settlements associated with charges of bribery or corruption

- .57 The registrant shall disclose the amount (excluding legal fees) of all fines or settlements associated with incidents relating to bribery and corruption, including, but not limited to, violations of the Foreign Corrupt Practices Act of 1977 (FCPA) (15 U.S.C. § 78dd-1, et seq.).
- .58 Disclosure shall include civil actions (e.g., civil judgment, settlements, or regulatory penalties) and criminal actions (e.g., criminal judgment, penalties, or restitutions) taken by any entity (government, businesses, or individuals).

Note to **IF0301-15**

- .59 The registrant shall briefly describe the nature (e.g., guilty plea, deferred agreement, or non-prosecution agreement) and context (e.g., bribing an official, etc.) of fines and settlements.
- .60 The registrant shall describe any corrective action it has implemented as a result of each incident. This may include, but is not limited to, specific changes in operations, management, processes, products, business partners, training, or technology.

IF0301-16. Description of policies and practices for prevention of corruption and bribery throughout the value chain

- .61 The registrant shall discuss its management system and due diligence procedures for assessing and managing corruption and bribery risks internally as well as those associated with business partners in its value chain.
 - Relevant business partners include customers, suppliers, contractors, and subcontractors.
- .62 Relevant aspects of a management system include employee awareness programs, internal mechanisms for reporting and following up on suspected violations, anti-corruption policies, and participation in the Extractive Industry Transparency Initiative (EITI).
- .63 The registrant may choose to discuss the implementation of one or more of the following:
 - Key Organization for Economic Co-operation and Development (OECD) [guidelines](#)
 - International Chamber of Commerce (ICC): Rules of Conduct against Extortion and Bribery
 - Transparency International: Business Principles for Countering Bribery
 - United Nations Global Compact: 10th Principle
 - World Economic Forum (WEF): Partnering Against Corruption Initiative (PACI)

Bidding & Consulting Integrity

Description

Companies in the industry may improve project proposals through the development of trust and loyalty among their clients. To do this, they must provide services that meet the highest professional standards of the industry, offer proper guidance on projects, make reasonable cost estimates, and train employees adequately. If companies grossly misestimate the costs or feasibility of a project, they can face costs and liabilities, harm client relationships, and damage their reputations, impacting their potential for growth.

Accounting Metrics

IF0301-17. Amount of legal and regulatory fines and settlements associated with professional integrity

- .64 The registrant shall disclose the amount, in U.S. dollars, (excluding legal fees) of all fines or settlements associated with professional integrity, including, but not limited to, those related to ethics, integrity, and conflicts of interest.
- .65 Disclosure shall include civil actions (e.g., civil judgment, settlements, or regulatory penalties) and criminal actions (e.g., criminal judgment, penalties, or restitutions) taken by any entity (government, businesses, or individuals).

Note to **IF0301-17**

- .66 The registrant shall briefly describe the nature (e.g., guilty plea, deferred agreement, or non-prosecution agreement) and context (e.g., negligence) of fines and settlements.
- .67 The registrant shall describe any corrective actions it has implemented as a result of each incident. This may include, but is not limited to, specific changes in operations, management, processes, products, business partners, training, or technology.

IF0301-18. Description of policies and processes for assuring professional integrity associated with project bids and proposals

- .68 The registrant shall discuss its policies to assure professional integrity when involved in project bids and creating project proposals, where:
 - The scope of disclosure includes aspects of professional integrity relating to conflicts of interest, accuracy of data, fraud, and corruption.
- .69 Assurance of professional integrity may include, but is not limited to, policies, training, and implementation of codes of ethics as well as investigations, enforcement, and disciplinary procedures relating to:
 - Management of conflicts of interest, including mitigation and transparency of potential or perceived conflicts;
 - Oversight of advisory services and recommendations;

- Maintenance and reporting of accurate data;
- Protection of confidential business information, including accuracy, retention, and destruction of business records and documents;
- Prevention of billing fraud;
- Avoidance of corruption, including identification of suspicious activities and implementation of whistleblower protection programs;
- Privacy guidelines and security clearances for gaining access to sensitive and classified data;
- Employee training on relevant regulations;
- Mechanisms for internal reporting about violations or concerns regarding business ethics or compliance;
- Processes for internal investigations for malpractice or negligence; and
- Disciplinary actions for violations of professional integrity policies.

.70 The registrant may choose to discuss compliance with industry best practices, including codes of conduct and codes of ethics, as a measure of its management approach to ensuring quality of work and professional integrity. Examples include, but are not limited to, the CFP Board’s Code of Ethics & Professional Responsibility and the Institute of Management Consultants’ Code of Ethics.

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SUSTAINABILITY ACCOUNTING STANDARD
INFRASTRUCTURE SECTOR

HOME BUILDERS

Sustainability Accounting Standard

Sustainable Industry Classification System™ (SICS™) #IF0401
Prepared by the
Sustainability Accounting Standards Board®

October 2015

Exposure Draft Standard for Public Comment

HOME BUILDERS

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 78 industries in 10 sectors.

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INTRODUCTION

Purpose & Structure

This document contains the SASB Sustainability Accounting Standard (SASB Standard) for the Home Builders 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 Home Builders industry is comprised of companies that develop new homes and residential communities. Development efforts generally include the acquisition of land, the construction of homes, and the sales of homes. The majority of industry activity is focused on the development and sale of single-family homes, which are typically part of company-designed residential communities. A lesser segment of the industry’s development activities is centered on townhomes, condominiums, multi-family housing, and mixed-use development. Many companies in the industry offer financing services to their customers, individual homebuyers. The vast majority of industry activity for U.S.-listed companies is located in the U.S.

¹ <http://pcaobus.org/Standards/Attestation/Pages/AT101.aspx>

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

Guidance for Disclosure of Sustainability Topics in SEC Filings

1. Industry-Level Sustainability Topics

For the Home Builders industry, SASB has identified the following sustainability disclosure topics:

- Land Use & Ecological Impacts
- Workforce Health & Safety
- Design for Resource Efficiency
- Community Impacts of New Developments
- Climate Change Adaptation

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 SICs 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

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.

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

⁴ C.F.R. 229.303(Item 303)(a)(3)(ii).

- 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.

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

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.”

Guidance on Accounting for Sustainability Topics

For each sustainability topic included in the Home Builders 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.

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.

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.”

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.

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.

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).

⁸ See US GAAP consolidation rules (Section 810).

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 controlled lots ¹⁰ | Quantitative | Number | IF0401-A |
| Number of homes delivered | Quantitative | Number | IF0401-B |
| Number of active selling communities | Quantitative | Number | IF0401-C |

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.

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

¹⁰ Note to **IF0401-A**—Controlled lots include those which are either directly owned or contractually available for ownership through option contracts or equivalent.

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 |
|--|---|-------------------------|---------------------|-----------|
| Land Use & Ecological Impacts | Number of (1) lots and (2) homes delivered on redevelopment or infill sites | Quantitative | Number | IF0401-01 |
| | Number of (1) lots and (2) homes delivered in regions with High or Extremely High Baseline Water Stress | Quantitative | Number | IF0401-02 |
| | Amount of legal and regulatory fines and settlements associated with environmental regulations ¹¹ | Quantitative | U.S. Dollars (\$) | IF0401-03 |
| | Description of process to integrate environmental considerations into (1) lot selection and design and (2) construction | Discussion and Analysis | n/a | IF0401-04 |
| Workforce Health & Safety | (1) Total recordable injury rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees | Quantitative | Rate | IF0401-05 |
| Design for Resource Efficiency | (1) Number of homes that obtained a certified HERS® Index Score and (2) average score | Quantitative | Number, Index score | IF0401-06 |
| | Percentage of installed water fixtures certified to EPA WaterSense® specifications | Quantitative | Percentage (%) | IF0401-07 |
| | Number of homes delivered certified to a multi-attribute green building standard | Quantitative | Number | IF0401-08 |
| | Discussion of risks and opportunities related to incorporating resource efficiency into home design and description of how benefits are communicated to customers | Discussion and Analysis | n/a | IF0401-09 |
| Community Impacts of New Developments | Discussion of how proximity and access to transportation and services affects site selection and development decisions | Discussion and Analysis | n/a | IF0401-10 |
| | Number of homes under development in compact developments and average density | Quantitative | Number | IF0401-11 |
| Climate Change Adaptation | Number of lots located in FEMA Special Flood Hazard Areas or foreign equivalent | Quantitative | Number | IF0401-12 |
| | Description of climate change risk exposure analysis, degree of systematic portfolio exposure, and strategies for mitigating risks | Discussion and Analysis | n/a | IF0401-13 |

¹¹ Note to **IF0401-03**—Disclosure shall include a description of fines and settlements and corrective actions implemented in response to events.

Land Use & Ecological Impacts

Description

The development of homes and residential communities faces challenges directly related to the ecological impacts of development activities. Developments often occur on previously undeveloped land, indicating a heightened need to manage the ecosystem disruption of construction activities, as well as the regulations and permitting processes that accompany “greenfield” land development. Regardless of the siting decisions companies make, industry development activities generally carry risks related to land and water contamination, mismanagement of waste, and excessive strain on water resources during the construction phase and use phase. Violation of environmental regulations can result in costly fines and delays that decrease financial returns while potentially harming reputations. Companies with repeated violations or track records of prior activities with excessive ecological impacts may find it difficult to receive approval from local communities for new developments, thereby decreasing future revenue and market share. Companies that concentrate development efforts in water-stressed regions may see further challenges to permitting approvals, as well as facing risks related to land or home depreciation in connection with water shortage concerns. Environmental quality control procedures, smart growth strategies, and conservation strategies may help ensure compliance with environmental laws and mitigate risks.

Accounting Metrics

IF0401-01. Number of (1) lots and (2) homes delivered on redevelopment or infill sites

- .01 The registrant shall disclose the number of controlled lots that are located on redevelopment or infill sites, where:
- Redevelopment or infill sites are sites that meet state or local designations for such terms.
 - In the absence of state or local definitions, the following definitions shall be used:
 - Redevelopment sites are defined as sites that were previously developed, including the replacement, remodeling, or reuse of existing structures to accommodate new development.
 - Infill sites are defined as vacant sites that exist in built-up areas or neighborhoods with adequate pre-existing infrastructure and public services, such as roads, schools, and water and wastewater infrastructure.
 - Brownfield sites shall be considered to be included as redevelopment or infill sites, and are defined by the [EPA](#): “With certain legal exclusions and additions, the term ‘brownfield site’ means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.”
- .02 The scope of controlled lots includes all lots owned or contractually available for ownership through option contracts, other types of contracts, or the equivalent.
- .03 The registrant shall disclose the number of homes delivered that were constructed on redevelopment or infill sites.

