



EXTRACTIVES & MINERALS PROCESSING SECTOR

IRON & STEEL PRODUCERS

Sustainability Accounting Standard

Sustainable Industry Classification System® (SICS®) EM-IS

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Sustainability Accounting Standards Board

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IRON & STEEL PRODUCERS

Sustainability Accounting Standard

About SASB

The SASB Foundation was founded in 2011 as a not-for-profit, independent standards-setting organization. The SASB Foundation's mission is to establish and maintain industry-specific standards that assist companies in disclosing financially material, decision-useful sustainability information to investors.

The SASB Foundation operates in a governance structure similar to the structure adopted by other internationally recognized bodies that set standards for disclosure to investors, including the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB). This structure includes a board of directors ("the Foundation Board") and a standards-setting board ("the Standards Board" or "the SASB"). The Standards Board develops, issues, and maintains the SASB standards. The Foundation Board oversees the strategy, finances and operations of the entire organization, and appoints the members of the Standards Board.

The Foundation Board is not involved in setting standards, but is responsible for overseeing the Standards Board's compliance with the organization's due process requirements. As set out in the *SASB Rules of Procedure*, the SASB's standards-setting activities are transparent and follow careful due process, including extensive consultation with companies, investors, and relevant experts.

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INTRODUCTION

Purpose of SASB Standards

The SASB's use of the term "sustainability" refers to corporate activities that maintain or enhance the ability of the company to create value over the long term. Sustainability accounting reflects the governance and management of a company's environmental and social impacts arising from production of goods and services, as well as its governance and management of the environmental and social capitals necessary to create long-term value. The SASB also refers to sustainability as "ESG" (environmental, social, and governance), though traditional corporate governance issues such as board composition are not included within the scope of the SASB's standards-setting activities.

SASB standards are designed to identify a minimum set of sustainability issues most likely to impact the operating performance or financial condition of the typical company in an industry, regardless of location. SASB standards are designed to enable communications on corporate performance on industry-level sustainability issues in a cost-effective and decision-useful manner using existing disclosure and reporting mechanisms.

Businesses can use the SASB standards to better identify, manage, and communicate to investors sustainability information that is financially material. Use of the standards can benefit businesses by improving transparency, risk management, and performance. SASB standards can help investors by encouraging reporting that is comparable, consistent, and financially material, thereby enabling investors to make better investment and voting decisions.

Overview of SASB Standards

The SASB has developed a set of 77 industry-specific sustainability accounting standards ("SASB standards" or "industry standards"), categorized pursuant to SASB's [Sustainable Industry Classification System® \(SICS®\)](#). Each SASB standard describes the industry that is the subject of the standard, including any assumptions about the predominant business model and industry segments that are included. SASB standards include:

1. **Disclosure topics** – A minimum set of industry-specific disclosure topics reasonably likely to constitute material information, and a brief description of how management or mismanagement of each topic may affect value creation.
2. **Accounting metrics** – A set of quantitative and/or qualitative accounting metrics intended to measure performance on each topic.
3. **Technical protocols** – Each accounting metric is accompanied by a technical protocol that provides guidance on definitions, scope, implementation, compilation, and presentation, all of which are intended to constitute suitable criteria for third-party assurance.
4. **Activity metrics** – A set of metrics that quantify the scale of a company's business and are intended for use in conjunction with accounting metrics to normalize data and facilitate comparison.

Furthermore, the [SASB Standards Application Guidance](#) establishes guidance applicable to the use of all industry standards and is considered part of the standards. Unless otherwise specified in the technical protocols contained in the industry standards, the guidance in the SASB Standards Application Guidance applies to the definitions, scope, implementation, compilation, and presentation of the metrics in the industry standards.

The [SASB Conceptual Framework](#) sets out the basic concepts, principles, definitions, and objectives that guide the Standards Board in its approach to setting standards for sustainability accounting. The [SASB Rules of Procedure](#) is focused on the governance processes and practices for standards setting.

Use of the Standards

SASB standards are intended for use in communications to investors regarding sustainability issues that are likely to impact corporate ability to create value over the long term. Use of SASB standards is voluntary. A company determines which standard(s) is relevant to the company, which disclosure topics are financially material to its business, and which associated metrics to report, taking relevant legal requirements into account¹. In general, a company would use the SASB standard specific to its primary industry as identified in [SICS](#)[®]. However, companies with substantial business in multiple SICS[®] industries can consider reporting on these additional SASB industry standards.

