



TECHNOLOGY & COMMUNICATIONS SECTOR

ELECTRONIC MANUFACTURING SERVICES & ORIGINAL DESIGN MANUFACTURING

Sustainability Accounting Standard

Sustainable Industry Classification System® (SICS®) TC-ES

Prepared by the
Sustainability Accounting Standards Board

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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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SUSTAINABILITY ACCOUNTING STANDARDS BOARD

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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 Electronic Manufacturing Services (EMS) & Original Design Manufacturing (ODM) industry consists of two main segments. EMS companies provide assembly, logistics, and after-market services for original equipment manufacturers. The ODM segment of the industry provides engineering and design services for original equipment manufacturers and may own significant intellectual property. Although EMS & ODM companies produce equipment for a variety of sectors, the industry is closely associated with the Hardware industry, which consists of companies that design technology hardware products such as personal computers, consumer electronics, and storage devices for both personal consumers and businesses.

Note: The Electronic Manufacturing Services & Original Design Manufacturing industry does not include the design of technology hardware products. Companies that design and manufacture technology hardware products should consider the separate SASB Hardware Industry Standard (TC-HW) in addition to the SASB Electronic Manufacturing Services & Original Design Manufacturing Industry Standard (TC-ES).

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
Water Management	(1) Total water withdrawn, (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic meters (m ³), Percentage (%)	TC-ES-140a.1
Waste Management	Amount of hazardous waste from manufacturing, percentage recycled ²	Quantitative	Metric tons (t), Percentage (%)	TC-ES-150a.1
Labor Practices	(1) Number of work stoppages and (2) total days idle ³	Quantitative	Number, Days idle	TC-ES-310a.1
Labor Conditions	(1) Total recordable incident rate (TRIR) and (2) near miss frequency rate (NMFR) for (a) direct employees and (b) contract employees	Quantitative	Rate	TC-ES-320a.1
	Percentage of (1) entity's facilities and (2) Tier 1 supplier facilities audited in the RBA Validated Audit Process (VAP) or equivalent, by (a) all facilities and (b) high-risk facilities	Quantitative	Percentage (%)	TC-ES-320a.2
	(1) Non-conformance rate with the RBA Validated Audit Process (VAP) or equivalent and (2) associated corrective action rate for (a) priority non-conformances and (b) other non-conformances, broken down for (i) the entity's facilities and (ii) the entity's Tier 1 supplier facilities	Quantitative	Rate	TC-ES-320a.3
Product Lifecycle Management	Weight of end-of-life products and e-waste recovered, percentage recycled	Quantitative	Metric tons (t), Percentage (%)	TC-ES-410a.1
Materials Sourcing	Description of the management of risks associated with the use of critical materials	Discussion and Analysis	n/a	TC-ES-440a.1

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Number of manufacturing facilities	Quantitative	Number	TC-ES-000.A
Area of manufacturing facilities	Quantitative	Square feet (ft ²)	TC-ES-000.B
Number of employees	Quantitative	Number	TC-ES-000.C

² Note to **TC-ES-150a.1**– The entity shall disclose the legal or regulatory framework(s) used to define hazardous waste and recycled hazardous waste, and the amounts of waste defined in accordance with each applicable framework.

³ Note to **TC-ES-310a.1**– Disclosure shall include a description of the reason for each work stoppage, impact on operations, and any corrective actions taken.

Water Management

Topic Summary

The manufacturing of computers, computer components, and other electronics requires significant volumes of water. Water is becoming a scarce resource around the globe, due to increasing consumption from population growth and rapid urbanization, and reduced supplies due to climate change. Without careful planning, water scarcity can result in higher supply costs, social tensions with local communities and governments, and/or loss of access to water in water-scarce regions thereby presenting a critical risk to production, and thus revenues. Electronic Manufacturing Services (EMS) & Original Design Manufacturing (ODM) companies that are able to increase the efficiency of water use during manufacturing can reduce operating costs and maintain a lower risk profile, ultimately impacting cost of capital and market valuation. Furthermore, firms that prioritize reducing water use and greater efficiency can face lower regulatory risks as local, regional, and national environmental laws place increasing emphasis on resource conservation.