IF0401-02. Number of (1) lots and (2) homes delivered in regions with High or Extremely High Baseline Water Stress

- .04 The registrant shall disclose the number of controlled lots located in regions with High or Extremely High Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct (publicly accessible online [here](#)).
- .05 The scope of controlled lots includes all lots owned or contractually available for ownership through option contracts, other types of contracts, or the equivalent.
- .06 The registrant shall disclose the number of homes delivered in regions with High or Extremely High Baseline Water Stress.

IF0401-03. Amount of legal and regulatory fines and settlements associated with environmental regulations

- .07 The registrant shall disclose the amount (excluding legal fees) of all fines or settlements associated with environmental regulations, such as those related to enforcement of U.S. laws and regulations on ground- and surface-water contamination; hazardous waste transport, containment, or disposal; air emissions; and public disclosure of contamination events, including violations of the U.S. Clean Water Act and the Resource Conservation and Recovery Act, among others.
- .08 Disclosure shall include civil actions (e.g., civil judgment, settlements, or regulatory penalties) and criminal actions (e.g., criminal judgment, penalties, or restitutions) taken by any entity (government, businesses, or individuals).

Note to **IF0401-03**

- .09 The registrant shall briefly describe the nature (e.g., guilty plea, deferred agreement, or non-prosecution agreement) and context (e.g., environmental contamination, hazardous waste mismanagement, etc.) of fines and settlements.
- .10 The registrant shall describe any corrective actions it has implemented as a result of each incident. This may include, but is not limited to, specific changes in subcontractor oversight, capital deployment, or public communications.

IF0401-04. Description of process to integrate environmental considerations into (1) lot selection and design and (2) construction

- .11 The registrant shall provide a description of its process used to integrate environmental considerations into lot selection and design, where:
 - Environmental considerations include ecological impacts, biodiversity impacts, emissions to air, discharges to water, natural resource consumption, and hazardous chemical usage.
- .12 The registrant shall discuss its approach to assessing risks associated with environmental considerations and internal policies, practices, and procedures.

.13 The registrant shall discuss the use of codes, guidelines, and standards that address lot selection and design as well as construction, where applicable. Relevant codes, guidelines, and standards may include, but are not limited to:

- The U.S. Green Building Council's LEED® BD+C: Homes, v4, "Site selection;"
- LEED® BD+C: Homes, v4, "Construction activity pollution prevention;" and
- 2012 ICC 700 National Green Building Standard, "Incentives for Development and Lot Design."

Workforce Health & Safety

Description

Home construction requires a significant amount of manual labor from company employees and subcontractors. Site excavation and home construction activities are physically demanding, exposing workers to risks from falls and heavy machinery, and resulting in relatively high injury and fatality rates compared to other industries. Home builders recognize that worker injuries and fatalities have internal and external costs that can significantly impact the results of their operations and their social license to operate. Impacts include fines, penalties, worker compensation costs, regulatory compliance costs from more stringent oversight, higher insurance premiums, and project delays and downtime. To avoid such costs, companies can foster a culture of safety by developing proactive safety management plans, training employees and contractors, and conducting regular audits.

Accounting Metrics

IF0401-05. (1) Total recordable injury (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees

- .14 Registrants whose workforce is entirely U.S.-based shall disclose their total recordable injury rate (TRIR) and fatality rate as calculated and reported in Occupational Safety and Health Administration (OSHA) Form 300.
 - OSHA guidelines provide details for the determination of whether an event is a recordable occupational incident as well as definitions for exemptions for incidents that occur in the work environment, but are not occupational.
- .15 Registrants whose workforce includes non-U.S.-based employees shall calculate their TRIR according to the U.S. Bureau of Labor Statistics guidance and/or using the U.S. Bureau of Labor Statistics calculator.
- .16 The registrant shall disclose its TRIR separately for its direct employees and for contract employees, where:
 - Direct employees are all those employees on the registrant's payroll, whether they are labor, executive, hourly, salary, part-time, seasonal, or migrant workers.
 - Contract employees are employees 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.).
- .17 The scope includes all employees, domestic and foreign.
- .18 Rates shall be calculated as: $(\text{statistic count} / \text{total hours worked}) * 200,000$.

Design for Resource Efficiency

Description

Residential buildings, when occupied, consume significant amounts of energy and water. Companies in the Home Builders industry can improve the resource efficiency of homes over their lifecycle through design practices and choice of materials. Energy-saving products and techniques such as designing homes for efficient heating and cooling can help to reduce dependence on energy, whether that comes from electricity from the grid or onsite fuel combustion. Such measures, intended to improve the resource efficiency of homes, can decrease the costs of home ownership through lower utility bills. Water-saving features such as low-flow faucets alleviate strain on local communities, while likely also lowering costs associated with water. Awareness of the importance of the energy and water efficiency of homes by homebuyers and the availability of third-party programs intended to assess the resource efficiency and overall sustainability performance of homes indicate the potential for companies to increase demand from their target market, thereby increasing revenue. While resource efficiency is a critical element of home design, it cannot be viewed in isolation from holistic sustainability performance, including other factors such as trade-offs with indoor environmental quality. Effectively applying resource efficiency design principles in a cost-effective manner may serve as a competitive advantage, especially when companies are successful in systematically educating customers on the long-term benefits of such homes.

Accounting Metrics

IF0401-06. (1) Number of homes that obtained a certified HERS® Index Score and (2) average score

- .19 The registrant shall disclose the number of homes that obtained a certified HERS® Index Score during the fiscal year.
- .20 The registrant shall disclose the simple average score of all homes that obtained a certified HERS® Index Score.
 - The simple average shall be calculated as the sum of all scores associated with homes that obtained a certified HERS® Index Score during the fiscal year divided by the number of homes with a certified HERS® Index Score.
- .21 The scope of disclosure includes all homes that are or were controlled by the registrant, regardless of the stage of construction and the stage within the sales cycle.
- .22 The registrant may additionally disclose the number of homes delivered that are certified to ENERGY STAR® for Homes.

IF0401-07. Percentage of installed water fixtures certified to EPA WaterSense® specifications

- .23 The percentage shall be calculated as the number of water fixtures installed during the fiscal year that were certified to the U.S. Environmental Protection Agency (EPA) WaterSense® specifications divided by the total number of water fixtures installed.
- A water fixture is defined as a device used for the distribution of water or a device that consumes water.
 - The scope of disclosure includes water fixtures that are within an eligible WaterSense® product category. Examples of product categories include bathroom sink faucets/accessories, showerheads, toilets, urinals, irrigation controllers, and pre-rinse spray valves.
- .24 The scope includes all water fixtures installed in homes that are or were controlled by the registrant, regardless of the stage of construction, the stage within the sales cycle, or the entity that performed such installations.

IF0401-08. Number of homes delivered certified to a multi-attribute green building standard

- .25 The registrant shall disclose the number of homes delivered that were certified to a third-party multi-attribute sustainability standard designed for homes.
- The scope includes all homes delivered during the fiscal year.
- .26 The scope of third-party multi-attribute sustainability standards includes, but is not limited to, the following: ICC 700 National Green Building Standard, LEED® for Homes, and Environments For Living Certified Green®.
- .27 Third-party sustainability standards designed for homes shall be considered within the scope of disclosure if, at a minimum, they address the following aspects of new home design and construction:
- Energy efficiency;
 - Water conservation;
 - Material and resource efficiency;
 - Indoor environmental quality; and
 - Owner education.
- .28 The registrant shall disclose the sustainability standard(s) to which its homes are certified.
- .29 The registrant may choose to discuss sustainability standards or guidelines that it implements into its home design and construction that are not third-party verified.

IF0401-09. Discussion of risks and opportunities related to incorporating resource efficiency into home design and description of how benefits are communicated to customers

- .30 The registrant shall discuss the risks and/or opportunities associated with its approach to integrating environmental considerations into home design, including, where relevant:
- Opportunities to achieve sales price premiums, capture target market demand, and establish competitive advantages by producing homes with market-leading energy efficiency, water efficiency, and indoor environmental quality.
 - Opportunities associated with producing market-leading homes in terms of energy efficiency, water efficiency, and indoor environmental quality, including the potential to achieve sales price premiums, impact target market demand, and establish competitive advantages.
 - Risks of failing to achieve adequate returns on investments made in technology, and market demand to improve the sustainability performance of homes or earn sustainability certifications.
 - Risks to market demand associated with failing to evolve design approach at the same pace as peers, resulting in the production of underperforming homes in terms of energy efficiency, water efficiency, and indoor environmental quality.
 - Risks associated with the ability to cost-effectively build homes that meet evolving building codes.
- .31 The registrant shall describe its strategy for realizing incremental sales price increases driven by energy efficiency, water efficiency, and indoor environmental quality improvements to homes, including communicating total costs of ownership to customers (including the impacts of resource efficiency over the long term), communicating health implications of homes to customers (including indoor environmental quality), and the integration of such factors into sales and marketing.
- .32 The registrant may provide an analysis of such price increases relative to the cost of improvements in, and third-party certifications of, energy efficiency, water efficiency, and indoor environmental quality. Analysis may additionally include target return rates compared to realized return rates of improvements.

Community Impacts of New Developments

Description

Urban planning gives home builders the opportunity to thoughtfully plan out new residential developments in a way that benefits their customers as well as the surrounding community. New home development can bring economic growth and workforce availability, moderating impacts on cost of living, and can provide safe, vibrant, family-oriented neighborhoods to communities. Development strategies that strive to improve communities' environmental and social impacts may include siting decisions centered on providing access to public transportation and/or not overburdening existing transportation infrastructure, providing access to green spaces, developing mixed-use spaces, and incorporating walkability. Such strategies can help increase the overall demand for and selling prices of homes and reduce the risk of community or stakeholder opposition. Development strategies that inadequately integrate into existing communities present companies with risks around realizing sufficient sales prices and obtaining community acceptance for future developments.

Accounting Metrics

IF0401-10. Discussion of how proximity and access to transportation and services affects site selection and development decisions

- .33 The registrant shall discuss its approach to integrating proximity and access to transportation infrastructure into its site selection and development decisions.
- Relevant aspects include:
 - The effectiveness and comprehensiveness of existing transportation infrastructure;
 - The modes of transportation available, including public transportation systems and alternative forms of transportation (e.g., walking, biking, etc.);
 - Regional plans for future infrastructure expansions;
 - Variations by region of the integration of such considerations;
 - The development lifecycle stage at which considerations are integrated; and
 - Risks and opportunities associated with the integration of such considerations.
- .34 The registrant shall discuss its approach to integrating proximity and ease of access to services and economic centers into its site selection and development decisions.
- Access to services includes the physical distance, available modes of transportation, and cost and ease of transportation to commercial, business, health, and educational centers and facilities.