It is up to a company to determine the means by which it reports SASB information to investors. One benefit of using SASB standards may be achieving regulatory compliance in some markets. Other investor communications using SASB information could be sustainability reports, integrated reports, websites, or annual reports to shareholders. There is no guarantee that SASB standards address all financially material sustainability risks or opportunities unique to a company's business model.

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 (EM-MM) industry.

¹ **Legal Note:** SASB standards are not intended to, and indeed cannot, replace any legal or regulatory requirements that may be applicable to a reporting entity's operations.

SUSTAINABILITY DISCLOSURE TOPICS & ACCOUNTING METRICS

Table 1. Sustainability Disclosure Topics & Accounting Metrics

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	Quantitative	Metric tons (t) CO ₂ -e, Percentage (%)	EM-IS-110a.1
	Discussion 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	EM-IS-110a.2
Air Emissions	Air emissions of the following pollutants: (1) CO, (2) NO _x (excluding N ₂ O), (3) SO _x , (4) particulate matter (PM ₁₀), (5) manganese (MnO), (6) lead (Pb), (7) volatile organic compounds (VOCs), and (8) polycyclic aromatic hydrocarbons (PAHs)	Quantitative	Metric tons (t)	EM-IS-120a.1
Energy Management	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	EM-IS-130a.1
	(1) Total fuel consumed, (2) percentage coal, (3) percentage natural gas, (4) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	EM-IS-130a.2
Water Management	(1) Total fresh water withdrawn, (2) percentage recycled, (3) percentage in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic meters (m ³), Percentage (%)	EM-IS-140a.1
Waste Management	Amount of waste generated, percentage hazardous, percentage recycled	Quantitative	Metric tons (t), Percentage (%)	EM-IS-150a.1
Workforce Health & Safety	(1) Total recordable incident rate (TRIR), (2) fatality rate, and (3) near miss frequency rate (NMFR) for (a) full-time employees and (b) contract employees	Quantitative	Rate	EM-IS-320a.1
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	EM-IS-430a.1

Table 2. Activity Metrics

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 (%)	EM-IS-000.A
Total iron ore production ²	Quantitative	Metric tons (t)	EM-IS-000.B
Total coking coal production ³	Quantitative	Metric tons (t)	EM-IS-000.C

² Note to **EM-IS-000.B** – The scope of production includes iron ore consumed internally and that which is made available for sale.

³ Note to **EM-IS-000.C** – The scope of production includes coking coal consumed internally and that which is made available for sale.

Greenhouse Gas Emissions

Topic Summary

Iron and steel production generates significant direct greenhouse gas (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 of steel produced, steel production remains carbon-intensive relative to other industries.

Regulatory efforts to reduce GHG emissions in response to the risks posed by climate change may result in additional regulatory compliance costs and risks for iron and steel companies due to climate change mitigation policies. Operational efficiencies can be achieved through the cost-effective reduction of GHG emissions. Such efficiencies can mitigate the potential financial impact of increased fuel costs from regulations that seek to limit—or put a price on—GHG emissions.

Accounting Metrics

EM-IS-110a.1. Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations

- 1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).
 - 1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tons of carbon dioxide equivalents (CO₂-e), and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the [Intergovernmental Panel on Climate Change \(IPCC\) Fifth Assessment Report \(2014\)](#).
 - 1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits, or other similar mechanisms that have reduced or compensated for emissions.
- 2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in [The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard](#) (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).
 - 2.1 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).
 - 2.2 Acceptable calculation methodologies include those that conform to the GHG Protocol as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples include, but are not limited to:

