



SUSTAINABILITY ACCOUNTING STANDARD
NON-RENEWABLE RESOURCES SECTOR

IRON & STEEL PRODUCERS

Sustainability Accounting Standard

Sustainable Industry Classification System™ (SICS™) #NR0301

Prepared by the
Sustainability Accounting Standards Board®

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Provisional Standard

IRON & STEEL PRODUCERS

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 more than 80 industries in 10 sectors.

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Table of Contents

Introduction	1
Purpose & Structure	1
Industry Description	1
Guidance for Disclosure of Material Sustainability Topics in SEC filings	2
Guidance on Accounting of Material Sustainability Topics	4
Users of the SASB Standards	4
Scope of Disclosure	5
Reporting Format	5
Timing	6
Limitations	6
Forward Looking Statements	7
Assurance	7
Material Sustainability Topics & Accounting Metrics	8
Greenhouse Gas Emissions	9
Air Quality	12
Energy Management	14
Water Management	16
Waste Management	17
Workforce Health, Safety, and Well-Being	19
Supply Chain Management	20

INTRODUCTION

Purpose & Structure

This document contains the SASB Sustainability Accounting Standard (SASB Standard) for Iron & Steel Producers.

SASB 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's disclosure guidance identifies sustainability topics at an industry level, which may be material— depending on a company's specific operating context— to a company within that industry.

Each company is ultimately responsible for determining which information is material and is therefore required to be included in its Form 10-K or 20-F and other periodic SEC filings.

SASB's accounting standards provide companies with standardized accounting metrics to account for performance on industry-level sustainability topics. When making disclosure on sustainability topics, companies adopting SASB's accounting standards will help to ensure that disclosure is standardized and therefore useful, relevant, comparable and auditable.

Industry Description

The Iron & Steel Producers industry consists of steel producers with iron and steel mills and companies with iron and steel foundries. The steel producers segment consists of companies that produce iron and steel products from their own mills. These products include flat-rolled sheets, tin plates, pipes, tubes, and products made of stainless steel, titanium, and high alloy steels. Iron and steel foundries, which cast various products, typically purchase iron and steel from other firms. The industry also includes metal service centers and other metal merchant wholesalers, which distribute, import, or export ferrous products. Steel production occurs via two primary methods: the Basic Oxygen Furnace (BOF), which uses iron ore as an input, and the Electric Arc Furnace (EAF), which uses scrap steel. Many companies in the industry operate on an international scale.

Note: With a few exceptions, most companies do not mine their own ore to manufacture steel and iron products. There are separate SASB standards for the Metals & Mining industry.

Guidance for Disclosure of Material Sustainability Topics in SEC filings

1. Industry-Level Material Sustainability Topics

For the Iron & Steel Producers industry, SASB has identified the following material sustainability topics:

- **Greenhouse Gas Emissions**
- **Air Quality**
- **Energy Management**
- **Water Management**
- **Waste Management**
- **Workforce Health, Safety and Well-Being**
- **Supply Chain Management**

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”.^{1,2}

SASB has attempted to identify those sustainability topics that it believes may be material for all companies within each SICS industry. SASB recognizes, however, that each company is ultimately responsible for determining what is material to it.

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.”²

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

In determining whether a trend or uncertainty should be disclosed, the SEC has stated that management should use a two-part assessment based on probability and magnitude:

- 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.

¹ TSC Industries v. Northway, Inc., 426 U.S. 438 (1976).

² C.F.R. 229.303(Item 303)(a)(3)(ii).

- 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

Companies should consider making disclosure on sustainability topics as a complete set in the MD&A, in a sub-section titled "**Sustainability Accounting Standards Disclosures.**"³

b. Other Relevant Sections of Form 10-K

In addition to the MD&A section, companies should consider disclosing sustainability information in other sections of Form 10-K, as relevant, including:

- **Description of business**—Item 101 of Regulation S-K requires a company to provide a description of its business and its subsidiaries. Specifically 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 targeting discharge of materials into the environment or 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/>.

³ 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 of Material Sustainability Topics

For material sustainability topics in the Iron & Steel Producers industry, SASB identifies accounting metrics.