- .35 The registrant shall describe its use of third-party standards to incorporate best practices for site selection and development to optimize transportation effectiveness and access to services, including ICC 700 National Green Building Standard and LEED® for Homes.

IF0401-11. Number of homes under development in compact developments and average density

- .36 The registrant shall disclose the number of homes currently under development or for sale that are located in compact developments.
- The scope includes all homes with necessary permits and entitlements for construction to commence, homes under construction, homes under a purchase contract or sales contract, and completed homes available for sale.
 - The scope excludes delivered homes and planned homes or lots that lack necessary permits and entitlements for construction to commence.
- .37 The definition of a compact development is aligned with that described by the National Association of Home Builders in "[An Introduction to Compact Development](#)," including the three sub-categories of cluster development, mixed-use development, and traditional neighborhood development.
- .38 The registrant shall calculate the average density of compact developments using the net neighborhood residential dwelling density, where:
- The average density shall be calculated as the total number of residential units in all compact developments divided by the net residential site area of all compact developments.
 - A net residential site area is defined as the total land area devoted to residential facilities, which is aligned with "Density Measures: A Review and Analysis"¹² and "Measuring Density: Working Definitions for Residential Density and Building Intensity."¹³
 - The scope of residential units includes all planned, under construction, or completed residential units in the compact development, regardless of the stage of completion and ownership.

¹² Ernest R. Alexander, "Density Measures: A Review and Analysis," *Journal of Architectural and Planning Research*, Vol. 10, No. 3, Autumn 1993, pp. 181-202.

¹³ Ann Forsyth, "Measuring Density: Working Definitions for Residential Density and Building Intensity," *Design Center for American Urban Landscape*, No. 8, July 2003.

Climate Change Adaptation

Description

Climate change presents risks to home builders associated with the impact extreme weather events and changing climate patterns may have on the locations companies select to develop homes and residential communities. The manner in which a company's business model is structured to incorporate ongoing assessments of climate change risks and the company's adaptation to such risks could be increasingly connected to company value over the long term. More specifically, strategies focused on home development activities in floodplains and coastal regions that are exposed to inclement weather have increased the need for business model adaptation to climate change, especially in light of long-term challenges with flood insurance rates, the financial stability of government-subsidized flood insurance programs, and financing stipulations. Rising climate risks and increasing costs of occupying properties in such regions may translate into reduced long-term demand, land value depreciation, and concerns over understated long-term costs of home ownership. The active assessment of climate change risks and incorporating long-term views of homebuyer demand may enable companies to successfully adapt to such risks.

Accounting Metrics

IF0401-12. Number of lots located in FEMA Special Flood Hazard Areas or foreign equivalent

- .40 The registrant shall disclose the total number of lots that are located in special flood hazard areas, where:
- FEMA Special Flood Hazard Areas (SFHA) are defined as land areas covered by the floodwaters of the base flood on National Flood Insurance Program (NFIP) maps. An SFHA is an area where the NFIP's floodplain management regulations must be enforced and where the mandatory purchase of flood insurance applies. SFHAs include Zones A, AO, AH, A1-30, AE, A99, AR, AR/A1-30, AR/AE, AR/AO, AR/AH, AR/A, VO, V1-30, VE, and V. Examples of Special Flood Hazard Areas include coastal floodplains, floodplains along major rivers, and areas subject to flooding from ponding in low-lying areas.
 - The scope of disclosure includes lots located in the U.S. that are designated by FEMA as SFHAs as well as lots located outside of the U.S.
 - For non-U.S. lots that fall outside of the scope of FEMA, the foreign equivalent is an area that will be inundated by a flood event that has a one-percent chance of being equaled or exceeded in any given year (i.e., the 100-year floodplain).
- .41 The scope of lots includes all lots owned or contractually available for ownership through option contracts or other types of contracts.
- .42 The registrant may disclose its risk perception and potential impacts resulting from reclassification of FEMA SFHAs, including the risk of expansion of such areas into lots controlled by the registrant or its active selling communities.

IF0401-13. Description of climate change risk exposure analysis, degree of systematic portfolio exposure, and strategies for mitigating risks

- .43 The registrant shall discuss the risks and/or opportunities that are presented to its business by climate change scenarios, including, where relevant:
- Identification of the risks presented by climate change, including, but not limited to, availability of water, extreme weather events, evolving regulation and legislation, home permitting processes, timelines and approvals, and impacts to local economies and infrastructure.
 - Discussion of the scenarios used to determine the risks and opportunities presented by climate change.
 - Discussion of how such scenarios will manifest.
 - The timeline over which such risks and opportunities are expected to manifest.
- .44 The registrant shall discuss efforts to assess and monitor the impacts of climate change and related strategies to alleviate and/or adapt to any risks and/or utilize any opportunities, where:
- Alleviation strategies include, but are not limited to, site selection and the incorporation of climate or weather models into such analysis; site selection as it pertains to water scarcity; the strategy and timing of lot acquisitions, permitting, construction, and sales; the use of sales and purchase agreement clauses addressing risks to the registrant; and insurance.
 - Adaptation strategies include, but are not limited to, lot design, home design, physical asset resiliency, contingency plans, and increased needs for water efficiency.
- .45 The registrant's discussion shall include a differentiation between physical asset risk and financial risk in order to focus on the risks and alleviation and/or adaptation strategies that are most likely to impact company value.

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SUSTAINABILITY ACCOUNTING STANDARD
INFRASTRUCTURE SECTOR

REAL ESTATE OWNERS, DEVELOPERS & INVESTMENT TRUSTS

Sustainability Accounting Standard

Sustainable Industry Classification System™ (SICS™) #IF0402
Prepared by the
Sustainability Accounting Standards Board®

October 2015

Exposure Draft Standard for Public Comment

REAL ESTATE OWNERS, DEVELOPERS & INVESTMENT TRUSTS

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 78 industries in 10 sectors.

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INTRODUCTION

Purpose & Structure

This document contains the SASB Sustainability Accounting Standard (SASB Standard) for the Real Estate Owners, Developers & Investment Trusts 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 Real Estate Owners, Developers & Investment Trusts (REODIT) industry is composed of companies that own, and generally operate, income-producing underlying real estate assets. Companies in this industry are commonly structured as real estate investment trusts (REITs) and operate in a wide range of segments within the real estate industry, including residential, retail, office, health care, industrial, and hotel properties. REITs are typically focused on the direct ownership of real estate assets, thereby providing investors with the opportunity to obtain real estate

¹ <http://pcaobus.org/Standards/Attestation/Pages/AT101.aspx>

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

exposure without direct asset ownership and management. While REITs are often concentrated in one segment of the real estate industry, many REITs are diversified through investment in multiple property types.

Real estate companies in the U.S. often prefer to be structured as REITs due to associated tax advantages. To be classified as a REIT, a company must, among other requirements, derive most of its assets and income from real estate and must distribute a minimum threshold of its taxable income annually as dividends to shareholders. Most U.S.-listed companies in the industry operate exclusively within the U.S., while some companies have broadened real estate portfolio exposure internationally.

Note: The Real Estate Owners, Developers & Investment Trusts industry scope excludes mortgage finance activities (e.g., Mortgage REITs). Real estate companies, particularly specialized REITs, should consider separate SASB standards, where applicable, including: Forestry & Logging (RR0201), Telecommunications (TC0301), Software & IT Services (TC0102), Mortgage Finance (FN0202), and Real Estate Services (IF0403).

Guidance for Disclosure of Sustainability Topics in SEC Filings

1. Industry-Level Sustainability Topics

For the Real Estate Owners, Developers & Investment Trusts industry, SASB has identified the following sustainability disclosure topics:

- Energy Management
- Water Management
- Management of Tenant Sustainability Impacts
- Climate Change Adaptation

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 SICs 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

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

⁴ C.F.R. 229.303(item 303)(a)(3)(ii).

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

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

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.”

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.

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 Real Estate Owners, Developers & Investment Trusts 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 \(SICS™\)](#). If a registrant generates significant revenue from multiple

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.”

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.

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

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).

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.

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 assets, by property type | Quantitative | Number | IF0402-A |
| Leasable floor area, by property type | Quantitative | Square Feet (ft ²) | IF0402-B |
| Percentage of indirectly managed assets, by property type ¹⁰ | Quantitative | Percentage (%) by floor area (ft ²) | IF0402-C |
| Average occupancy rate, by property type | Quantitative | Percentage (%) | IF0402-D |

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

¹⁰ Note to **IF0402-C**—The definition of “indirectly managed assets” is solely based on the landlord/tenant relationship and is aligned with the Global Real Estate Sustainability Benchmark (GRESB) Real Estate Survey Guidance: “Where a single tenant has the sole authority to introduce and implement operating and/or environmental policies and measures, the tenant should be assumed to have operational control, so [the asset] should be considered to be an Indirectly Managed Asset.”

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 |
|--------------------------|---|-------------------------|--|-----------|
| Energy Management | Energy consumption data coverage as a percentage of total floor area, by property type | Quantitative | Percentage (%) by floor area (ft ²) | IF0402-01 |
| | Total energy consumed by (1)(a) base building and (b) tenant space or (2) whole building, percentage grid electricity, percentage renewable, by property type | Quantitative | Gigajoules (GJ), Percentage (%) | IF0402-02 |
| | Like-for-like change in energy consumption of (1)(a) base building and (b) tenant space or (2) whole building, by property type | Quantitative | Percentage (%) by gigajoules (GJ) | IF0402-03 |
| | Percentage of eligible portfolio that (1) has obtained an energy rating and (2) is certified to ENERGY STAR [®] , by property type ¹¹ | Quantitative | Percentage (%) by floor area (ft ²) | IF0402-04 |
| | Description of how building energy management considerations are integrated into property investment analysis | Discussion and Analysis | n/a | IF0402-05 |
| Water Management | Water consumption data coverage as a percentage of total floor area, percentage in regions with High or Extremely High Baseline Water Stress, by property type | Quantitative | Percentage (%) by floor area (ft ²) | IF0402-06 |
| | Total water withdrawn by (1)(a) base building and (b) tenant space or (2) whole building, percentage in regions with High or Extremely High Baseline Water Stress, by property type | Quantitative | Cubic meters (m ³) | IF0402-07 |
| | Like-for-like change in water consumption of (1)(a) base building and (b) tenant space or (2) whole building, for floor area with data coverage, by property type | Quantitative | Percentage (%) by cubic meters (m ³) | IF0402-08 |
| | Discussion of water management risks and description of strategies and practices to mitigate those risks | Discussion and Analysis | n/a | IF0402-09 |

¹¹ Note to **IF0402-04**—The registrant shall discuss its strategies relating to energy ratings, benchmarking, and certifications as well as the relevance of these measures.

