Alcoa

2024 Sustainability Report

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About This Report 2024

Our Sustainability Report aims to provide insight into our approach to environmental, social and governance (ESG) topics and highlights the progress we have made on our sustainability goals.

The information in this report covers Alcoa's performance relative to our sustainability goals for the 2024 calendar year for all operations where we have management control, unless otherwise noted. We prepared this report in reference to:

- Global Reporting Initiative (GRI) Universal Standards
- Sustainability Accounting Standards Board (SASB) Metals & Mining Standard
- International Council on Mining & Metals (ICMM) Principles

This report also reflects our contributions toward the United Nations Sustainable Development Goals (SDGs). Metrics and our alignment with the reporting standards relevant to Alcoa are referenced in **Appendix C**.

Selected indicators in this report have been subject to independent limited assurance by ERM Certification and Verification Services Inc. (ERM CVS). The selected information is identified by the ^ symbol. The Limited Assurance Report is available in **Appendix D**.

Forward-Looking Statements and Other Information

This Sustainability Report includes forward-looking statements regarding our environmental, social and governance ("ESG") related goals, commitments and strategies. Our actual results could differ materially from our projected results due to a variety of factors, including assumptions not being realized, scientific or technological developments, geopolitical events, fluctuations in cost and availability of raw materials, evolving sustainability strategies, regulatory changes, or other risks and uncertainties.

All statements other than statements of historical or current facts, including statements regarding our plans, initiatives, projections, goals, commitments, expectations, or prospects, are forward-looking. Forward-looking statements include those containing such words as "aims," "ambition," "anticipates," "believes," "could," "develop," "endeavors," "estimates," "expects," "forecasts," "goal," "intends," "may," "outlook," "potential," "plans," "projects," "reach," "seeks," "sees," "should," "strive," "targets," "will," "working," "would," or other words of similar meaning.

Forward-looking statements speak only as of the date they are made. We undertake no obligation to update publicly or otherwise revise any forward-looking statements, whether because of new information, future events or other factors that affect the subject of these statements, except where we are expressly required to do so by law.

For a discussion of some of the specific factors that may cause Alcoa's actual results to differ materially from those projected in any forward-looking statements, see the risk factors described in Part I Item 1A of the Alcoa Corporation Annual Report on Form 10-K for the fiscal year ended December 31, 2024, filed with the Securities and Exchange Commission on February 20, 2025.

Throughout this report, the use of the term "material" and other similar terms is intended to reflect our priority sustainability topics. We are not using such terms as they are used under securities or other laws of the United States or any other jurisdiction or as these terms are used in the context of financial statements and financial reporting. Certain sustainability-related terms are defined in the Sustainability Glossary available on our website. These definitions are for informational purposes only and may be updated from time to time.

The Sustainability Report reflects Alcoa's latest ESG data, targets, and methodologies relevant to Alcoa's sustainability efforts and progress as of December 31, 2024. It supersedes and replaces any prior disclosures or reports issued by the Company. Any prior sustainability-related disclosures that are inconsistent with the information presented in this Report should be considered amended and restated by the contents herein. Past sustainability reports and disclosures should not be relied upon as reflective of Alcoa's current practices, commitments, or performance metrics.

This Report has Interactive Elements

Content Navigation

Starting in the Overview section, our report features a navigation pane at the top of the page. This allows readers to go directly to desired sections by clicking on the available links. A listing of subsections can also be found within each section. Click on a title to jump to that subsection.

There is also a house icon displayed in the bottom left corner of all pages that will take readers back to the main Table of Contents located at the beginning of the report.

Related Report Content

Internal links are found throughout the report. These links provide access to related content within the document, such as a list of acronyms found in **Appendix A**.

Data Book

Additional data tables are available as a separate Excel document and can be used for further data extraction and analysis.

Please download the **2024 Alcoa Data Book** for additional information.

Read More

More information regarding our policies, definitions for certain terms and other key information can be found on our website as well as by clicking "Read More" links found throughout the report.

Read more: Alcoa Sustainability

2024 Highlights

Zero

worker fatalities or serious injuries across managed operations

86%

of electricity used in Alcoa smelters came from renewable sources

2.03:1

ratio of mine rehabilitation to mine disturbance

US$1.6 billion

in wages and benefits provided to employees

US$8.2 million

spent globally on learning and development

12,312 hours

volunteered by employees in communities where we live and work

Completed 15

supplier site collaborations, a 10-site increase from 2023

Green Bond Report

Net US$737.4 million allocated to Eligible Green Projects

18

operating locations certified by the Aluminum Stewardship Institute (ASI)

Letter from our CEO

Dear Stakeholder,

Aluminum is essential to modern life, offering durability, recyclability, and lightweighting. At Alcoa, we meet growing global demand for aluminum while advancing sustainability through a pragmatic, purpose-driven approach grounded in our Purpose and our Values.

The safety of our people and our communities is at the heart of everything we do. In 2024, we achieved zero fatalities and zero life-altering injuries across our managed operations—the first time since 2016. This milestone reflects our relentless focus on building a strong safety culture by reinforcing critical risk prevention, strengthening confidence in our procedures and controls and embedding a safety culture in our daily operations.

Just as we believe that good safety practices are indicative of a well-run business, we also believe that the talent within our workforce is a competitive advantage and critical to our success in delivering innovative products and solutions. We work to attract, develop, and retain the very best, who in turn make lasting impacts on our business and communities. In 2024, we invested more than $8.2 million globally in learning and development initiatives, with our employees dedicating more than 12,300 hours of service within the communities where we live and work.

Continuing to strengthen our relationships with our host communities and governments through focus and collaboration with stakeholders remains a priority. We deepened our ties to Australia in 2024 with the conclusion of the acquisition of Alumina Limited, the addition of two Australian business leaders to our Board of Directors and our additional listing on the Australia Stock Exchange. Australia is a critically important part of our portfolio and our future operations, and we are committed to continued engagement there.

As we work to maintain strong and resilient operations, we also recognize our role in helping customers work toward achieving their sustainability goals. Through our Sustana® line of low-carbon products and our breakthrough ELYSIS® technology under development, we are enabling a lower-carbon future. However, reducing carbon dioxide emissions in our operations is not without its challenges. We achieved a 27.2 percent reduction in refining and smelting emissions intensity from our 2015 baseline, which is great progress. Still, due in part to energy-related constraints and external factors that influence the pace of decarbonization, we believe we will come short of our 2025 emissions reduction target. We expect to continue to make progress in this area and continue to advance our efforts.

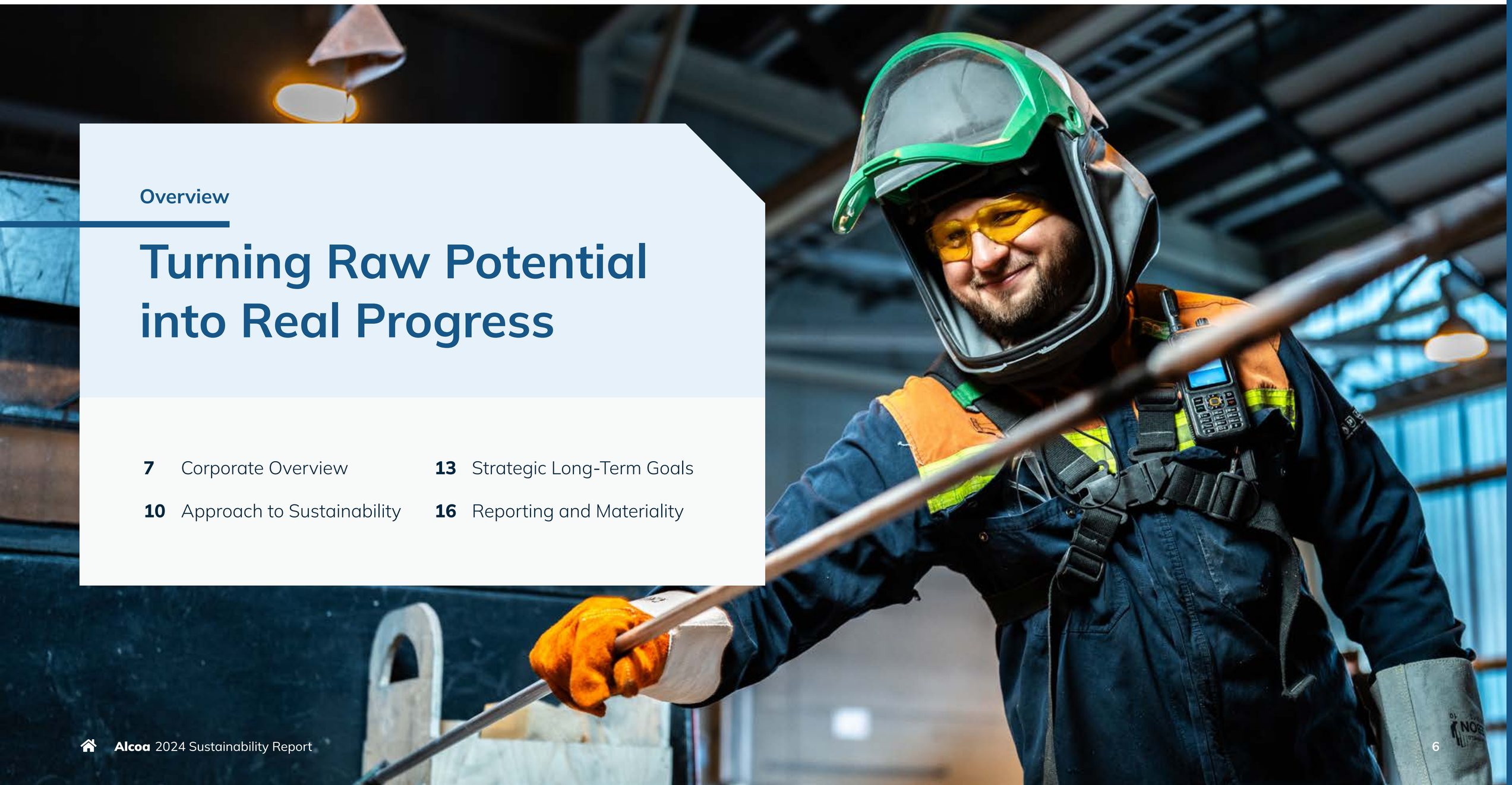
Looking ahead, Alcoa builds on more than 135 years of navigating change, overcoming challenges, and building resilience. I am proud of our people and their ability to deliver each and every day, and appreciate the trust and confidence that you, our stockholders and stakeholders, have placed in us. We recognize that trust is earned and remain committed to living our Purpose and Values as we continue to build on Alcoa's rich legacy.

Sincerely,

William F. Oplinger
President and Chief Executive Officer

"At Alcoa, we believe a high-performance culture is both underpinned by, and delivers a safe, well-run business, focused on operational excellence and continuous improvement through accountability and adaptability."

— **WILLIAM F. OPLINGER**
President and Chief Executive Officer



Overview

Turning Raw Potential into Real Progress

7 Corporate Overview

10 Approach to Sustainability

13 Strategic Long-Term Goals

16 Reporting and Materiality

Corporate Overview

Alcoa is a global leader in bauxite, alumina and aluminum products. Guided by our Values—Act with Integrity, Operate with Excellence, Care for People and Lead with Courage—our Purpose is to *Turn Raw Potential into Real Progress*.

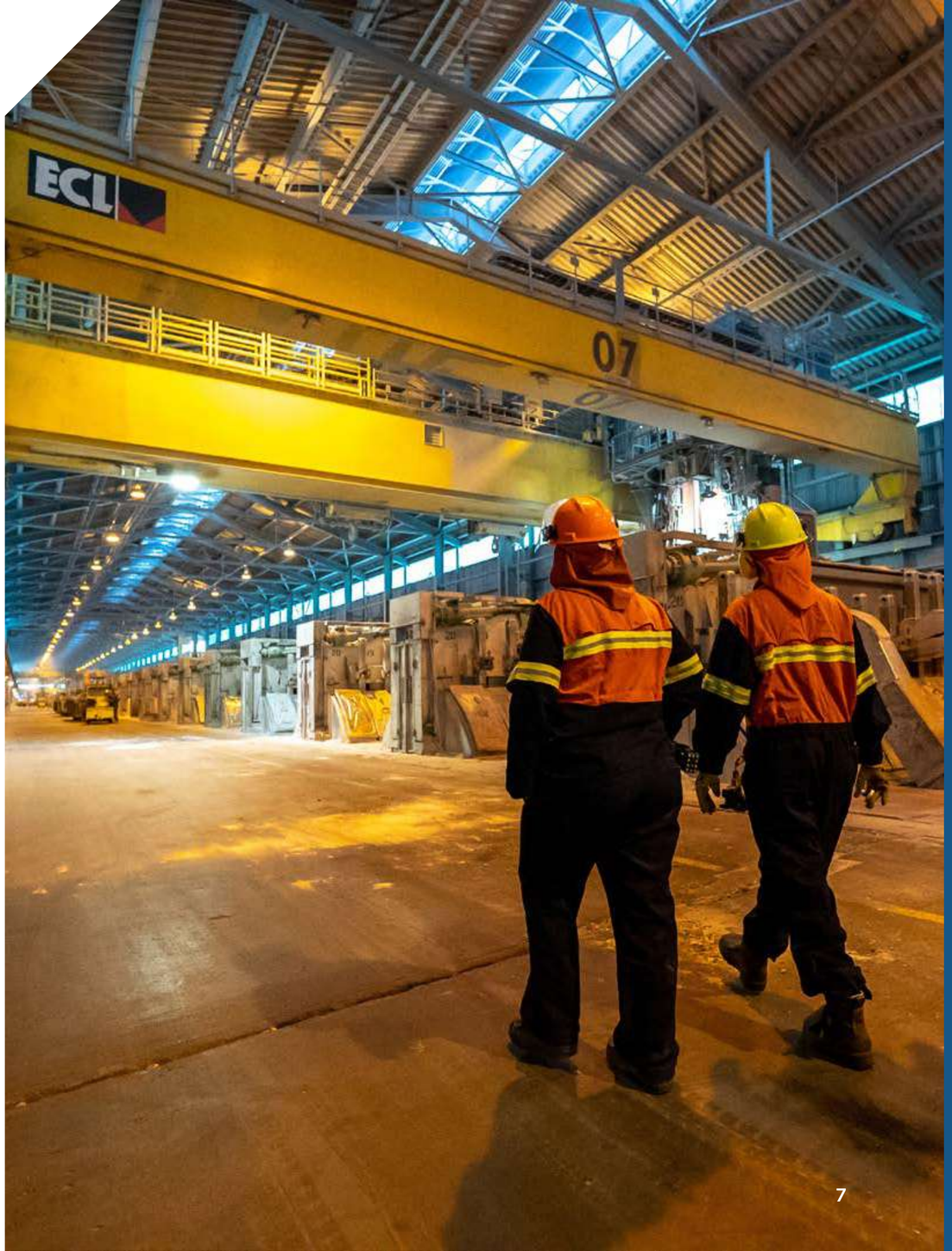
More than 135 years ago, Alcoa pioneered the process that made aluminum an affordable and essential part of modern life. Since then, our talented team has driven breakthrough innovations and best practices to enhance safety, efficiency and sustainability while strengthening our host communities.

We operate or hold an ownership interest in 26 operating locations across nine countries and six continents, with our global headquarters based in Pittsburgh, Pennsylvania, USA. Our culture of operational excellence and continuous improvement is a cornerstone of our success, helping us turn ideas into outcomes, impossibility into impact and “what if” into “what is.”

Alcoa common stock is traded on the New York Stock Exchange (NYSE) and Alcoa CHESS Depositary Interests are listed on the Australian Securities Exchange (ASX). Our business is organized into two segments: Alumina and Aluminum. Our Alumina segment includes our global bauxite mines and alumina refineries. With major mining operations in Australia and South America, we remain one of the world’s leading bauxite producers. We also operate one of the largest alumina businesses outside of China, with refineries across three continents. Our Aluminum segment encompasses aluminum smelting and casting, as well as the majority of our energy assets.

More information about Alcoa can be found in our 2024 Annual Report.

Read more: Alcoa 2024 Annual Report



Our Business Segments

Alumina

This segment consists of the Company's worldwide mining and refining system, including the mining of bauxite, which is then refined into alumina, a compound of aluminum and oxygen, that is the raw material used by smelters to produce aluminum metal. Bauxite is the principal raw material used by refineries to produce alumina and contains various aluminum hydroxide minerals. The Company obtains bauxite from its own resources in Australia, Brazil and Guinea, as well as through long-term and short-term contracts and mining leases.

On August 1, 2024, Alcoa successfully completed the acquisition of Alumina Limited, further strengthening the Company's market leadership. With this acquisition, Alcoa now fully owns and controls the Alcoa World Alumina and Chemicals (AWAC) joint venture, in which it previously held a 60 percent interest. In 2024, AWAC consisted of a number of affiliated entities that owned, operated or had an interest in bauxite mines and alumina refineries in Australia, Brazil, Spain, Saudi Arabia and Guinea and a 55 percent interest in an aluminum smelter in Victoria, Australia.

Aluminum

This segment includes the Company's worldwide smelting and casthouse system, as well as a portfolio of energy assets in Brazil, Canada, and the United States. The smelting operations produce molten primary aluminum, which is then formed by the casting operations into either common alloy ingot such as t-bar, sow, standard ingot or into value-add ingot products such as foundry, billet, rod, and slab. The energy assets supply power to external customers in Brazil and the United States, as well as internal customers in the Aluminum segment.

Purpose and Values

Purpose

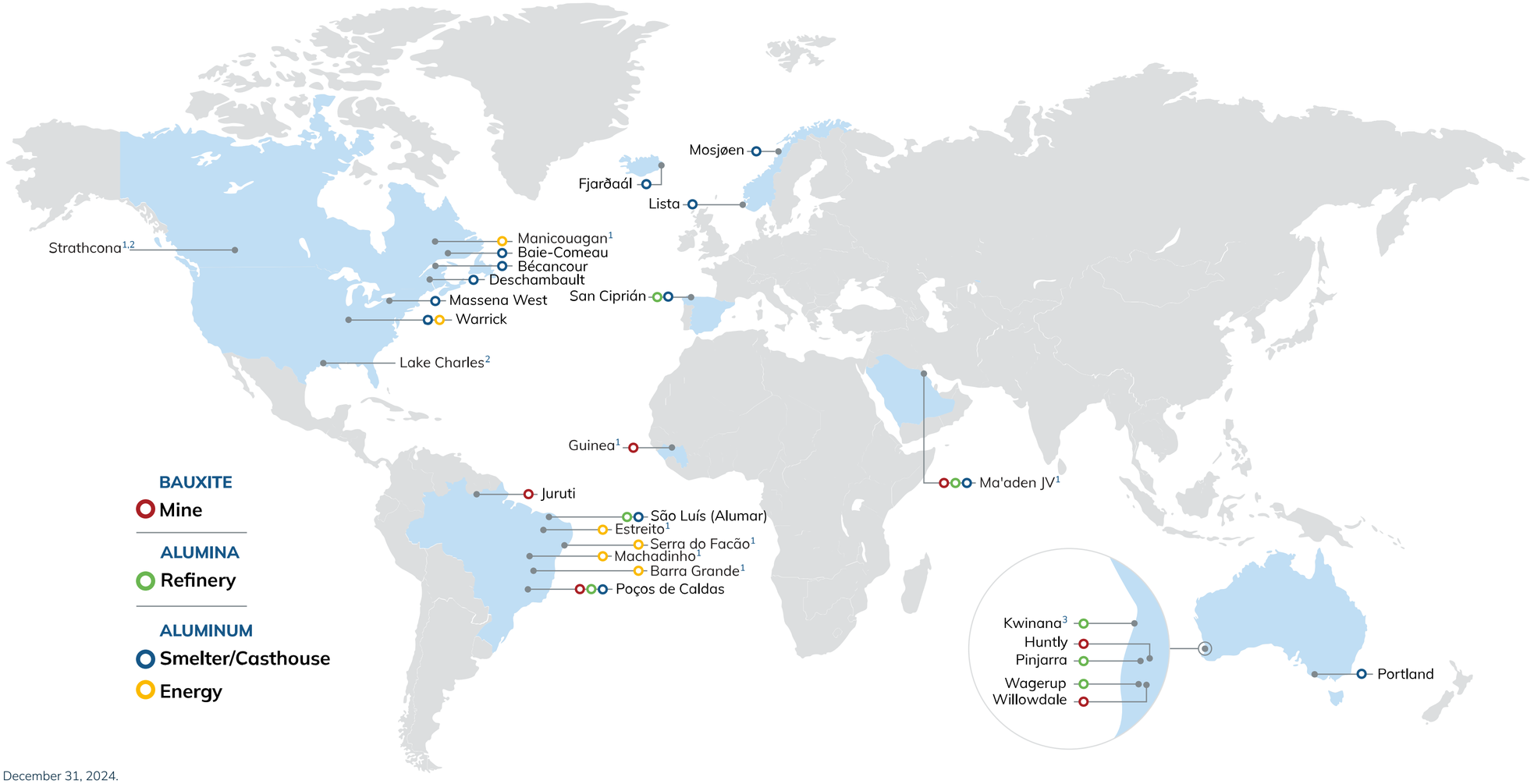
We Turn Raw Potential into Real Progress

Our Purpose extends beyond what we make today. It's why we exist and how we make the world better. It reflects what we've always been and provides clear direction for our future and helps keep us rooted to our strengths. Our Purpose helps guide every goal we set, decision we make, action we take and strategy we implement.

Values

Act with Integrity	**Operate with Excellence**
Care for People	**Lead with Courage**

Alcoa Locations



Location data as of December 31, 2024.

[1] Minority ownership, non-operating partner.

[2] Processes petroleum coke, a raw material used to create anodes used in aluminum smelting.

[3] Alumina refinery capacity curtailed in 2024.

Approach to Sustainability

At Alcoa, our commitment to operate as a responsible business in alignment with our Values forms the foundation of our sustainability practices and provides the opportunity for us to deliver ongoing meaningful value to stakeholders and host communities. We do this by integrating sustainability considerations into our daily operations, our engagements with communities and our employees and the development of the products that we use each and every day.

Operations

Sustainability practices are integrated into our operations to support the development and execution of our business strategy. We will not waver on our commitment to safety and continuous improvement, creating an environment where our employees and contractors can return home safely at the end of each day. Through active identification and management of risks, we continuously strive to minimize the social and environmental impacts throughout the lifecycle of our operations. To underscore that commitment, long-term goals have been developed, are routinely measured against and transparently disclosed. These actions, along with adherence to jurisdictional regulations and our policies and standards, allow us to further build resiliency in our business and deliver maximum value.

People and Communities

We aim to create value for our stakeholders, with a primary focus on our employees and host communities. Our employees are the cornerstone of our business. We continuously invest in our workforce's growth and development and view an inclusive environment to be a competitive advantage as it makes us stronger and more agile. Our host communities are also vital to the success of our operations. Through meaningful engagement, we strive to develop and sustain strong relationships with local stakeholders and host communities and work diligently to understand and address their interests and concerns. Alcoa invests in the communities where we live and work through the Alcoa Foundation (global), Instituto Alcoa (Brazil) and from our global operations. Charitable contributions include donations, sponsorships and outcomes-focused social, environmental and economic initiatives.

Read more: Alcoa Foundation and Instituto Alcoa

Products

As the innovators of the original aluminum technology still used today, we work to develop products that are designed to meet our customers' needs now and in the future. Our Sustana® product line offers primary aluminum with a lower carbon footprint, alumina refinery products with lower emission intensities and aluminum with at least 50 percent pre-consumer recycled content. Alcoa is committed to responsible sourcing and production efforts and is certified by the Aluminum Stewardship Institute (ASI) at 18 of our active operating locations.

Read more: Sustana and ASI Certifications

SDG Alignment

Sustainability Oversight

Our sustainability initiatives are overseen at various levels, from the Board of Directors level to management committees and working groups. In 2024 we formalized our sustainability governance by creating a more structured framework for management's development, monitoring, and communication of goals and targets, risks and opportunities, and performance. This enhances alignment and decision-making across the Company.

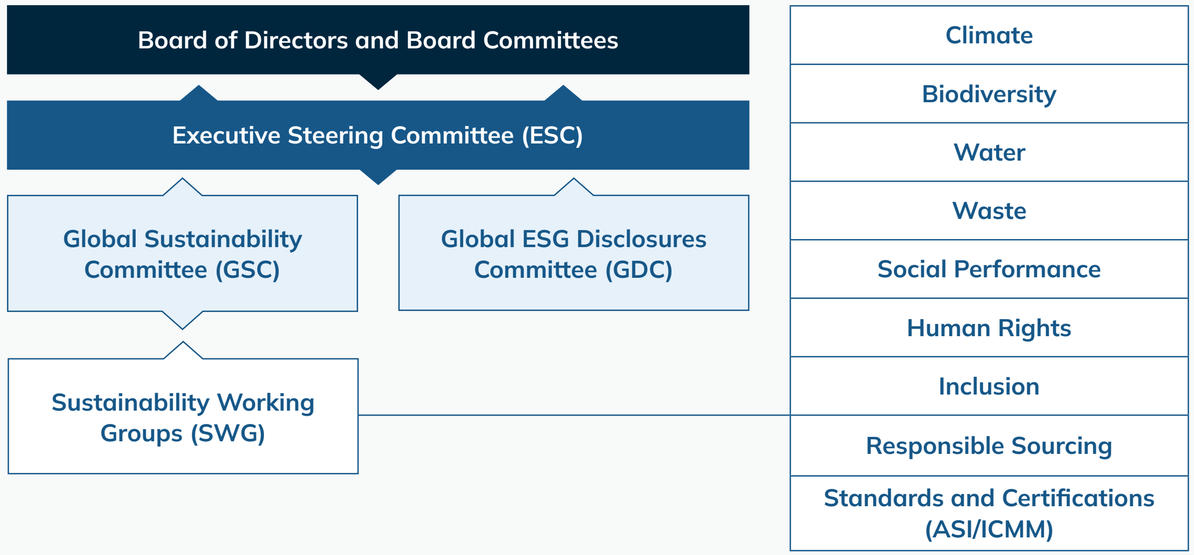
The Safety, Sustainability and Public Issues (SSPI) Committee of the Board of Directors provides guidance on matters relating to our corporate and social responsibility practices, including safety and health, environmental sustainability, social performance and other relevant topics. The Board and other Board Committees may also receive occasional updates addressing ESG-related matters as necessary.