- 2.2.1 *GHG Reporting Guidance for the Aerospace Industry* published by International Aerospace Environmental Group (IAEG)
- 2.2.2 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the U.S. Environmental Protection Agency (EPA)
- 2.2.3 India GHG Inventory Program
- 2.2.4 ISO 14064-1
- 2.2.5 *Petroleum Industry Guidelines for reporting GHG emissions*, 2nd edition, 2011, published by IPIECA
- 2.2.6 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)
- 2.3 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which is generally aligned with the "financial control" approach defined by the GHG Protocol, and the approach published by the Climate Disclosure Standards Board (CDSB) described in REQ-07, "Organisational boundary," of the *CDSB Framework for reporting environmental information, natural capital and associated business impacts* (April 2018).
- 3 The entity shall disclose the percentage of its gross global Scope 1 GHG emissions that are covered under an emissions-limiting regulation or program that is intended to directly limit or reduce emissions, such as cap-and-trade schemes, carbon tax/fee systems, and other emissions control (e.g., command-and-control approach) and permit-based mechanisms.
 - 3.1 Examples of emissions-limiting regulations include, but are not limited to:
 - 3.1.1 California Cap-and-Trade (California Global Warming Solutions Act)
 - 3.1.2 European Union Emissions Trading Scheme (EU ETS)
 - 3.1.3 Quebec Cap-and-Trade (Draft Bill 42 of 2009)
 - 3.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO₂-e) that are covered under emissions-limiting regulations divided by the total amount of gross global Scope 1 GHG emissions (CO₂-e).
 - 3.2.1 For emissions that are subject to multiple emissions-limiting regulations, the entity shall not account for those emissions more than once.
 - 3.3 The scope of emissions-limiting regulations excludes emissions covered under voluntary emissions-limiting regulations (e.g., voluntary trading systems), as well as reporting-based regulations [e.g., the U.S. Environmental Protection Agency (EPA) GHG Reporting Program].

- 4 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was due to emissions reductions, divestment, acquisition, mergers, changes in output, and/or changes in calculation methodology.
- 5 In the case that current reporting of GHG emissions to the CDP or other entity (e.g., a national regulatory disclosure program) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.
- 6 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations, or mass balance calculations.

EM-IS-110a.2. Discussion 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

- 1 The entity shall discuss its long-term and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.
 - 1.1 Scope 1 emissions are defined according to [*The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard*](#) (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).
 - 1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).
- 2 The entity shall discuss its emission reduction target(s) and analyze its performance against the target(s), including the following, where relevant:
 - 2.1 The scope of the emission reduction target (e.g., the percentage of total emissions to which the target is applicable);
 - 2.2 Whether the target is absolute- or intensity-based, and the metric denominator, if it is an intensity-based target;
 - 2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated toward the achievement of the target;
 - 2.4 The timelines for the reduction activity, including the start year, the target year, and the base year;
 - 2.5 The mechanism(s) for achieving the target; and

- 2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.
- 3 The entity shall discuss the activities and investments required to achieve the plans and/or targets, and any risks or limiting factors that might affect achievement of the plans and/or targets.
 - 4 The entity shall discuss the scope of its strategies, plans, and/or reduction targets, such as whether they pertain differently to different business units, geographies, or emissions sources.
 - 5 The entity shall discuss whether its strategies, plans, and/or reduction targets are related to, or associated with, emissions limiting and/or emissions reporting-based programs or regulations (e.g., the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international, or sectoral programs.
 - 6 Disclosure of strategies, plans, and/or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Air Emissions

Topic Summary

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. 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, as well as expansion of steel production in emerging markets. Iron and steel production in emerging markets may be impacted by regulatory efforts aimed at curbing 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

EM-IS-120a.1. Air emissions of the following pollutants: (1) CO, (2) NO_x (excluding N₂O), (3) SO_x, (4) particulate matter (PM₁₀), (5) manganese (MnO), (6) lead (Pb), (7) volatile organic compounds (VOCs), and (8) polycyclic aromatic hydrocarbons (PAHs)

- 1 The entity shall disclose its emissions of air pollutants, in metric tons per pollutant, that are released into the atmosphere that associated with its activities (e.g., refining through primary production).
 - 1.1 The scope of disclosure includes air pollutants associated with the entity's direct air emissions resulting from all of the entity's activities and sources of emissions, including, but not limited to, stationary and mobile sources, production facilities, office buildings, and transportation fleets.
- 2 The entity shall disclose its emissions of (1) carbon monoxide, reported as CO.
- 3 The entity shall disclose its emissions of (2) oxides of nitrogen (NO_x), reported as NO_x.
 - 3.1 The scope of NO_x includes NO and NO₂, but excludes N₂O.
- 4 The entity shall disclose its emissions of (3) oxides of sulfur (SO_x), reported as SO_x.
 - 4.1 The scope of SO_x includes SO₂ and SO₃
- 5 The entity shall disclose its emissions of (4) particulate matter 10 micrometers or less in diameter (PM₁₀), reported as PM₁₀.