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

| TOPIC | ACCOUNTING METRIC | CATEGORY | UNIT OF MEASURE | CODE |
|--|--|-------------------------|---|-----------|
| Management of Tenant Sustainability Impacts | Percentage of leases that contain a cost recovery clause for resource efficiency-related capital improvements | Quantitative | Percentage (%) by floor area (ft ²) | IF0402-10 |
| | Percentage of tenants that pay (1) grid electricity and (2) water utility expenses based on actual consumption | Quantitative | Percentage (%) by floor area (ft ²) | IF0402-11 |
| | Description of approach to measuring, incentivizing, and improving sustainability impacts of tenants | Discussion and Analysis | n/a | IF0402-12 |
| Climate Change Adaptation | Area of properties located in FEMA Special Flood Hazard Areas or foreign equivalent | Quantitative | Square feet (ft ²) | IF0402-13 |
| | Description of climate change risk exposure analysis, degree of systematic portfolio exposure, and strategies for mitigating risks | Discussion and Analysis | n/a | IF0402-14 |

Energy Management

Description

Real estate assets consume significant amounts of energy, primarily related to space heating, ventilating, air conditioning, water heating, lighting, equipment, and appliances. The forms of energy, magnitude of consumption, and strategies for energy management are highly dependent on the real estate asset class, among other factors. Generally, grid electricity consumption is the predominant form of consumed energy, while on-site fuel combustion serves an important role. Energy costs may be borne by companies in the industry and/or the property occupants, however, energy management is a significant industry issue regardless of which party incurs the direct operating costs associated with energy consumption. To the extent that the real estate owner assumes direct responsibility for energy costs, such costs often represent significant operating costs, inherently indicating the importance of energy management. Energy pricing volatility and a general trend of electricity price increases, energy-related regulations, wide variations in energy performance across the existing building stock, and opportunities for efficiency improvements through economically attractive capital investments all further point to the importance of energy management. Energy costs that are assumed by occupants, in whole or in part, are nonetheless likely to significantly impact companies in the industry, albeit through differing channels. The energy performance of buildings is viewed as a notable driver of tenant demand due to tenants' desires to control operating costs, mitigate environmental impacts of operations, and, often just as importantly, put forward a positive public image in regards to resource conservation. As a result, companies in the industry that effectively manage the energy performance of their assets could see increased tenant demand, rental rates, and occupancy rates, all of which drive revenue and asset value appreciation. Improving the energy performance of assets is highly dependent on the property type and location, the target tenant market, local building codes, physical and legal opportunities to deploy distributed renewable energy, the ability to measure consumption, and the level of current performance of existing building stock, among other factors.

Accounting Metrics

IF0402-01. Energy consumption data coverage as a percentage of total floor area, by property type

.01 Energy consumption data coverage shall be disclosed as a percentage and calculated as the total portfolio floor area with complete energy consumption data coverage divided by the total portfolio floor area for which energy is used, where:

- Total portfolio floor area is defined as the total leasable floor area of all properties in the registrant's portfolio.
- Floor area is considered to have complete energy consumption data coverage when energy consumption data (i.e., energy types and amounts) is measured by the registrant for all types of energy consumed in the relevant floor area as of the end of the fiscal year.
 - If such data is not available for one or more types of energy consumed, the relevant floor area shall not be considered to have energy consumption data coverage.
 - The registrant may choose to provide supplemental information detailing the comprehensiveness of data coverage if inconsistencies in coverage by energy type exist.

.02 The scope of energy includes:

- Energy purchased from sources external to the organization or produced by the organization itself (self-generated).
- Energy from all sources, including direct fuel usage, purchased electricity, and heating, cooling, and steam energy.

.03 The registrant may choose to disclose the variation in energy consumption data coverage between:

- Base building and tenant space;
- Energy purchased by the landlord and energy purchased by tenants; and/or
- Managed assets and indirectly managed assets.
- The definitions of base building, tenant space, purchased by landlord, purchased by tenant, managed assets, and indirectly managed assets are aligned with [the Global Real Estate Sustainability Benchmark \(GRESB\) Real Estate Survey Guidance](#) (hereafter, the “GRESB Survey”).

.04 Number of units may be used in place of floor area in the Residential and Hotel property types, when floor area is not available and the number of units is deemed to be a more appropriate unit of measurement.

.05 The registrant shall disclose energy consumption data coverage separately for each property type, where property types and definitions shall be aligned with those identified by the GRESB Survey, and include the following property types: Retail, High Street; Retail, Shopping Center; Retail, Warehouse; Office; Industrial, Distribution Warehouse; Industrial, Manufacturing; Residential; Hotels; Healthcare; Land; Leisure; Parking; Self-Storage; Senior Housing; Student Accommodation; and Other (as defined by the registrant).

.06 The underlying technical approach to data collection, analysis, and disclosure shall be consistent with the GRESB Survey Q24.1.

- The registrant shall consider the GRESB Survey as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

IF0402-02. Total energy consumed by (1)(a) base building and (b) tenant space or (2) whole building, percentage grid electricity, percentage renewable, by property type

.07 The registrant shall disclose energy consumption for the total floor area for which there is energy consumption data coverage as an aggregate figure in gigajoules or their multiples by either (1)(a) Base Building and (b) Tenant Space or (2) Whole Building, where:

- Definitions of Base Building, Tenant Space, and Whole Building are aligned with the GRESB Survey.
- The scope of disclosure includes all property area in the registrant’s portfolio for which there is energy consumption data coverage, regardless of leasable floor area.

- The scope includes energy purchased from sources external to the registrant or produced by the registrant itself (self-generated).
 - The scope includes energy from all sources including direct fuel usage, purchased electricity, and heating, cooling, and steam energy.
- .08 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 Intergovernmental Panel on Climate Change (IPCC), the U.S. Department of Energy (DOE), or the U.S. Energy Information Administration (EIA).
- .09 The registrant shall disclose purchased grid electricity consumption as a percentage of its total energy consumption.
- .10 The registrant shall disclose renewable energy consumption as a percentage of its total energy consumption.
- .11 The scope of renewable energy includes renewable fuel the registrant consumes and renewable energy the registrant directly produces, purchases through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs), or for which Green-e Energy Certified RECs are paired with grid electricity.
- For any renewable electricity generated on-site, any RECs must be retained (i.e., not sold) and retired on behalf of the registrant in order for the registrant to claim them as renewable energy.
 - For renewable PPAs, the agreement must explicitly include and convey that RECs be retained and retired on behalf of the registrant in order for the registrant to claim them as renewable energy.
 - The renewable portion of the electricity grid mix that is outside of the control or influence of the registrant is excluded from disclosure.¹²
 - Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, consistent with U.S. Environmental Protection Agency (EPA) definitions, such as geothermal, wind, solar, hydro, and biomass.
- .12 For the purposes of this disclosure, the scope of renewable energy from hydro and biomass sources is limited to the following:
- Energy from hydro sources that are certified by the Low Impact Hydropower Institute or that are eligible for a state Renewable Portfolio Standard.
 - Energy from biomass sources is limited to materials certified to a third-party standard (e.g., Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification, or American Tree Farm System), materials considered “eligible renewables” according to

¹² SASB recognizes that RECs reflect the environmental attributes of renewable energy that have been introduced to the grid.

the Green-e Energy National Standard Version 2.5 (2014), and materials that are eligible for a state Renewable Portfolio Standard.

- .13 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) and conversion of kWh to gigajoules (for energy data including electricity from solar or wind energy).
- .14 The registrant shall disclose energy consumption separately for each property type, where property types and definitions shall be aligned with those identified by the GRESB Survey and include the following property types: Retail, High Street; Retail, Shopping Center; Retail, Warehouse; Office; Industrial, Distribution Warehouse; Industrial, Manufacturing; Residential; Hotels; Healthcare; Land; Leisure; Parking; Self-Storage; Senior Housing; Student Accommodation; and Other (as defined by the registrant).
- .15 The registrant may choose to disclose the variation in energy consumption data coverage between:
 - Energy purchased by the landlord and energy purchased by tenants; and/or
 - Managed assets and indirectly managed assets.
 - The definitions of purchased by landlord, purchased by tenant, managed assets, and indirectly managed assets are aligned with the GRESB Survey.
- .16 The underlying technical approach to data collection, analysis, and disclosure shall be consistent with the GRESB Survey Q24.1.
 - The registrant shall consider the GRESB Survey as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

IF0402-03. Like-for-like change in energy consumption of (1)(a) base building and (b) tenant space or (2) whole building, by property type

- .17 The registrant shall calculate the percentage change in the total energy consumption on a like-for-like basis, where:
 - The percentage shall be calculated as the total energy consumption in the fiscal year divided by the total energy consumption in the immediately prior fiscal year.
 - “Like-for-like comparison” is defined according to the GRESB Survey as an annual percentage change in energy consumption, excluding assets that have been acquired or disposed of, are under development, or have been the subject of major renovations during one or both of the reporting periods (fiscal years), where no correction is made for changes in the vacancy rate, including for buildings with a high variation in vacancy rates. “Like-for-like” may alternatively be referred to as “comparable property,” “same store,” “same property,” or equivalent terminology.
 - The scope of disclosure includes all property area in the registrant’s portfolio for which there is energy consumption data coverage, regardless of the leasable floor area.