Our enhanced governance approach includes an Executive Steering Committee (ESC), comprised of all executives who have oversight of one or more aspects of sustainability. Beginning in 2025, the ESC will receive regular updates on sustainability progress.

Alcoa Sustainability Governance Structure

As part of our preparation for the European Union's Corporate Sustainability Reporting Directive (CSRD), we created a project team and established an executive steering committee specific to CSRD to support implementation and oversight of the related reporting requirements. The project team routinely reports on the status of the project to the GDC and CSRD steering committee.

Alcoa Sustainability Governance Committee Structure



Two working committees manage the company's sustainability initiatives, the Global Sustainability Committee (GSC) and the Global ESG Disclosures Committee (GDC).

The GSC is comprised of the leaders of the various Sustainability Working Groups (SWG), which are topically focused, and meets on a quarterly basis to monitor performance against commitments and targets; evaluate strategy, including proposed initiatives, goals, and targets; and propose updates to relevant policies and standards.

The SWGs are comprised of cross-functional corporate, regional and operations representatives and meet routinely to evaluate the progress on commitments and targets, develop and propose new goals and share learnings and challenges related to their respective focus areas.

The GDC is a cross-functional committee established to discuss and monitor current and upcoming disclosure activities, trends, risks and opportunities.

Strategic Long-Term Goals

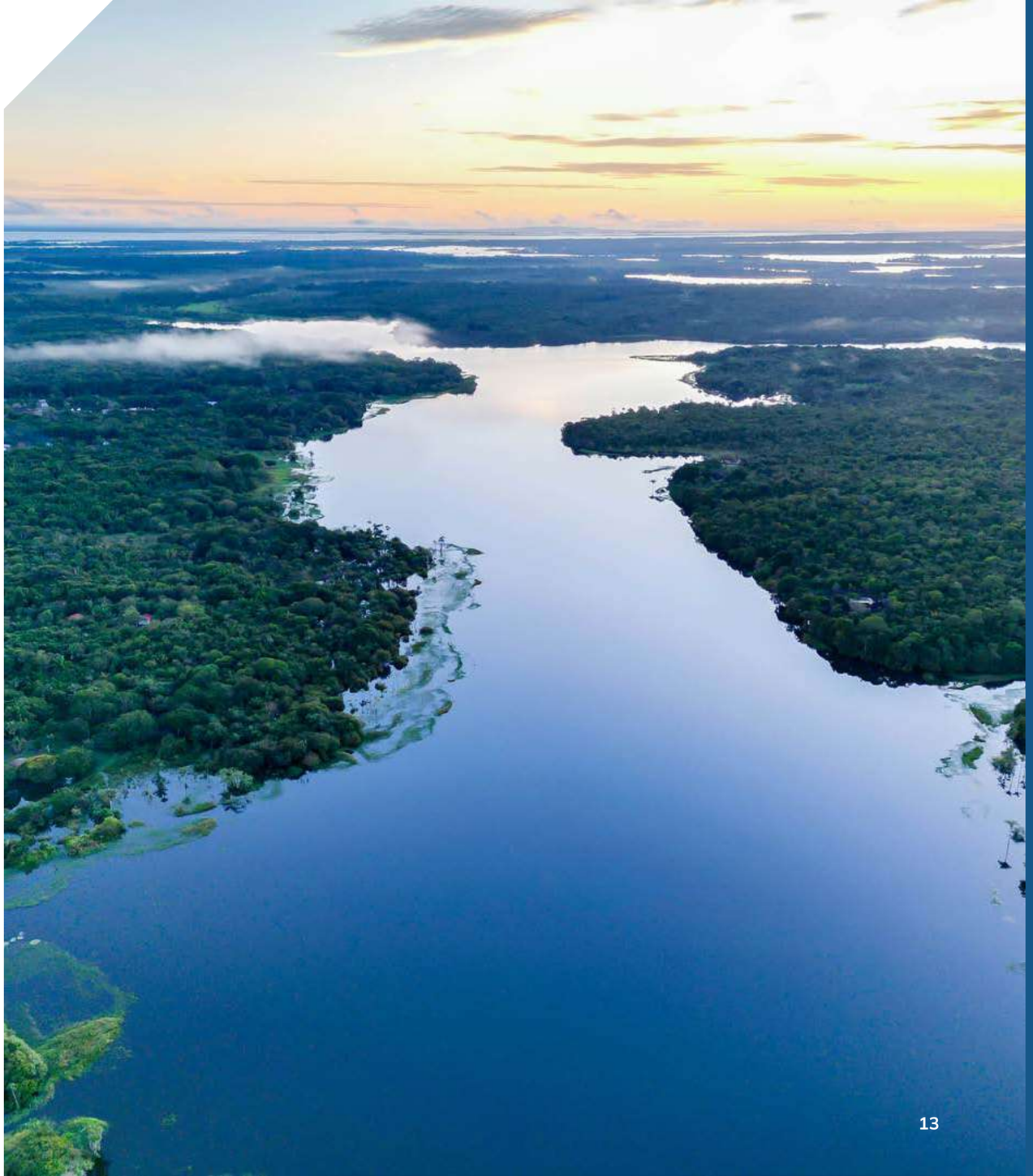
At Alcoa, we established long-term strategic sustainability goals to align with our high priority material topics, to enable our continued focus on the key areas relevant to our business, stakeholders and host communities. These goals guide our decision making and management practices, keeping us focused on our key sustainability risks.

Performance against our goals is reviewed regularly through our SWGs and the GSC. Our current long-term sustainability goals were primarily established in 2019, with target completion dates set for 2025 and/or 2030. In several areas, we have already met or exceeded these targets; and, while we continue to progress our plans, there are others that are currently forecasted to be achieved later than our established goal date, including our emission intensity goal and our water intensity goal.

Our progress will not always be linear due in part to challenges and factors that are beyond our control that could impact our ability to meet some of our goals.

We began reviewing the continued appropriateness of our long-term goals in 2024 and will continue our review throughout 2025 for relevance and alignment with our priorities. As necessary, goals will be updated. This process will include evaluating our internal business risks, results of our materiality assessment and the evolving expectations of our stakeholders and host communities.

For more information, please see the **Reporting and Materiality Section.**



Strategic Long-Term Sustainability Goals[1]

Goal	Progress	SDG
Safety and Health		
Zero fatalities and zero serious injuries (life-threatening or life-altering injuries and illnesses).	0 fatalities and 0 serious injuries in 2024 - an improvement over 2023 when we reported two serious injuries.	3, 8
Shared Value Creation[2]		
Maximize the impacts of socioeconomic development grants from the Alcoa Foundation and Instituto Alcoa, and company-funded initiatives to improve access to skills development and capacity building training in the regions where Alcoa operates.	In 2024, these funds benefited 86 programs and 41,743 participants – a significant increase from the 15,995 participants reported in 2023.	4
Local Commitment with Communities		
Implement a social performance management system (SP360) at all operating locations, including the definition of performance metrics and long-term goals to be achieved by 2025 and 2030.	Facilitated the adoption of SP360 across all regions by conducting training sessions on standards, performing conformance diagnosis exercises and developing compliance plans.	3, 4, 5, 8, 10, 16, 17
People		
Achieve a more inclusive environment that reflects the communities where we operate.	Women represented 20.1 percent of our global workforce – an increase from 19.3 percent in 2023. Individuals from underrepresented populations made up 63.9 percent of our new hires in 2024 - an increase from 44 percent in 2023.	5, 10
Climate Change		
Align our GHG (Scope 1 and 2) emissions reduction targets with the “well below 2°C” pathway by reducing GHG emission intensity by 30 percent by 2025 and 50 percent by 2030 from a 2015 baseline of 7.1 mt CO_2 e/mt Al.	Achieved a 27.2 percent reduction from our 2015 baseline. Based on our current trajectory, we do not expect to meet our 2025 emissions reduction goal.	7, 12, 13

[1] Each SDG icon indicated here signifies Alcoa’s alignment with one of the United Nations Sustainable Development Goals. They are a set of 17 goals with specific indicators agreed to by UN member states for achieving sustainable development and they demonstrate how our actions contribute to broader global sustainability efforts.

[2] This goal has been updated for clarity. The substance, intent and measurement on progress towards achieving the goal are unchanged.

Goal	Progress	SDG
Impoundment Management		
From a 2015 baseline of 53 m^2/1000t m^2/ k mt Al, reduce bauxite residue land requirements per metric ton of alumina produced by 15 percent by 2030.	Achieved a 17.5 percent reduction from 2015. Not only did we meet our target in 2023 with a 15.5 percent reduction, but our 2024 result marks further improvement.	12, 15
Mine Rehabilitation		
Maintain a corporate-wide annual ratio of 1:1 or better for mine rehabilitation to mine disturbance (excluding long-term infrastructure).	Achieved a 2.03:1 ratio in 2024 – an improvement from 1.31 to 1 in 2023.	12, 15
Emissions and Waste		
From a 2015 baseline of 131.7 mt, reduce landfilled waste by 15 percent by 2025 and 25 percent by 2030.	Achieved a 23.4 percent reduction from 2015 - a slight improvement over our 22.8 percent reduction reported in 2023. Our 2023 and 2024 landfilled waste totals were elevated due to continued material recovery activities related to the restart and operation of the Alumar Smelter.	12, 15
Water Stewardship		
From a 2015 baseline of 3.79 m^3 water/mt Al, reduce the intensity of our total water use from water-scarce locations by 5 percent by 2025 and 10 percent by 2030.	Reported a 5 percent increase from our 2015 baseline. This increase is attributed to challenges associated with lower bauxite grades. The current forecast of ongoing bauxite grade issues, combined with a revised capital investment timeline, will delay the achievement of our water stewardship targets.	6, 9, 12, 14

Reporting and Materiality

Throughout the reporting year, we continued to review and build upon the results of our 2023 materiality assessment.

We initiated internal alignment of our materiality assessment approach with the requirements of the European Sustainability Reporting Standards (ESRS), establishing a foundation for our future reporting efforts under the EU CSRD. In addition to this analysis, we reviewed the 2023 materiality topics and their impact ratings to determine if modifications were needed for 2024. This was discussed with the Global ESG Disclosures Committee (GDC) and the CSRD steering committee, and it was determined that Health and Safety would be adjusted to a higher 'impact to people' rating; therefore, it was moved accordingly and is reflected in our materiality matrix. No additional changes were made in 2024. Our efforts continue to focus on the sustainability topics that are most relevant to Alcoa, its stakeholders and the environment.

Our materiality assessment was informed by GRI Standards and aimed to consider the impacts Alcoa has on people and the environment, as well as the impacts that relevant topics can have on our business. We reviewed these topics for alignment with our Enterprise Risk Management (ERM) and Operational Risk Management (ORM) frameworks (see Risk Management section), as well as voluntary disclosure standards such as International Financial Reporting Standards (IFRS) Foundation Sustainability Standards, Task Force on Climate-Related Financial Disclosures (TCFD), ASI, ICMM, Extractive Industries Transparency Initiative (EITI), and Global Industry Standard on Tailings Management (GISTM).

We reviewed the list of relevant topics against their scores in the materiality assessment and our internal risk prioritization. We also collected input from various consultations and analyzed internal documents to determine Alcoa's priority topics. We conducted our consultations via online internal and external surveys and interviews to gain a variety of perspectives.

Our Approach

Our materiality assessment process was designed and executed in collaboration with an external consultant and included input from key internal stakeholders. Throughout the exercise, we focused on alignment between the review and Alcoa's Enterprise Risk Management (ERM) and Operational Risk Management (ORM) processes and outcomes.

Our process comprised four key steps:

1. **Determining the relevant topics.** Alcoa reviewed over 150 internal and external documents, including biodiversity, water and climate change impact assessments, external surveys and local community engagement records.

2. **Engaging with stakeholders and host communities.** We collected qualitative and quantitative data on specific topics from over 350 stakeholders, including more than 250 internal employees and almost 100 external stakeholders.

3. **Analyzing and collating the findings.** We evaluated the results of our internal and external document review and stakeholder engagements to synthesize key findings.

4. **Reviewing the key findings.** Our internal subject matter experts and senior management reviewed the topics identified through this process.

Key Insights From the Assessment

The outcomes of our materiality assessment are presented in a four-quadrant matrix. This format shows each topic's level of impact to the business along with its level of impact to the environment and people.

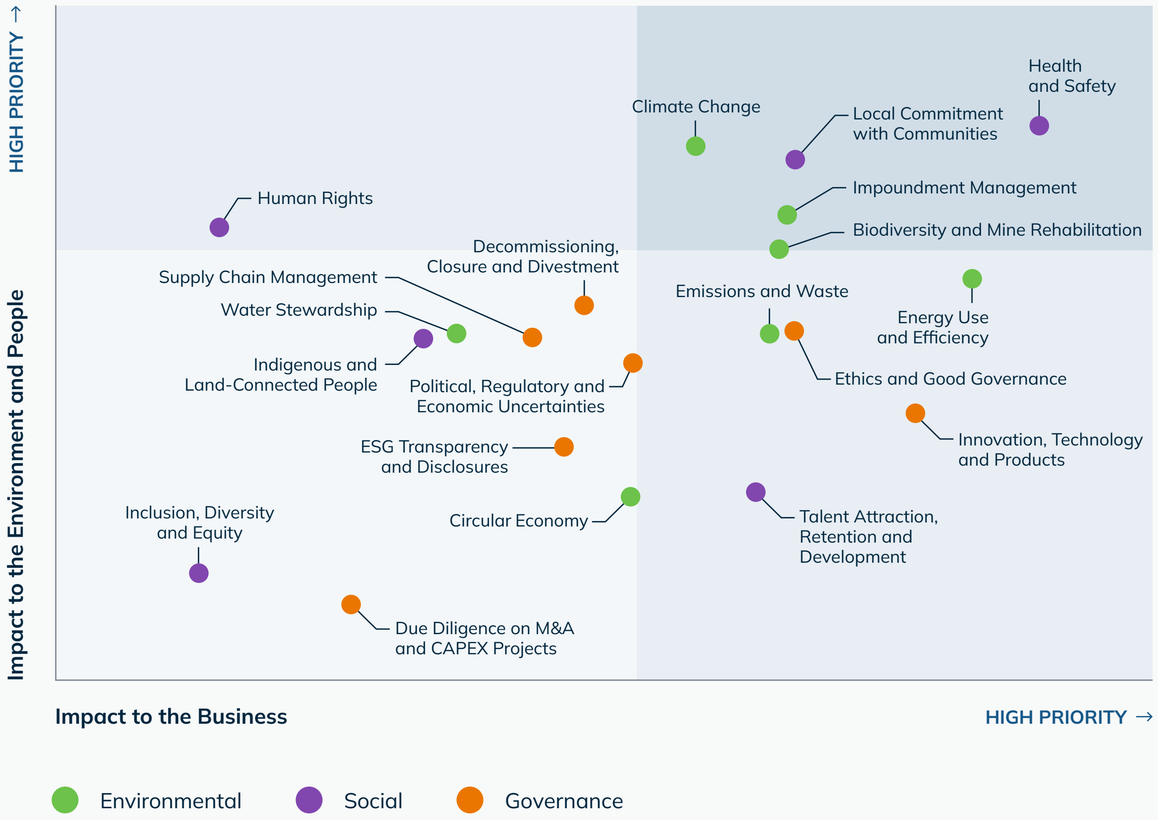
Our assessment identified 20 topics relevant to Alcoa, an increase from 14 in our previous assessment conducted in 2022. We informed this outcome by drawing from GRI Standards as well as the ICMM, ASI and our wider business context.

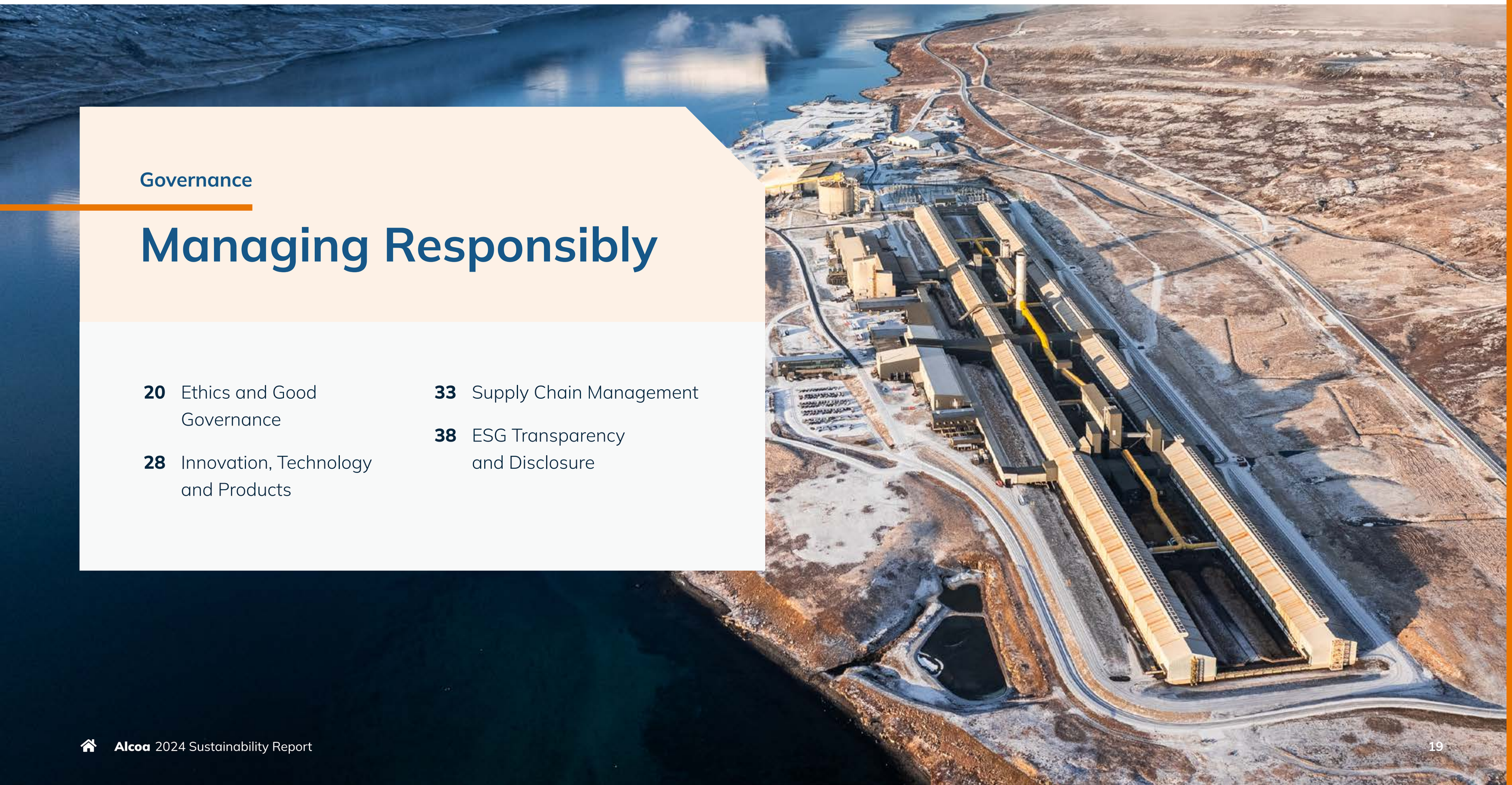
The priority topics were defined as those rated as major by stakeholders or critical as defined by our internal risk management methodology. Health and safety is considered the most critical component to our operations and business and thus was adjusted to a higher 'impact to people' rating based on our 2024 review, but all other topics remained at their priority placement.

- **Impact priorities for both Alcoa and the environment and people:** local commitment with communities, impoundment management, climate change, health and safety, and biodiversity and mine rehabilitation.
- **Impact priorities for the environment and people:** climate change, local commitment with communities, impoundment management, human rights, and biodiversity and mine rehabilitation.
- **Impact priorities for Alcoa:** health and safety, energy use and efficiency, innovation, technology and products, local commitment with communities, ethics and good governance, impoundment management, biodiversity and mine rehabilitation, emissions and waste, talent attraction, retention and development, and climate change.

For more information on our materiality assessment process, please see **Appendix B**.

Materiality Matrix





Governance

Managing Responsibly

20 Ethics and Good Governance

28 Innovation, Technology and Products

33 Supply Chain Management

38 ESG Transparency and Disclosure

Ethics and Good Governance

Acting with Integrity is one of our company Values and is vital to our sustainability efforts. Our corporate governance structure, policies and procedures are designed to advance safe and ethical conduct throughout our business and operations.

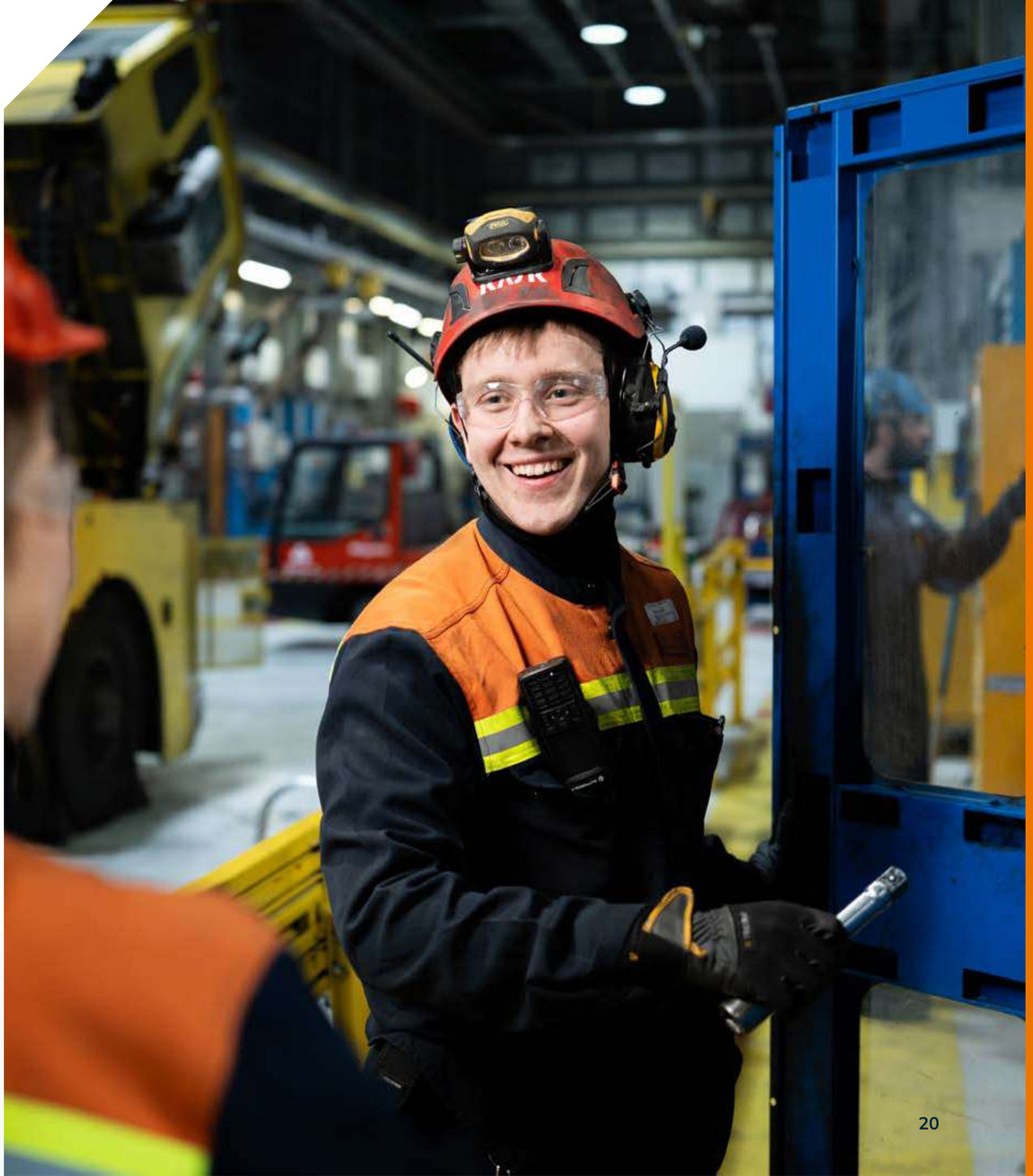
Our ethics program and Code of Conduct and Ethics set forth the expectations for how we live our Values, conduct business and interact with each other and our business partners.

Read more: Alcoa's Values, Code of Conduct and Ethics

Visit our Ethics and Compliance (E&C) page for information on how we manage compliance across the company.

Read more: Ethics and Compliance

SDG Alignment



Ethics

Communicating and Training

We promote a “speak-up” culture so employees can share their ideas, opinions and concerns. We facilitate this people-focused approach through various communication channels, including our company intranet, periodic Ethics and Compliance newsletters and regular training courses.

To keep ethics front of mind, all Alcoa employees must complete our annual Code of Conduct and Ethics training. Additionally, all salaried employees must complete anti-corruption training, as well as an annual Conflicts of Interest Disclosure.

Our other trainings include:

Respect in the workplace training, covering expectations for leaders, communication channels for reporting concerns, and the potential consequences of failing to address inappropriate behaviors.

Reporting and Investigating

A key tool for promoting ethics and transparency is our confidential Integrity Line. It is available 24/7 to all employees and external stakeholders and host communities in multiple languages. Callers can anonymously submit ethics-related questions or concerns, or report suspected breaches of laws, policies or company values. Submissions can also be made via the Integrity Line website, email or post.

In 2024, the majority of Integrity Line submissions (81 percent) were employment related, while the remainder pertained to business integrity, Environment, Health and Safety (EHS), and data privacy/information systems. Of the submissions received, 52 percent were questions or other matters not requiring investigation or substantial follow-up as they did not involve alleged violations of Alcoa's Code of Conduct and Ethics, policies or procedures. Of the 48 percent of submissions that required investigation, 14 percent resulted in disciplinary actions.