SASB recommends that each company consider using these sustainability accounting metrics when disclosing its performance with respect to each of the sustainability topics it has identified as material.

As appropriate—and consistent with Rule 12b-20⁴—for each sustainability topic, 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 **competitive positioning**;
- the **degree of control** the registrant has;
- any **measures the registrant has undertaken** or **plans to undertake** to improve performance; and
- data for 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 consider the materiality of the sustainability issues that SASB has identified for those industries and disclose the associated SASB accounting metrics.

Users of the SASB Standards

The SASB Standards are intended 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),⁵ 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. Nevertheless, 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.

⁴ 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."

⁵ 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 in which the registrant has a controlling interest and therefore are consolidated for financial reporting purposes (controlling interest is generally defined as ownership of 50% or more of voting shares)⁶
- 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 such registrant considers the information necessary for investors to understand its performance with respect to sustainability issues (typically this disclosure would be limited to risks and opportunities associated with these entities).

Reporting Format

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 users of SASB accounting metrics (e.g., investors) 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.

⁶ See US GAAP consolidation rules (Section 810).

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

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Raw steel production, percentage from: (1) basic oxygen furnace processes, (2) electric arc furnace processes	Quantitative	Metric tons (t), Percentage (%)	NR0301-A
Total iron ore production ⁷	Quantitative	Metric tons (t)	NR0301-B
Total coking coal production ⁸	Quantitative	Metric tons (t)	NR0301-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 like the imperfectness of third-party reporting systems 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 be necessary 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.

⁷ Note to **NR0301-B** – The scope of production includes iron ore consumed internally and that which is made available for sale.

⁸ Note to **NR0301-C** – The scope of production includes coking coal consumed internally and that which is made available for sale.

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."

Assurance

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

SASB encourages registrants to use independent assurance (attestation), for example, an Examination Engagement to AT Section 101.

Table 1. Material Sustainability Topics & Accounting Metrics

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under a regulatory program	Quantitative	Metric tons CO ₂ -e, Percentage (%)	NR0301-01
	Description of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	NR0301-02
Air Quality	Air emissions for the following pollutants: CO, NO _x (excluding N ₂ O), SO _x , particulate matter (PM), manganese, lead (Pb), volatile organic compounds (VOCs), and polycyclic aromatic hydrocarbons (PAHs)	Quantitative	Metric tons (t)	NR0301-03
Energy Management	Total purchased electricity consumed, percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	NR0301-04
	Total fuel consumed, percentage from: (1) coal, (2) natural gas, (3) renewable sources	Quantitative	Gigajoules (GJ), Percentage (%)	NR0301-05
Water Management	Total fresh water withdrawn, percentage recycled, percentage in regions with High or Extremely High Baseline Water Stress	Quantitative	Cubic meters (m ³), Percentage (%)	NR0301-06
Waste Management	Amount of waste from operations, percentage hazardous, percentage recycled	Quantitative	Metric tons (t), Percentage (%)	NR0301-07
Workforce Health, Safety, and Well-Being	(1) Total Recordable Injury Rate (TRIR), (2) Fatality Rate, and (3) Near Miss Frequency Rate for (a) full-time employees and (b) contract employees	Quantitative	Rate	NR0301-08
Supply Chain Management	Discussion of the process for managing iron ore and/or coking coal sourcing risks arising from environmental and social issues	Discussion and Analysis	n/a	NR0301-09

Greenhouse Gas Emissions

Description

Iron and steel production generates significant direct GHG emissions, primarily of carbon dioxide and methane, from production processes and on-site fuel combustion. While technological improvements have reduced the GHG emissions per ton produced, overall steel output is growing rapidly and steel production remains carbon-intensive relative to other industries. These GHG emissions create risk for companies, as regulations take shape in the U.S. and abroad. Companies that cost-effectively reduce GHG emissions from their operations by implementing industry-leading technologies and processes can create operational efficiency. They can mitigate the effect of increased fuel costs and regulations that limit — or put a price on — carbon emissions.