- .18 The registrant shall disclose like-for-like change in energy consumption by either (1)(a) Base Building and (b) Tenant Space or (2) Whole Building.
- Definitions of Base Building, Tenant Space, and Whole Building are aligned with the GRESB Survey.
- .19 The scope, methodology, and calculations of energy consumption shall be consistent with IF0402-02.
- .20 The scope excludes the portion of floor area for which there is not total energy consumption data coverage for the last two completed fiscal years.
- .21 The registrant should disclose the floor area, in square feet, included in the scope of like-for-like change in energy consumption if the scope significantly diverges from the floor area of energy consumption data coverage.
- .22 “Like-for-like” data collection, analysis, and disclosure may be consistent with the approach with which the registrant discloses its financial reporting data.
- If the registrant discloses its financial reporting data using a concept and methodology similar to “like-for-like comparison,” the registrant shall describe inconsistencies between the scope of assets and/or floor area used in its financial reporting and its like-for-like change in energy consumption. For example, if additional assets are excluded from the like-for-like change in energy consumption relative to like-for-like financial reporting as a result of data coverage limitations, such inconsistencies shall be described.
- .23 The registrant may choose to disclose the variation in energy consumption data coverage between:
- Energy purchased by the landlord and energy purchased by tenants; and/or
 - Managed assets and indirectly managed assets.
 - The definitions of purchased by landlord, purchased by tenant, managed assets, and indirectly managed assets are aligned with the GRESB Survey.
- .24 The underlying technical approach to data collection, analysis, and disclosure shall be consistent with the GRESB Survey Q24.1.
- The registrant shall consider the GRESB Survey as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

IF0402-04. Percentage of eligible portfolio that (1) has obtained an energy rating and (2) is certified to ENERGY STAR®, by property type

- .25 The registrant shall disclose the percentage of the portfolio that obtained an energy rating, by floor area, where:
- The percentage shall be calculated as the total portfolio floor area that obtained an energy rating divided by the total portfolio floor area.
 - An energy rating is defined according to the GRESB Survey as a scheme that measures the energy performance of buildings, including schemes solely concerned with measuring energy performance as well as cases in which an energy rating is an element of a broader scheme measuring environmental performance.
 - The scope of energy rating schemes includes:
 - ENERGY STAR® for operations in the U.S. and Canada.
 - E.U. Energy Performance Certificates (EPC) for operations in the European Union.
 - NABERS Energy for operations in Australia.
 - NABERSNZ for operations in New Zealand.
 - Other energy rating schemes that can be demonstrated to have substantially equivalent criteria, methodology, and presentation of results as those schemes above.
 - The scope of disclosure is aligned with the GRESB Survey in that it “only include[s] energy ratings that were awarded before or during the reporting period (pre-assessments or other unofficial forms of pre-certification are not valid). Some energy ratings are valid for a limited period only—the rating should be effective and official during the reporting period.”
- .26 The underlying technical approach to data collection, analysis, and disclosure for the percentage of the portfolio that obtained an energy rating shall be consistent with the GRESB Survey Q30.
- The registrant shall consider the GRESB Survey as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.
- .27 The registrant shall disclose the percentage of the portfolio that is certified to ENERGY STAR®.
- The percentage shall be calculated as the total portfolio floor area that is certified to ENERGY STAR® divided by the total portfolio floor area in the United States.
 - For a property to qualify as certified to ENERGY STAR®, the certification must be effective and official during the reporting period (as aligned with the GRESB Survey).

- .28 The total portfolio floor area is defined as the total leasable floor area of all properties in the registrant's portfolio.
- .29 The registrant may exclude from the scope the property area that is ineligible to receive an energy rating based on the property type, location (e.g., outside of the United States), or other specific use characteristics.
- .30 The registrant may additionally disclose the percentage by energy rating scheme (i.e., by country).

Note to **IF0402-04**

- .31 The registrant shall provide discussion around its strategies relating to energy ratings, benchmarking, and certifications, including the impact on tenant demand within its target market(s); the relevance to its portfolio, including property type(s) and locations; and the costs and benefits associated with obtaining and maintaining an energy rating, benchmark, and certification.

IF0402-05. Description of how building energy management considerations are integrated into property investment analysis

- .32 The registrant shall describe its strategic approach and the operational processes it uses to integrate energy-related considerations into its analysis of current and future property investments.
- .33 The registrant shall discuss the following elements of its strategic approach, where relevant:
 - The use of energy-reduction targets and performance against those targets;
 - The integration of property energy performance into its property acquisition due diligence process, such as if these measures are qualitative in nature (e.g., whether or not the building has an energy performance certification) or quantitative in nature (e.g., the registrant adjusts occupancy rate projections based on energy performance data); and
 - Entity-level energy consumption and management policies, applicable across the registrant's portfolio (aligned with GRESB Survey Q8).
- .34 The registrant shall discuss the operational processes it uses, which may include, but are not limited to:
 - Management of the technical energy performance of its portfolio; and
 - The integration of renewable energy into its portfolio.
- .35 Relevant elements of its technical approach may include, but are not limited to:
 - Use of technical building assessments to identify energy efficiency opportunities, including whether such assessments are in-house or external and the general portfolio coverage of such assessments during the last three years (aligned with GRESB Survey Q16);

- Measures implemented to improve the energy efficiency of the portfolio, including specific measures taken, general portfolio coverage of such measures, and estimated energy savings (aligned with GRESB Survey Q17);
 - Approach to retrocommissionings, including their applicability to the registrant’s portfolio, the comprehensiveness of retrocommissionings conducted, general portfolio coverage, and estimated energy savings;
 - Use of environmental management systems to measure, manage, and improve the energy performance of buildings, and such systems’ alignment with third-party standards or verification (aligned with GRESB Survey, “Environmental Management Systems”); and
 - Use of data management systems to monitor, analyze, and benchmark energy performance of individual buildings, and such systems’ alignment with third-party standards or verification (aligned with GRESB Survey, “Data Management Systems”).
- .36 To the extent that the registrant participates in new construction or major renovations, a discussion shall be provided of the incorporation of energy efficiency strategies into design and development.
- .37 The registrant shall describe its approach to renewable energy generation, which may include, but not is not limited to:
- The relevance of on-site and off-site renewable energy generation to the portfolio and energy management strategy;
 - Technical or legal limitations on the ability to incorporate renewable energy into the portfolio and energy management strategy; and
 - The energy generated from on-site and off-site renewable energy (aligned with GRESB Survey Q24.3).

Water Management

Description

Buildings consume significant amounts of water in their operations, including consumption by various water fixtures, building equipment, appliances, and irrigation. Operating costs resulting from water consumption may represent significant costs depending on property type, tenant operations, geographical locations, and other factors. Companies in the industry may bear responsibility for water costs of buildings, or common areas of buildings, evidencing the issue's direct financial impact. However, it is common to allocate water costs to occupants. In such an arrangement, water management continues to play an important role through tenant demand. Tenants may assess the water efficiency of real estate assets in an effort to control operating costs, mitigate environmental impacts of operations, and, often just as importantly, put forward a positive public image in regards to resource conservation. As a result, companies in the industry that effectively manage water efficiency of assets, despite possibly lacking direct exposure to water costs, could see increased tenant demand, rental rates, and occupancy rates, all of which drive revenue and asset value appreciation. Long-term increases in the costs of water, and expectations around continued increases due to overconsumption and constrained supplies resulting from pollution and climate change, indicate the heightened importance of water management. Improving the water efficiency of assets is highly dependent on the property type, locational water availability, target tenant market, local building codes, the ability to measure consumption, and the level of current efficiency of existing building stock, among other factors.

Accounting Metrics

IF402-06. Water consumption data coverage as a percentage of total floor area, percentage in regions with High or Extremely High Baseline Water Stress, by property type

- .38 The percentage of water consumption data coverage shall be calculated as the total portfolio floor area with water consumption data coverage divided by total portfolio floor area for which water is used.
- .39 The registrant shall disclose the percentage of water consumption data coverage in regions with High or Extremely High Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct (publicly accessible online [here](#)).
 - The percentage shall be calculated as the total portfolio floor area with water consumption data coverage in regions with High or Extremely High Baseline Water Stress divided by the total portfolio floor area for which water is used in regions with High or Extremely High Baseline Water Stress.
- .40 The total portfolio floor area is defined as the total leasable floor area of all properties in the registrant's portfolio.
- .41 Floor area is considered to have water consumption data coverage when water consumption data is measured by the registrant in the relevant floor area as of the end of the fiscal year.

- .42 The scope of disclosure includes water that was withdrawn from all sources, where:
- Water sources include surface water (including water from wetlands, rivers, lakes, and oceans), groundwater, rainwater collected directly and stored by the registrant, wastewater obtained from other entities, municipal water supplies, or supply from other water utilities.
- .43 The registrant may choose to disclose the variation in water consumption data coverage between:
- Base building and tenant space;
 - Water purchased by the landlord and water purchased by tenants; and/or
 - Managed assets and indirectly managed assets.
 - The definitions of base building, tenant space, purchased by landlord, purchased by tenant, managed assets, and indirectly managed assets are aligned with the GRESB Survey.
- .44 Number of units may be used in place of floor area in the Residential and Hotel property types, when floor area is not available and the number of units is deemed to be a more appropriate unit of measurement.
- .45 The registrant shall disclose water consumption data coverage separately for each property type, where property types and definitions shall be aligned with those identified by the GRESB Survey and include the following property types: Retail, High Street; Retail, Shopping Center; Retail, Warehouse; Office; Industrial, Distribution Warehouse; Industrial, Manufacturing; Residential; Hotels; Healthcare; Land; Leisure; Parking; Self-Storage; Senior Housing; Student Accommodation; and Other (as defined by the registrant).
- .46 The underlying technical approach to data collection, analysis, and disclosure shall be consistent with the GRESB Survey Q26.1.
- The registrant shall consider the GRESB Survey as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

IF0402-07. Total water withdrawn by (1)(a) base building and (b) tenant space or (2) whole building, percentage in regions with High or Extremely High Baseline Water Stress, by property type

- .47 The registrant shall disclose the amount of water (in thousands of cubic meters) that was withdrawn.
- The definition of water withdrawn is aligned with the following definition in the GRESB Survey: “Water withdrawn from any or all of the following sources: surface water, ground water, rainwater, waste water, municipal water supplies, or other water utilities.”
- .48 The registrant shall analyze all of its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the WRI’s Water Risk Atlas tool, Aqueduct (publicly accessible online [here](#)).

- .49 The registrant shall disclose its water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.
- .50 The scope of disclosure includes all property area in the registrant's portfolio for which there is water consumption data coverage, regardless of leasable floor area.
- .51 The scope of disclosure includes water that was withdrawn from all sources, where:
- Water sources include surface water (including water from wetlands, rivers, lakes, and oceans), groundwater, rainwater collected directly and stored by the registrant, wastewater obtained from other entities, municipal water supplies, or supply from other water utilities.
- .52 The registrant shall disclose water withdrawn by either (1)(a) Base Building and (b) Tenant Space or (2) Whole Building.
- Definitions of Base Building, Tenant Space, and Whole Building are aligned with the GRESB Survey.
- .53 The registrant shall disclose water withdrawals separately for each property type. Property types and definitions shall be aligned with the GRESB Survey and include the following property types: Retail, High Street; Retail, Shopping Center; Retail, Warehouse; Office; Industrial, Distribution Warehouse; Industrial, Manufacturing; Residential; Hotels; Healthcare; Land; Leisure; Parking; Self-Storage; Senior Housing; Student Accommodation; and Other (as defined by the registrant).
- .54 The registrant may choose to disclose the variation in water withdrawals between:
- Water purchased by the landlord and water purchased by tenants; and/or
 - Managed assets and indirectly managed assets.
- .55 The definitions of purchased by landlord, purchased by tenant, managed assets, and indirectly managed assets are aligned with the GRESB Survey. The underlying technical approach to data collection, analysis, and disclosure shall be consistent with the GRESB Survey Q26.1.
- The registrant shall consider the GRESB Survey as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

IF0402-08. Like-for-like change in water consumption of (1)(a) base building and (b) tenant space or (2) whole building, for floor area with data coverage, by property type

- .56 The registrant shall calculate the percentage change in the total water consumption on a like-for-like basis, where:
- The percentage shall be calculated as the total water consumed in the fiscal year divided by the total water consumed in the immediately prior fiscal year.