- 5.1 PM₁₀ is defined, according to U.S. 40 CFR Part 51.100, as any airborne finely divided solid or liquid material with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
- 6 The entity shall disclose its emissions of (5) oxides of manganese, reported as MnO.
- 7 The entity shall disclose its emissions of (6) lead and lead compounds, reported as Pb.
- 8 The entity shall disclose its emissions of (7) non-methane volatile organic compounds (VOCs).
- 8.1 VOCs are defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and methane, that participates in atmospheric photochemical reactions, except those designated by the U.S. Environmental Protection Agency (EPA) as having negligible photochemical reactivity.
- 8.1.1 This definition is aligned with U.S. 40 CFR Part 51.100, where a list of compounds that have been determined to have negligible photochemical reactivity can be obtained.
- 8.1.2 Where applicable regulatory definitions of VOCs may conflict with this definition, such as the EU Paints Directive (Directive 2004/42/EC), and Schedule 1 of the Canadian Environmental Protection Act 1999, the entity may define VOCs as per the applicable regulatory definition.
- 9 The entity shall disclose its emissions of (8) polycyclic aromatic hydrocarbons (PAHs)
- 9.1 PAHs include but are not limited to those listed in Table 1 of the European Commission Joint Research Centre's Institute for Reference Materials and Measurements [PAH Factsheet](#).
- 9.1.1 These include compounds frequently monitored by the Scientific Committee for Food (SCF), EU, and the U.S. EPA.
- 10 The entity may discuss the calculation methodology for its emissions disclosure, such as whether data are from continuous emissions monitoring systems (CEMS), engineering calculations, or mass balance calculations.

Energy Management

Topic Summary

The production of steel requires significant quantities of energy, sourced primarily from the direct combustion of fossil fuels as well as energy purchased from the grid. Energy-intensive production has implications for climate change and electricity purchases from the grid can result in indirect Scope 2 emissions. The choice between different production processes—electric arc furnaces and integrated basic oxygen furnace—can influence whether a company uses fossil fuels or purchases 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 an important competitive factor 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

EM-IS-130a.1. (1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable

- 1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).
 - 1.1 The scope of energy consumption includes energy from all sources, including energy purchased from sources external to the entity and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling, and steam energy are all included within the scope of energy consumption.
 - 1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.
 - 1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are directly measured or taken from the Intergovernmental Panel on Climate Change (IPCC), the U.S. Department of Energy (DOE), or the U.S. Energy Information Administration (EIA).
- 2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.
 - 2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.
- 3 The entity shall disclose (3) the percentage of energy it consumed that is renewable energy.

- 3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro, and biomass.
- 3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.
- 3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced, and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier program, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.
 - 3.3.1 For any renewable electricity generated on-site, any RECs and GOs must be retained (i.e., not sold) and retired or cancelled on behalf of the entity in order for the entity to claim them as renewable energy.
 - 3.3.2 For renewable PPAs and green power products, the agreement must explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity in order for the entity to claim them as renewable energy.
 - 3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.
- 3.4 For the purposes of this disclosure, the scope of renewable energy from hydro and biomass sources is limited to the following:
 - 3.4.1 Energy from hydro sources that are certified by the Low Impact Hydropower Institute or that are eligible for a state Renewable Portfolio Standard; and
 - 3.4.2 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 sources of supply according to the Green-e Framework for Renewable Energy Certification, Version 1.0 (2017) or Green-e regional standards, and/or materials that are eligible for an applicable state renewable portfolio standard.
- 4 The entity 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 kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

EM-IS-130a.2. (1) Total fuel consumed, (2) percentage coal, (3) percentage natural gas, (4) percentage renewable