Accounting Metrics

NR0301-01. 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 six greenhouse gases covered under the Kyoto Protocol: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.
- Emissions of all gases shall be disclosed in metric tons of carbon dioxide equivalent (CO₂-e), calculated in accordance with published global warming potential (GWP) factors. To date, the preferred source for global warming potential factors is the Intergovernmental Panel on Climate Change's (IPCC) Fourth Assessment Report (2007).
 - 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.
- .02 Scope 1 emissions are defined by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD) [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, production facilities, office buildings, and iron and steel transportation (marine, road, and 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 2014](#) (hereafter, the "CDP Guidance").⁹

⁹ "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 2014* (p. 94).

- The approach detailed in Section 4.23 “Organizational boundary setting for GHG emissions reporting” of Climate Disclosure Standards Board (CDSB) Climate Change Reporting Framework (CCRF).¹⁰
- .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 (EU 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 previously mentioned.
- .08 The registrant should discuss the calculation methodology for its emission disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations, mass balance calculations, etc.
- .09 This accounting metric corresponds to section CC8.2 of the Carbon Disclosure Project (CDP) Questionnaire and section 4.25 of the Climate Disclosure Standards Board (CDSB) Climate Change Reporting Framework (CCRF).

NR0301-02. Description of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

- .10 The registrant shall discuss the following where relevant:
- The scope, including if strategies, plans, and/or reduction targets pertain differently to different business units, geographies, or emissions sources.
 - If strategies, plans, and/or reduction targets are related to or associated with an emissions disclosure (reporting) or reduction program (e.g., EU ETS, Regional Greenhouse Gas Initiative (RGGI), WCI, etc.), including regional, national, international or sectoral programs.

¹⁰This approach is based on the requirements of the International Accounting Standards/International Financial Reporting Standards (IAS/IFRS) on consolidation and equity accounting. It is consistent with the way in which information relating to entities within a group, or interest in joint ventures/associates, would be included in consolidated financial statements. *Climate Change Reporting Framework*, CDSB

- 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 towards 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 that reached completion during the fiscal year.
- The mechanism(s) for achieving the target, such as energy efficiency efforts, energy source diversification, carbon capture and storage, etc.

.12 Where necessary, the registrant shall discuss any circumstances in which the target base year emissions have been or may be re-calculated retrospectively, or in which the target base year has been reset.

.13 This accounting metric corresponds with:

- CDSB Section 4, "Management Actions"¹¹
- CDP questionnaire "CC3. Targets and Initiatives"

¹¹ 4.12, "Disclosure shall include a description of the organization's long-term and short-term strategy or plan to address climate change-related risks, opportunities and impacts, including targets to reduce GHG emissions and an analysis of performance against those targets." *Climate Change Reporting Framework – Edition 1.1*, October 2012, CDSB.

Air Quality

Description

Iron and steel production typically generates criteria air pollutants, volatile organic compounds (VOCs), and hazardous air pollutants, which can have significant localized public health impacts. Of particular concern are sulfur oxides, nitrogen dioxide, lead, carbon monoxide, and manganese, as well as particles such as soot and dust, which are released during the production process. Mercury emissions were a concern previously, but industries are working together to reduce these. Across North America, Western Europe, and Japan, technological innovation and continuous improvements in steel-making processes have significantly reduced air pollutants from the Iron & Steel Producers industry. However, air pollutants remain a concern due to heightened regulatory and public concern about air pollution globally, as well as expansion of steel production in emerging markets. Iron and steel production in emerging markets is affected by new regulatory efforts aimed at curbing alarming levels of air pollution. Active management of facility emissions through implementation of industry best practices across global operations can facilitate the transition to sustainable steel production, lowering costs and potentially enhancing operational efficiency.

Accounting Metrics

NR0301-03. Air emissions for the following pollutants: CO, NO_x (excluding N₂O), SO_x, particulate matter (PM), manganese, lead (Pb), volatile organic compounds (VOCs), and polycyclic aromatic hydrocarbons (PAHs)

.14 The registrant shall disclose its emissions released to the atmosphere of air pollutants associated with its activities (e.g., refining through primary production):

- Direct air emissions from stationary or mobile sources include, but are not limited to, primary production facilities, office buildings, marine vessels transporting products, truck fleets, and moveable equipment at production facilities.