- “Like-for-like comparison” is defined according to the GRESB Survey as an annual percentage change in water consumption, excluding assets that have been acquired or disposed of, are under development, or have been the subject of major renovations during one or both of the reporting periods (fiscal years), where no correction is made for changes in the vacancy rate, including for buildings with a high variation in vacancy rates. “Like-for-like” may alternatively be referred to as “comparable property,” “same store,” “same property,” or equivalent terminology.
 - The scope of disclosure includes all property area in the registrant’s portfolio for which there is water consumption data coverage, regardless of leasable floor area.
- .57 The registrant shall disclose like-for-like change in water consumption by either (1)(a) Base Building and (b) Tenant Space or (2) Whole Building.
- Definitions of Base Building, Tenant Space, and Whole Building are aligned with the GRESB Survey.
- .58 The scope, methodology, and calculations of water consumption shall be consistent with IF0402-07.
- .59 The scope excludes the portion of floor area for which there is not water consumption data coverage for the last two completed fiscal years.
- .60 The registrant should disclose the floor area, in square feet, included in the scope of like-for-like change in water consumption if the scope significantly diverges from the floor area of water consumption data coverage.
- .61 “Like-for-like” data collection, analysis, and disclosure may be consistent with the approach in which the registrant discloses its financial reporting data.
- If the registrant discloses its financial reporting data using a concept and methodology similar to “Like-for-like comparison,” the registrant shall describe inconsistencies between the scope of assets and/or floor area used in its financial reporting and its like-for-like change in energy consumption. For example, if additional assets are excluded from the like-for-like change in energy consumption relative to like-for-like financial reporting as a result of data coverage limitations, such inconsistencies shall be described.
- .62 The registrant may choose to disclose the variation in water consumption data coverage between:
- Water purchased by the landlord and water purchased by tenants; and/or
 - Managed assets and indirectly managed assets.
 - The definitions of purchased by landlord, purchased by tenant, managed assets, and indirectly managed assets are aligned with the GRESB Survey.

- .63 The underlying technical approach to data collection, analysis, and disclosure shall be consistent with the GRESB Survey Q24.1.
- The registrant shall consider the GRESB Survey as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

IF0402-09. Discussion of water management risks and description of strategies and practices to mitigate those risks

- .64 The registrant shall discuss its risks associated with water withdrawals.
- .65 The registrant shall discuss, where applicable, risks to the availability of adequate, clean water resources.
- Relevant information to provide includes, but is not limited to:
 - Environmental constraints, such as operating in water-stressed regions, drought, interannual or seasonal variability, and risks due to the impact of climate change.
 - External constraints, such as volatility in water costs, stakeholder perceptions and concerns related to water withdrawals (e.g., those from local communities, non-governmental organizations, and regulatory agencies), direct competition with and impact from the actions of other users (commercial and municipal), restrictions to withdrawals due to regulations, and the ability to obtain and retain water rights or permits.
 - How risks may vary by withdrawal source, including wetlands, rivers, lakes, oceans, groundwater, rainwater, municipal water supplies, or supply from other water utilities.
- .66 The registrant should include a discussion of the potential impacts that these risks may have on its operations and the timeline over which such risks are expected to manifest.
- Impacts may include, but are not limited to, those associated with costs, revenues, liabilities, continuity of operations, and reputation.
- .67 The registrant shall provide a description of its short-term and long-term strategy or plan to manage these risks, including the following, where relevant:
- Any water management targets it has set, and an analysis of performance against those targets.
 - Water management targets can include water management goals that the registrant prioritizes to manage its risks and opportunities associated with water withdrawal, consumption, or discharge.
 - Targets can include, but are not limited to, those associated with reducing water withdrawals, reducing water consumption, reducing water discharges, and improving water discharge quality.

- The scope of its strategy, plans, or targets, such as whether they pertain differently to different business units, geographies, or water-consuming operational processes.
- The activities and investments required to achieve the plans and targets, and any risks or limiting factors that might affect achievement of the plans and/or targets.

.68 For water management targets, the registrant shall additionally disclose:

- The percentage reduction or improvements from the base year, where:
 - The base year is the first year against which water management targets 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 water management plans, including the start year, the target year, and the base year.
- The mechanism(s) for achieving the target, including:
 - Efficiency efforts, such as the use of water recycling and/or closed-loop systems
 - Product innovations such as redesigning products or services to require less water
 - Process and equipment innovations, such as those that enable the use of less water in manufacturing or operations
 - The use of tools and technologies (e.g., the [World Wildlife Fund Water Risk Filter](#), [WRI/WBCSD Global Water Tool](#), and [Water Footprint Network Footprint Assessment Tool](#)) to analyze water use, risk, and opportunities
 - Collaborations or programs in place with the community or other organizations

.69 Disclosure of strategies, plans, and targets shall be limited to activities that were ongoing (active) or reached completion during the fiscal year.

.70 The registrant may choose to discuss if its water management decisions and practices incorporate consideration of any additional lifecycle impacts or environmental tradeoffs for the registrant, including tradeoffs associated with land-use impacts, energy consumption, and GHG emissions.

Management of Tenant Sustainability Impacts

Description

While companies in the industry own real estate assets, it is the tenant operations of such assets that is a dominant driver of sustainability impacts produced by the built environment. Tenants may design and construct leased spaces according to their operating needs. In turn, their operations consume significant amounts of energy and water, generate waste, and impact the health of those living, working, shopping, or visiting the properties. While these sustainability impacts are often generated by tenant operations and activities, real estate owners have an important ability to influence such tenant sustainability impacts. The manner in which companies in the industry structure their agreements, contracts, and relationships with tenants is instrumental in effectively managing the sustainability impacts of their tenants, and ultimately, the impacts of their assets. Managing tenant sustainability impacts may include mitigating the problem of “split incentives” by aligning both parties’ financial interests and sustainability outcomes, establishing systematic measurement and communication of resource consumption data, creating shared performance goals, and mandating minimum sustainability performance or design requirements, among other strategies. Effective management of tenant sustainability impacts, particularly related to energy, water, and indoor environmental quality, may drive asset value appreciation, increase tenant demand and satisfaction, decrease direct operating costs of companies, and/or decrease risks related to building codes and regulations.

Accounting Metrics

IF0402-10. Percentage of leases that contain a cost recovery clause for resource efficiency-related capital improvements

.71 The percentage shall be calculated as the total portfolio floor area associated with leases that contain a cost recovery clause for resource efficiency-related capital improvements divided by total portfolio floor area, where:

- Total portfolio floor area is defined as the total leasable floor area of all properties in the registrant’s portfolio.
- A cost recovery clause for resource efficiency-related capital improvements is defined as a clause in a lease agreement that allows the registrant to invest in capital improvements to the energy efficiency and/or water efficiency of properties, while recovering all or a proportion of associated expenditures from tenants, regardless of the mechanism of cost recovery.^{13, 14}

¹³ The definition of cost recovery clause for resource efficiency-related capital improvements is generally aligned with the [Green Lease Leaders](#) application: “Tenant cost recovery clause that can be used for energy efficiency-related capital improvements. This typically means that the list of operating expenses is expanded to include capital expenses intended to save energy, with the annual pass-through amount most often determined either by an amortization schedule or projected savings.”

¹⁴ The definition of cost recovery clause for resource efficiency-related capital improvements is generally aligned with the GRESB Survey: “Cost recovery clause for energy efficiency-related capital improvements: Allows the landlord to implement energy-efficiency measures during the lease and to recover a proportion or all of those costs from the tenant.”

- .72 The scope of disclosure includes all of the properties in the registrant's portfolio that were leased during any part of the last fiscal year, and for which the associated lease was executed between the registrant and the tenant.
- .73 The registrant should provide a brief description of when such cost recovery clauses were exercised, including the extent throughout the portfolio and the financial implications.
- .74 The registrant should describe whether its standard lease contracts include a cost recovery clause for resource efficiency-related capital improvements (aligned with GRESB Survey Q39).

IF0402-11. Percentage of tenants that pay (1) grid electricity and (2) water utility expenses based on actual consumption

- .75 The registrant shall disclose the percentage of tenants who pay the actual grid electricity costs directly resulting from their exclusive electricity consumption.
 - The percentage shall be calculated as the total floor area leased to tenants who pay the actual grid electricity costs directly resulting from their exclusive consumption divided by the total portfolio floor area.
- .76 The registrant shall disclose the percentage of tenants who pay the actual water utility costs directly resulting from their exclusive water withdrawals.
 - The percentage shall be calculated as the total floor area leased to tenants who pay the actual water utility costs directly resulting from their exclusive withdrawals divided by the total portfolio floor area.
- .77 The total portfolio floor area is defined as the total leasable floor area of all properties in the registrant's portfolio.
- .78 If tenants pay additional grid electricity or water utility costs in excess of those costs directly resulting from their exclusive consumption or withdrawals, then the floor area leased to such tenants shall continue to be included in the numerator of the above calculations. For example, if a tenant pays a proportion of common area electricity costs in addition to costs resulting from their own consumption, such excess costs does not disqualify the tenant floor area from being included in the numerator of the above calculation.
- .79 Grid electricity expenses that a tenant pays shall be included regardless of which parties (e.g., the registrant, electric utility, or third-party service provider) have been involved in billing and/or receiving payment.

IF0402-12. Description of approach to measuring, incentivizing, and improving sustainability impacts of tenants

- .80 The registrant shall describe its strategy and process for integrating considerations of sustainability into its tenant relationships and its leases in order to measure, incentivize, and improve impacts.