Accounting Metrics

TC-ES-140a.1. (1) Total water withdrawn, (2) total water consumed, percentage of each 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 all sources.
 - 1.1 Water sources include surface water (including water from wetlands, rivers, lakes, and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities, or other entities.
- 2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.
 - 2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. Where there is no legal definition, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids per the [U.S. Geological Survey](#).
 - 2.2 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.
- 3 The entity shall disclose the amount of water, in thousands of cubic meters, that was consumed in its operations.
 - 3.1 Water consumption is defined as:
 - 3.1.1 Water that evaporates during withdrawal, usage, and discharge;
 - 3.1.2 Water that is directly or indirectly incorporated into the entity's product or service;

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea.

- 4 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 percent) or Extremely High (>80 percent) Baseline Water Stress as classified by the World Resources Institute’s (WRI) Water Risk Atlas tool, [Aqueduct](#).
- 5 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.
- 6 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

The manufacturing of computers, computer components, and other electronics requires significant volumes of chemicals and generates air and water emissions and solid waste, including hazardous substances. The handling and disposal of hazardous wastes produced during manufacturing can lead to increased operating costs, capital expenditures, and in some instances, increased compliance costs or regulatory fines and penalties. Companies in the Electronic Manufacturing Services (EMS) & Original Design Manufacturing (ODM) industry that are able to reduce waste produced during manufacturing and ensure that it is reused, recycled, or disposed of appropriately, are likely to maintain a lower risk profile and face lower regulatory risks as local, regional and national environmental laws place increasing emphasis on resource conservation and waste management.

Accounting Metrics

TC-ES-150a.1. Amount of hazardous waste from manufacturing, percentage recycled

- 1 The entity shall calculate and disclose the total amount of hazardous waste generated, in metric tons, from its manufacturing operations.
 - 1.1 Hazardous wastes are defined per the legal or regulatory framework(s) applicable within the jurisdiction(s) where the waste is generated.
- 2 The entity shall calculate and disclose the percentage of hazardous waste recycled as the total weight of hazardous waste generated from manufacturing operations that was recycled, divided by the total weight of hazardous waste generated.
 - 2.1 Hazardous waste that is reused, reclaimed, and/or remanufactured shall be considered within the scope of recycled.
 - 2.2 Recycled, reused, reclaimed, and remanufactured hazardous waste is defined per the legal or regulatory framework(s) applicable within the jurisdiction where the waste is generated.
 - 2.3 Materials incinerated, including for energy recovery, shall not be considered within the scope of recycled.
 - 2.3.1 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.
 - 2.3.2 The entity may separately disclose the percentage of hazardous waste generated that was incinerated.

- 2.4 Electronic waste material (e-waste) shall be considered recycled only if the entity can demonstrate that this material was transferred to entities with third-party certification to a standard for e-waste recycling, such as Basel Action Network's e-Steward® standard or the U.S. EPA's Responsible Recycling Practices (R2) standard.
- 2.5 The entity shall disclose the standard(s) with which the entities it has transferred e-waste to are compliant.
- 3 The entity may use the U.S. [Resources Conservation and Recovery Act](#) (RCRA) or the EU [Waste Framework Directive](#) (Directive 2008/98/EC on waste, including its subsequent amendments), for the purposes of defining hazardous waste and/or recycled hazardous waste for operations located in jurisdictions that lack applicable legal or regulatory definitions.

Note to **TC-ES-150a.1**

- 1 The entity shall disclose the legal or regulatory framework(s) used to define hazardous waste and recycled hazardous waste, and the amounts defined in accordance with each applicable framework.
 - 1.1 For example, if the entity's operations fall under the jurisdiction of the EU Waste Framework Directive (Directive 2008/98/EC on waste, including its subsequent amendments), and therefore, the Waste Framework Directive was used to define all hazardous waste and recycled hazardous waste, the entity shall specify this in its disclosures of the amount of hazardous waste generated and the percentage recycled.

Labor Practices

Topic Summary

Electronic Manufacturing Services (EMS) & Original Design Manufacturing (ODM) companies operate in a highly competitive environment based on cost and therefore are highly sensitive to labor costs and risks. Additionally, companies are commonly required to meet tight production deadlines for big-ticket product launches by hardware companies. Combined, these factors escalate the importance of companies maintaining strong relations with the labor force. Absent such, companies can be exposed to work stoppages and production disruptions. Such disruptions can lead to reduced revenue in the near term, as well as possible long-term impacts on productivity due to dampened employee morale. In addition to protecting a company's reputation and social license to operate, improvements in labor practices can mitigate production disruptions.