.15 The registrant shall disclose the following emissions released to the atmosphere by emissions type:

- Carbon monoxide (CO)
- Oxides of nitrogen (including NO and NO₂ and excluding N₂O) disclosed as NO₂
- Oxides of sulfur (SO₂ and SO₃) reported as SO₂
- Particulate matter (PM), reported as the sum of PM₁₀ and PM_{2.5}, or all particulates less than 10 micrometers in diameter
- Oxides of manganese disclosed as MnO
- Lead (Pb)

- Non-methane volatile organic compounds (VOCs), defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and methane, which participates in atmospheric photochemical reactions, except those designated by the U.S. Environmental Protection Agency (EPA) as having negligible photochemical reactivity
 - Polycyclic aromatic hydrocarbons (PAHs), at a minimum, include those listed in Table 1 of the European Commission Joint Research Centre's Institute for Reference Materials and Measurements [PAH Factsheet](#).
 - These include compounds frequently monitored by the Scientific Committee for Food (SCF), the European Union (EU), and the U.S. EPA.
- .16 This scope does not include CO₂, CH₄, and N₂O, which are disclosed in NR0301-01 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 NR0301-01.
- .18 The registrant should discuss the calculation methodology for its emission disclosure, such as whether data are from continuous emissions monitoring systems (CEMS), engineering calculations, mass balance calculations, etc.

Energy Management

Description

Despite gains in energy efficiency in recent years, the production of steel requires significant quantities of energy, sourced primarily from the direct combustion of fossil fuels and the electric grid. Energy-intense production has implications for climate change and electricity purchases from the grid create indirect impacts on the climate through the industry's Scope 2 emissions. The choice between different production processes – EAF and integrated BOF – can influence whether a company uses more fossil fuels directly or purchases relatively more electricity. This decision, together with the choice between using coal versus natural gas or on-site versus grid-sourced electricity, can play an important role in influencing both the costs and reliability of energy supply. Affordable, easily accessible, and reliable energy is essential for competitive advantage in this industry, with energy costs accounting for a substantial portion of manufacturing costs. The way in which an iron and steel company manages its overall energy efficiency, its reliance on different types of energy and associated sustainability risks, and its ability to access alternative sources of energy can influence its profitability.

Accounting Metrics

NR0301-04. Total purchased electricity consumed, percentage renewable

- .19 The registrant shall disclose total electricity consumption from all sources as an aggregate figure in gigajoules or its multiples.
- The scope includes electricity purchased from sources external to the organization
 - The scope excludes electricity produced by the registrant itself (self-generated) from primary fuel.
 - The scope includes only electricity consumed by entities owned or controlled by the organization.
- .20 The registrant shall disclose renewable electricity consumption as a percentage of its total electricity consumption.
- Renewable electricity is defined as electricity produced from energy sources that are capable of being replenished in a short time through ecological cycles, such as geothermal, wind, solar, hydro, and biomass.
 - The scope of renewable electricity includes the renewable electricity the registrant 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 all renewable electricity consumed in this manner, RECs must be retired on behalf of the registrant to be claimed as renewable electricity as part of this disclosure.
 - 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 as renewable electricity.

- For the purposes of this disclosure, the scope of renewable electricity from hydro and biomass sources are limited to the following:
 - Electricity from hydro sources that are certified by the Low Impact Hydropower Institute.
 - Electricity from biomass sources that are Green-e Energy certified or eligible for a state Renewable Portfolio Standard.
- The renewable portion of the electricity grid mix that is outside of the control or influence of the registrant is excluded from disclosure.¹²

.21 The registrant shall apply conversion factors consistently for all data reported under this disclosure, such as for the conversion of kWh to gigajoules (including for electricity from solar or wind energy).