Read more: Integrity Line

An independent third party receives all Integrity Line submissions. All submissions are also directed to our global E&C team, which monitors the number, type and location of reports to address any trends of misconduct. The team may launch targeted location training featuring members from E&C, Legal and Human Resources if trends of misconduct are identified. In other cases, depending on the scope, it may run training programs for entire employee populations.

The E&C team meets quarterly with members of our leadership team to review metrics across our global compliance program, which cover anti-corruption risks, investigations, employee training, and data privacy. Our CEO, CFO and General Counsel receive a subset of these metrics every quarter, and our Board’s Audit Committee receives an annual report each year.

Anti-Corruption Program

Our anti-corruption program is targeted to comply with relevant laws while functioning as an effective compliance program, as recommended by the U.S. Department of Justice (DOJ).

Our Anti-Corruption Policy and its related procedures are designed to safeguard our people and company from corruption risks.

Read more: Anti-Corruption Policy

Our E&C team also supports our Responsible Sourcing Framework, which manages supply chain risks for anti-bribery, anti-corruption and other ESG-related issues. See the **Supply Chain Management** section.

Global Privacy Program

Our privacy strategy is designed to protect the interests of all employees, customers and third-party suppliers. Under our Global Privacy Program, we collect, store and use personal information following legal requirements, regulations and contractual obligations. The program works to ensure that we comply with the General Data Protection Regulation (GDPR) requirements and other privacy laws in the regions and countries where we operate.

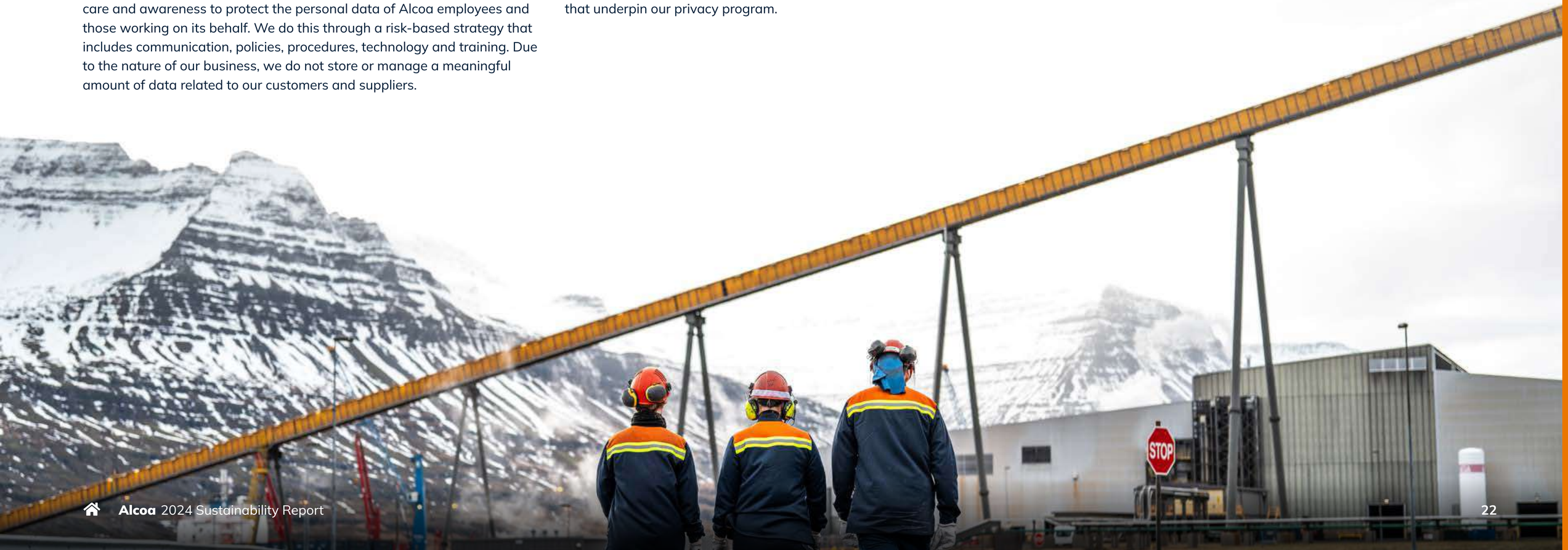
The Privacy Program Office (PPO) is led by the E&C Privacy Program Manager within our E&C organization. The PPO aims to create a culture of care and awareness to protect the personal data of Alcoa employees and those working on its behalf. We do this through a risk-based strategy that includes communication, policies, procedures, technology and training. Due to the nature of our business, we do not store or manage a meaningful amount of data related to our customers and suppliers.

The PPO oversees a Data Privacy Team, which provides additional expertise, leadership and input on strategy and a network of Data Protection Liaison Officers (DPLOs). The DPLOs are appointed representatives from the countries where we have a significant presence and in functions where considerable data processing takes place. They are elected by operational or functional leadership and are an extension of the PPO.

Our Data Privacy Standard details our approach to complying with international data privacy laws and regulations and defines the procedures that underpin our privacy program.

Our Privacy by Design Framework provides controls to ensure we consider privacy before purchasing, developing or implementing new services, systems or applications. The framework helps us anticipate, manage and prevent privacy risks in our system development, enhancement and procurement processes.

The standard and framework along with other documents and program elements support the strategy and execution of the Global Privacy Program.



Political and Government Engagement

Alcoa recognizes the importance of engaging across a broad set of government and regulatory entities as political, economic and regulatory changes have the potential to impact our business. As such, we work to assess and manage related risks, and work with external stakeholders to shape potential changes and manage Alcoa's preparation efforts.

Building Partnerships for a Sustainable Future

At Alcoa, we understand that the policies shaping our world today will define the business and sustainability landscape of tomorrow. As a global company operating across multiple jurisdictions, we actively engage with government and regulatory entities to help shape policies, while ensuring our business can thrive in a changing environment.

Our engagement strategy is rooted in transparency, accountability and the recognition that collaboration is essential. Whether addressing climate change, energy transitions, or fair trade, we work with external stakeholders to assess and manage risks, advocate for sound public policies and position Alcoa to be prepared for future challenges.

A Structured, Accountable Approach

Our in-house Government Affairs team monitors legislative and regulatory developments at local, national and international levels. This team not only tracks emerging issues but also engages directly in policy discussions and forums that affect our business and the broader aluminum industry.

Our public policy activities are governed by clear policies and procedures aligned with our Code of Conduct and Ethics. Oversight of these activities is conducted by Alcoa's executive management and the Board of Directors' Safety, Sustainability and Public Issues Committee.

Engaging on Issues That Matter

Our public policy advocacy focuses on key areas that are central to our business strategy and sustainability goals:

Climate: We advocate for policies that support the transition to a low-carbon economy and align with the Paris Agreement. We engage with industry associations that share this commitment, such as the International Aluminium Institute and national industry bodies across our regions.

Energy: As an energy-intensive industry, we promote access to affordable, renewable energy and decarbonization initiatives. We also invest in breakthrough technologies such as ELYSIS® inert anode smelting, ASTRAEA™ aluminum recycling, and our Refinery of the Future™ concept.

Trade: We work to ensure fair, balanced trade policies that foster a level playing field globally, using trade defense instruments where necessary.

Collaborating for Industry Progress

Our voice is amplified through active participation in industry associations, including the U.S. Aluminum Association, the International Aluminium Institute and others. These collaborations allow us to advocate effectively for policies that advance sustainability, innovation and competitiveness across the aluminum sector.

Political Contributions

Except as otherwise permitted by the Company's Political Contributions Policy, Company funds, property, services, or any other thing of value are prohibited for use for or in aid of, or in opposition to a ballot or referendum that may directly impact our company.

In 2023, we increased our transparency in this area by releasing a standalone report on our political contributions to ensure our contributions align with our public commitments. The 2024 update can be found here:

Read more: Policy Advocacy Disclosure

As permitted by U.S. and state law, the Alcoa Corporation Employees' Political Action Committee contributed approximately US$21,250 to the election campaigns of U.S. candidates for political office in 2024.

SDG Alignment

Risk Management

Effective risk management is essential to our long-term success. By proactively identifying, assessing and mitigating potential risks, we aim to protect our people, operations, reputation and our stakeholders while driving value creation.

Our Enterprise Risk Management (ERM) framework integrates environmental, social and governance (ESG) considerations and supports strategic decision-making in an increasingly complex global environment. This includes addressing climate-related risks, regulatory shifts and social expectations.

Governance and Culture

Alcoa's Board of Directors maintains oversight of risk management and regularly reviews Alcoa's enterprise and operational risk management processes. In 2024, we enhanced oversight with the addition of an Executive Risk Committee comprised of management to further support our Board of Directors and executive team in risk governance.

Our governance structure integrates risk considerations into strategic planning, helping to manage both traditional and emerging risks—such as those related to climate change, regulatory compliance and environmental and social performance.

We prioritize transparency, accountability and stakeholder engagement—fostering a culture of informed risk awareness and continuous improvement.

Three Lines of Assurance Model

We use a three lines of assurance model:

- **First Line:** Risk owners and business leaders manage and monitor risks.
- **Second Line:** The ERM function oversees and drives and supports risk management capabilities.
- **Third Line:** Internal Audit provides independent and objective assurance of our controls and governance.

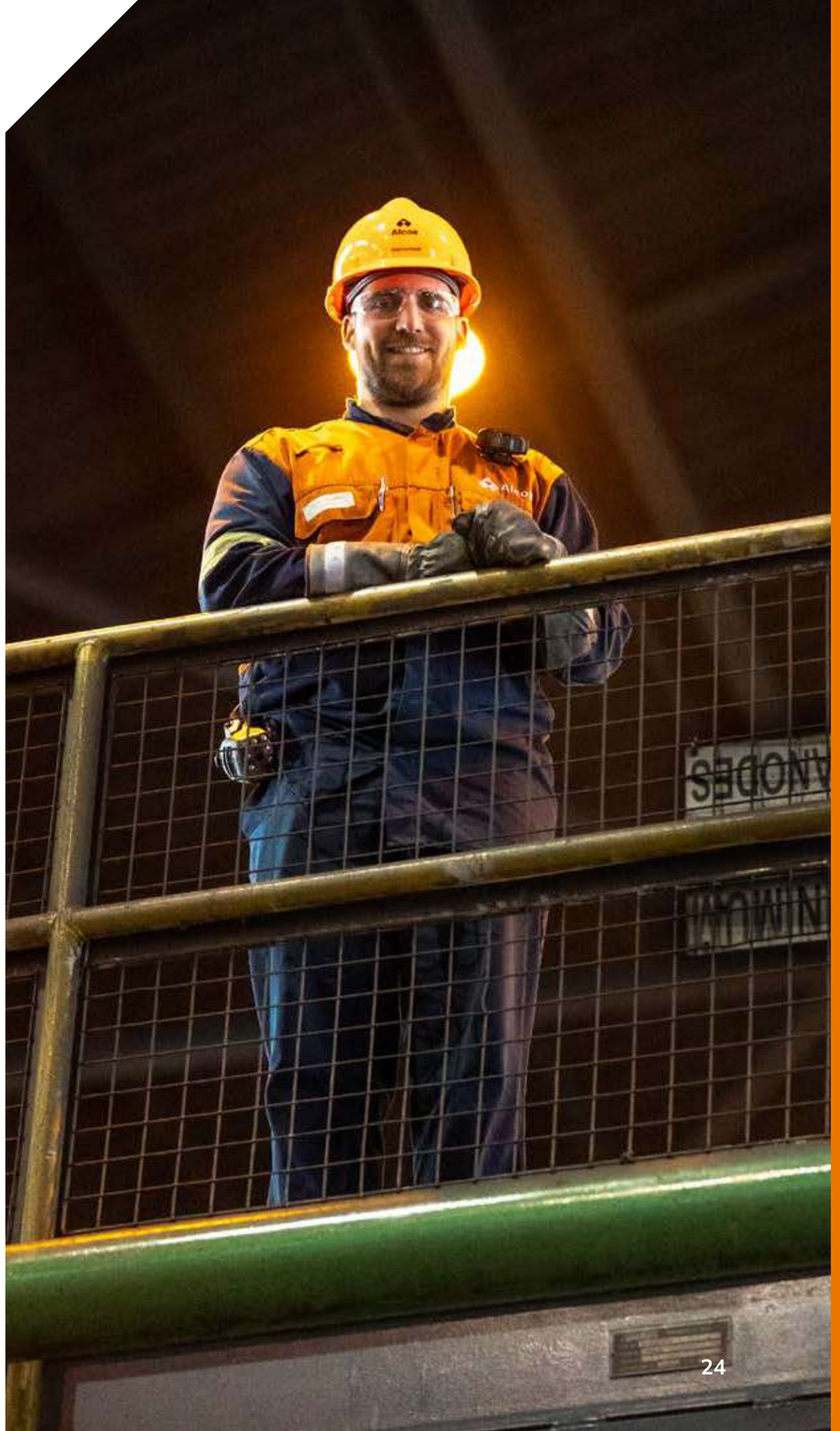
Risk Management Process

Our risk management process begins with understanding Alcoa's strategic context and identifying key risks across various dimensions, such as climate, resources, regulations and communities.

Risks are evaluated based on impact, likelihood, velocity and vulnerability. We implement controls and mitigation plans and we monitor outcomes regularly to foster agility and effectiveness.

Review and Revision

We are committed to continuous improvement. Our ERM framework is reviewed and updated regularly to close gaps, reflect emerging risks and align with business priorities—building resilience in a dynamic world.



Information, Communication and Reporting

Effective information sharing and reporting are integral to Alcoa's ERM framework. We aim to foster transparency, accuracy and alignment across all levels of the organization to support proactive risk management.

Our approach to ERM emphasizes:

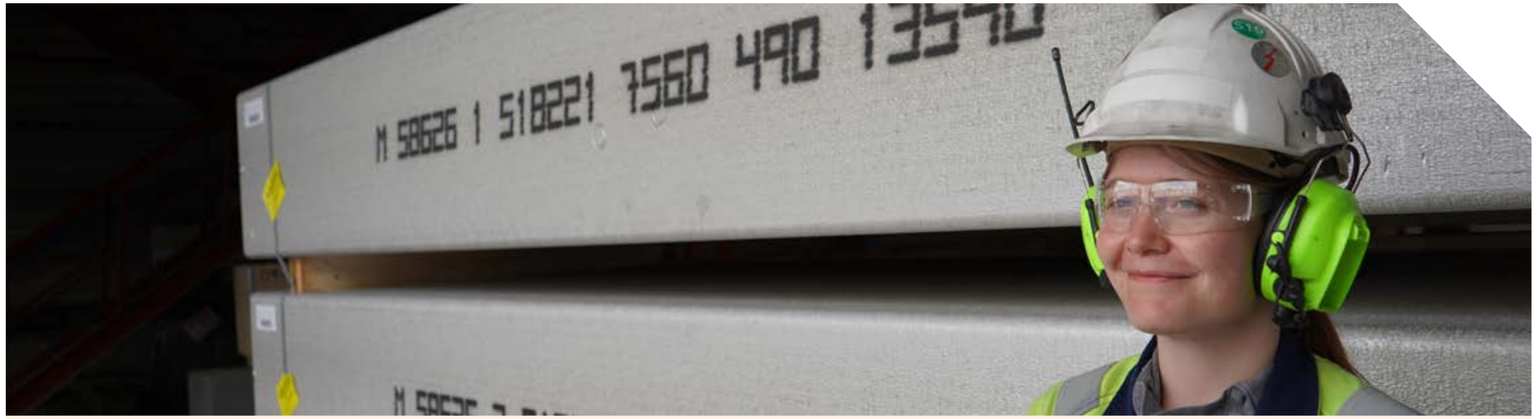
- **Information Integrity:** Prioritizing the collection, analysis and management of data to support informed risk assessment decision-making.
- **Open Communication:** Facilitating timely and consistent risk-related dialogue among stakeholders.
- **Transparent Reporting:** Providing regular updates on key risks, performance and emerging trends in line with global standards.

These practices reinforce accountability and enhance our ability to address risks effectively and seize opportunities related to sustainability and operational initiatives.

A summary of risks can be found in our Annual Report.

Read more: Alcoa 2024 Annual Report

We conduct Environmental and Social Impact Assessments (ESIA) for new facilities or expansions to identify potential risks and opportunities. For additional information, see the **Due Diligence on CAPEX and M&A** section.



We use a variety of risk management systems for specific business activities:

Operational Risk Management (ORM)
Over the last few years, we have implemented ORM to evaluate and manage our operational risks and connect them to enterprise-level risks. We take a collaborative approach to identify, monitor, and manage risks.

New Facilities or Expansion Projects
We perform an ESIA to identify potential risks and opportunities.

Environment, Health and Safety (EHS)
Our systematic approach to EHS risk assessment and management emphasizes critical controls to prevent and mitigate EHS incidents (See the **Health and Safety** section).

Human Rights
We complete periodic human rights risk assessments and due diligence at all locations (See the **Human Rights** section).

Cybersecurity
Our organization has established a cybersecurity program founded on the integration of the NIST Cybersecurity Framework and ISO 27001 standards. This hybrid approach strengthens our security posture to address increasingly sophisticated threats while maintaining alignment with internationally recognized best practices.

Through the continued maturation of our program, we are implementing enhanced capabilities that elevate our security posture beyond baseline compliance toward cyber resilience, enabling secure business innovation while effectively managing evolving risks to our most critical assets and operations.

Our program balances risk management, operational requirements and compliance obligations in support of our strategic business objectives.

Corporate Governance

Alcoa's commitment to ethics and compliance starts at the top with our Board of Directors' oversight of our overall strategy. Management, from the executive team to the front-line shift manager, is accountable for executing our business strategy with integrity.

The Alcoa Board of Directors has adopted Corporate Governance Guidelines and committee charters to promote the effective functioning of the Board, its committees and our overall corporate governance practices. For more information, see our **2025 Proxy Statement**.

Read more: Corporate Governance Guidelines, Board Committee Charters and Board of Directors

Compliance

Compliance is a fundamental building block of our success and how we put our value of Integrity into action. Our legal and regulatory compliance practices are intended to meet requirements, reduce risks and protect our stakeholders. At Alcoa, this is an ongoing effort involving multiple teams across our organization.

Legal and Regulatory Compliance

Led by our General Counsel, Alcoa's Legal Department oversees ongoing legal matters, governmental proceedings and regulatory developments that may impact Alcoa, our subsidiaries and controlled affiliates.

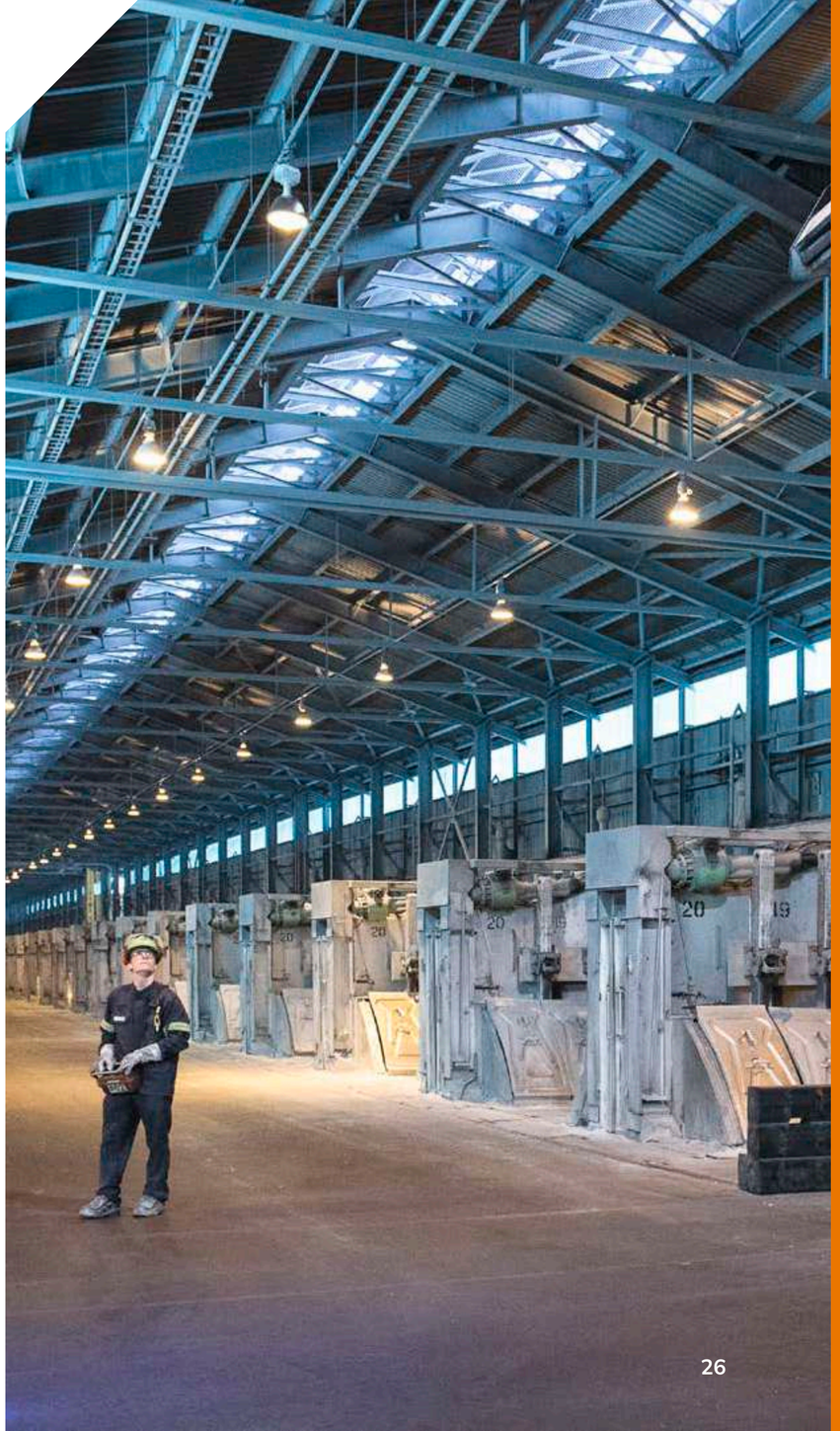
Given the geographic diversity and complexity of our operations, and in support of these efforts, the General Counsel relies on a global team of in-house lawyers and external legal counsel to help achieve our compliance objectives.

Our in-house lawyers are qualified and experienced in the nuances of legal interpretation in the regions where we have operations, specifically Australia, Brazil, Europe and North America. These expert lawyers advise on reporting obligations and manage ongoing legal matters and proceedings. External counsel may be engaged as needed for specialized expertise or jurisdictional support. As a matter of policy, all external counsel working on our behalf are engaged and managed with Legal Department oversight. Alcoa's legal team maintains knowledge of, and control over, our compliance efforts and any legal matters impacting the Company.

The Legal Department also partners with other compliance-related functions across Alcoa including Environment, Health and Safety, Human Resources and Ethics and Compliance, among other functions.

Supplier Compliance

To verify that our suppliers meet our high standards for quality, competitiveness and sustainability, we have established supplier compliance programs. See the **Supply Chain Management** section.



Environmental Compliance

Each of our operations is required to adhere to company-wide policies and standards that govern our environmental management practices. At the same time, we work to meet or exceed relevant legal requirements within each operating jurisdiction.

In 2024, Alcoa paid environmental penalties and fines totaling approximately US$5.4 million. This amount was primarily related to a US$5.25 million stipulated settlement to resolve a Clean Air Act enforcement matter initiated in 2019 at our closed Intalco smelter in the United States, arising from emissions exceedances from when the smelter was operational. The remaining amount related to resolution of other pending matters, such as self-disclosed water effluent exceedances or administration-related deviations.

We work transparently and collaboratively with environmental agencies, external stakeholders, and host communities to identify the root causes of non-compliances and find practical solutions as quickly as possible. We use our environmental compliance and tracking system to identify and address issues, monitor our progress toward targets and verify our actions are effective.

We integrate environmental compliance assessments into our risk-based Environment, Health and Safety (EHS) assessment process. We tailor each evaluation to the location's specific operational risk to address its current needs and challenges. The assessment teams are comprised of internal and external experts who collaborate with management at our sites.

CASE STUDY HIGHLIGHT

Advancing Green Finance through our Green Bond

After successfully amending our $1.25 billion Revolver Credit Facility to include sustainability-linked metrics in June 2022, our intention is to further align corporate sustainability commitments to our financing to meet our long-term goals. To that end, we designed a Green Finance Framework, under which we may issue, from time to time, a variety of financial instruments and other Green Finance Instruments in various formats and currencies, to finance and/or refinance, in whole or in part, new or existing qualifying projects that meet defined eligibility criteria and that are expected to have positive environmental impacts.

In March 2024, Alcoa completed our inaugural Green Finance Instrument of $750 million aggregate principal amount of 7.125% senior notes due 2031 (Green Bond). As a result, we published our Green Bond Report in April 2025 which provides an overview of our Green Finance Framework and summarizes the use of proceeds and impact metrics of our Green Bond.

The net proceeds of $737.4 million were fully allocated to Eligible Green Projects across four categories: renewable energy, circular economy adapted products and processes, pollution prevention and control, and water and wastewater management. Examples of funded initiatives include long-term renewable power purchase agreements in Norway, Australia and Brazil; the development of breakthrough low-carbon technologies such as ELYSIS® and ASTRAEA™; and advanced residue filtration at our Pinjarra refinery in Western Australia to enable water recovery and reduce land use.

Read more: Full case study, Alcoa Green Finance Framework and Green Bond Report

Innovation, Technology and Products

For over 135 years, Alcoa has been a leading innovator in alumina and aluminum production.