Accounting Metrics

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

- 1 The entity shall disclose (1) the number of work stoppages involving 1,000 or more workers lasting one full shift or longer.
 - 1.1 The scope of work stoppages includes strikes and lockouts.
 - 1.1.1 A strike is defined as a temporary stoppage of work by a group of employees (not necessarily union members) to express a grievance or enforce a demand.
 - 1.1.2 A lockout is defined as a temporary withholding or denial of employment during a labor dispute to enforce terms of employment upon a group of employees.
- 2 The entity shall disclose (2) the total days idle as a result of work stoppages.
 - 2.1 Days idle is defined as the aggregate number of work days lost as a result of work stoppages.
 - 2.2 Total days idle shall be calculated as the sum of the products of the number of workers involved in each work stoppage and the number of days the respective work stoppage was in effect.

Note to TC-ES-310a.1

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

Labor Conditions

Topic Summary

The treatment of workers and the protection of worker rights in the Electronic Manufacturing Services (EMS) & Original Design Manufacturing (ODM) industry is of growing concern among customers, regulators, and leading companies. Critical aspects of this issue working conditions, environmental responsibility, and workforce health and safety—particularly as it relates to the hazardous materials and potentially dangerous equipment used in manufacturing. Companies in this industry operate in a highly competitive environment based on cost and therefore rely heavily on securing low-cost and contract labor. The industry's reliance on subcontractors, labor recruitment firms, and a multi-tiered system of suppliers can make it difficult to improve performance on the issue. Further, companies are often located in countries with relatively low direct costs and have varying degrees of regulation and enforcement for protecting workers. This dynamic can heighten a company's exposure to reputational risks and impacts on short- and long-term costs and sales. Such effects can arise from increasing regulation and its enforcement in response to high-profile safety or labor incidents, or through a shift in demand away from companies associated with such incidents. Companies with strong supply-chain standards, monitoring, and engagement with suppliers to address labor concerns may therefore be better positioned to protect shareholder value over the long term.

Accounting Metrics

TC-ES-320a.1. (1) Total recordable incident rate (TRIR) and (2) near miss frequency rate (NMFR) for (a) direct 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 near miss frequency rate (NMFR) for work-related near misses.
 - 2.1 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.

- 2.2 The U.S. National Safety Council (NSC) provides additional guidance on implementing near miss reporting, including in, "[Near Miss Reporting Systems](#)."
- 2.3 The entity may disclose its process for classifying, identifying, and reporting near misses.
- 3 Rates shall be calculated as: $(\text{statistic count} \times 200,000) / \text{hours worked}$
 - 3.1 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](#)."
- 4 The scope of disclosure includes work-related incidents only.
 - 4.1 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.
- 5 The entity shall disclose the rates by each of the following employee categories:
 - 5.1 Direct employees, defined as those employees on the entity's payroll, whether they are full-time, part-time, executive, labor, salary, hourly, or seasonal employees.
 - 5.2 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).
- 6 The scope of disclosure includes all employees regardless of employee location and type of employment, such as full-time, part-time, direct, contract, executive, labor, salary, hourly, and seasonal employees.

TC-ES-320a.2. Percentage of (1) entity's facilities and (2) Tier 1 supplier facilities audited in the RBA Validated Audit Process (VAP) or equivalent, by (a) all facilities and (b) high-risk facilities

- 1 The entity shall disclose percentage of (1) its manufacturing facilities audited in compliance with the Responsible Business Alliance (RBA) [Validated Audit Process](#) (VAP) protocol for (a) all of the entity's manufacturing facilities, and separately, (b) the entity's manufacturing facilities deemed "high-risk".
 - 1.1 High-risk facilities are defined as facilities that either scored 65 percent or less on a total of at least five sections of RBA Self-Assessment Questionnaire, or that exhibit any of the disqualifying priority findings noted by RBA:
 - 1.1.1 Child Labor