- .81 For the purposes of this standard, the scope of disclosure includes the following sustainability topics: energy management, water management, and the impacts of properties on tenant health, including indoor environmental quality.
- .82 Relevant processes to discuss include, but are not limited to:
- The following components of the GRESB Survey Q39:
 - Whether the registrant has agreements with its tenants to mutually share energy consumption and/or water withdrawal data.
 - Whether the registrant has shared energy consumption and water withdrawal targets.
 - Whether the registrant establishes requirements that any tenant works should meet standards provided by the registrant related to energy consumption, water efficiency, and indoor environmental quality.
 - Whether the registrant establishes requirements that its tenants provide accurate information required for mandatory energy rating schemes.
 - Whether the registrant has the ability to prioritize sustainability requirements over minimizing the costs of improvements and adjustments.
 - Whether the registrant prioritizes the sub-metering of tenant energy consumption and water withdrawals.
- .83 The registrant shall include a discussion of its approach to third-party initiatives concerning green leases, including, but not limited to, the registrant's support of such initiatives, the use of the frameworks provided by such initiatives, and participation in associated programs.
- Third-party initiatives concerning green leases include, but are not limited to, organizations that provide green lease templates, principles, requirements, strategies, and educational programs.
 - Examples of third-party initiatives concerning green leases include, but are not limited to:
 - Green Lease Leaders and Green Lease Library (programs jointly operated by the Institute for Market Transformation and the U.S. Department of Energy's Better Building Alliance);
 - Building Owners and Managers Association International, "Commercial Lease: Guide to Sustainable and Energy Efficient Leasing for High-Performance Buildings;"
 - Natural Resources Defense Council, "Energy Efficiency Lease Guidance;"
 - Corporate Realty, Design & Management Institute, "Model Green Lease;"
 - U.S. General Services Administration, "Green Lease Policies and Procedures;"

- California Sustainability Alliance, “Green Leases Toolkit;”
 - Real Property Association of Canada, “Green Office Leases;” and
 - U.S. Green Building Council, “Green Office Guide: Integrating LEED into Your Leasing Process” and “Greening Your Lease.”
- The registrant shall describe whether such third-party initiatives concerning green leases are integrated into its standard lease contracts (generally aligned with GRESB Survey Q39).
 - The registrant shall disclose whether such green lease principles are integrated into its lease contracts with tenants regardless of the use of the terminology “green lease” and the origins of such lease principles.
- .84 The registrant shall provide a discussion of the lease types used as they relate to utility expenses, and how such leases are structured within the constraints of the lease type to manage the sustainability impacts of tenants. For example, the general proportion of leases that are triple-net leases or full-service gross leases, and how such leases incorporate principles designed to manage the sustainability impacts of tenants.
- .85 The registrant may provide a discussion of how such lease structures may impact property values over the long term.

Climate Change Adaptation

Description

Climate change presents risks to companies in the industry associated with the impact that increasingly frequent or high-impact extreme weather events and changing climate patterns may have on real estate portfolios. The manner in which a company's business model is structured to incorporate ongoing assessments of climate change risks, and the adaptation to such risks, could be increasingly connected to company value over the long term. More specifically, investment strategies with assets located on floodplains and in coastal regions that are exposed to inclement weather may have increased needs around risk mitigation and business model adaptation to climate change over the long term. This is especially important in light of long-term challenges associated with flood insurance rates, the financial stability of government-subsidized flood insurance programs, and financing stipulations or other creditor concerns. Besides insurance, other risk mitigation measures include improvements to physical asset resiliency and lease terms that transfer risk to tenants, although these measures can create their own costs and risks for real estate companies. To ensure long-term shareholder value, companies will therefore need to implement climate change adaptation strategies that are comprehensive, account for trade-offs between various risk mitigation strategies, and integrate consideration of all projected costs and benefits over the long term.

Accounting Metrics

IF0402-13. Area of properties located in FEMA Special Flood Hazard Areas or foreign equivalent

.86 The registrant shall disclose the total floor area of properties that are located in special flood hazard areas, where:

- The total portfolio floor area is defined as the total leasable floor area of all properties in the registrant's portfolio.
- FEMA Special Flood Hazard Areas (SFHA) are defined as land areas covered by the floodwaters of the base flood on National Flood Insurance Program (NFIP) maps. An SFHA is an area where the NFIP's floodplain management regulations must be enforced and where the mandatory purchase of flood insurance applies. The SFHA includes Zones A, AO, AH, A1-30, AE, A99, AR, AR/A1-30, AR/AE, AR/AO, AR/AH, AR/A, VO, V1-30, VE, and V. Examples of Special Flood Hazard Areas include coastal floodplains, floodplains along major rivers, and areas subject to flooding from ponding in low-lying areas.
- The scope of disclosure includes properties located in the U.S. that are designated by FEMA as SFHA, as well as properties located outside of the U.S.
- For non-U.S. properties that fall outside of the scope of FEMA, the foreign equivalent is the area that will be inundated by a flood event that has a one-percent chance of being equaled or exceeded in any given year (i.e., the 100-year floodplain).

- .87 The registrant may disclose its risk perception and potential impacts resulting from reclassification of FEMA Special Flood Hazard Areas, including the risk of expansion of such areas into lots controlled by the registrant or its active selling communities.

IF0402-14. Description of climate change risk exposure analysis, degree of systematic portfolio exposure, and strategies for mitigating risks

- .88 The registrant shall discuss the risks and/or opportunities that are presented to its portfolio by climate change scenarios, including, where relevant:
- Identification of the risks presented by climate change, including, but not limited to, availability of water, extreme weather events, evolving regulation and legislation, impacts on regional infrastructure, and impacts on local economies and populations, regardless of the impact of physical risks presented to the registrant's portfolio.
 - Discussion of the scenarios used to determine the risks and opportunities presented by climate change.
 - Discussion of how such scenarios will manifest (e.g., effects directly on the registrant or effects on the registrant's tenants).
 - The timeline over which such risks and opportunities are expected to manifest.
- .89 The registrant shall discuss efforts to assess and monitor the impacts of climate change and the related strategies to alleviate and/or adapt to any risks and/or utilize any opportunities, where:
- Alleviation strategies include, but are not limited to, use of property insurance, flood insurance, lease structures, and lease durations.
 - Adaptation strategies include, but are not limited to, physical asset resiliency and contingency plans.
- .90 The registrant's discussion shall include a differentiation between physical asset risk and financial risk in order to focus on the risks and alleviation and/or adaptation strategies that are most likely to impact company value.

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SUSTAINABILITY ACCOUNTING STANDARD
INFRASTRUCTURE SECTOR

REAL ESTATE SERVICES

Sustainability Accounting Standard

Sustainable Industry Classification System™ (SICS™) #IF0403
Prepared by the
Sustainability Accounting Standards Board®

October 2015

Exposure Draft Standard for Public Comment

REAL ESTATE SERVICES

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 78 industries in 10 sectors.

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INTRODUCTION

Purpose & Structure

This document contains the SASB Sustainability Accounting Standard (SASB Standard) for the Real Estate Services 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 Real Estate Services industry is composed of companies that provide a range of real estate-related services to real estate owners, occupiers, investors, and developers. The primary services companies in the industry provide to clients include property management, brokerage, appraisal, and information services for real estate owners. Property management services may include leasing, tenant relations, building maintenance, and building security. Brokerage services may be provided to facilitate sales and leasing transactions. Companies in the industry play important roles in the real estate value chain, which is a substantial part of the global economy. By connecting buyers and sellers, brokerage companies provide liquidity to the real estate market and improve its efficiency.

¹ <http://pcaobus.org/Standards/Attestation/Pages/AT101.aspx>

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

Appraisers have a fiduciary responsibility to their clients to ensure the highest quality of provided services and avoid conflicts of interest. While some of the largest real estate services firms operate internationally, the majority of industry activity for U.S.-listed companies is in the U.S.

Guidance for Disclosure of Sustainability Topics in SEC Filings

1. Industry-Level Sustainability Topics

For the Real Estate Services industry, SASB has identified the following sustainability disclosure topics:

- Sustainability Services
- Transparent Information & Management of Conflict of Interest

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

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:

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

⁴ C.F.R. 229.303(Item 303)(a)(3)(ii).

- 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.

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

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.”

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 Real Estate Services 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.

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

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.”

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.

Activity Metrics and Normalization

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

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).

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 property management clients, categorized by (1) tenants, and (2) real estate owners | Quantitative | Number | IF0403-A |
| Area under management ¹⁰ | Quantitative | Square feet (ft ²) | IF0403-B |
| Number of buildings under management | Quantitative | Number | IF0403-C |
| Number of leases transacted | Quantitative | Number | IF0403-D |
| Number of appraisals provided | Quantitative | Number | IF0403-E |

Units of Measure

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

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

¹⁰ Note to **IF0403-B**—Total floor area of properties where property management services are provided.

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 |
|---|---|-------------------------|------------------------|-----------|
| Sustainability Services | Revenue from energy and sustainability services ¹¹ | Quantitative | U.S. Dollars (\$) | IF0403-01 |
| | Number of buildings provided with energy and sustainability services | Quantitative | Number | IF0403-02 |
| | Number of green leases transacted | Quantitative | Number | IF0403-03 |
| | Percentage of property area under management that obtained an energy rating | Quantitative | Percentage (%) by area | IF0403-04 |
| Transparent Information & Management of Conflict of Interest | Description of approach to assuring professional integrity and duty of care and minimizing potential conflicts of interest in (1) appraisals and (2) dual agency transactions | Discussion and Analysis | n/a | IF0403-05 |
| | Brokerage revenue from dual agency transactions | Quantitative | U.S. Dollars (\$) | IF0403-06 |
| | Amount of legal and regulatory fines and settlements associated with professional integrity or duty of care ¹² | Quantitative | U.S. Dollars (\$) | IF0403-07 |
| | Revenue from transactions associated with appraisal services | Quantitative | U.S. Dollars (\$) | IF0403-08 |

¹¹ Note to **IF0403-01**—The registrant shall describe the energy and sustainability services it provides to clients.

¹² Note to **IF0403-07**—Disclosure shall include a description of fines and settlements and corrective actions implemented in response to events.

Sustainability Services

Description

Buildings owned or occupied by clients of companies in the Real Estate Services industry generally have significant sustainability impacts. Buildings, and occupant activities within them, drive energy consumption, direct and indirect greenhouse gas (GHG) emissions, water consumption, and waste generation, and indoor environmental quality influences the health of occupants. Companies in the industry have an opportunity to improve sustainability impacts of buildings and their operations through the provision of sustainability-related services. Excelling in such services can serve as a revenue driver and benefit owners and/or occupiers through improved asset values, increased tenant demand, decreased operating costs, and improved tenant experiences. Services may include utility data management, energy procurement, resource efficiency improvements, activities related to sustainability certifications, and sustainability consulting and training. The role of companies in the industry in influencing sustainability impacts of real estate is further heightened by the role they play in negotiating leases between owners and occupants, to the extent that the problem of split incentives can be mitigated, aligning the financial interests of both parties behind enhancing sustainability performance. Overall, strong performance on the comprehensiveness and effectiveness of sustainability services offered to clients is likely to drive long-term growth prospects in the context of increasing occupant and regulatory emphasis on sustainable real estate and increasingly constrained resources.