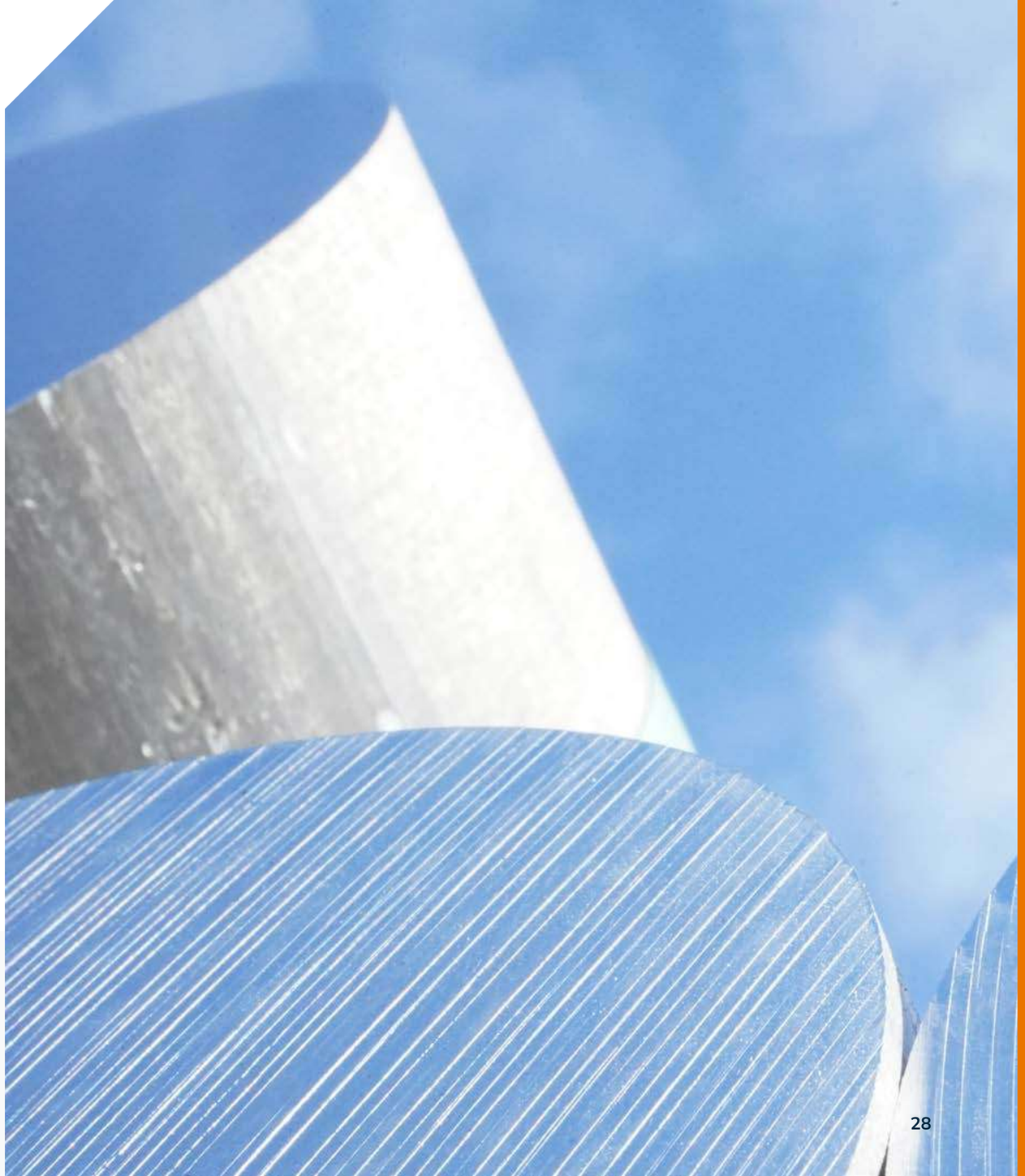
As a material needed to make everything from everyday beverage containers to intricate aircraft components, aluminum is critical to the global economy due to its malleability, resilience, lightness and recyclability. To learn more about aluminum's role in the global economy, visit the Aluminum Association's page.

Read more: The Aluminum Association

Innovating for the Future

Alcoa focuses on developing innovation strategies and new products that leverage aluminum's unique value and properties to create new growth opportunities. We support these aims by gathering feedback from our customers and other stakeholders and strive to incorporate their changing needs and expectations into our research and development (R&D). Through our technology development projects like ASTRAEA™, ELYSIS® and the Refinery of the Future™, we are continuously innovating to reduce GHG emissions and waste in the production of aluminum.

SDG Alignment



Our Products

Through our commitment to innovation, Alcoa is focused on delivering high-performance, lightweight solutions for aluminum's top-end use markets in transportation, building and construction, packaging, consumer durables, electrical and other industrial applications.

Sustana® Family of Products

Our Sustana line is a comprehensive product portfolio featuring properties such as low-carbon emissions and recycled content. It includes EcoSource® alumina, EcoLum® primary aluminum and EcoDura® aluminum.

EcoSource

EcoSource alumina is low-carbon alumina offered in both smelter-grade and non-metallurgical grades. EcoSource alumina is available globally and delivered from a refinery portfolio with an average emissions intensity that is less than 0.6 metric tons of CO_2e per metric ton of alumina produced. This figure includes both direct and indirect (Scope 1 and Scope 2) emissions from bauxite mining and alumina refining, highlighting Alcoa's mine-to-refinery advantage.

EcoLum

EcoLum aluminum is our primary aluminum produced from smelters that use renewable power and low-carbon alumina sources, with an emission intensity of less than four metric tons of CO_2e per metric ton of aluminum, including both direct and indirect (Scope 1 and Scope 2) emissions from bauxite mining, alumina refining, and aluminum smelting and casting.

EcoDura

EcoDura aluminum supports the circular economy by containing at least 50 percent pre-consumer recycled content. Available globally and manufactured in North America and Europe, EcoDura is made using "clean" scrap, or scrap not previously used in further manufacturing.

For additional information and data on Alcoa's Sustana line of products. **Read more:** Sustana

ASI Certification

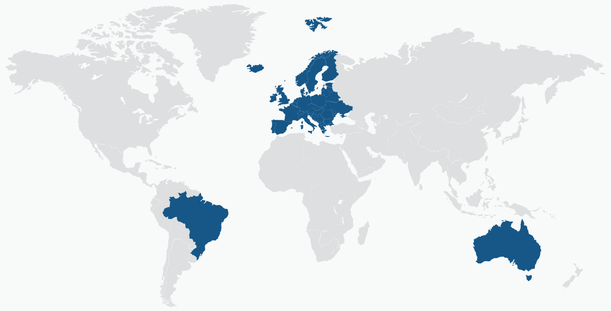
Our Sustana line of products demonstrates our commitment to develop products made with lower carbon emissions compared to both the global and regional industry averages for aluminum products and can be offered with certification from ASI.

EcoSource Emissions Intensity vs. Global Average

Metric tons of CO_2e/metric ton of alumina[1]

0.6 EcoSource	1.21 World average

Region of Production – Refining



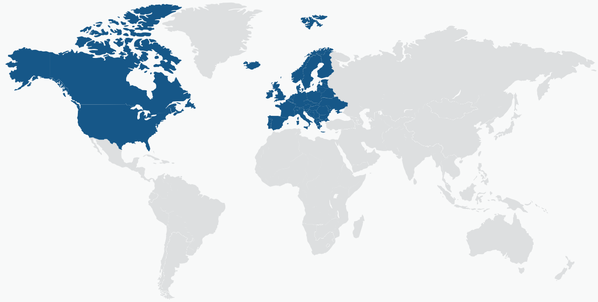
[1] Source: CRU emission intensity data, 2024

EcoLum Emissions Intensity vs. Global Average

Metric tons of CO_2e/metric ton of aluminum[2]

4.0 EcoLum	12.76 World average

Region of Production (Smelting)



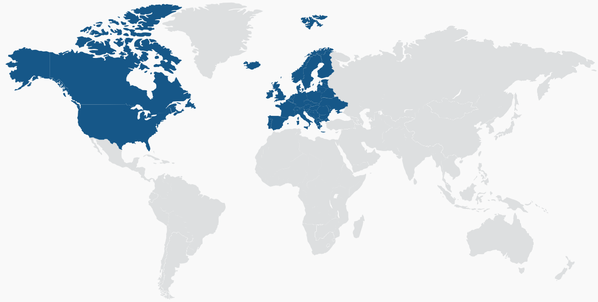
[2] Source: CRU emission intensity data, 2024

Average Recycled Content in Aluminum

Percent[3]

50% EcoDura	35% World average

EcoDura Availability



[3] Source: IAI, 2021

Low-Carbon Aluminum, to Include All Scopes and Emissions from Mine-to-Metal

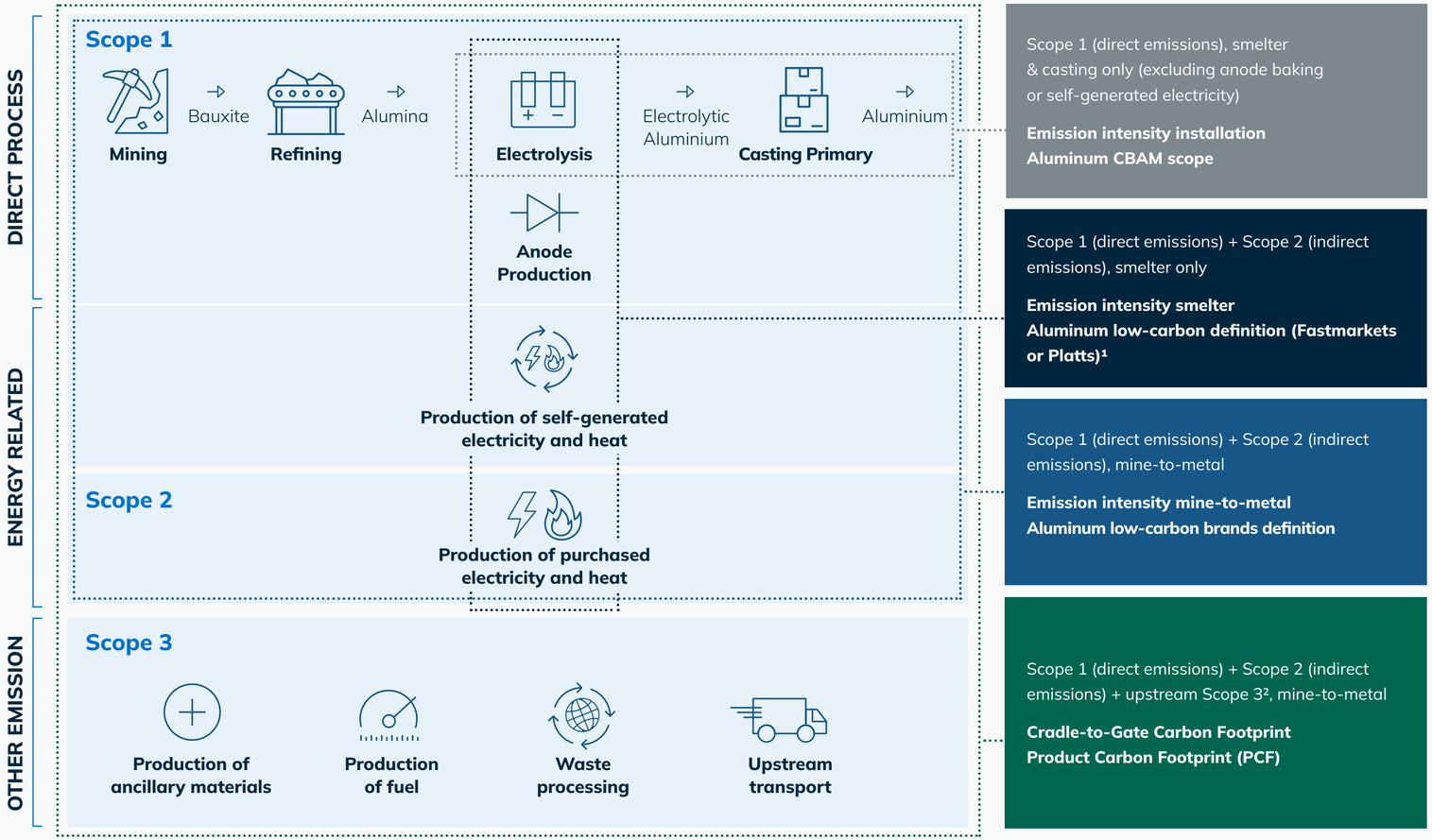
In the aluminum industry there are two main methodologies to evaluate CO_2e emissions of aluminum products: the emission intensity (including Scope 1 and Scope 2) across the full value chain and the total product carbon footprint, or cradle-to-gate carbon footprint (including Scopes 1, 2 and 3 upstream).

Adopting a mine to metal approach that includes all the GHG emissions across the entire primary aluminum value chain (mining, refining, smelting and casting) provides a more accurate representation of low-carbon aluminum.

Alcoa's EcoLum primary aluminum is produced from smelters that use renewable power and low-carbon alumina sources, with an emissions intensity that is less than four metric tons of CO_2e per metric ton of aluminum, including both direct and indirect (Scope 1 and Scope 2) emissions from bauxite mining, alumina refining, and aluminum smelting and casting, in accordance with the mine-to-metal methodologies. Additionally, Alcoa's EcoLum primary unalloyed aluminum has an emissions intensity that is less than five metric tons of CO_2e per metric ton of aluminum, in accordance with the cradle-to-gate methodologies.

> To connect leading companies with low-carbon aluminum technologies, Alcoa has joined the World Economic Forum's First Suppliers Hub, a global repository of innovative suppliers to support the ambition of global industrial decarbonization by 2050.

IAI Cradle-to-Gate Guidance



An example of an integrated production value chain, i.e., the direct operations at mine, refinery, smelter, casthouse, and power plant of a company.
For a company without integrated value chain, each block contained in the graphic above remains essential in product carbon footprint calculation. Each will be allocated into different scopes by following the GHG Protocol Corporate Accounting and Reporting Standard.

1. Platts, Fastmarkets, **less than 4.0t CO_2e/t** Al produced (Scope 1 + 2, **smelter only**), based on reported deals

2. Upstream categories aligned with IAI guidance IAI-specifiers-guide-to-iais-carbon-footprint-methodology (3.1. purchased goods and services; 3.3.Fuel and energy related activities; 3.4. Upstream transportation and distribution; 3.5. Waste generated)

CUSTOMER TESTIMONIAL

HELLENIC CABLES

Member of CENERGY HOLDINGS

Hellenic Cables is one of the largest cable manufacturers in Europe, producing submarine, power and telecommunications cables and is a global leader of cable solutions and provider of turnkey solutions. Hellenic Cables and Alcoa have worked together since 2022, when the companies launched a collaboration to enhance sustainability in renewable energy infrastructure.

Read more: Hellenic Cables

"At Hellenic Cables, long-term prosperity relies on balancing financial performance with environmental sustainability. Our partnership with Alcoa and our use of its EcoLum product reflects the effectiveness of the energy and climate change initiatives and our strong commitment to continuous improvement, both by reducing our indirect greenhouse gas emissions and providing cable solutions decoupled from high-carbon materials."

— KOSTAS SAVVAKIS
General Manager, Hellenic Cables

Leading R&D Projects

Refinery of the Future™

Our Refinery of the Future project is aimed at developing technologies to reduce water and waste in refining, as well as reducing the emissions generated from the thermal energy used in the refining process. One example is electric calcination, where renewable energy will drive the calciner, eliminating related carbon emissions. While the application of electric calcination in alumina refining is still in the R&D phase, the building block technologies to support the process are proven.

ASTRAEA™

Our ASTRAEA scrap upscaling technology, which is an R&D project under development, has the potential to process any aluminum-based scrap to purity levels matching or surpassing commercial primary aluminum purity. If successful, this would enable an increased use of post-consumer scrap in a large number of applications, currently unattainable through conventional recycling.

ELYSIS®

Our ELYSIS technology partnership with Rio Tinto and Investissement Québec aims to eliminate direct GHG emissions and seven other byproducts from the traditional aluminum smelting process. This technology involves replacing the carbon anodes used in traditional aluminum smelting with inert, proprietary materials to emit oxygen rather than CO_2 in the electrolytic process. In 2024, Alcoa announced further progress on ELYSIS technology with Rio Tinto's plans to launch the first industrial-scale demonstration at its Arvida smelter in Québec. The facility is expected to have a capacity of 2,500 metric tons of aluminum per year. The demonstration project reflects ELYSIS' progress toward commercializing carbon-free aluminum smelting. Alongside its environmental benefits, the project is anticipated to generate skilled employment and contribute to Québec's leadership in sustainable aluminum production.

Read more: ELYSIS

CUSTOMER TESTIMONIAL

Alcoa has been a supplier to Ball, the world's leading producer of innovative, sustainable aluminum packaging solutions for beverage, personal care and household products customers. Alcoa and Ball, together with Novelis, partnered to manufacture low-carbon aluminum cups with ELYSIS metal, which made its shining debut in January 2024 at the World Economic Forum in Davos, Switzerland.

Read more: Ball

"As the leading aluminum packaging manufacturer, Ball's science-based target is reducing 55% GHG by 2030. While most of the gains will be made by increasing recycled content to 85% in beverage and 50% in impact extruded cans, for the remaining primary aluminum, we need partnerships with trailblazer companies such as Alcoa to secure low-carbon and ultra-low-carbon aluminum for our customers. Alcoa's ELYSIS is allowing us to reduce the footprint of our customers' packaging."

— RAMON ARRATIA
Chief Sustainability Officer and VP Public Affairs, Ball Corporation

Supply Chain Management

Our commitment to environmental and social sustainability extends beyond our operations into our supply chain. By encouraging and supporting our suppliers to adopt responsible, ethical and environmentally friendly practices, we can achieve mutual long-term success. Our procurement approach aims to consider the complete life cycle of the goods and services we purchase to reduce risk and improve the ESG performance of our global operations.

Responsible Sourcing Framework

Alcoa's Responsible Sourcing Framework is a risk-based decision framework integrated into how we identify, select, contract and manage the goods and services we procure. It supports our efforts to realize more efficient operations and expand our range of low-carbon products.
Our approach to responsible sourcing is based on a continuous cycle of Assess - Audit - Advance.

Read more: Responsible Sourcing Framework

Assess – Audit – Advance

Assess
Through our program partners and in-house tools, suppliers are continuously screened, risk assessed and analyzed. Based upon risk assessment outcomes suppliers are asked to participate in additional steps of the program.

Audit
Utilizing our program partners, suppliers are invited to complete digital questionnaires specific to their countries of operation, industry and risk. Select suppliers are asked to participate in our Supplier Site Collaboration Program.

Advance
Through Corrective Action Plans, completing eLearning modules and the sharing of metrics, suppliers are asked to join us in making improvements in their own operations and supply chain to Advance Sustainably.

SDG Alignment

Alcoa's Responsible Sourcing Framework is implemented internally through a series of internal guidelines and digital tools to inform our decision-making process. We engage our external business partners through our Supplier Sustainability Program. In 2024, we made integral improvements in the framework by developing and rolling out digital introductory training for internal personnel covering responsible sourcing and our framework. We also conducted a comprehensive effectiveness review of our framework, utilizing our internal audit team, Aluminum Stewardship Institute (ASI) audit results, and a tabletop human rights risk scenario exercise. In addition, we reviewed external benchmarking by organizations including EcoVadis, the World Wildlife Fund, Monash University and the Dow Jones Sustainability Index (DJSI) to identify risks and evaluate the effectiveness of our framework. This valuable process allowed us to reflect on our strengths, identify areas where we need greater clarity or insights and develop an improvement plan for 2025.

Our Responsible Sourcing Framework is supported by four key pillars:

- ✔ Our Values.
- ✔ Our value proposition to customers, stockholders, investors and other stakeholders to provide products via our Responsible Sourcing Framework.
- ✔ Our voluntary commitments, including those aligned with ASI, ICMM, and the SDGs.
- ✔ Our regulatory compliance policy which applies in all regions where we operate.

After initial screening (assess) we use digital and in-field supplier audits to conduct further due diligence. Our digital audits are supported by program partners EcoVadis and Ethixbase 360 (formerly TRAC).

Our Responsible Sourcing Framework, with the support of our program partners, addresses elements across the ESG landscape.

Environment

- Energy Consumption and GHGs
- Water
- Biodiversity
- Local and Accidental Pollution
- Materials, Chemicals and Waste
- Product Use
- Product End-of-Life
- Customer Health and Safety
- Environmental Services and Advocacy

Labor and Human Rights

- Employee Health and Safety
- Working Conditions
- Social Dialogue
- Career Management and Training
- Child Labor, Forced Labor and Human Trafficking
- Inclusion, Discrimination and Harassment
- External Stakeholder Human Rights

Ethics

- Employee Health and Safety
- Working Conditions
- Social Dialogue

Sustainable Procurement

- Supplier Environmental Practices
- Supplier Social Performance

Supplier Audit Highlights

Percentage of 932 suppliers who have completed the digital audit assessment

70%

have an active whistleblower procedure

75%

have obtained access to EcoVadis Academy

EcoVadis Academy is an on-demand eLearning suite that offers a variety of sustainability courses to help companies engage and set training targets for their suppliers.

Supplier ESG Risk Insights

10,269

suppliers assessed

148

identified as higher risk

53%

of Alcoa's annual spend represented by 932 audited suppliers

52.4

average Alcoa supplier score (vs. 47.5 average EcoVadis score)

Supplier Sustainability Program

The market-facing segment of our Responsible Sourcing Framework is the Supplier Sustainability Program, where we screened more than 10,269 suppliers as part of the Assess stage of the framework and identified 148 as potentially higher risk. Higher risk suppliers are required to undertake further due diligence as part of the audit stage of the framework.

Read more: Suppliers

We track and monitor the effectiveness of our Supplier Sustainability Program not only through audit scores, improvement plans and 360 Watch findings, but also through leading indicators which help transform our supply chains for the better.

As part of the audit stage of the framework, nearly 1,000 suppliers completed the EcoVadis Ratings Assessment, representing 53 percent of our annual supply spend, with less than 26 percent completing it for the first time. Of the suppliers undertaking reassessment, 64 percent improved their score.

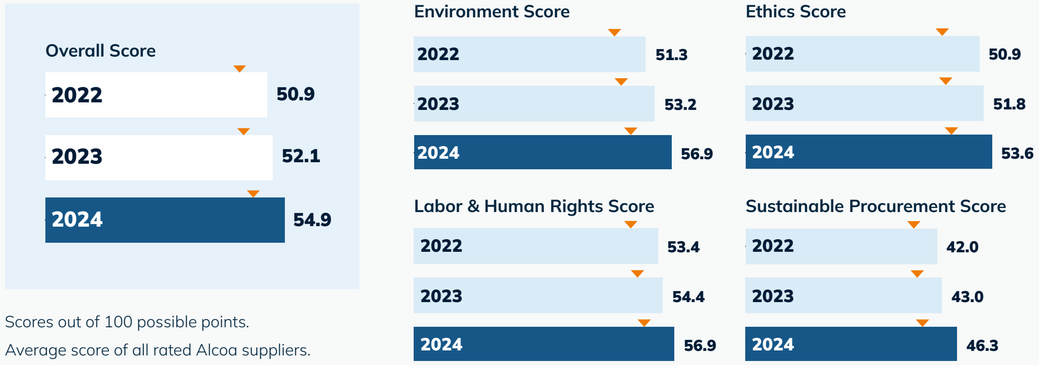
99 percent of our audited suppliers met our minimum requirement score of 25 out of 100. For those that fell below the threshold, we partnered with them to develop an improvement plan.

Overall, the average supplier Audit score was 54.9, which is 7 percent above the global EcoVadis network benchmark (47.5).

Alcoa has earned a **Committed Badge** in their EcoVadis assessment, which is a recognition of their good performance as per the EcoVadis assesment methodology.

Alcoa Suppliers Year on Year Performance

EcoVadis Benchmark



Scores out of 100 possible points.
Average score of all rated Alcoa suppliers.

2024 Spend by Region

Region	Supply Chain Spend US$ Billions	Supply Base Composition Percent of Total Supply Base	Audited Spend Percent Based on suppliers who have undertaken the EcoVadis Ratings Audit
Australia	2.37	20%	61%
Europe	1.51	13%	50%
North America	5.56	47%	49%
South America	2.33	20%	54%
Global	11.77	100%	53%

2024 Total Supplier Spend

11.77
US$ Billions

Human Rights in Our Supply Chain

As a global company with complex supply chains, our suppliers and supply chains can be exposed to human rights risks such as modern slavery. We strive to detect, address and prevent human rights risks within our supply chain.

In 2024, our human rights focus was to engage more closely with suppliers who present higher risks of modern slavery and help them develop effective grievance mechanisms. These grievance mechanisms are vital, as they are a leading indicator and key first step in being able to address potential human rights concerns, both within a supplier's own operations and across their supply chain.

In addition, we achieved the milestone of expanding our field audit program - Supplier Site Collaborations (SSC) into China, where we completed collaborations with five suppliers. Our internal auditors carried out the collaborations utilizing the independent expert analysis provided through our Supplier Sustainability Program, coupled with the Supplier Site Collaboration framework developed with a third-party consultant. Our priorities during these collaborations included knowledge sharing, building trust and increasing transparency. This opened discussions on the reporting of ESG metrics and improving traceability, enhancing our capabilities in mapping raw materials. This enabled the development of our country-of-origin dashboard, featuring emission reporting (using emission factors) for direct materials.

In 2024, we continued the EcoVadis 360° Watch program. The program did not identify any severe human rights controversies in our direct supply chain.

Learn more about our approach to human rights in the supply chain in our annual Modern Slavery Statement.

Read more: 2024 Modern Slavery Statement

Supplier Site Collaborations (SSC)

Responsible sourcing performance indicators

932	15	5
EcoVadis audits	Supplier site collaborations	Potential red flags

SSC Potential Red Flags

1. No records of employee working hours and signs of worker fatigue due to short intervals between services
2. Contractors do not have access to medical records
3. Poor employee living conditions
4. Employees not reporting injuries sustained on the job
5. Migrant workers not available for interview

Remedies

- ✔ Corrective action plans
- ✔ Requests for further information
- ✔ Increased focus on education

Supplier Site Collaboration (SSC) program key findings:

- Suppliers appreciated Alcoa's feedback on their ESG actions and EcoVadis scorecard.
- China-based suppliers have a good understanding of the employee value proposition and requirements with respect to employee facilities, around which the retention and attraction of talent play a role.
- Recommendations facilitated automation in certain work areas.
- A correlation was noted between a positive work experience, appropriate Personal Protection Equipment (PPE), accommodation facilities, and freedom of association.