- 1.1.2 Forced Labor
 - 1.1.3 Bonded Labor
 - 1.1.4 Inhumane Treatment
 - 1.1.5 Imminent health and safety issues as defined by VAP or equivalent
 - 1.1.6 Imminent environmental issues as defined by VAP or equivalent
 - 1.1.7 Falsifying records
 - 1.1.8 Bribery
- 1.2 The entity shall calculate percentages by dividing the number of the entity's manufacturing facilities that were audited in compliance with the RBA VAP in each category (i.e., all facilities versus high-risk facilities) by the total number of the entity's manufacturing facilities in each respective category.
- 2 The entity shall disclose percentage of (2) its Tier 1 suppliers' manufacturing facilities audited in compliance with the RBA VAP for (a) all of the Tier 1 suppliers' manufacturing facilities, and separately, (b) the Tier 1 suppliers' manufacturing facilities deemed high-risk.
- 2.1 Tier 1 suppliers are defined as those that transact directly with the entity for goods and services directly related to manufacturing.
 - 2.2 The entity shall calculate percentages by dividing the number of the Tier 1 suppliers' VAP-audited manufacturing facilities in each category (i.e., all facilities versus high-risk facilities) by the total number of the Tier 1 suppliers' manufacturing facilities in each respective category.
 - 2.3 The entity may limit its disclosure to those suppliers that in aggregate account for greater than, or equal to, 80% of its supplier spending directly related to manufacturing.
- 3 The entity may use an alternative code of conduct and audit process to the RBA VAP, if the code of conduct and audit process are similar in scope and criteria to the VAP (i.e., an equivalent code of conduct). At a minimum, the criteria of an equivalent code of conduct shall include:
- 3.1 Labor provisions, including criteria focused on freely chosen employment, child labor avoidance, working hours, wage & benefits, humane treatment, non-discrimination, and freedom of association.
 - 3.2 Health and safety provisions, including criteria focused on occupational safety, emergency preparedness, occupational injury and illness, industrial hygiene, physically demanding work, and dormitory and canteen operations.

- 3.3 Environment provisions, including criteria focused on environmental permits and reporting, pollution prevention and source reduction, hazardous substances, wastewater and solid waste, air emissions, and product content restrictions.
 - 3.4 Ethics provisions, including those focused on business Integrity, improper advantage, payments and gifts policy, disclosure of information, intellectual property, fair business, advertising, & competition, protection of identity, responsible sourcing of minerals, privacy, and non-retaliation.
 - 3.5 Management System provisions, including management system certification, management accountability for labor and ethics, worker feedback and participation mechanisms, and demonstration that the management system addresses the following as related to social and environmental responsibility: tracking of laws and regulations, tracking of customer requirements, risk assessments, measurement of objectives and implementation plans, training, and communication, audits and assessments, corrective action processes, and maintenance of documentation and records.
- 4 If an equivalent code of conduct is used, the entity shall disclose this, as well as how the criteria of the code of conduct are equivalent to those of the RBA VAP.

TC-ES-320a.3. (1) Non-conformance rate with the RBA Validated Audit Process (VAP) or equivalent and (2) associated corrective action rate for (a) priority non-conformances and (b) other non-conformances, broken down for (i) the entity's facilities and (ii) the entity's Tier 1 supplier facilities

- 1 The entity shall disclose (1) the rates of non-conformance with the Responsible Business Alliance (RBA) [Validated Audit Program](#) (VAP) for (a) priority non-conformances, and separately, (b) other non-conformances, reported for (i) the entity's manufacturing facilities and (ii) the entity's Tier 1 supplier manufacturing facilities.
 - 1.1 The definition of priority non-conformances is aligned with that of the RBA VAP and includes highest severity non-conformances with significant immediate impacts, and required escalation by auditors. Priority non-conformances confirm the presence of underage child workers (below the legal age for work or apprenticeship), forced labor, health and safety issues that can cause immediate danger to life or serious injury, and environmental practices that can cause serious and immediate harm to the community. Issues representing an immediate danger must be corrected as soon as practical but not longer than 30 days after discovery.
 - 1.1.1 In equivalent codes of conduct priority non-conformances may also be referred to as "zero tolerance" issues or "core violations."
 - 1.2 Other non-conformances include major non-conformances and minor non-conformances.
 - 1.2.1 The definition of major non-conformances is aligned with that of the RBA VAP and includes significant failures in the management system that affect the ability of the system to produce the desired results.

It may also be caused by failure to implement an established process or procedure or if the process or procedure is ineffective.