NR0301-05. Total fuel consumed, percentage from: (1) coal, (2) natural gas, (3) renewable sources

- .22 The registrant shall disclose total fuel consumption from all sources as an aggregate figure in gigajoules or its multiples.
- The scope includes only fuel consumed by entities owned or controlled by the organization.
 - The scope excludes non-fuel energy sources such as purchased electricity and purchased steam.
- .23 In calculating the energy content of 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).
- .24 The registrant shall calculate the percentage of fuel from coal as the energy content of coal, coke, and coke breeze consumed divided by the energy content of all fuel consumed.
- .25 The registrant shall calculate the percentage of fuel from natural gas as the energy content of natural gas fuel consumed divided by the energy content of all fuel consumed.
- .26 The registrant shall calculate the percentage of fuel from renewable sources as the energy content of renewable fuel consumed divided by the energy content of all fuel consumed.
- .27 Renewable fuel is defined as fuel from sources that are capable of being replenished in a short time through ecological cycles, such as biomass.
- .28 For the purposes of this disclosure, the scope of renewable fuel from biomass sources are limited to those that are considered “eligible renewables” according to the [Green-e Energy National Standard Version 2.4](#).
- .29 The registrant shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel consumption (including biofuels).

¹² SASB recognizes that RECs reflect the environmental attributes of renewable energy that have been introduced to the grid, and that a premium has been paid by the purchaser of the REC to enable generation of renewable energy beyond any renewable energy already in the grid mix, absent the market for RECs.

Water Management

Description

Despite reductions in water intake by the industry over the past several years, the substantial water requirements of steel production could present a material risk to the industry. This is the case especially in regions of water scarcity, due to potential water availability constraints and price volatility. Companies that are unable to secure a stable water supply could face production disruptions, while rising water prices could directly increase production costs. Consequently, the adoption of technologies and processes that continue to reduce water consumption could lower operating risks and costs for companies and create a competitive advantage. This could minimize the impact of regulations, water supply shortages, and community-related disruptions on company operations.

Accounting Metrics

NR0301-06. Total fresh water withdrawn, percentage recycled, percentage in regions with High or Extremely High Baseline Water Stress

- .30 The registrant shall disclose the amount of water (in cubic meters) that was withdrawn from freshwater sources for use in operations.
- 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 total dissolved solids (TDS) concentration of less than 1000 mg/l per the Water Quality Association [definition](#).
- .31 Water obtained from a water utility can be assumed to meet the definition of freshwater.¹³
- .32 The registrant shall disclose the percentage of water recycled as the volume (in cubic meters) recycled divided by the volume of water withdrawn.
- Any volume of water reused multiple times shall be counted as recycled each time it is recycled and reused.
- .33 Using the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct (publicly available online [here](#)), the registrant shall analyze all of its operations for water risks and identify facilities that are in a location with High (40–80%) or Extremely High (>80%) Baseline Water Stress. Water withdrawn in locations with High or Extremely High Baseline Water Stress shall be indicated as a percentage of the total water withdrawn.
- .34 This accounting metric corresponds to section W5. Water Accounting of the CDP's 2014 [Water Information Request](#).

¹³ <http://water.epa.gov/drink/contaminants/secondarystandards.cfm>

Waste Management

Description

While waste reclamation rates in steel production are high, the industry generates significant quantities of hazardous wastes. There are three main waste types in the industry – slag, dusts, and sludges. These by-products are often recycled internally or sold to other industries. However, process wastes such as EAF dust, which is regulated as a hazardous material in the U.S. due to its heavy metal content, can have significant environmental and human health impacts, present a regulatory risk, and raise operating costs for companies. As environmental regulations were implemented in the U.S. and evolved over time, some waste disposal activities that were allowed under the law previously began to be understood as creating a contamination threat. Such threats are periodically discovered, including contaminated off-site disposal properties, and iron and steel producers may be held responsible for remediation of such legacy sites. Companies that reduce waste streams - hazardous waste streams in particular - and recycle or sell non-hazardous by-products could therefore lower regulatory risks and costs while increasing revenues.