Recommendations for Suppliers:

- Improve awareness of general safety and housekeeping.
- Reinforce PPE training and standards.
- Review towage rosters for shipping and employee hours.
- Improve lighting conditions in maintenance facilities.
- Enhance employee accommodations.

In 2025, we aim to increase these supplier collaborations and continue implementing changes to our systems based on the valuable lessons learned from these engagements.

CASE STUDY HIGHLIGHT

Leveraging Procurement to Drive Digital Inclusion in Remote Communities

In western Pará, Brazil, Alcoa advanced its commitment to responsible procurement by selecting TIM Brazil as a strategic supplier to deliver critical digital infrastructure to remote communities. Through this partnership, approximately 1,000 residents across previously unconnected areas gained access to 4G mobile voice and internet services—transforming access to education, healthcare, and essential public services.

Launched in 2021 and significantly expanded in 2024, the initiative demonstrates how procurement decisions can directly influence social progress. TIM's Flextower mobile solution features two antennas with a four-kilometer range, powered by photovoltaic panels and long-life batteries. The off-grid, 24-hour operation capability was essential for deployment in remote Amazonian regions.

By sourcing an innovative, sustainable solution aligned with local needs, Alcoa's Procurement team helped enable services for three local schools and a satellite health unit, bridging the digital divide and advancing technological progress. The project exemplifies how sustainable procurement can go beyond compliance and cost-efficiency to create measurable value for society and the environment.

Read the full case study

Supply Chain Inclusion

Our commitment to advancing inclusion also applies to our supply chain. Our partnership with TealBook, a self-certification tool, makes it easier for suppliers to share their information with us and for Alcoa to engage with our suppliers.

This year, we continued to make progress related to supply chain inclusion. For example, Alcoa Brazil's Aliança Alcoa initiative, which began in 2022, has been working to bring our company closer to suppliers through collaboration on supply chain inclusion. It is a working group between Alcoa team members and participating suppliers who meet regularly to share ideas and collaborate on best practices and continuous improvement.

Read more: TealBook

ESG Transparency and Disclosure

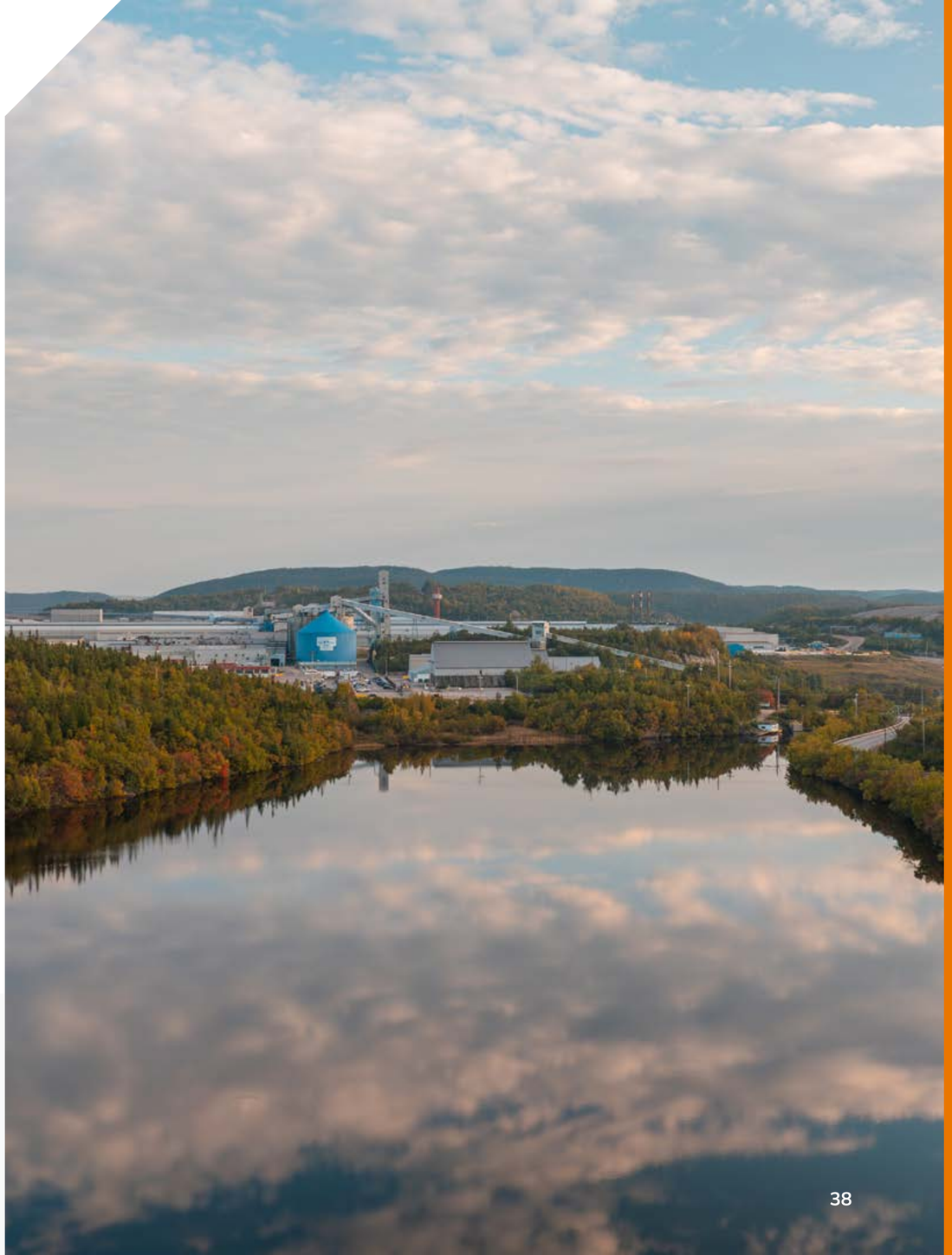
Alcoa works to transparently and pragmatically report on our ESG performance and our long-term goals and aspirations related to emissions, water and waste. We believe that this transparency, along with our continued engagement with stakeholders and host communities is key to building trust and maintaining our license to operate.

Disclosing Our Impact

We work to align our sustainability approach with internationally recognized standards and commitments such as GRI, SASB, the United Nations SDGs, ICMM Performance Expectations (PEs), and ASI standards. In 2024, we completed a gap assessment and developed action plans with subject matter experts throughout the organization to prepare for future CSRD reporting.

Read more: GRI, SASB, SDGs, ICMM performance principles and ASI standards

SDG Alignment



Aluminium Stewardship Initiative (ASI)

As a member of ASI, Alcoa commits to adhere to over 60 sustainability principles outlined in the ASI Performance Standard. To date, 18 of our sites have achieved certification to the Performance Standard. In 2023, ASI released Version 3 of its Performance Standards, which introduced stricter certification requirements. By the end of 2024, five Alcoa sites were certified to the latest version of the standard: our Lista smelter in Norway, San Ciprián refinery in Spain, the Bécancour and Deschambault smelters in Canada, and Fjarðaál smelter in Iceland. Additionally, Alcoa Corporation's global headquarters was recertified to Version 3 of the Performance Standard.

Alongside these Performance Standard certifications, Alcoa also achieved certification to the updated Chain of Custody Standard (Version 2) in 2024, with the inclusion of the Portland smelter in Australia. Both certifications enable us to globally market and sell ASI-certified bauxite, alumina, and aluminum. Also in 2024, we completed a surveillance audit at our Portland smelter against Version 2 of the Performance Standard. These follow-up audits, conducted approximately 18 months after initial certification, support verifying ongoing compliance.

International Council on Mining and Metals (ICMM)

Our membership with ICMM requires us to meet their PEs for sustainability performance. This commitment reinforces our dedication to sustainable mining practices and continuous improvement, helping us operate in a way that aligns with stakeholder expectations and supports long-term value creation.

Read more: ICMM

Self-Assessment and Validation

As part of our membership, we are required to conduct a self-assessment and third-party validation of our assets against ICMM's PEs. We developed our approach to self-assessment to comply with both ICMM and ASI requirements, optimizing our process to better meet each expectation. In 2022, we completed the self-assessment for our operations according to ICMM's Validation Guidance and in 2023, we moved on to the validation process.

The prioritization process for third-party verification following the ICMM Assurance and Verification Procedure has been linked to the ASI certification plan for the 2023-2025 cycle. This means the ASI certification audits were extended to incorporate the PEs not fully covered by the ASI Performance Standard.

By integrating the ICMM validation process with ASI certification, we finished the year with seven locations completing their ICMM validation in addition to ASI certification audits: Lista, Norway; San Ciprián, Spain; Juruti and Poços de Caldas, Brazil; Bécancour and Deschambault, Canada; and Fjarðaál, Iceland.

Overall, the results demonstrated that all of our operating locations met 95 percent of the applicable PEs. The remaining five percent of PEs were partially met and are listed below:

- Environmental performance
- Biodiversity and water management
- Responsible production
- Local economic opportunities
- Stakeholder and host community engagement

We have established corrective plans to enable compliance with the listed PEs, and we are working to have all our plants verified to ICMM PEs by the end of 2025.

ICMM Social and Economic Reporting Framework

In 2022, ICMM released a new reporting framework for disclosing social and economic impact. This framework includes a set of consistent indicators to better measure and compare mining and metals companies' contributions to social and economic development. This is the second year that Alcoa is reporting against this framework, and we are eager to show how these indicators play a crucial role in tracking progress on our recently published strategic long-term goal in skills development. We also reference this framework in the long-term goals section, where we link many of our tracked contributions to programs funded through the Alcoa Foundation and Instituto Alcoa. In 2024, for the first time, we received limited assurance of the ICMM Social and Economic Reporting Framework social investment metrics.

Visit the Social and Economic Reporting Framework table in the 2024 Alcoa Data Book for information on Alcoa's performance across the framework's various reporting categories.

Read more: 2024 Alcoa Data Book

Certification and Assurance

As part of meeting our commitment to transparency with our stakeholders and host communities and conforming with assurance expectations, Alcoa had third-party assurance agency ERM CVS complete independent limited assurance on several critical indicators. This assurance process verifies our data and ensures we are reporting on these issues with accuracy and transparency.

2024 Topics with Limited Assurance

- Total Recordable Incidents
- Fatality incidents
- FSI-Actual incidents (FSI-A)
- Days Away, Restricted or Transfer (DART) incidents
- Lost workdays
- GHG emissions
- Energy consumption
- Water inputs, consumption and discharges
- Hazardous and non-hazardous waste
- Active mine disturbance and mine rehabilitation
- Occupational health and safety
- Community complaints raised through local complaint mechanisms
- ICMM Social and Economic Reporting Framework social investment metrics
- ICMM Subject Matters one to five
- Mineral Waste Generated and Recovered

Specific details and limitations of 2024 metrics and issues that received limited assurance are outlined in the Limited Assurance Report in this report's **Appendix D**.

Due Diligence on CAPEX and M&A

Sustainability considerations are an increasingly prominent factor in our Capital Expenditure (CAPEX) and Mergers and Acquisition (M&A) activities.

M&A

We seek to make informed M&A decisions that, in part, consider potential environmental and sustainability impacts. For example, when analyzing an external acquisition opportunity, our due diligence can include requesting data regarding the company's carbon footprint, waste generation, fluoride and wastewater emissions and any other impacts on ecosystems or local communities.

We also perform due diligence to improve positive social, financial and operational outcomes. This often includes assessing employee working conditions and well-being, tax and legal compliance, reports on pollutants and residual impacts, and historical communications with host communities, stakeholders and government agencies.

Environmental and Social Impact Assessments (ESIA)

When considering any new facilities or expansions, we conduct an ESIA to meet applicable local regulatory requirements and to identify potential risks and opportunities. This process involves significant engagement with stakeholders and host communities.

Alcoa has internal procedures and tools to perform ESIAs in any new project or in major changes to existing projects such as a Project Environment, Health and Safety (EHS) Review covering environmental and social aspects for significant capital projects.

2024 M&A Highlight

On August 1, 2024, Alcoa completed its US$2.7 billion all-stock acquisition of Alumina Limited, reinforcing its position as a leading pure-play, upstream aluminum company.

Key Benefits of the Alumina Limited Acquisition

Market leadership: Strengthens Alcoa's role as a top global alumina supplier and deepens its focus on tier-1 bauxite and alumina assets.

Operational efficiency: Streamlines governance and enhances strategic flexibility through integration of Alumina Limited's interests.

Commitment to Western Australia: Underscores Alcoa's dedication to environmental performance, local employment and community engagement.

Capital Expenditure (CAPEX)

Our internal Capital Management Standard and related policies guide how we plan, prioritize and execute capital projects worldwide. Our CAPEX activities include funding projects that reduce water use, reduce emissions and minimize our operational footprint.

When identifying new projects, we apply due diligence, steering and governance and we establish a sound business case that complies with our Capital Management Standard. We incorporate four criteria into our capital management process: bauxite residue land, GHG emissions, waste and water.

2024 CAPEX Highlights

In 2024, our CAPEX team progressed several projects aimed at reducing water usage, advancing land rehabilitation efforts and reducing air emissions. The Pinjarra Residue Filtration Project (Stage 2) has continued to advance. This technology reduces water consumption by filtering the bauxite residue and returning the water to the Refinery for re-use. In addition, the required footprint for storing the residue filter cake is significantly less than traditional wet storage impoundments over the life cycle of the refinery.

The implementation of the High Voltage Power Infrastructure project underway at our Juruti bauxite mine will enable the existing diesel-fired power generators to be removed from service once power is being supplied from the grid.

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Health and Safety

We make dedicated efforts to prioritize health and safety across every aspect of our global operations. We aim to ensure that all Alcoa employees and contractors have the knowledge, skills and support they need to complete their work safely and maintain their long-term health and well-being.

We actively promote a global health and safety (H&S) culture, backed by comprehensive risk management, thorough safety measures, and committed employee training. Our H&S program is the cornerstone of our efforts to protect people and communities in the regions where we operate.

Along with working to prevent incidents and injuries, we also work to protect the health of our employees. These measures, embodied by our Care for People Value, promote our employees' day-to-day safety while protecting their long-term physical and mental health and well-being.

Read more: Alcoa's EHS Policy

For more information about Alcoa's Environmental impact, see the **Environment** section.

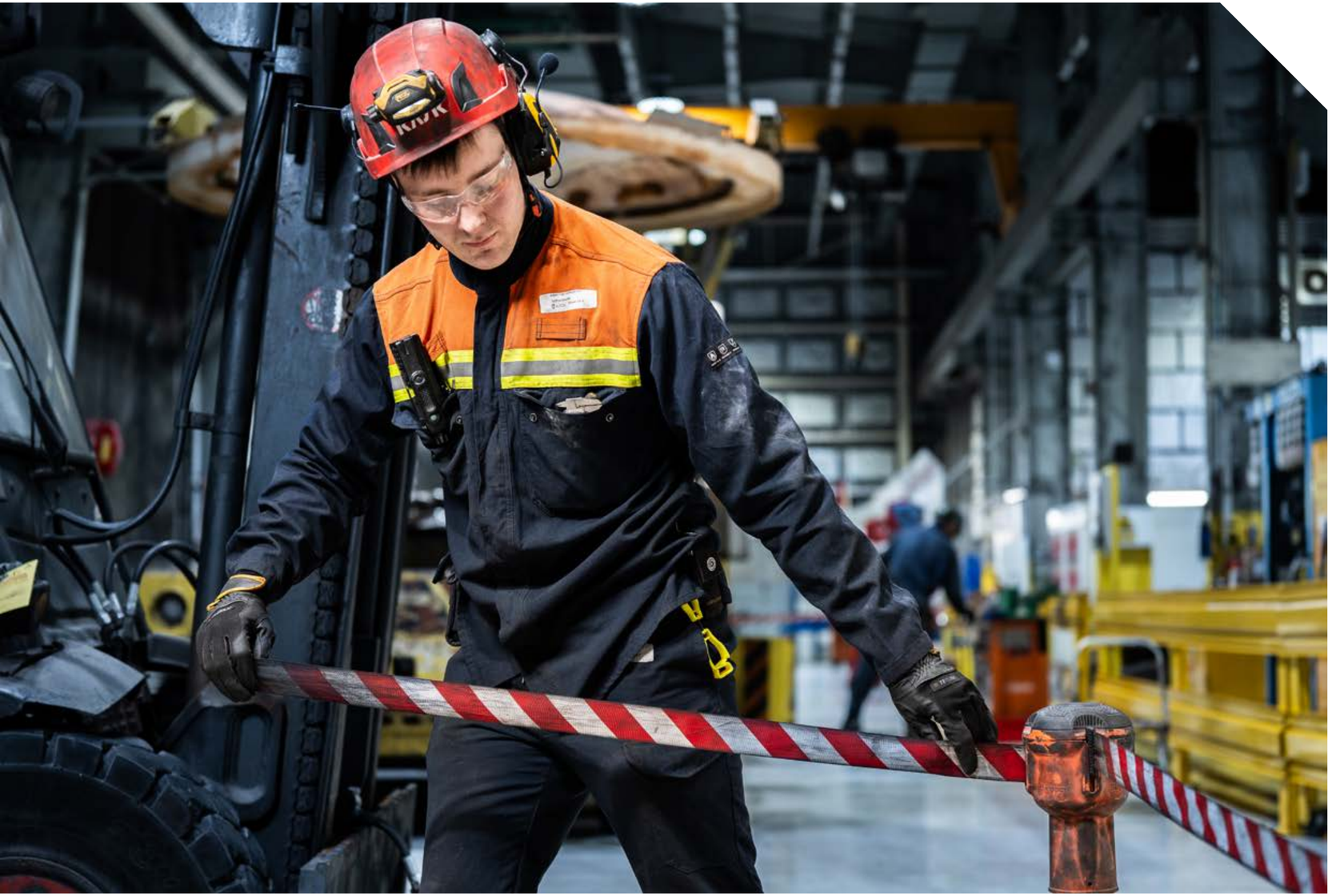
Health

The focus of Alcoa's health and hygiene strategy is to protect the health of workers and prevent occupational illness. Workplace injuries and illnesses can have severe impacts not just on our employees, but their families and communities as well. That is why we work to actively identify and prevent occupational diseases, many of which can take decades to develop. We do this by quantitatively assessing exposures for physical and chemical agents, eliminating or controlling health hazards and undertaking health monitoring. Our health surveillance program periodically monitors our employees for acute and long-term health risks while helping us to assess the effectiveness of our controls. Workers who are impacted by injury or illness are also provided treatment and rehabilitation with a focus on early intervention and support for return to work.

We have global standards for occupational health and hygiene and provide specialist knowledge and coaching to regional and location-based stakeholders and medical teams.

Read more: Health Hazard Controls

SDG Alignment



Health Achievements

In 2024, we continued implementing our Fatigue Management Standard. It follows a risk-based approach and requires locations to establish preventive and mitigating controls such as management of rosters and working hours, work design and fatigue detection technology.

We also continued our Good Work Design (GWD) program across all sites. The program aims to redesign our most physically demanding roles to enhance the health and safety of workers and increase job satisfaction. One of our key targets for 2024 was for each location to redesign the work of at least two physically demanding job roles to move the risk level from high to low. Achieving this result required completing multiple projects that addressed the high-risk physically demanding tasks. By the end of the reporting year, 17 of our locations achieved this goal, redesigning 42 job roles in total. Since 2021, our GWD program has redesigned 71 physically demanding job roles, with additional projects ongoing.

Occupational Exposure Assessments and Reduction

The Alcoa Industrial Hygiene standard was revised in 2024, with a goal to improve the quality of the results used for exposure assessments. These assessments form the basis for exposure control (including the use of personal protective equipment (PPE)) and medical surveillance.

We expanded our heat stress monitoring program with the goal of identifying work groups with a higher risk exposure to heat stress. In locations where there is inherent exposure to heat sources, such as our smelter potrooms, we continued the use of physiological monitoring devices to manage worker exposure, particularly for workers who were deemed to be at the highest level of risk due to underlying physiological conditions. In addition, relevant controls, such as work-rest cycles, were implemented.

Exposure reduction

As part of a multi-year strategy, all locations started to take inventory of feasible exposure control plans for high-risk groups of workers. This inventory, to be completed in 2025, will permit the creation of a formal program to prioritize and implement exposure controls so we use more robust safety and process controls, and rely less on PPE to protect our workers.

Psychosocial safety

To support our employees' mental health and well-being, one of our key initiatives in 2024 was intensifying our focus on psychosocial safety. This field relates to the impacts an employee's working and social environment can have on their physical and mental health. A multi-year strategy, our psychosocial safety initiative aims to apply our existing health and safety management system to psychological health and safety, utilizing the same principles and processes that we use for physical risks.

Our dedicated efforts align with the growing expectations for companies to proactively manage psychosocial hazards the same way they manage physical hazards. These expectations were underlined by new legislation in many of the countries where we operate and the ISO 45003 standard for psychological health and safety at work. During 2024, we completed external benchmarking and gap analysis against ISO 45003, along with efforts such as developing a bow-tie risk assessment, conducting regional consultations and drafting a global standard. These measures aim to raise awareness about this critical aspect of H&S while also support our efforts to safeguard our employees' physical and mental well-being.

Safety

We strive to cultivate a robust safety culture across our company, starting with our leadership and extending through all levels of our global operations. In 2024, we prioritized enhancing safety risk identification and management by refreshing our critical risk management approach, strengthening process safety management (PSM) and developing a safety maturity assessment process. Our safety efforts are governed by our internal Fatality Risk Management standards and Critical Controls. We have 14 specific fatality prevention and risk management standards that cover the core hazards in our business. Each standard has a set of critical controls that we deploy and monitor to prevent fatalities and mitigate serious injuries and incidents.

In 2024, we continued reviewing and updating our safety standards and critical controls as part of our continuous improvement efforts that started in 2022. These updates include making our standards more user-friendly and the creation of posters and videos that promote the learning and application of critical controls at all our locations.

One of our key achievements in 2024 was establishing a PSM framework and assessment process to measure the effectiveness of process safety critical equipment. We created the PSM framework by drawing from various industry best practices and adapting them to Alcoa's existing standards and requirements. During the reporting year, we assessed over 50 process safety critical systems across our company to prevent future process safety incidents and improve the reliability and stability of our operations. Having conducted these initial PSM assessments, we will continue monitoring and assurance in 2025.

Another key priority was developing a formal methodology to assess, measure, track and improve our safety culture at the global level. To achieve this goal, we created a safety maturity assessment that allows our locations to monitor their actions and behaviors and make their safety leaders more effective. The assessment utilizes the "Bradley Curve," which illustrates the connection between a company's occupational Health & Safety and the maturity of its safety culture. It indicates that motivated employees who feel a strong sense of connection to their company's values, purpose and goals are more responsible and committed to Health & Safety, resulting in fewer workplace accidents. We performed the first assessment at our Lake Charles (U.S.) facility, through on-site engagement activities, interviews, focus groups, job shadowing, toolbox meetings, Leader Time in Field assessments and other daily routines and observations to generate a site maturity score and safety culture rating. The assessment provided a valuable opportunity to gauge the effectiveness of our company culture, expand the safety measures that are working effectively and identify key areas for improvement. We aim to begin rolling out these assessments globally in 2025.

Read more: The Bradley Curve

CASE STUDY HIGHLIGHT

Driving a Step-Change in Safety: 2024 EHS Excellence Award Winners

In 2024, Alcoa's Lista (Norway) and Poços de Caldas (Brazil) sites were recognized with the Alcoa EHS Excellence Award for outstanding performance in environment, health, and safety (EHS). Their innovative projects addressed challenges such as reducing chemical exposure, improving energy efficiency, managing driver fatigue, and enhancing emergency response. As part of sharing best practices, both teams developed video case studies highlighting the initiatives that contributed to their success and Alcoa's broader commitment to raising EHS standards globally.

Read the full case study

Working to Eliminate Fatalities

Fatality risk management is a fundamental element of our Health & Safety system. Across the mining and metals industry, most serious incidents are associated with a small number of hazards, including mobile equipment, falling objects, cranes and lifting, molten metal and electrical systems.

To bolster our awareness and protection against worksite fatalities, Alcoa launched a global critical risk management refresher program in July 2024. The program streamlined our global safety communications for greater awareness, consistency and clarity. Included in the relaunch was a suite of new safety materials such as posters, signs, internal intranet pages, leader briefings and toolbox meetings. The program also enabled our sites to provide valuable location-specific feedback that helps us to improve our systems and controls for eliminating fatalities.

Through these and other measures, we have improved our Health & Safety performance in high-severity and fatal incidents. We continue working to improve our year-over-year safety performance by building confidence in our procedures and controls, reinforcing the fundamentals of critical risk prevention and promoting a universal safety culture inspired by our leadership.

Injury Prevention

We understand that safety is not merely the absence of incidents and injuries, but the effective implementation of controls that prevent and mitigate incident outcomes. That is why our Health & Safety teams continually analyze our global operations to identify any emerging incident or injury trends in specific locations or job roles. If necessary, they implement targeted injury reduction plans with a mix of safety controls, training, programs, work design and campaigns.

Alcoa has reported zero fatalities for the past five years, and during this reporting year, we achieved a new milestone with both zero fatalities and zero life altering or life-threatening injuries. There was a 28 percent increase in days away, restricted or transferred (DART). We make continual efforts to improve our incident and injury reduction, including addressing this slight increase in our DART score.

Alcoa takes injury prevention seriously as a leading indicator of safety outcomes. We encourage our locations risks to report and analyze to prevent and mitigate future events. Each location evaluates its risks and works toward improving critical controls that prevent and mitigate the severity of these events.