- 1.2.2 The definition of minor non-conformances is aligned with that of the RBA VAP and includes non-conformances that by themselves do not indicate a systemic problem with the management system. It is typically an isolated or random incident.
- 1.3 Tier 1 suppliers are defined as those that transact directly with the entity for goods and services directly related to manufacturing.
- 1.4 For the entity's (i) own manufacturing facilities, the entity shall calculate the non-conformance rates as the number of non-conformances (in each respective category) identified among its manufacturing facilities divided by the total number of the entity's manufacturing facilities audited.
- 1.5 For the entity's (ii) Tier 1 supplier manufacturing facilities, the entity shall calculate the non-conformance rates as the number of non-conformances (in each respective category) identified among its Tier 1 supplier manufacturing facilities divided by the number of Tier 1 supplier manufacturing facilities audited.
- 2 The entity shall disclose (2) the corrective action rates associated with (a) priority non-conformances, and separately, (b) other non-conformances, reported for (i) the entity's manufacturing facilities and (ii) the entity's Tier 1 supplier manufacturing facilities.
 - 2.1 A corrective action is defined by the timely completion of a Corrective Action Plan (CAP), which describes how and when the facility will address each of the identified non-conformances (in each respective category), according to the applicable timeline.
 - 2.1.1 The timeline for priority non-conformances is defined as submission of a CAP within one week of discovery and completion of a CAP within 30 days from discovery.
 - 2.1.2 The timeline for major non-conformance is defined as submission of a CAP within two weeks from receipt of final Validated Audit Report (VAR) and completion of a CAP within 90 days from receipt of final VAR.
 - 2.1.3 The timeline for minor non-conformance is defined as submission of a CAP within two weeks from receipt of final VAR and completion of a CAP within 270 days from receipt of final VAR.
 - 2.2 For (a) priority non-conformances, the entity shall calculate the corrective action rate as the number of corrective actions to address priority non-conformances divided by the total number of priority non-conformances that have been identified, separately, for (i) the entity's manufacturing facilities and (ii) the entity's Tier 1 supplier manufacturing facilities.
 - 2.3 For (b) other non-conformances, the entity shall calculate the corrective action rate as the number of corrective actions to address major non-conformances plus the number of corrective actions to address minor non-

conformances divided by the total number of major and minor non-conformances that have been identified, separately, for (i) the entity's manufacturing facilities and (ii) the entity's Tier 1 supplier manufacturing facilities.

- 3 The entity may limit its disclosure to those Tier 1 suppliers that in aggregate account for greater than, or equal to, 80% of its Tier 1 supplier spending directly related to manufacturing.
- 4 The entity may disclose its compliance with an audit recognized by the RBA Membership Compliance Program or an equivalent code of conduct if the standard and audit are sufficiently similar in scope and enforcement to the VAP.

Product Lifecycle Management

Topic Summary

Companies in the Electronic Manufacturing Services (EMS) & Original Design Manufacturing (ODM) industry, along with the industry's customers such as hardware companies, face increasing challenges associated with environmental externalities attributed to product manufacturing, transport, use, and disposal. Rapid obsolescence of hardware products exacerbates such externalities. The industry's products commonly contain hazardous materials, making safe end-of-life disposal a critical aspect to manage. Companies unable to minimize the environmental externalities of their products may face increased regulatory costs as local, regional, and national environmental laws place increasing emphasis on resource conservation and waste management. Through product innovation that facilitates end-of-life product recovery and the use of less-impactful materials, EMS & ODM manufacturers can achieve improvements in lifecycle impacts, reduce regulatory risk, and realize cost savings.

Accounting Metrics

TC-ES-410a.1. Weight of end-of-life products and e-waste recovered, percentage recycled

- 1 The entity shall disclose the weight, in metric tons, of end-of-life material that was recovered, including through reverse logistics services, recycling services, product take-back programs, and refurbishment services.
 - 1.1 End-of-life material that was recovered is defined as products, materials, and parts, including electronic waste material (e-waste), that at the end of their useful life would have otherwise been disposed of as waste or used for energy recovery, but have instead been collected.
 - 1.2 The scope of end-of-life material that was recovered includes materials physically handled by the entity.
 - 1.3 The scope of end-of-life material that was recovered includes materials that the entity did not take physical possession of, but were collected by a third party for the expressed purpose of reuse, recycling, or refurbishment.
 - 1.4 The scope of end-of-life material that was recovered excludes materials that have been collected for repair or that are in-warranty and subject to recall.
- 2 The entity shall disclose the percentage of end-of-life material that was recovered and subsequently recycled.
 - 2.1 The percentage shall be calculated as the weight of end-of-life material that was recovered and subsequently recycled divided by the total weight of end-of-life material that was recovered.