Accounting Metrics

NR0301-07. Amount of waste from operations, percentage hazardous, percentage recycled

- .35 The amount of total waste shall be calculated in metric tons, where waste is defined as anything for which the registrant has no further use and which is discarded or is released to the environment.
- The scope includes slags, dusts, sludges, scrap steel, reject coal, used oil, and other solid wastes that meet the above definition.
 - The scope excludes gaseous wastes.
- .36 The percentage of hazardous waste shall be calculated as the weight of waste that meets the definition of hazardous waste under Subtitle C of the U.S. Environmental Protection Agency's (EPA) Resource Conservation and Recovery Act (RCRA) divided by the total weight of waste material.
- Hazardous wastes include those that display the following characteristics: ignitability, corrosivity, reactivity, or toxicity.
- .37 The percentage recycled shall be calculated as the weight of waste material that was reused 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 material, where:
- 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.

- The scope of recycled and remanufactured products include primary recycled materials, co-products (outputs of equal value to primary recycled materials), and by-products (outputs of lesser value to 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 sent for further recycling include those materials which are transferred to a third party for the expressed purpose of reuse, recycling, or refurbishment.
- 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.

Workforce Health, Safety and Well-Being

Description

Industrial processes used in iron and steel production can present significant risks to employees and contractors working at iron and steel plants. Given the high temperatures and heavy machinery involved, worker injuries and fatalities are a matter of concern to iron and steel producers. The industry has relatively high fatality rates, signifying the risky work environment and requiring a strong safety culture and health and safety policies. While accident rates in the industry are on a long-term decline, worker injuries and fatalities can lead to regulatory penalties, negative publicity, low worker morale and productivity, and increased healthcare and compensation costs.

Accounting Metrics

NR0301-08. (1) Total Recordable Injury Rate (TRIR), (2) Fatality Rate, and (3) Near Miss Frequency Rate for (a) full-time employees and (b) contract employees

- .38 For registrants whose workforce is entirely U.S.-based, the registrant shall disclose its total recordable injury rate (TRIR), as calculated and reported in the Occupational Safety and Health Administration's (OSHA) Form 300.
- OSHA guidelines provide details on determination of whether an event is a recordable occupational incident and definitions for exemptions for incidents that occurred in the work environment but are not occupational.
- .39 For registrants whose workforce includes non-U.S.-based employees, the registrant shall calculate its TRIR according to the U.S. Bureau of Labor Statistics [guidance](#) and/or using the U.S. Bureau of Labor Statistics [calculator](#).
- .40 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.
- .41 The registrant shall disclose its TRIR and NMFR for each of the following categories of employee:
- Direct, full time employees
 - Contract employees
- .42 The scope includes all employees, domestic and foreign.
- .43 Rates shall be calculated as: $(\text{statistic count} / \text{total hours worked}) * 200,000$.

Supply Chain Management

Description

Iron ore and coal are critical raw material inputs to the steel production process. Iron ore mining and coal production are resource-intensive processes. Extraction of these materials often has substantial environmental and social externalities affecting local communities, workers, and ecosystems. There can be disruptions to mining operations due to community protests, legal or regulatory action, or increased costs of extraction as a result of regulatory compliance costs or penalties. Iron and steel companies could face disruptions to their own production as a result, or in some cases, may also be subject to regulatory penalties associated with the environmental or social impact of the mining company supplier. In order to minimize such risks, iron and steel producers could ensure that their direct suppliers of critical raw materials are not engaged in illegal or otherwise environmentally or socially damaging practices, through appropriate supplier screening, monitoring, and engagement.

Accounting Metrics

NR0301-09. Discussion of the process for managing iron ore and/or coking coal sourcing risks arising from environmental and social issues

- .44 The registrant shall disclose its policies and procedures for managing environmental and social risks that may affect sourcing that are present in its iron ore and/or coking coal supply chain.
- .45 Relevant disclosure may include description of the use of screening, codes of conduct, audits, and certifications.
 - If audits are discussed, the registrant should indicate whether audits are internal (first party), independent (third party), or administered by peers (e.g. trade organizations).
- .46 Discussion shall include any existing or projected risks or constraints in obtaining raw materials (e.g. iron ore, coking coal) within the supply chain, including those related to restricted/limited availability, political situations, local labor conditions, natural disasters, climate change, or regulations.

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