Accounting Metrics

IF0403-01. Revenue from energy and sustainability services

- .01 The registrant shall disclose its revenue, in U.S. dollars, from energy and sustainability services, where:
- Energy and sustainability services are defined as services provided to clients directly related to resource efficiency (including energy, water, and waste), utility data management, energy procurement, obtaining and retaining sustainability and resource-related certifications, environmental reporting, and corporate sustainability consulting and training.
 - The scope includes services provided to leasing clients, project- and development-service clients, and capital market and investment management clients.
- .02 The scope of disclosure excludes revenue from services that impart improved energy and sustainability performance in an ancillary, indirect, or minimal way, in addition to environmental services that are part of the ordinary operation and maintenance of buildings (e.g., facilities maintenance, janitorial services, etc.).
- .03 Examples of energy and sustainability services include, but are not limited to, energy management and performance monitoring (e.g., through sub-meters to measure electric usage); energy, water, and waste benchmarking or ratings-scheme services; advisory services related to renewable energy procurement; services related to LEED, ENERGY STAR®, or other sustainability-related building certifications; energy- and sustainability-related building valuation analysis; and energy- and sustainability-related client training or consulting.

Note to **IF0403-01**

- .04 The registrant shall describe the energy and sustainability services it provides to clients. Relevant context to provide includes, but is not limited to:
- The degree to which energy and sustainability services are integrated into, or distinct from, the registrant's base property management services, including, but not limited to, the sales process for such services, the amount of overlap between clients for base property management services and energy and sustainability services, and the level of consistency of contract lengths and terms among base property management services and energy and sustainability services.
 - The market dynamics of energy and sustainability services, including competition, risks and opportunities, market share, customer demands and preferences, market growth, and legislative and regulatory impacts.
 - Opportunities associated with providing market-leading energy and sustainability services, such as the potential to win a new client based solely on energy and sustainability services, which may lead to additional, non-energy and sustainability-related services in the future.
 - Risks associated with providing inadequate or insufficient energy and sustainability services, such as the potential to lose a client based on inadequate or insufficient energy and sustainability services.
- .05 The registrant may discuss the number of energy- and sustainability-accredited professionals it employs.
- .06 The registrant may discuss the estimated energy savings, GHG emissions reductions, water savings, waste reductions, or other performance measurements associated with the results of the energy and sustainability services it provides to clients.

IF0403-02. Number of buildings provided with energy and sustainability services

- .07 The registrant shall disclose the number of buildings provided with energy and sustainability services during the fiscal year, where:
- Energy and sustainability services are defined as services provided to clients that are directly related to resource efficiency, utility data management, energy procurement, sustainability- and resource-related certification services, environmental reporting, and corporate sustainability consulting and training.
 - The scope of disclosure includes all buildings that were provided with energy and sustainability services during the fiscal year, regardless of the inception of such services.
- .08 The scope of disclosure excludes revenue from services that impart improved energy and sustainability performance in an ancillary, indirect, or minimal way.
- .09 The registrant may disclose the cumulative number of buildings provided with energy and sustainability services since the origin of such services.

IF0403-03. Number of green leases transacted

- .10 The registrant shall report the number of leases that it transacted that qualify as green leases, as defined by [Green Lease Leaders](#).
- The criteria required for a lease to qualify as a green lease is contained in the “Lease Requirements” section of the [Landlord & Tenant Application](#), which is referenced in the [Broker Application](#).
 - The criteria requires green leases to include a “tenant cost-recovery clause that can be used for energy efficiency-related capital improvements,” and a minimum of three of the following:
 - “A provision requiring regular scheduled tenant disclosure of utility data to facilitate whole-building energy benchmarking.”
 - “Minimum standards and/or tenant improvement specifications for energy efficiency.”
 - “Sustainable operations and maintenance rules and regulations. (Language should cover restricted HVAC weekend operating hours, janitorial services provided during daytime hours, tenants not allowed to bring in space heaters).”
 - “Submetering of tenant spaces or separate metering of tenant plug load and equipment, including data centers.”
 - “Landlord agrees to incorporate energy management best practices into building operations, such as regular benchmarking, energy audits, or commissioning of building systems.”
 - The scope of disclosure includes any lease that qualifies as a green lease, regardless of the completion or submittal of an application for the Green Lease Leaders program.
- .11 The scope of disclosure includes all consummated leases on behalf of the registrant’s clients during the prior fiscal year.
- .12 The scope of disclosure excludes short-term lease extensions.
- .13 The registrant shall consider the Green Lease Leaders application as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

IF0403-04. Percentage of property area under management that obtained an energy rating

- .14 The registrant shall calculate the percentage as the total area under management that obtained an energy rating divided by the total area under management.
- An energy rating is defined according to the Global Real Estate Sustainability Benchmark (GRESB) Real Estate Survey Guidance (hereafter, the “GRESB Survey”) as a scheme that measures the energy performance of buildings, including schemes solely concerned with measuring energy performance as well as situations in which an energy rating is an element of a broader scheme measuring environmental performance.

- The scope of energy rating schemes includes:
 - ENERGY STAR® for operations in the United States and Canada.
 - E.U. Energy Performance Certificates (EPC) for operations in the European Union.
 - NABERS Energy for operations in Australia.
 - NABERSNZ shall for operations in New Zealand.
 - Other energy rating schemes that can be demonstrated to have substantially equivalent criteria, methodology, and presentation of results as those schemes above.
 - The scope of disclosure is aligned with the GRESB Survey in that it “only include[s] energy ratings that were awarded before or during the reporting period (pre-assessments or other unofficial forms of pre-certification are not valid). Some energy ratings are valid for a limited period only—the rating should be effective and official during the reporting period.”
 - The registrant may exclude from the scope the property area that is ineligible to receive an energy rating based on the property type, location (e.g., outside of the United States), or other use characteristics.
- .15 The scope of disclosure includes the total area under management.
- .16 The registrant shall consider the GRESB Survey as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

Transparent Information & Management of Conflict of Interest

Description

The business model of real estate services companies is dependent on developing a relationship of trust and loyalty with clients. To ensure long-term, mutually beneficial relationships, companies must provide services that satisfy the highest professional standards of the industry, including fiduciary duties, when applicable. Professional integrity is an important governance issue, as the range of services and the number of professionals within a single organization can make the management of conflicts of interest more challenging. Brokerage and appraisal services are two types of services that companies provide that face heightened risks around conflicts of interest as well as negligence. In order to manage conflicts of interest and negligence, companies in the industry can use a range of governance measures, including employee training, oversight, and implementation of policies, procedures, and enforcement systems focused on transparency and appropriate disclosures with clients. Effective management of these risks can contribute to long-term revenue growth resulting from increased trust in client relationships and recognition of brand value in the market. Inadequate management of risks may lead to regulatory fines and penalties and loss of client business resulting from decreased client trust.

Accounting Metrics

IF0403-05. Description of approach to assuring professional integrity and duty of care and minimizing potential conflicts of interest in (1) appraisals and (2) dual agency transactions

- .17 The registrant shall discuss its policies and practices to assure the professional integrity and duty of care of its workforce, including those that relate to the following topics, where relevant:
- Avoiding of conflicts of interest in appraisals and dual agency transactions, including mitigation and transparency of potential or perceived conflicts.
 - The definition of appraisal is aligned with that of the Appraisal Institute: “the act or process of developing an opinion of value.”
 - The definition of dual agency (also referred to as “dual representation”) transactions is based on the National Association of Realtors’ definition as a transaction in which the registrant represents both the buyer and the seller in the same real estate brokerage transaction.
 - Providing and distributing data in property appraisals, as well as other financial and valuation advisory businesses, that is free from bias and error.
 - Disclosure of any material issues involving real estate transactions, including counterparties to the transaction, potential conflict of interest, dual agency or dual representation, and fiduciary duties.
 - Protection of confidential client information, including accuracy, retention, and destruction of records and documents.

- Prevention of billing fraud.
 - Avoidance of corruption, including identification of suspicious activities and whistleblower protection programs.
 - Privacy guidelines and security clearances for gaining access to sensitive and classified data.
- .18 The registrant shall disclose its practices to assure professional integrity, including, but not limited to, notifying employees of policies and codes of ethics; conducting training; and enforcing compliance through investigations, mechanisms for internal reporting about violations or concerns regarding business ethics or compliance, and disciplinary procedures.
- .19 The registrant should disclose how policies apply to and are enforced for business partners.
- .20 The registrant may choose to discuss compliance with industry best practices, including codes of conduct and codes of ethics, as a measure of its management approach to ensuring quality of work and professional integrity.
- Examples include, but are not limited to, the National Association of Realtors Code of Ethics and the U.S./European Union Safe Harbor Framework for protection of personal data.

IF0403-06. Brokerage revenue from dual agency transactions

- .21 The registrant shall disclose of its revenue, in U.S. dollars, from real estate sales brokerage services that directly resulted from dual agency transactions, where:
- Brokerage services that directly resulted from dual agency (also referred to as “dual representation”) transactions are defined based on the [National Association of Realtors’ definition](#) as transactions in which the registrant represents both the buyer and the seller in the same real estate brokerage transaction.
- .22 The scope of disclosure excludes leasing transactions, insurance transactions, and any other form of brokerage revenue not directly resulting from real estate sales.
- .23 The scope of disclosure excludes property management revenue, appraisal revenue, and any other form of revenue resulting from a real estate sales transaction other than brokerage revenue.

IF0403-07. Amount of legal and regulatory fines and settlements associated with professional integrity or duty of care

- .24 The registrant shall disclose the amount in U.S. dollars (excluding legal fees) of all fines or settlements associated with professional integrity or duty of care, including, but not limited to, those related to negligence, malpractice, data security or loss, fraud, corruption, and bribery.

- .25 Disclosure shall include civil actions (e.g., civil judgment, settlements, or regulatory penalties) and criminal actions (e.g., criminal judgment, penalties, or restitutions) taken by any entity (government, businesses, or individuals).

Note to **IF0403-07**

- .26 The registrant shall briefly describe the nature (e.g., guilty plea, deferred agreement, non-prosecution agreement) and context (e.g., negligence) of fines and settlements.
- .27 The registrant shall describe any corrective actions it has implemented as a result of each incident. This may include, but is not limited to, specific changes in operations, management, processes, products, services, business partners, training, or technology.

IF0403-08. Revenue from transactions associated with appraisal services

- .28 The registrant shall disclose the amount, in U.S. dollars, of revenue from transactions associated with appraisal services, where:
- Transactions associated appraisal services include those transactions associated with properties for which the registrant conducted appraisal services.
 - The scope includes revenues from brokerage services, financing services, and valuation or market-analysis services.
 - The scope excludes revenue that directly results from appraisal services and property management services.
- .29 The scope of disclosure includes revenue from services for properties for which the registrant provided appraisal services, regardless of when the registrant conducted the appraisal and recognized the revenue (i.e., during a previous fiscal year).

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