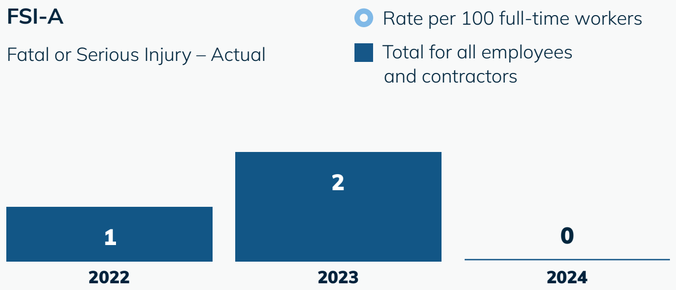
We have created focus areas to drive a range of safety initiatives, including:

- An enhanced fatality prevention program, drawing from previous lessons learned.
- Daily verification of our critical controls (Critical Control Field Verifications [CCFV]).
- Intensifying our focus on major risk categories such as chemical/caustic exposure and molten material exposure.
- Eliminating activities with high physical risks through our GWD program.
- Improved reporting and injury management.

Our safety efforts were also bolstered by increased leader engagement through our Leader Time in Field program. Alcoa's leaders conducted over 105,300 CCFVs, documented via mobile app, which assess our controls for preventing and mitigating safety incidents.

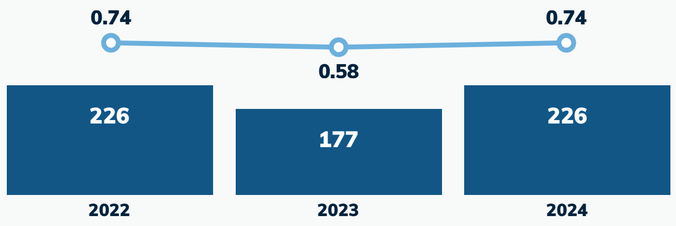
FSI-A

Fatal or Serious Injury – Actual

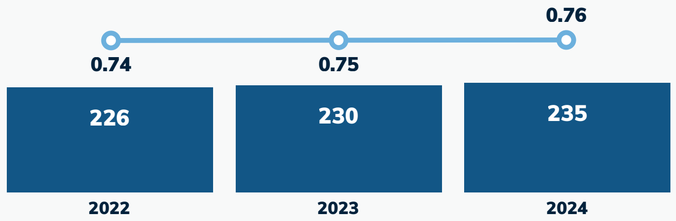


DART^[1]

Days Away, Restricted or Transferred

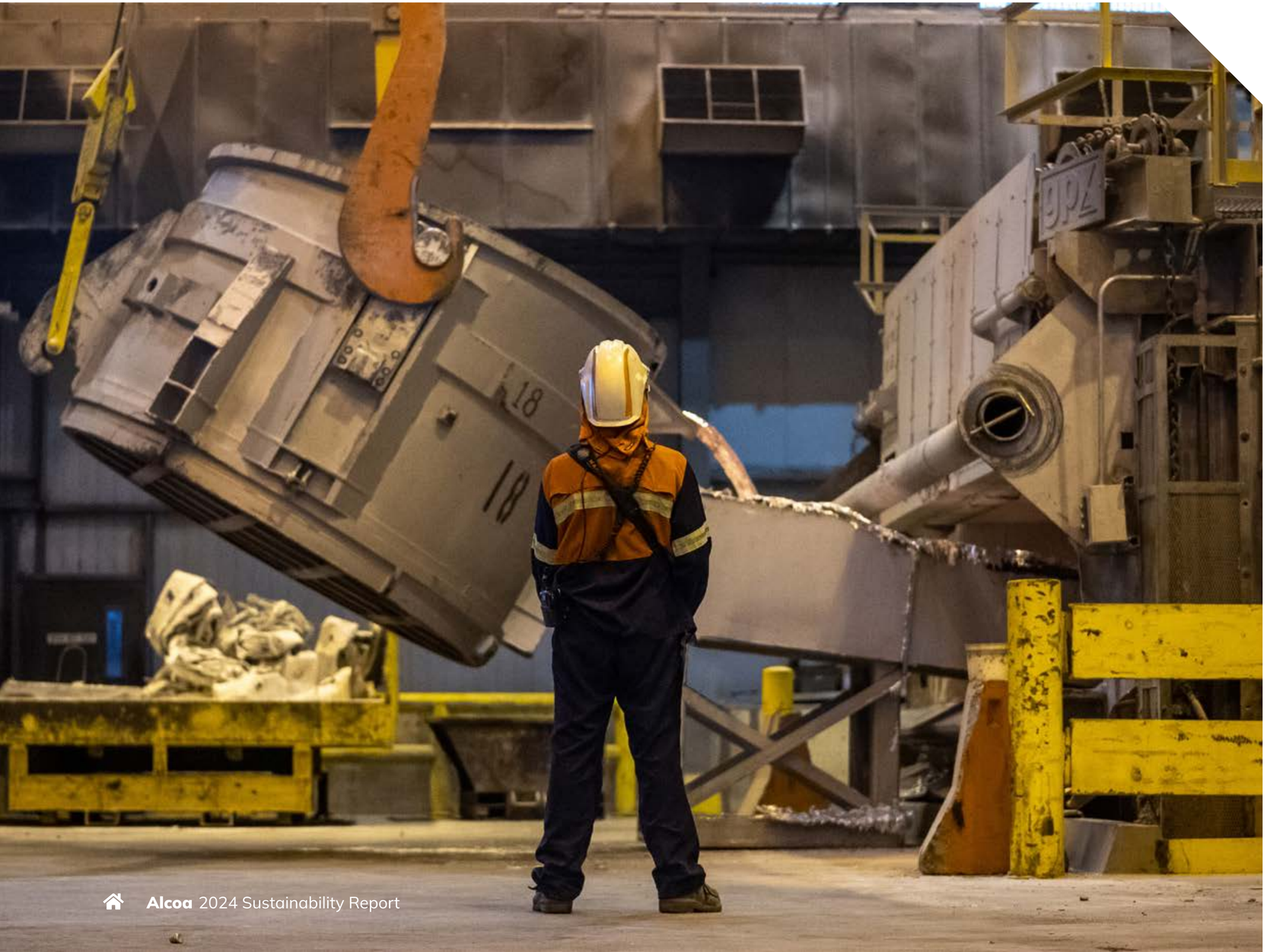


DART – MSD Reclassification



^ Data assured to a limited level of assurance by ERM CVS.

[1] In early 2024, Alcoa made improvements to our identification and classification of work-related musculoskeletal injuries (MSDs). As part of this work, MSDs in 2023 were reclassified; these injuries were not reclassified for 2022, or 2021, due to inconsistent records. Most cases were not severe, but reclassification did result in an increased DART rate. The 2023 DART rate based on this reclassification is 0.75, which is a 1 percent increase from 2022. The adjusted DART incidents have been subject to independent limited assurance by ERM CVS.



Employee Engagement

We have established both formal and informal channels that enable consultation and feedback on key Health & Safety issues. This feedback is crucial as it fosters continual improvement and helps us identify and implement more effective prevention measures. Elected Health & Safety delegates or employee Health & Safety representatives assist us with the escalation and resolution of issues, facilitate communication and relay employee input on Health & Safety initiatives and practices. We also regularly conduct formal meetings between Health & Safety delegates or representatives and management.

> Additional data regarding our 2024 safety performance can be found in **2024 Alcoa Data Book**.

Contractor Safety

The health and safety of our contractors is just as important as that of our employees. That is why our OneAlcoa safety approach and comprehensive contractor management framework apply to all temporary workers, contractors, and visitors. We require contractors to comply with all applicable local regulations as well as Alcoa's Environment, Health and Safety (EHS) standards. These expectations are detailed in site-specific EHS plans and reinforced through our onboarding process. Before arriving on site, contractors must meet prequalification requirements and complete a mandatory onboarding program. We also run contractor-specific safety programs tailored to their work scope and risks. These measures are meant to help everyone—employees, contractors, and visitors alike—return home safely.

Local Commitment with Communities

We strive to build and maintain strong ties with the communities where we operate. We aim to foster and maintain trust-based relationships with our host communities by promoting transparency, respect and collaboration across our activities. This engagement is crucial to maintaining our license to operate and furthering our ESG objectives.

Social Performance Management

Our approach to managing our social performance is rooted in a deep understanding of our business context—including our impacts, benefits, and opportunities and through meaningful engagement with local stakeholders and host communities. Our social performance teams engage externally on various subjects, such as biodiversity, water management, climate change, procurement and human rights.

In 2024, our emphasis centered on enhancing the maturity of our social performance function across the globe. As part of this effort, we expanded and strengthened social performance capabilities in every region and at many of our locations worldwide, better equipping our teams to address local priorities while aligning with Alcoa's global expectations. We advanced in these efforts by prioritizing and streamlining the implementation of our Social Performance Standard and management system (SP360) to allow for local adaptation. Additionally, we launched a detailed review of our standards with the aim of simplifying them, which we expect to complete in 2025.

As we move into 2025, we will also focus on strengthening our social performance and frameworks and governance. This includes assessing our global complaints mechanisms against the UN Guiding Principles' (UNGP) Effectiveness Criteria and addressing any gaps, reviewing Social Performance Plans for alignment with key impacts, risks and opportunities, and launching our information management system worldwide. Additionally, we will finalize the review and consolidation of our Social Performance Standards, reinforcing our commitment to responsible and effective social performance management.

Our specific priorities during the year included:

Continuing to strengthen our relationships with Indigenous and Land-Connected Peoples linked to our operations worldwide to better understand our risks, impacts and opportunities for collaboration.

Enhanced our maturity in social performance by developing operational Social Performance Plans founded on impact management, risk mitigation and stakeholder and host community concerns and priorities in North America and Europe.

Enhanced our capacity to manage stakeholder and community engagement data through the deployment of our information management system in Brazil.

We increased our social performance resources and capability at all levels of the business: corporate, regional and location.

SDG Alignment

Community Engagement and Dialogue

We strive to proactively and openly engage with and listen to our community stakeholders and host communities in an effort to foster meaningful collaboration, enabling us to respond to their concerns and any impacts we may cause. Our approach is evolving to address emerging social or economic changes within these communities.

Around the world, we engage in many different ways, including one-on-one meetings, household visits, group meetings, community forums, community site or office visits, official public consultation and community perception surveys. These open and regular engagements aim to continually strengthen our relationships with the host communities where we operate.

In 2024, we initiated work to bring consistency around how we record our engagement efforts through the deployment of our information management system. A significant amount of work was completed in this area in Brazil. We plan to continue our global deployment in 2025, so that our teams have the capacity to monitor the performance and effectiveness of our engagement activities.

Complaints Management

Responding to complaints in a professional and punctual way is vital to managing our community relations. We view each complaint as an opportunity to improve our performance or enhance community awareness about issues of concern. We strive to enhance our insights into community perspectives regarding both the impacts and benefits of our operational activities.

To maintain transparency, we ensure community members and other stakeholders have easy access to both our confidential Integrity Line (see the **Ethics and Good Governance** section) and a separate community complaints mechanism, and that their concerns are documented in a transparent and accountable manner.

We believe a well-functioning complaints mechanism supports a healthy relationship with our stakeholders and host communities. In late 2024, we started assessing our complaints mechanisms globally against the UNGP Effectiveness Criteria for Non-Judicial Grievance Mechanisms to identify potential areas of improvement. We will complete this process in 2025.

193 community concerns raised through local complaints mechanisms in 2024^

67 Australia

6 Europe

118 Brazil

2 North America

^ Data assured to a limited level of assurance by ERM CVS.

For a list of key issues raised by or discussed with stakeholders and host communities in 2024, please see the 2024 Key Stakeholder and Host Community Issues table in **Appendix E**

Community Engagement Highlights in 2024

Around the world, we are working to improve and/or build our relationships with our host communities and with Traditional Owners, First Nations, and Land-Connected and Indigenous Peoples. Our aim is to continue building trust and collaboration through improved engagement, impact identification and management and shared value creation.

Europe: Formalizing our relationship with Indigenous communities in Norway

Alcoa has developed and implemented a relationship enhancement strategy with the Jillen-Njaarke Sámi Reindeer District in Norway. It followed concerns expressed by the Reindeer District about the potential effects of the Øyfjellet Wind Farm, one of the third-party energy providers for Alcoa's operations, on traditional herding activities. Our strategy focuses on strengthening the bilateral relationship of the District with Alcoa and facilitating further tri-party engagement with the Øyfjellet Wind Farm.

Alcoa significantly increased its direct engagement with the District by holding multiple meetings throughout 2024 to formalize ongoing engagement, collaborate on cultural awareness and identify opportunities for Alcoa social investment support. We also engaged with the Øyfjellet Wind Farm to learn about its engagement with the District and Reindeer migration mitigation measures, and to offer guidance on social performance and human rights best practices and a potential pathway to an Alcoa-facilitated Øyfjellet-Jillen-Njaarke settlement agreement.

North America: Developing our relationships with First Nations communities in Canada

We are deepening our understanding of the First Nations within whose traditional territories we operate. In 2024, our Canadian operations held several meetings with the Wendat Nation, the Abenakis of Wôlinak and the Innus of Pessamit to establish ongoing engagement mechanisms and identify opportunities for collaboration on cultural awareness, environmental management, employment, procurement and community investment. The Canadian operations will continue to enhance and formalize these important relationships in 2025.

Brazil: Addressing concerns regarding impacts and compensation

Local stakeholders, community members and landowners with strong connections to the land near Juruti had signaled discontent with certain aspects of our operations in the area, particularly regarding impacts and compensation. To address these challenges, in collaboration with local stakeholders and communities, we established an engagement framework to ensure that community members are appropriately represented in our discussions, in addition to their leadership. We also determined a clear process and timeline for addressing community and company issues. This exercise yielded excellent results, enhancing the transparency around Alcoa's activities and the resulting benefits to the community.

Australia: Strengthening our engagement practices

Our Australian operations continued to enhance their engagement practices to increase trust, awareness and transparency with our host communities. We achieved this by making progress on our Innovate Reconciliation Action Plan (RAP) commitments aligned with our vision for reconciliation: to strengthen and build relationships with Aboriginal and Torres Strait Islander peoples and communities founded on respect, an understanding of their needs and aspirations and a desire to work together to establish shared value.

On-the-ground teams also continued to implement tools such as Community Consultation Networks, satellite offices, and regular stakeholder and community member meetings and forums. We hosted numerous public information sessions and sent regular updates on key matters of public interest to local communities. We also conducted community perception surveys and increased public tours of our operations in Western Australia. These activities help us better understand the needs and concerns of our stakeholders and host communities and keep them informed about current and upcoming activities.

Shared Value Creation

We aim to grow and thrive side by side with our host communities and operate in a way that adds lasting value to the regions where we operate. We do this by providing employment and training opportunities, buying goods and services from local and regional suppliers where possible, paying taxes and royalties and investing in communities to help them build long-term capacity and resilience.

We track and report our contributions in accordance with the ICMM's new Social and Economic Reporting Framework (see **Transparency Section**). This best-practice framework aims to provide stakeholders and host communities with transparent, consistent and comparable data on the contributions that mining and metals companies make to social and economic development in the regions where they operate.

Local Employment by Region

Region	Local* employees (%)
Australia	99.7%
Brazil	91.4%
Europe	94.0%
North America	90.7%
Total	**94.0%**

* Local means employees that live in the same province, state or territory as the Alcoa location

Local Employment

Creating opportunities for local employment is vital to strengthening the social and economic health of host communities. It creates access to a workforce familiar with the area's unique history, needs and market dynamics, while encouraging local spending, and fostering stronger social connections, leading to a more vibrant local economy.

Across our locations, our teams work to provide employment opportunities for individuals living in or near our host communities in various ways:

- In Australia, our teams attended local job fairs and updated our recruitment campaigns to highlight our location in the attractive south-west of Western Australia and coastal Victoria.
- In Brazil, our teams actively work with our suppliers and contractors to encourage local employment, prioritize internal local hiring, participate in job fairs and organize apprenticeship programs.
- In North America and Europe, our teams attended and sponsored local job and college fairs to attract new talent into our industry. In some locations, we also organized student tours of our operations and secured apprenticeship agreements for students from professional training high schools. Our team also launched a supervisor development program for local employees.

Through these and other efforts, Alcoa has been able to secure an average local employment rate of 94 percent, which can be observed in the table to the left, and is also presented in the 2024 Alcoa Data Book.

Read more: 2024 Alcoa Data Book

Local Procurement

Promoting local procurement is a central aspect of our supply chain management globally. Our practices in this area vary by region but are rooted in the understanding that there are significant company and community benefits to prioritizing local purchasing. For example, it can significantly reduce supply chain complexity, decrease transportation costs, provide greater control over quality and delivery times and boost the local economy by creating jobs. Local procurement also enables economic diversification that can, in time, reduce dependency and create a more positive community perception.

Across our regions, some of our local procurement efforts include:

- In Australia, our Local Community Supplier Policy outlines our commitment to create value for the communities where we operate. We do this by: 1) Inviting capable local Traditional Owners, Aboriginal and Torres Strait Islanders, and local businesses to bid on every locally supplied or manufactured good or service; 2) Including criteria that recognize local ownership in tender evaluations; 3) Working with Traditional Owners, Aboriginal and Torres Strait Islanders and local business interest groups to identify, utilize and build local supplier capacity; and 4) Supporting the growth and sustainability of local businesses that meet specific criteria.
- In Brazil, we run several programs to strengthen local family farming and seedling producers by providing technical support and ensuring their production is purchased for Alcoa's catering and rehabilitation needs.
- In North America, our Canadian operations are exploring the business capacity of proximate First Nations to meet our operational needs and have established direct business-to-business relationships with several businesses introduced to Alcoa.

The importance of local procurement in our supply chain can be observed in the table below, which is also presented in our 2024 Alcoa Data Book.

Read more: 2024 Alcoa Data Book

Payments, Royalties and Spending

Each year, we disclose our social and environmental payments and spending in every region where we operate, in line with our ongoing commitment to the Extractive Industries Transparency Initiative (EITI). This spending can include contributions to local governments, communities or other non-governmental organizations to support social development or account for environmental impacts. Alcoa is proud to support the EITI, which helps strengthen the corporate governance practices of mining companies and provides transparent data on mineral revenues worldwide. Our Mineral Revenue Transparency Statement, as well as our mining concessions and agreements, can be found on our website.

Read more: EITI disclosure and Alcoa Policies

We also provide information related to taxes paid on a regional basis, along with information on royalties, fringe benefits taxes, payroll taxes and income taxes paid by our four active bauxite mining sites in Australia and Brazil. Lastly, we support local suppliers and disclose related spending data.

Please refer to the 2024 Alcoa Data Book for information regarding economic value, payments and local spend data.

Read more: 2024 Alcoa Data Book

2024 Alcoa Economic Value

Region	Labor Costs US$ Billions	Supply Chain Spend US$ Billions	Income Taxes US$ Milions
Australia	0.60	2.37	95.93
Europe	0.20	1.51	24.53
North America	0.70	5.56	34.82
South America	0.10	2.33	9.38
Total	**1.60**	**11.77**	**164.66**

Labor costs include compensation and benefits for employee services rendered plus employee expenses for external training, transfer and relocation, expatriate costs, workers' compensation, travel, recognition and rewards, medical expenses, meals, recruitment, transportation, education, work clothes and other employee-related expenses. Income tax amounts are net of income tax refunds received and exclude various other taxes.

2024 Alcoa Local Spend

	2024	2023	2022
Local Percent	52%	50%	46%
Non-Local Percent	34%	29%	31%
Non-Purchase Order Percent	14%	21%	24%
Same City US$ Millions	1,025	1,064	1,034
Same Country US$ Millions	4,992	4,413	4,641
Non Local US$ Millions	3,962	3,249	3,788
Non-Purchase Order US$ Millions	1,625	2,311	2,908

Goods and services tax and fuel tax credits paid/refunded (on a net basis) are not included in the Australia total. Local refers to same city and same country.
The definitions will be updated once all our regional local policies are defined.

2024 Alcoa Payments

	Income Tax	Royalties	Fringe Benefit Tax	Payroll Tax
Government of Australia	$95,925,504	$0	$0	$0
State of Western Australia	$0	$51,704,913	$385,184	$27,170,848
State of Victoria	$0	$0	$22,376	$1,582,863
Australia Total	**$95,925,504**	**$51,704,913**	**$407,560**	**$28,753,711**
Brazil Total	**$7,014,997**	**$10,055,735**	**$0**	**$5,560,708**

Amounts include activity related to Alcoa's active mining operations in Australia and Brazil. We do not separately track or pay taxes on mining activities.
Goods and services tax and fuel tax credits paid/refunded (on a net basis) are not included in the Australia total.
Income tax amounts are net of income tax refunds received and exclude various other taxes.

Investing in the communities where we live and work

In the regions where we operate, Alcoa contributes to socioeconomic development through employment, procurement of goods and services, taxes and royalties. To amplify our positive impacts, we also make social (or community) investments in our host communities which have diverse social, environmental and economic conditions.

Community investment is an important component of our social performance. The scope and scale of our global community projects are predicated by local context and the footprint of Alcoa's operations, whether that is bauxite mines, refineries, smelters, or office locations. Community investments at Alcoa are funded through three sources: Alcoa Foundation (global), Instituto Alcoa (Brazil) or directly from our global operations. The Alcoa Foundation and Instituto Alcoa are registered charitable organizations that promote sustainable development by providing grants aligned with their respective strategic priorities and in compliance with regulatory requirements. Operations-funded community investments include projects (voluntary and as per permit requirements), ad-hoc donations and sponsorships, and Alcoans Coming Together In Our Neighborhoods (ACTION) grants program.

Alcoa Foundation

Founded in the United States in 1952, the **Alcoa Foundation** is a registered 501(c)(3) charitable organization with the mission to be a catalyst for positive impact by investing in projects that advance sustainable social, environmental and economic outcomes with priority placed on the regions where Alcoa operates. In 2024, the Alcoa Foundation funded US$6.4 million in grants to support 79 projects globally.

Read more: Alcoa Foundation

Instituto Alcoa

Founded in Brazil in 1990, **Instituto Alcoa** is a non-profit institution that seeks to collectively promote education and the development of host communities adjacent to our three major operations in Brazil: Alumar, Poços de Caldas and Juruti. In 2024, Instituto Alcoa funded US$905,000 in grants to support 86 projects in Brazil.

Read more: Instituto Alcoa

Our evolving maturity and capacity building in community investment

Across the company, there are varying levels of maturity and capacity to develop, manage, monitor, evaluate and report the outcomes of community investments. Throughout 2024, Alcoa Foundation, Instituto Alcoa, and our operations collaborated to assess risks, gaps, and opportunities in community investment strategy, governance, and communications. Noteworthy results from these assessments include:

- Alcoa Foundation updated its mission and created a new global strategic framework focused on resilience which can be adapted to our diverse local contexts: Community Resilience, Landscape Resilience, and Economic Resilience.
- Provided capacity-building training to global representatives from Alcoa locations, which included guidance on developing outcomes-focused and multi-year projects, complying with regulatory requirements, and assessing the reputational risks of potential community projects.
- Established a global register for each location's community investment projects to deepen our understanding of funding history and inform the development of strategic priorities moving forward.
- Alcoa Brazil initiated a third-party review of in-country social investment outcomes and Instituto Alcoa funding strategy.
- Mapped the global community investment projects register to identify how we are contributing to advancing the United Nations Sustainable Development Goals (SDGs).
- Convened workshops in North America and Europe to develop Social Performance Plans, which include community investment priorities aligned with local context, social risks, operational impacts, priorities of local Indigenous communities and stakeholder engagement.
- Bolstered the connection between employee engagement and the Alcoa Foundation through a community impact campaign that resulted in 22 team volunteering events in 7 countries, as well as continuing to organize year-round volunteering as part of the Alcoans Coming Together In Our Neighborhoods (ACTION) grants program.

Our priorities include:

- Developing goals, targets and a Monitoring, Evaluation and Reporting (MER) framework for Alcoa Foundation projects to track and aggregate the outcomes of our global projects and future reporting of our progress against our goals and targets.
- Updating the social investment strategy for Alcoa Brazil and Instituto Alcoa based on the findings of the third-party review and company priorities.
- Initiating the development of community investment strategies that will:
  - enable comprehensive reporting to meet ever-evolving disclosure requirements,
  - define desired community investment outcomes and measures of success,
  - amplify our positive impacts in host communities.

In 2024, Alcoa employees dedicated

12,312 hours

to volunteering in the communities where we live and work

Highlights of the Alcoa Foundation and Instituto Alcoa Community Investments

Alcoa Foundation

In 2024, the Alcoa Foundation funded

$6.4 million

in grants to support

79

projects globally

Instituto Alcoa

In 2024, Instituto Alcoa funded

$905,000

in grants to support

86

projects in Brazil

- Outcomes-focused
- Aligned with local context and our operations' footprint
- Result of participatory processes and meaningful stakeholder engagement

In 2024, percentage of our global community investment contributing to advancing the SDGs:

27% (4 Quality Education)	8% (11 Sustainable Cities and Communities)
27% (8 Decent Work and Economic Growth)	19% (3 Good Health and Well-Being)
5% (5 Gender Equality)	5% (15 Life on Land)

9% (2 Zero Hunger, 13 Climate Action, 14 Life Below Water)

Earbus Foundation, Australia

Alcoa Foundation

Aboriginal children in Western Australia face significantly reduced access to routine ear health services, often leading to hearing loss at a young age. To address this, Alcoa Foundation partnered with the Earbus Foundation to deliver a mobile clinic service across the Kwinana, Peel, and Upper Southwest regions of Western Australia. The program provides ear screenings and health checks to at-risk children in primary school. In 2024, more than 1,160 children were screened, supporting both improved ear health and learning outcomes.

IMAZON, Brazil

Alcoa Foundation

Juruti, in the Brazilian Amazon, is home to Jará Lake, a protected area with limited community access for sustainable engagement. Alcoa Foundation renewed its support to IMAZON in 2024 to promote eco-tourism and community education. Activities include training residents as trail guides and developing an educational eco-train, as well as enabling local stewardship of this valuable ecosystem.

Ela Na Obra, Brazil

Instituto Alcoa

Women in rural São Luís face high rates of domestic violence and economic vulnerability. Instituto Alcoa partnered with Ela Na Obra, a non-profit focused on empowering women through vocational training, to deliver courses in construction, tech, and management skills. From October 2023 to November 2024, 400 women participated, with 113 securing employment and 150 increasing their income—advancing financial independence and safety.