- 1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

- 1.1 The calculation methodology for fuel consumed shall be based on actual fuel consumed as opposed to design parameters.
- 1.2 Acceptable calculation methodologies for fuel consumed include, but are not limited to, methodologies based on:
 - 1.2.1 Adding fuel purchases made during the reporting period to beginning inventory at the start of the reporting period, less any fuel inventory at the end of the reporting period
 - 1.2.2 Tracking fuel consumed by vehicles
 - 1.2.3 Tracking fuel expenses
- 2 The entity shall disclose (2) the percentage of fuel consumed that is coal.
 - 2.1 The percentage shall be calculated as the amount of coal consumed (in GJ) divided by the total amount of fuel consumed (in GJ).
 - 2.2 The scope of coal consumed includes, but is not limited to, thermal coal, metallurgical coal, coke, and coke breeze.
- 3 The entity shall disclose (3) the percentage of fuel consumed that is natural gas.
 - 3.1 The percentage shall be calculated as the amount of natural gas consumed (in GJ) divided by the total amount of fuel consumed (in GJ).
- 4 The entity shall disclose (4) the percentage of fuel consumed that is renewable fuel.
 - 4.1 Renewable fuel is defined, consistent with the U.S. Renewable Fuel Standard (U.S. 40 CFR 80.1401), as fuel that meets all of the following requirements:
 - 4.1.1 Produced from renewable biomass;
 - 4.1.2 Used to replace or reduce the quantity of fossil fuel present in a transportation fuel, heating oil, or jet fuel; and
 - 4.1.3 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 U.S. 40 CFR 80.1403.
 - 4.2 The scope of renewable fuel includes fuel that qualifies for Renewable Identification Numbers (RINs) under the U.S. Renewable Fuel Standard.
 - 4.3 The percentage shall be calculated as the amount of renewable fuel consumed (in GJ) divided by the total amount of fuel consumed (in GJ).

- 5 In calculating energy consumption from fuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are directly measured or taken from the Intergovernmental Panel on Climate Change, the U.S. Department of Energy, or the U.S. Energy Information Agency.
- 6 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage.

Water Management

Topic Summary

Steel production requires a substantial amount of water. Companies face operational, regulatory, and reputational risks due to water scarcity, costs of water acquisition, regulations on effluents or amount of water used, and competition with local communities and other industries for limited water resources. 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 reduce water consumption could lower operating risks and costs for companies by minimizing the impact of regulations, water supply shortages, and community-related disruptions on company operations.

Accounting Metrics

EM-IS-140a.1. (1) Total fresh water withdrawn, (2) percentage recycled, (3) percentage in regions with High or Extremely High Baseline Water Stress

- 1 The entity shall disclose the amount of water, in thousands of cubic meters, that was withdrawn from freshwater sources:
 - 1.1 Fresh water may be defined according to the local statutes and regulations where the entity operates. Where there is no regulatory definition, fresh water shall be considered to be water that has less than 1000 parts per million of dissolved solids per the [U.S. Geological Survey](#).
 - 1.2 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.
- 2 The entity shall disclose the percentage of water recycled as the volume, in thousands of cubic meters, recycled divided by the volume of water withdrawn.
 - 2.1 Any volume of water reused multiple times shall be counted as recycled each time it is recycled and reused.
- 3 The entity 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](#).
- 4 The entity shall disclose its water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.
- 5 The entity shall disclose its water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

Waste Management

Topic Summary

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 electric arc furnace 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 result in additional operating costs for companies. Risks related to the long-term impacts of waste disposal may result in significant costs, including those associated with contaminated off-site disposal properties, for which iron and steel producers may be held responsible for remediation and restoration activities. Companies that reduce waste streams and 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

EM-IS-150a.1. Amount of waste generated, percentage hazardous, percentage recycled

- 1 The entity shall disclose the amount of waste generated, in metric tons.
 - 1.1 Waste is defined as anything for which the entity has no further use and which is discarded or is released to the environment.
 - 1.2 The scope includes slags, dusts, sludges, scrap steel, reject coal, used oil, and other solid wastes that meet the above definition.
 - 1.3 The scope excludes gaseous wastes.
- 2 The entity shall disclose the percentage of waste generated that was hazardous.
 - 2.1 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) or under the EU Waste Framework Directive (Directive 2008/98/EC on waste, including its subsequent amendments) divided by the total weight of waste material.
 - 2.2 Hazardous wastes include those that display the following characteristics: ignitability, corrosivity, reactivity, or toxicity.
- 3 The entity shall disclose the percentage of waste generated that was recycled.