- 2.2 Recycled material (including remanufactured material) is defined as waste material that has been reprocessed or treated by means of production or manufacturing processes and made into a final product or a component for incorporation into a product.
- 2.3 The scope of recycled material includes material that was reused or reclaimed.
 - 2.3.1 Reused material is defined as recovered products or components of products that are used for the same purpose for which they were conceived, including products donated and/or refurbished by the entity or by third parties.
 - 2.3.2 Reclaimed material is defined as material processed to recover or regenerate a usable product.
- 2.4 The scope of recycled material includes primary recycled material, co-products (outputs of equal value to primary recycled materials), by-products (outputs of lesser value to primary recycled materials), and material sent externally for further recycling.
- 2.5 The scope of recycled material excludes portions of products and materials that are disposed of in landfills.
- 3 Electronic waste material (e-waste) shall be considered recycled only if the entity can demonstrate that this material was transferred to entities with third-party certification to a standard for e-waste recycling such as Basel Action Network's e-Steward® standard or the U.S. EPA's Responsible Recycling Practices (R2) standard.
 - 3.1 The entity shall disclose the standard(s) with which the entities it has transferred e-waste to are compliant.

Materials Sourcing

Topic Summary

Companies in the Electronic Manufacturing Services (EMS) & Original Design Manufacturing (ODM) industry rely on numerous critical materials as key inputs for finished products. Many of these inputs have few or no available substitutes and are often sourced from deposits concentrated in few countries, many of which are subject to geopolitical uncertainty. Other sustainability impacts related to climate change, land use, resource scarcity, and conflict in regions where the industry's supply chain operates are also increasingly shaping the industry's ability to source materials. Additionally, increased competition for these materials due to growing global demand from other sectors can result in price increases and supply risks. The ability of companies to manage potential materials shortages, supply disruptions, price volatility, and reputational risks is made more difficult by the fact that they commonly source materials from supply chains that often lack transparency. Failure to effectively manage this issue can lead to an inability to access necessary materials, reduced margins, constrained revenue growth, and/or higher costs or capital.

Accounting Metrics

TC-ES-440a.1. Description of the management of risks associated with the use of critical materials

- 1 The entity shall describe its strategic approach to managing its risks associated with the use of critical materials in its products, including physical limits on availability and access, changes in price, and regulatory and reputational risks, where:
 - 1.1 A critical material is defined as a material that is both essential in use and subject to the risk of supply restriction. This definition is derived from the U.S. National Research Council of the National Academies' *Minerals, Critical Minerals, and the U.S. Economy* .
 - 1.2 Examples of critical materials include, but are not limited to, the following as defined by the National Research Council:
 - 1.2.1 Antimony, cobalt, fluorspar, gallium, germanium, graphite, indium, magnesium, niobium, tantalum, and tungsten;
 - 1.2.2 Platinum group metals (platinum, palladium, iridium, rhodium, ruthenium, and osmium); and
 - 1.2.3 Rare earth elements, which include yttrium, scandium, lanthanum, and the lanthanides (cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, and lutetium).

- 2 The entity shall identify the critical materials that present a significant risk to its operations, the type of risk(s) they represent, and the strategies the entity uses to mitigate the risk(s).
 - 2.1 Relevant strategies may include diversification of suppliers, stockpiling of materials, development or procurement of alternative and substitute materials, and investments in recycling technology for critical materials.
- 3 All disclosure shall be sufficient such that it is specific to the risks the entity faces but disclosure itself would not compromise the entity's ability to maintain confidential information.
 - 3.1 For example, if an entity determines not to identify a specific critical material that presents a significant risk to its operations due to competitive harm that could result from the disclosure, the entity shall disclose the existence of such risk(s), the type of risk(s), and the strategies used to mitigate the risk(s), but is not required to disclose the relevant critical material.

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