Centro Tecnologico, Brazil

Alcoa Foundation

Engineering and geoscience students in Western Pará face challenges due to limited lab infrastructure. Alcoa Foundation supported the Federal University of Western Pará to establish three laboratories in Juruti and Santarém. These facilities now serve more than 480 students and enhance practical learning in mining, geology and engineering. The labs also incorporate training on socio-environmental responsibility, sustainability, and circular economy principles—helping prepare students to contribute to responsible resource development and the region's sustainable growth.

Indigenous Organizations, Canada

Alcoa Foundation

Indigenous communities near Alcoa sites in Canada have identified key needs in areas such as food security, cultural preservation, family wellbeing, safety from domestic violence, and access to educational resources, especially for young children. In response, Alcoa Foundation provided grants to Indigenous-led organizations in Québec to support initiatives in early childhood development, domestic violence prevention, traditional knowledge sharing and support to food banks.

Björgunarsveitin Ársól, Iceland

Alcoa Foundation

Iceland relies on volunteer Search and Rescue teams during emergencies in the country's rugged and remote areas, which can be difficult to access and help those impacted by natural disasters. Alcoa Foundation supported the Arsol Rescue Squad to train six new instructors and certify 10 new Level 1 members—volunteers prepared for frontline emergency response. These efforts strengthened preparedness and safety for remote East Iceland communities in 2024.

YWCA, Indiana, U.S.

Alcoa Foundation

Girls in underserved areas of Indiana often lack access to mentorship and academic support. Alcoa Foundation partnered with YMCA's Live Y'ers program to provide consistent mentoring, positive role models and educational enrichment activities to sustain the girls' engagement in completing their degrees and envisioning their future. The initiative has achieved a 100 percent high school graduation rate and improved test scores among participants.

Teach for All, Global

Alcoa Foundation

Burnout among teachers impacts educational outcomes worldwide. Alcoa Foundation launched a three-year partnership with Teach for All to support teacher wellbeing in Australia, Brazil and the United States. In 2024, 72 teachers received trauma-informed training, and 267 Brazilian educators joined a local mental health program, enabling stronger, more resilient classrooms.

Rassemblement des Jeunes Leaders de Guinée (RJLG), Guinea

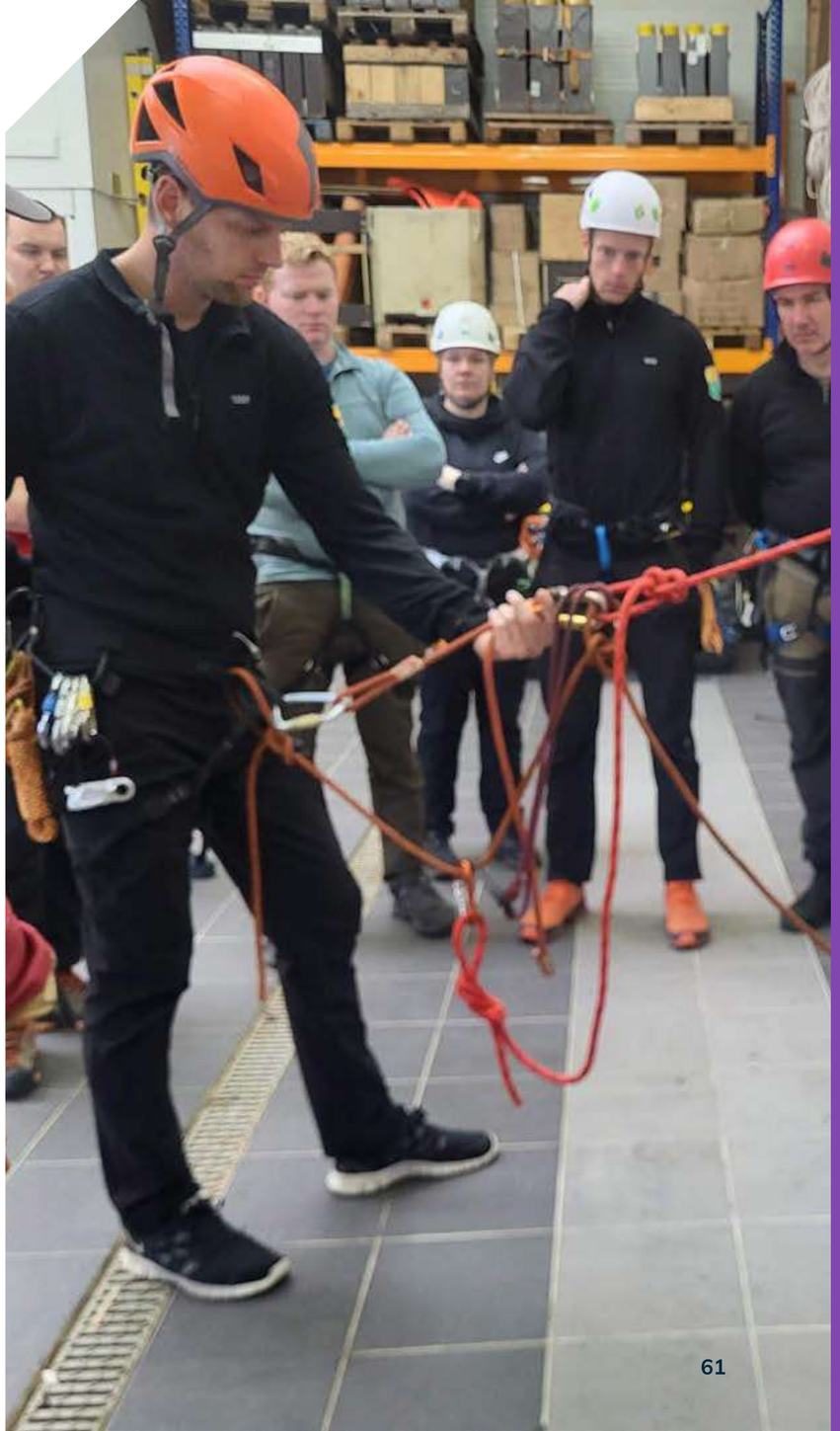
Alcoa Foundation

Single young mothers in Guinea often lack economic opportunity and social support, putting them and their families at risk. Alcoa Foundation renewed its partnership with RJLG to provide vocational training and health education. In 2024, 120 women were trained in trades; total impact for this multi-year project will result in more than 450 single mothers and youth benefiting from sexual health education and financial literacy training.

Kanya Donse Fanyi, Guinea

Alcoa Foundation

In Guinea, agriculture is a main source of income and employment, especially for women. Farmers often suffer post-harvest losses due to the lack of storage and processing facilities. Alcoa Foundation partnered with Kanya Donse Fanyi to provide processing equipment and training to 45 women. With access to cereal mills, thermos-sealers, and other tools, the trainees were able to produce and safely store food, such as nutrient-rich formula. By the end of 2024, this locally-made formula nourished more than 450 children. The project has since expanded to train more women and improve the marketing and distribution of these vital food products.



Human Rights

Alcoa is committed to respecting human rights across our operations and value chains, in line with our core values. This commitment is reflected in our Code of Conduct and Ethics and Human Rights Policy.

Human Rights at Alcoa

As a company spanning many different countries and cultures, Care for People is one of our most important values. Our human rights approach is guided by our **Human Rights Policy** and Human Rights Standard, which directly align with the United Nations Guiding Principles for Business and Human Rights (UNGPs). Our Policy acknowledges our responsibilities to respect human rights, conduct due diligence to identify actual and potential impacts on affected people and communities, and work to remediate any harm. Our efforts are governed at multiple levels of our organization by our dedicated Human Rights Council and supported by our active membership in the United Nations Global Compact, of which Alcoa has been a member since 2009.

SDG Alignment

Human Rights Due Diligence

Human Rights Due Diligence (HRDD) is a key tool in helping us proactively identify and manage our potential human rights risks and impacts. Our HRDD processes allow us to engage with workers and communities in our areas of influence and identify, understand and address human rights risks—ideally before they occur. It also helps us meet the requirements of existing and emerging legislation around the world aimed at ensuring rights-respectful supply chains.

As part of our due diligence process, we have conducted internal human rights screens globally, including rigorous human rights impact assessments across two thirds of our operational portfolio between 2023 and 2024, with plans to complete assessments on the remaining operations in 2025 and early 2026. These assessments build on previous human rights due diligence, deepening and expanding engagement with affected populations and driving heightened integration with operational activities. These include assessments at our three Brazil locations, as well as smelters in Canada, Iceland, Norway, Spain and the U.S. The assessments underpin management plans that are being used to actively manage risks and impacts.

We strengthened our due diligence efforts across our supply chain in 2024. We completed 15 location-level on-site audits of key suppliers globally, deepening our commitment to help goods and service providers identify and manage human rights risks. We identified companies for participation in on-site audits partly through online ratings assessments. All suppliers in high-risk countries or industries, and 98 percent of all suppliers globally underwent remote evaluation for human rights risks.

For details on our Responsible Sourcing Program, please see the **Supply Chain** section.

The due diligence undertaken in our locations and value chain has enabled us to identify potential salient human rights issues and implement risk-mitigating approaches. These are issues that span across our industry and the countries in which we operate. Examples of the potential human rights salient issues identified include safe and healthy working environment, fair wages, freedom of association, assembly and collective bargaining, freedom from forced labor and child labor, a clean, healthy and sustainable environment, land rights and security of person. These salient issues involve a variety of relevant groups which include Indigenous and Land-Connected Peoples, employees, contractors, local communities, and vulnerable and minority groups, with whom we are actively engaging. Many actions described throughout this report and our Global Modern Slavery Statement, outline our proactive management approach to these findings.

Global Modern Slavery Statement

Alcoa is committed to respecting human rights across our operations and value chains, in line with our Values. We have a zero-tolerance approach to modern slavery. In 2023, Alcoa released its first Global Modern Slavery Statement which details the broad range of actions we have undertaken to identify and address modern slavery risks, both within our operations and across our supply chains.

Read more: Alcoa 2024 Global Modern Slavery Statement

Human Rights Partnerships and Initiatives

Our efforts to prevent modern slavery and manage other human rights risks are reinforced through our participation in various prominent multi-stakeholder initiatives, such as the ASI and ICMM. Alcoa is also an active member of the Voluntary Principles on Security and Human Rights, and all contract security officers and management at our Alumar, Juruti and Poços de Caldas sites have completed the Voluntary Principles Initiative (VPI) training. We also conducted security assessments and communicated our VPI commitments to the local military police where they are present at our three locations in Brazil. Going forward, we aim to implement the VPIs across all of Alcoa's operations worldwide.

In 2025, our emphasis will be placed on:

- advancing due diligence in Australia;
- implementing Human Rights Action Plans in locations assessed in 2024;
- reviewing our Policy and Standard to enhance our internal governance;
- continuing to build internal capacity to appropriately manage human rights.

Indigenous and Land-Connected Peoples

Alcoa's approach to engagement with Indigenous and Land-Connected Peoples is a story of learning, reflection and continuous improvement. We work to broaden our understanding while developing region-specific approaches that balance the objectives of Indigenous and Land-Connected Peoples with regulations in our host communities.

Working with Indigenous and Land-Connected Peoples

The rights and perspectives of Indigenous and Land-Connected Peoples are an important and complex area of focus for Alcoa, as well as one of opportunity. Alcoa respects the communal rights of Indigenous and Land-Connected Peoples worldwide, in line with our Indigenous Peoples Policy, Human Rights Policy and the ICMM Position Statement on Indigenous People and Mining.

We engage with traditional land and resource users through community-specific processes governed by our commitment to the UN Declaration on the Rights of Indigenous Peoples. We seek to maintain empathy by listening and operating from a place of humility to address historical contexts and build strong relationships.

In 2024, we began updating and refining our Cultural Heritage Management Standard and will continue this work in 2025. We are engaging with Indigenous and Land-Connected Peoples at our operations in Australia, Brazil and Norway, as well as in the U.S. and Canada.

SDG Alignment

The Traditional Communities that Host Alcoa's Operations

Alcoa's engagement with Indigenous communities is continually evolving and expanding. In 2024, we strengthened our relationships with the Abenakis of Wolinak, Wendat Nation and Innus of Pessamit in Québec, whose traditional lands are home to three locations where Alcoa operates smelters. In the U.S., we intend to strengthen our relationships with neighboring Tribes.

In Australia, Brazil and Norway, we have active engagements with Indigenous populations that continue evolving and fostering stronger community bonds.

Aboriginal and Torres Strait Islander communities in Australia

In 2024, we continued to make progress on our Innovate Reconciliation Action Plan (RAP) commitments aligned with our vision for reconciliation: to strengthen and build relationships with Aboriginal and Torres Strait Islander peoples and communities founded on respect, an understanding of their needs and aspirations and a desire to work together to establish shared value.

Through this RAP term we implemented a range of initiatives focused on developing and maintaining mutually beneficial relationships, embedding respect for Aboriginal and Torres Strait Islander peoples and culture across Alcoa, increasing employment and economic opportunities and enhancing the cultural safety of our workplace for Aboriginal and Torres Strait Islander people. A traffic light report was developed highlighting our performance against our 2022-2024 Innovate RAP and work commenced on the development of our next (2025) RAP.

We have continued to strengthen our relationship with the Gnaala Karla Booja Aboriginal Corporation (GKB AC), the body representing the Noongar Traditional Owners of the land on which our current Western Australia mining and refining operations are based, by supporting key GKB AC initiatives. In 2024, for example, we supported the establishment of the GKB AC Ranger program, which is designed to embed Noongar People in land management across the GKB AC region. Alcoa provided initial financial support (through the Southwest Sustainability Alliance) to establish the program and in late 2024 identified opportunities for the GKB AC Rangers to be engaged across our operations in fee-for-service land management activities. It is planned that these fee-for-service activities will commence in 2025. Alcoa has also supported a signature GKB AC project to create a cultural governance structure for art projects that involve traditional Noongar stories and designs. This complements the significant Alcoa Foundation funding support, in partnership with GKB AC, for the Bunbury Noongar Arts Initiative.

Traditional Communities in the Brazilian Amazon

Deepening our engagement with affected populations: The Amazon basin provides vital resources for traditional fisherfolk and other resource-based communities near our mine, refinery and smelter in northern Brazil. We are working to deepen our understanding of the actual and potential impacts our operations may have on these communities by drawing on a range of approaches—including Human Rights Due Diligence, stakeholder engagement, and impact assessments—and strengthening our remediation measures through targeted interventions that aim to safeguard traditional ways of life. Our Juruti operation continues working to compensate traditional communities for the forests and ecosystems impacted by our mining activities from 2010 to the present day.

Strengthening Free, Prior and Informed Consent (FPIC) processes for potential future expansions: Where our mine exploration and expansion may affect traditional resource use, either through forest clearing or river dredging, we are developing engagement processes to share knowledge with affected communities in advance of these potential impacts. Our processes include conducting pre-impact meetings, strengthening our complaints mechanisms and establishing new protocols to identify potential risks and impacts.

Sámi of the Jillen-Njaarke Reindeer District in Norway

In 2024, Alcoa increased its engagement with the Indigenous Jillen-Njaarke Reindeer District and facilitated a trilateral meeting with Oyfjellet, a windfarm whose turbines are situated within a seasonal migation corridor. Alcoa purchases electricity from Oyfjellet and seeks to ensure that human rights are being respected within its supplier base and area of influence. Collaboration is ongoing with all parties to reduce impacts to reindeer herding.

Looking Ahead

In 2025, we aim to improve our approach to transparency and how we talk about the impacts our operations can have on traditional lands, peoples, cultures and the environment. These efforts seek to embody our willingness to have challenging conversations, continually learn and improve and be a more effective and valuable community partner.

Talent

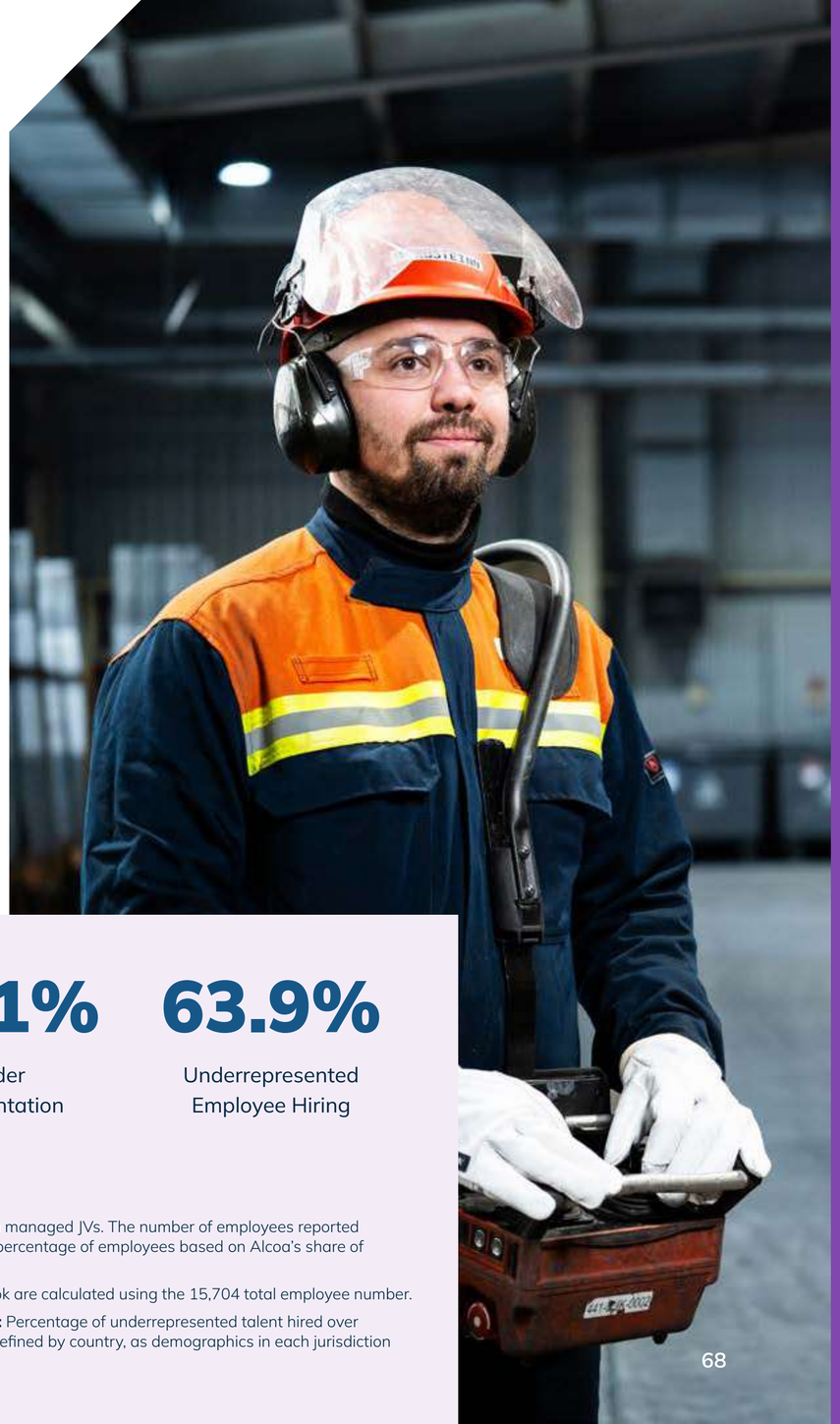
Our people are the driving force behind Alcoa's success. We continue investing in attracting and retaining top talent and providing our employees with professional and personal growth opportunities to forge long, rewarding careers.

Talent Attraction

Throughout 2024, we continued to enhance initiatives to attract talent in a highly competitive industry for skilled workers. Central to our approach are our talent outreach efforts, which include recruitment events at high schools, colleges and universities, advertising on various platforms, and utilizing existing partnerships with inclusion focused companies. Our hiring managers receive talent acquisition training that covers both conscious and unconscious bias. Additionally, we consistently use gender-neutral language in our job postings to minimize potential biases.

Our internship and apprenticeship programs have continued to grow in Australia and Brazil, and we have increased our presence at community engagement events in all regions where we operate.

We also created new employer brand content, including photos, video testimonials and campaigns, to showcase Alcoa as an employer of choice with a global presence and a variety of opportunities. These efforts aim to highlight our commitment to attract top talent from around the world.



15,704
Total Number of Employees Across All Alcoa Operations and Managed Joint Ventures

13,900
Total Number of Employees Based on Alcoa's Share of Managed Operations

20.1%
Gender Representation

63.9%
Underrepresented Employee Hiring

All data as of December 31, 2024.

15,704 employees include all employees from Alcoa operations and 100% of the employees from managed JVs. The number of employees reported in Alcoa's 2024 Form 10-K is 13,900, which includes all employees from Alcoa operations and a percentage of employees based on Alcoa's share of managed JVs.

All employee-related data points in this 2024 Sustainability Report and the 2024 Alcoa Data Book are calculated using the 15,704 total employee number.

Gender Representation: Percentage of women employees. **Underrepresented Employee Hiring:** Percentage of underrepresented talent hired over total hires in the year (average across all Alcoa locations). Underrepresented Employee hiring is defined by country, as demographics in each jurisdiction are different.

SDG Alignment

Improving Our Employee Value Proposition

In 2024, we took significant actions to enhance our employee value proposition (EVP) and attract top talent in the employment market. Our initiatives included communicating more effectively what Alcoa offers as an employer, including our region-specific benefits and promoting position requirements in a concise and purposeful manner. Additionally, we formed and nurtured partnerships with external vendors to expand our talent attraction activities and establish new connections with candidates from varied backgrounds. We tailored our direct communication channels to meet the specific needs of each region, ensuring that our opportunities were promoted effectively.

During the year, we also enhanced our online presence to provide a better candidate experience and showcase not only Alcoa as a global organization, but also each Alcoa site or location. We also maintained our efforts to embed the EVP internally, across all elements of the employee lifecycle, including our learning programs, performance review processes and employee surveys.

Employee Onboarding

We continued to prioritize delivering a best-in-class onboarding experience by combining a virtual orientation training solution with a local and customized agenda. This approach ensures that new hires have a streamlined, standardized and positive onboarding experience. Additionally, we trained people managers to understand their crucial role in creating a welcoming and supportive onboarding experience. This program helps new Alcoans feel more engaged and connected by providing them with a comprehensive understanding of our business, its systems and their place within them.

In 2024, one of our key initiatives was conducting an employee survey to gain feedback about the quality and effectiveness of our onboarding process. Out of 1,061 new employees who joined Alcoa in 2024, 350 of them completed the survey and provided overwhelmingly positive feedback about their experience, with a score of 83 out of a possible 100 points. Please refer to the **2024 Alcoa Data Book** for data on new employee hires and turnover.

Talent Retention

In 2024, we focused on improving employee experience and engagement through various initiatives:

- Continued our Flexibility First initiative providing new and flexible ways of working, including hybrid work arrangements.
- Integrated our Gig Initiative into career development, fostering cross-functional teams to collaborate on projects across the company.

Read more: Gig Initiative

- Continued to enhance our EVP by conducting talent talks and stay interviews with employees. These initiatives aim to engage our workforce, proactively address potential retention risks, and support career development discussions helping employees consider growth within Alcoa. Additionally, we focused on increasing upskilling, encouraging the adoption of our performance management approach, and offering mentoring and coaching opportunities to further support our employee's professional development.
- Improved our Performance and Development Process (PDP) for salaried employees by establishing new guiding principles and defining our critical activities, such as requiring at least three check-ins to ensure alignment on goals and effective discussions on performance and development. These improvements aim to foster a high performance culture and continuous improvement. Additionally, we introduced individual performance ratings to improve employee differentiation based on our performance factors, and in connection with our Total Rewards Philosophy. In 2024, 100 percent of salaried employees participated in a Year-End Performance Check-in. Further refinements to the PDP will continue in 2025, including manager upskilling and developing the habit of giving and receiving feedback.

Employee Engagement Surveys

Over the past four years, Alcoa has implemented a company-wide employee engagement survey strategy. This initiative aims to gain feedback from all employees, identify areas for enhancing the employee experience, and ultimately help us engage and retain our employees. The annual survey covers a wide range of topics, including, but not limited to communication, collaboration, managerial support, ways of working, sense of belonging, decision-making and purpose.

In 2024, our overall employee engagement score was 73 out of a possible 100 points, closely aligned with the global 2024 external benchmark of 74 and only 1 point below the previous year's engagement results.
We achieved record participation in our last survey, with 64 percent of employees providing their feedback—a significant increase from the 49 percent participation rate in the previous survey. To reach this response rate, we implemented several strategies, particularly among hourly employees. These included adding banners with QR codes to facilitate easy access to take the survey, creating local communications to reinforce global messages, and setting up dedicated spaces where employees could complete the survey comfortably.

After the survey, managers were encouraged to conduct team "ACT" conversations:

- **A**cknowledge the results,
- **C**ollaborate to define key actions, and
- **T**ake one step forward.

This three-step framework was created to help facilitate conversations about engagement.

Total Rewards

In alignment with our Employee Value Proposition: Shape Your World, Alcoa's Total Rewards philosophy is designed to support the attraction and retention of talent essential to the success of the business. To deliver real progress for our industry and business, we all must play a role. Alcoa's Total Rewards Philosophy enables real progress by:

- Partnering to create an empowering and enriching employee experience that inspires people and enables us to compete for the talent we need now, and in the future.
- Sharing in the company's success and rewarding positive outcomes through recognition, incentives and development opportunities.
- Reflecting our commitment to inclusion and belonging.
- Balancing value, risk, and what matters to our people to ensure our ongoing success and sustainability.

In 2024, we focused on several strategies to differentiate Alcoa's Total Rewards Programs and ensure employees understand the value of their Total Rewards:

- In support of the company strategy to evolve performance management, individual performance ratings are being used to differentiate incentive compensation awards and merit for eligible employees.
- Our annual incentive compensation plans for eligible salaried employees include a 30 percent weighting to non-financial metrics focused on safety and talent.
- We published Total Rewards brochures highlighting the value of Alcoa's inclusive programs.
- We continue to engage an external third-party consultant to perform an annual global pay equity assessment.

For additional compensation information and data, see the Compensation Discussion and Analysis in our 2025 Proxy Statement.