- 3.1 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 entity, plus the amount sent externally for further recycling, divided by the total weight of waste material, where:
- 3.1.1 Reused materials are defined as those recovered products or components of products that are used for the same purpose for which they were conceived.
- 3.1.2 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.
- 3.1.3 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).
- 3.1.4 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.
- 3.1.5 Materials sent for further recycling include those materials which are transferred to a third party for the expressed purpose of reuse, recycling, or refurbishment.
- 3.2 Materials incinerated, including for energy recovery, shall not be considered within the scope of recycled materials.
- 3.2.1 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.
- 3.2.2 The entity may separately disclose the percentage of hazardous waste generated that was incinerated.

Workforce Health & Safety

Topic Summary

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 hazardous 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

EM-IS-320a.1. (1) Total recordable incident rate (TRIR), (2) fatality rate, and (3) near miss frequency rate (NMFR) for (a) full-time employees and (b) contract employees

- 1 The entity shall disclose its total recordable incident rate (TRIR) for work-related injuries and illnesses.
 - 1.1 An injury or illness is considered a recordable incident if it results in any of the following: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness. Additionally, a significant injury or illness diagnosed by a physician or other licensed health care professional is considered a recordable incident, even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness. This definition is derived from U.S. 29 CFR 1904.7.
 - 1.2 The U.S. Occupational Safety and Health Administration (OSHA) provides additional resources for determining if injuries or illnesses are considered recordable incidents in its guidance for [OSHA Forms 300, 300A, and 301](#).
- 2 The entity shall disclose its fatality rate for work-related fatalities.
- 3 The entity shall disclose its near miss frequency rate (NMFR) for work-related near misses.
 - 3.1 A near miss is defined as an unplanned incident in which no property or environmental damage or personal injury occurred, but where damage or personal injury easily could have occurred but for a slight circumstantial shift.
 - 3.2 The U.S. National Safety Council (NSC) provides guidance on implementing near miss reporting, including in, "[Near Miss Reporting Systems](#)."
 - 3.3 The entity may disclose its process for classifying, identifying, and reporting near misses.
- 4 Rates shall be calculated as: $(\text{statistic count} \times 200,000) / \text{hours worked}$

- 4.1 The U.S. Bureau of Labor Statistics (BLS) provides additional guidance for the calculation of rates in, "[How to Compute a Firm's Incidence Rate for Safety Management](#)" and "[Incidence Rate Calculator and Comparison Tool](#)."
- 5 The scope of disclosure includes work-related incidents only.
 - 5.1 OSHA guidance for Forms 300, 300A, and 301 provides guidance on determining whether an incident is work-related, as well as definitions for exemptions for incidents that occur in the work environment but are not work-related.
- 6 The entity shall disclose the rates by each of the following employee categories:
 - 6.1 Direct, full-time employees, defined as those employees on the entity's payroll and work full-time for the entity.
 - 6.2 Contract employees, defined as those who are not on the entity's payroll, but who are supervised by the entity on a day-to-day basis, including independent contractors and those employed by third parties (e.g., temp agencies and labor brokers).
- 7 The scope of disclosure includes all employees regardless of employee location.

Supply Chain Management

Topic Summary

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. Such impacts can result in 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 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 may proactively manage their direct suppliers of critical raw materials to ensure that they are not engaged in illegal or otherwise environmentally or socially damaging practices, through appropriate supplier screening, monitoring, and engagement.

Accounting Metrics

EM-IS-430a.1. Discussion of the process for managing iron ore and/or coking coal sourcing risks arising from environmental and social issues

- 1 The entity shall discuss 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.
 - 1.1 Discussion shall include any existing or projected risks or constraints in obtaining raw materials (e.g., iron ore, or coking coal) within the supply chain, including those related to restricted/limited availability, political situations, local labor conditions, natural disasters, climate change, or regulations.
 - 1.2 The scope of disclosure may include description of the use of screening, codes of conduct, audits, and certifications.
- 2 If audits are discussed, the entity may indicate whether audits are internal (first party), independent (third party), or administered by peers (e.g., trade organizations).

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