Read more: 2025 Proxy Statement

Engagement Survey Results

73
engagement score

13,000+
comments

70%
engagement favorability

64%
response rate

Labor Relations

Across our company, we support the rights of all workers and employees to engage in freedom of association and collective bargaining. In 2024, we had 20 active labor agreements, covering approximately 62 percent of our entire workforce.

Learning and Development

We remain committed to providing all Alcoans the opportunity to grow and develop through our learning and development offerings.

In 2024, over 250 Alcoans benefited from our signature leadership development programs, specifically:

- Advancing Supervisory Excellence: Focuses on upskilling and equipping new frontline supervisors.
- Alcoa Management Essentials: For individuals expected to become people managers.
- Transformational Leadership Development Program: Brings together successors for senior leadership roles in a 10-month program with curated content for self-paced learning, peer discussions, executive coaching and a team leadership challenge.
- Australia Leadership Fundamentals Program: Residential program targeted at advancing leaders Job band 30-35 facilitated by the Australian Institute of Management WA and University of Western Australia Business School Executive Education.

US$8.2 Million

spent globally on learning and development in 2024

8 hours

spent in training on average per employee in 2024

Includes onboarding and learning hours focused on ethics and compliance, leadership and professional development plus required mandatory regulatory and health and safety training at various locations.

To increase access to learning, in 2024, we introduced two new learning offerings, targeted to specific needs in the business:

- IT and Automation Solutions (ITAS) Portfolio Based Operating Model Leadership Program: small cohorts of leaders from our IT and Systems team who experience curated self-paced learning and participate in a 360 assessment on their communication style and versatility.
- Social style team assessment: a team experience workshop that helps teams improve workplace interactions and relationships.

We offer a wide range of development programs to all Alcoa employees, regardless of their role. These programs include, but are not limited to, non-classroom development opportunities such as gigs, mentoring and leadership skill curriculums, which are promoted through our Global Learning Labs. In addition to our formal learning and development programs, we saw an increase in the number of individuals participating in professional coaching and 360 assessments, further enhancing their growth and performance.

People Analytics

In 2024, we made significant progress in enhancing our People Analytics efficiency and strategic alignment. These efforts supported HR and organizational leaders through key initiatives:

Measuring Employee Performance and Engagement

Our leaders benefited from automated solutions that tracked employees' progress across various performance and development components, including the goal-setting process and performance ratings. Additionally, we designed and launched a comprehensive global survey to measure employee engagement and assess the effectiveness of our onboarding process.

Identifying Talent Risks

A global HR scorecard was redesigned to provide a consolidated view of key HR metrics, ensuring alignment with business goals and supporting the overall HR strategy. Leaders are equipped with a comprehensive overview of organizational metrics, enabling them to identify risks and take informed action.

Systems Integration

The assembly of data from multiple sources has enabled global visualization of key metrics and supported local team processes through the availability of automated time and attendance solutions for most parts of the organization.

Strategic Workforce Planning

Implementing a pilot initiative has enabled proactive management of workforce needs and identified areas for improvement in the planning process, guiding our future actions.

Inclusion

Alcoa seeks to provide trusting workplaces that are safe, respectful, inclusive and reflect the communities in which we operate. Our aspiration is to cultivate a welcoming, inclusive environment that embraces employees from all backgrounds, providing equal opportunities and allowing them to maximize their potential while helping our business thrive.

In 2024, Alcoa introduced five new pillars in support of our inclusion strategy: People, Reputation, Integration, Measurement and External Relations.

We aim to solidify Alcoa's reputation as a fair employer and a great place to work, all by incorporating inclusion into our processes, practices and programs. We do so through a robust governance model and usage of key metrics to track our progress and drive continuous improvement, while working to comply with continually evolving requirements and standards. We also advise and encourage our leaders and employees to cultivate an inclusive mindset within teams, collaborate with external stakeholders, and engage communities and value chain partners to ensure collective success.

Alcoa has several policies in place aimed at fostering a safe and respectful workplace environment. Below are the key ones:

- Code of Conduct and Ethics – Sets expectations for our workplaces to be free from harassment, bullying and offensive or disrespectful behavior.

  Read more: Code of Conduct and Ethics

- Human Rights Policy – Acknowledges Alcoa's responsibility to respect human rights and is committed to treating people with dignity and respect.

  Read more: Human Rights Policy

- Harassment and Bullying Free Workplace Policy – Covers harassment and bullying behavior by or to employees, contractors, vendors, customers, suppliers or visitors.

  Read more: Harassment and Bullying Free Workplace Policy

- Equal Employment Opportunity Policy – Sets forth that employees, contractors and applicants should not be discriminated against or treated unfairly based on non-job-related characteristics.

  Read more: Equal Employment Opportunity Policy

- Inclusion, Diversity and Equity (IDE) Policy – Outlines our goal to embed inclusive practices throughout our global operations and business.
- Homeworking Policy – An internal policy that facilitates greater work-life balance.

As part of our ICMM membership, we contributed to developing a collective commitment to addressing social challenges in the mining and metals industry, specifically Principle 03: "to respect human rights and the interests, cultures, customs and values of workers and communities affected by our activities." In line with ICMM's new Social and Economic Reporting Framework, we are expanding our efforts to report on our progress.

In 2024, we introduced a range of new corporate guidelines to reinforce our efforts in promoting inclusion. These include guidelines to mitigate bias in Organizational Restructuring as well as in the PDP.

Alcoa reinforces learning opportunities for all employees and new hires to foster mutual trust, respect and inclusivity among colleagues while promoting an engaging and collaborative work culture.

During 2024, we expanded our training efforts with several new courses to upskill our workforce. They included a quarterly series of open discussions with leaders around topics related to inclusion. We also launched a course to educate employees about the signs, impacts and repercussions of workplace harassment, as well as clear behavioral expectations in line with our values, policies and code of conduct. Additionally, we included modules on the basics of belonging and inclusion concepts in supervisory development programs and further promoted Alcoa's corporate mentoring program for all.

We established collaborative partnerships with prominent global organizations, including Catalyst, Disability:IN and Out & Equal, to advance inclusion and belonging initiatives in the workplace. Additionally, we partnered with the United Nations in Brazil and Europe to focus on the inclusion of immigrants and refugees.

In Australia, Alcoa's vision for reconciliation is to strengthen and build relationships with Aboriginal and Torres Strait Islander peoples and communities founded on respect, an understanding of their needs and aspirations, and a desire to walk together to establish shared value. By engaging our workforce, stakeholders, and host communities in reconciliation, Alcoa aims to contribute to an Australia that celebrates the rich diversity of Aboriginal and Torres Strait Islander peoples and understands and acknowledges the past, thereby helping to achieve a fair future for all. In 2024, we took an important stride in our vision by launching an Aboriginal Employees Network in Australia and forming a strong partnership with traditional owners as part of the Reconciliation Action Plan.

Due to Alcoa's distinguished brand reputation, the American Chamber of Commerce in Brazil, recognizing our efforts in creating a culture of belonging, invited our Global Inclusion Director to serve as the president of their strategic Diversity & Inclusion Committee for a two-year tenure, leading a peer network composed of over 50 companies in Brazil.

Inclusion Groups

Alcoa's global progress in building an inclusive workplace is largely driven by the contributions of our four Inclusion Groups (IGs), open to all employees. These employee resource groups play a decisive role in building a more inclusive workplace.

Members of our Executive Team sponsor the IGs to help foster cross-organizational progress. Alcoa's IGs cover people with disabilities, women, members of the LGBTQ+ community and racial-ethnic equality. In 2024, we revamped the global governance structure of our IGs and created a voluntary enrollment methodology, resulting in the participation of 4.7% of the total workforce.

Read more: Alcoa's IGs

Alcoans participate in IG events organized around global awareness days, such as International Women's Day, International Pride Day, World Day for Cultural Diversity for Dialogue and Development and International Day of Persons with Disabilities. Acknowledging these awareness days with global town halls or messages, webinars and lunch-and-learn sessions helps our employees build knowledge on inclusion while demonstrating our efforts and progress. We also observe holidays on significant dates in the countries where we operate.

Alcoa's Global Inclusion Groups

Alcoans Moving Beyond Limited Expectations (ABLE)

Alcoa Women's Network (AWN)

Employees at Alcoa for LGBT+ Equality (EAGLE)

Alcoans Working Actively for Racial-Ethnic Equality (AWARE)

Enhancing the Employee Experience Globally

We foster a culture that promotes opportunities for all, encourages innovation and supports inclusion and respect in the workplace. In 2024, we conducted an employee engagement survey (as mentioned in the Employee Engagement Surveys section), which returned an overall Respectful Treatment ("I'm treated with respect and dignity") score of 78 out of 100 and a Sense of Belonging ("I feel a sense of belonging at Alcoa") score of 68 out of 100. These metrics help us understand how employees experience our culture and where we can further advance inclusion and engagement.

During 2024, we partnered with People Analytics to develop a new global dashboard that increases visibility into Alcoa's demographics—while adhering to data privacy guidelines. As part of this collaboration, we also updated some of our existing global dashboards to include additional dimensions.

In Brazil, we implemented upgrades at various locations to enhance accessibility for individuals with mobility restrictions and celebrated an Inclusion Week, featuring in-person and virtual events held over five days across all four Alcoa locations in the country.

Global Workforce by Gender

In 2024, women represented 20.1 percent of total employees, compared to 19.1 percent in 2023.

Women Representation (%) of Total Employees

	2024	2023	2022
Percentage of women in total workforce	20.1%	19.1%	18.5%
Percentage of women in management	29.8%	29.3%	29.2%
Percentage of women hires	27.9%	25.0%	26.1%

In 2024, the gender pay gap was 2 percent for jobs within the same job band, and 14 percent overall, a 2 percent decrease from 2023.

Underrepresented Talent

From 2023 to 2024, Alcoa had a 2.8 percent increase in underrepresented individuals at the management level, while underrepresented group representation among new hires increased from 44.1 percent to 63.9 percent during the same period.

Underrepresented Talent* Representation (%) of Total Employees

	2024	2023	2022
Percentage of underrepresented talent in total workforce	36.5%	31.8%	30.3%
Percentage of underrepresented talent in management	40.4%	37.6%	36.9%
Percentage of underrepresented hires	63.9%	44.1%	51.3%

* **Underrepresented Employee Hiring:** Percentage of underrepresented talent hired over total hires in the year (average across all Alcoa locations). **Underrepresented Employee hiring** is defined by country, as demographics in each jurisdiction are different.

Detailed data on Alcoa's progress to create a more inclusive workplace can be found in the 2024 Alcoa Data Book.

Read more: 2024 Alcoa Data Book

Employer Recognition

In 2024, Alcoa was recognized across various regions and locations. Here are some highlights:

- Received the Employer of Choice for Gender Equality award from the Australian Government's Workplace Gender Equality Agency for the 23rd consecutive year.
- Recognized as one of America's Most Trustworthy Companies in the U.S. by Newsweek magazine, earning 4.5 out of a possible 5 stars. Alcoa is one of 700 companies to be honored, out of a possible 3,400.
- Awarded Great Place to Work designation in Brazil for the 4th year in a row.
- Listed as one of Brazil's Top Employers by Top Employers Institute.
- Selected as one of the best companies for LGBTQ+ employees in Brazil and the U.S. by the Human Rights Campaign Foundation.
- Selected as one of the most inclusive mining companies in Brazil by Ethos Institute.
- Listed as one of Montreal's Top Employers by Top Employers Institute.
- Improved our ranking in the Dow Jones S&P Corporate Sustainability Assessment (CSA) index.
- Received the Regional Diversity Award from Norway's Directorate of Integration and Diversity.

Environment

Our Environmental Stewardship

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Climate Change

Alcoa is committed to supporting the outcomes of the Paris Agreement and aligning its climate ambition with the “well below 2°C” decarbonization path. This requires working cross-functionally throughout our organization and in collaboration with our local communities and the global aluminum industry to address the challenges and seize the opportunities associated with climate change.

Climate Change Strategy

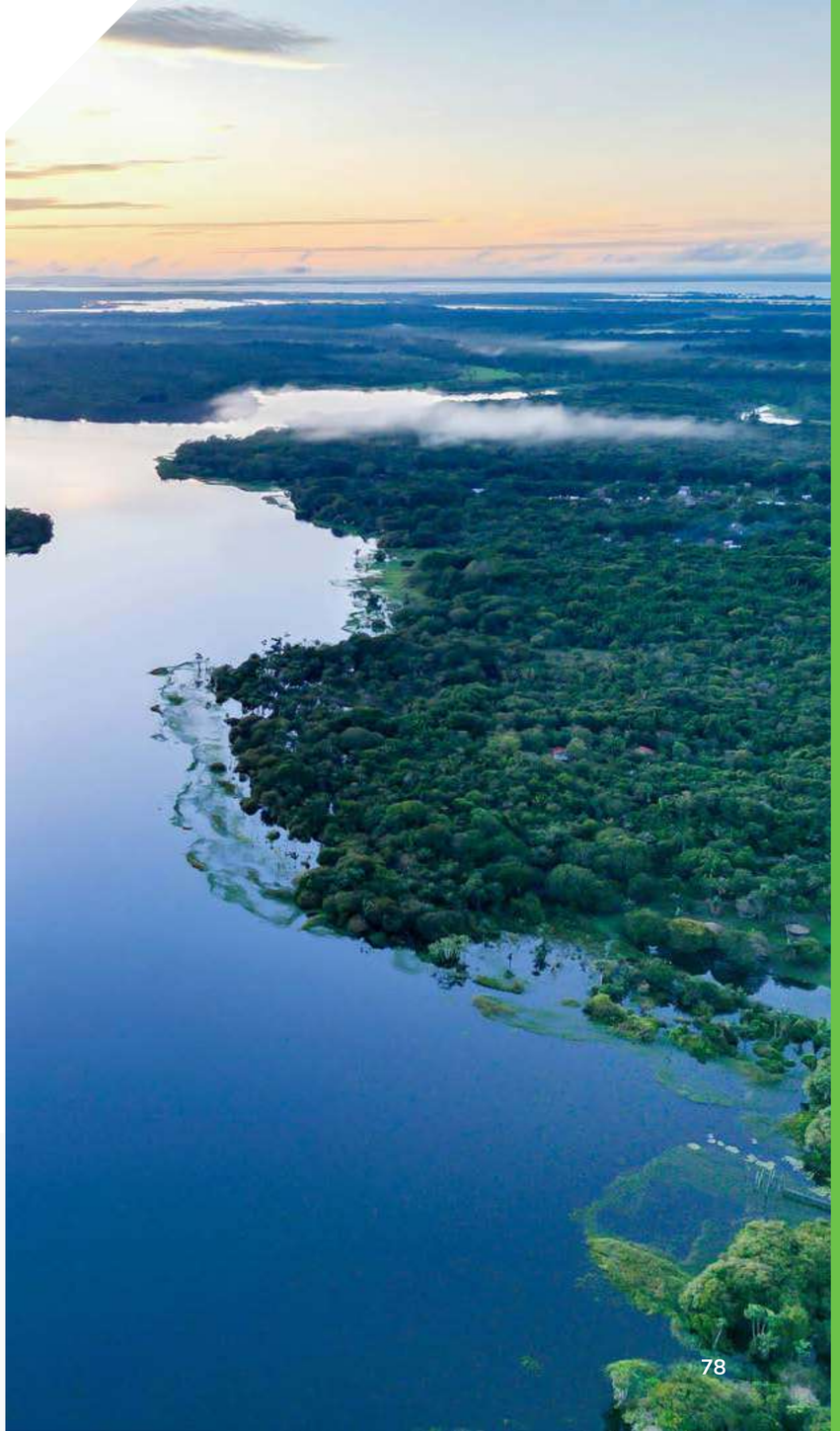
As outlined in our **Climate Change Policy**, our strategy to address climate change seeks to:

- Identify decarbonization opportunities across our operations.
- Focus on efficient energy consumption.
- Build climate resilience through understanding and managing the physical and transitional risks of climate change at our operations and in our host communities.
- Develop and/or adopt technologies that could result in a lower carbon footprint in our products.
- Prepare for increasing regulatory requirements and expectations from our stakeholders and host communities.

Throughout 2024, we initiated a review of Alcoa’s long-term climate change strategy, completed global and regional decarbonization roadmaps, evaluated and integrated transitional and physical risks into our risk management process, and prepared for future regulatory requirements.

> The Climate Change Director leads the Climate Sustainability Working Group referenced in the **Governance** section.

SDG Alignment



Climate Ambition

Alcoa has a long-term ambition to achieve net zero GHG emissions across our global smelting and refining operations by 2050 for Scope 1 (direct) and Scope 2 (indirect) emissions. Our short- and mid-term targets are to achieve a 30 percent reduction by 2025 and a 50 percent reduction by 2030, compared to our 2015 baseline (intensity basis).

In 2024, we achieved a 27.2 percent reduction in refining and smelting emission intensity from our 2015 baseline. Based on this trend, we do not expect to meet our 2025 emissions reduction goal. Acknowledging the broader real-world challenges of decarbonizing the aluminum industry—including the need for significant investments in new technologies and existing process and energy infrastructure—we will continue working to assess and advance projects that have decarbonization benefits.

Carbon Dioxide Emissions Intensity^

Metric tons of CO_2e per metric ton of production (IPCC, 5th assessment report)

Year	Refining	Smelting	Total
2015 Baseline	0.55	6.06	**7.10**
2020	0.52	5.08	**6.06**
2021	0.52	4.43	**5.41**
2022	0.51	4.36	**5.32**
2023	0.54	4.15	**5.17**
2024	0.53	4.16	**5.17**

^ Data assured to a limited level of assurance by ERM CVS.

Data is for Scope 1 and location-based Scope 2 emissions. The total represents the combined impact of refining and smelting operations indexed to metric tons of primary aluminum production (refining is included at a ratio of 1.9 metric tons of alumina to 1.0 metric tons of smelted aluminum). These two processes and their associated power supply represent 87 percent of our total GHG emissions. Calculations of these emissions intensities conform to the International Aluminium Institute (IAI) Aluminium Sector Greenhouse Gas Protocol using 100-year global warming potentials provided by the Intergovernmental Panel on Climate Change (IPCC).

Carbon Dioxide Equivalent Emissions^

Million metric tons of CO_2e

Year	Scope 1	Scope 2 Location-based	Total
2020	18.50	5.40	**23.90**
2021	17.40	4.40	**21.80**
2022	16.80	4.00	**20.80**
2023	16.53	3.81	**20.34**
2024	15.57	4.44	**20.01**

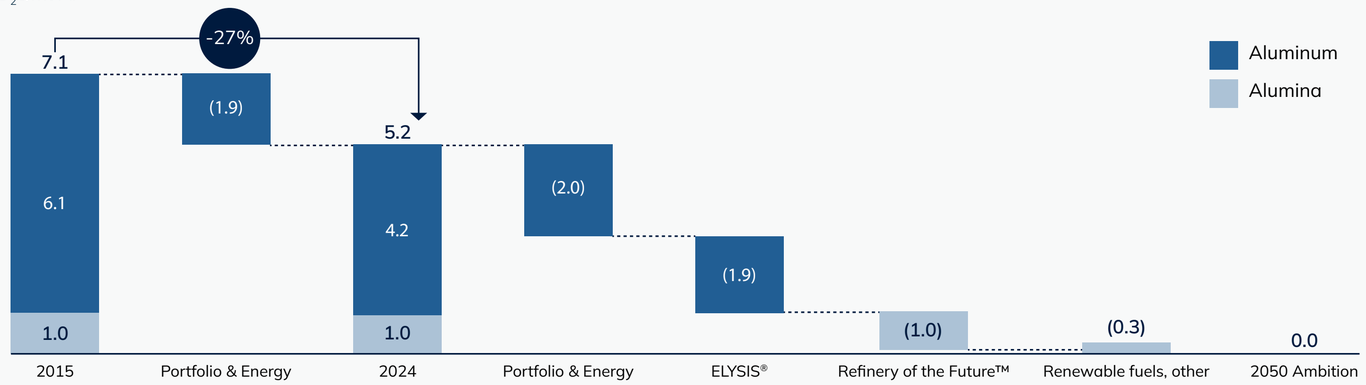
^ Data assured to a limited level of assurance by ERM CVS.

Alcoa reports on an operational control basis. Of our 20.01 million metric tons (M mt) of CO_2e emissions in 2024, 19.16 M mt were associated with carbon dioxide, 0.76 M mt were associated with perfluorocarbon (CF4 & C2F6), 0.05 M mt were associated with methane, 0.04 M mt were associated with nitrous oxide, 0.004 M mt were associated with hydrofluorocarbon and 0.003 M mt were associated with sulfur hexafluoride (SF6). We had 8,789 metric tons of biogenic CO_2e emissions from the combustion of biodiesel. These emissions are not included in the total 2024 CO_2e emissions. In 2024, 49 percent of our direct emissions were covered under an emissions-limiting regulation or program that is intended to directly limit or reduce emissions. In 2023, we added low voltage anode effect PFCs to our PFC absolute emission total.

We use the Greenhouse Gas (GHG) Protocol developed by the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD) to establish boundaries for our calculations and account for mergers, acquisitions, divestitures, startups, curtailments, and closures of operating facilities. The Intergovernmental Panel on Climate Change (IPCC) Guidelines and country-specific databases, such as Australia's National Greenhouse and Energy Reporting guidelines, continue to serve as our source of data for GHG applicable emission factors.

Estimated Alcoa Scope 1 and 2 Emissions Reductions by Segment

mt CO_2e/mt Al



Global Decarbonization Roadmap

A significant step forward on our climate strategy was the development of a new global decarbonization roadmap with specific focus on the next five years. During this process, we evaluated specific projects and existing technologies that may have decarbonization benefits along our value chain. While our long-term decarbonization ambition remains contingent upon the commercialization of new breakthrough technologies, which remain under development, our new roadmap identifies potential projects which, if proven to have economic and decarbonization benefits, could potentially be implemented within the next 5 years. These include operational improvements, electrification, energy efficiency measures and the use of innovative clean energy technologies.

Scope 3 Emissions

Alcoa uses the GHG Protocol's globally accepted emission factors to calculate and report our estimated Scope 3 emissions for all relevant categories. Scope 3 emissions are summarized in the 2024 Alcoa Data Book. We have calculated, disclosed and received limited third-party verification of our estimated Scope 3 emissions under this Protocol since 2016.

Given the complexities of the supply chain within the aluminum sector and our limited ability to control reductions from suppliers and customers, we continue to evaluate Scope 3 emissions and the feasibility of achieving reductions via our **Responsible Sourcing Framework**.

Please refer to the **2024 Alcoa Data Book** for information regarding CO_2e emissions and upstream and downstream Scope 3 emissions.

Science-Aligned Targets

We understand there are complex and evolving expectations about how companies and industries should independently verify the alignment of their decarbonization strategies and targets with the latest science. These include the Science Based Targets initiative (SBTi), the ISO Net Zero Standard and similar science-aligned pathways. Alcoa will continue engaging with these efforts to define decarbonization-related disclosures and targets. We will also seek to join relevant working groups to develop standardized pathways that identify effective ways to reduce emissions that are practical and relevant to our industry, including ASI's Climate Working Group. Additionally, we are embarking on a peer review of potential science-aligned targets in 2025 with the goal of evaluating the potential for establishing interim Scope 3 targets.

Our metrics and targets related to climate change have third-party limited assurance.

For more information about our 2024 emissions reductions and programs, see the **Energy Use and Efficiency** section.

Climate Change Risk Assessments

In alignment with industry best practices, we continue to analyze the physical and transitional risks associated with climate change.

Physical Risks

Physical risks can include acute and chronic changes in weather patterns that could impact our operations, biodiversity management, host communities, suppliers and customers. Severe risks are generally event-driven and could include heat waves, floods, storms and fires. Ongoing risks generally refer to longer-term changes to traditional weather patterns, such as above-average temperatures that can lead to droughts and rising sea levels.

Physical risk assessments completed to date to determine the potential impacts of climate change include:

- High-level screening of the physical impacts of climate change on Alcoa's global asset portfolio.
- Conducting physical climate risk assessments (in accordance with the GISTM) for our high-risk impoundments at the San Ciprián, Alumar and Kwinana refineries.

Transition Risks

The transition to a lower-carbon global economy continues to drive policy, legal, technology and market changes that vary in nature, speed and focus. We consider the risks associated with these changing external factors in our internal strategy discussions and long-term planning.

In 2024, Alcoa continued leveraging transition risks and opportunities assessments completed in previous years to guide the actions we have taken on climate and our ongoing climate strategy development. These assessments included peer benchmarking, updating our transition risk scenario analysis based on current scientific, industry, regulatory and stakeholder expectation contexts, and identifying our transition risks and opportunities.

Climate Risk Adaptation and Resiliency Planning

Building on previous assessments, in 2024 we initiated an update of our physical and transitional risk assessments for our global operations including our impoundments (See **Impoundments** section). This work will continue in 2025 and will enable development of a long-term adaptation and resiliency plan. As part of this work, we aim to:

- Conduct and/or update climate change physical risk assessments at our operating locations in Australia, North America and Europe and refine our climate change transitional risk assessments.
- Continue to integrate the identified physical risks and transition risks and opportunities into our current risk management processes.
- Refine the quantification of the potential financial impacts to our operations and business strategy as we update our climate change risk assessments.
- Implement a Climate Adaptation and Resiliency Plan for our global operations.
- Develop and implement an updated global decarbonization strategy that fully aligns with regional and site-level long-term plans.
- Continue evaluating the feasibility of minimizing Scope 3 emissions through engagement with our suppliers and customers.

Industry Initiatives

During the reporting year, Alcoa continued its active participation in a broad range of collaborative initiatives focused on decarbonization, external engagement and advocating for effective climate policy across the aluminum industry and its value chain.

European Aluminum

Alcoa directly supported the efforts of European Aluminum to engage stakeholders on the development of the European Commission's carbon border adjustment mechanism (CBAM) requirements and its associated implementation.

Rocky Mountain Institute (RMI)

The RMI initiative aims to develop standards for the global economy's most carbon-intensive sectors to establish and measure progress toward credible climate-change-related targets. In 2024, Alcoa continued its participation in the Aluminum Sector Working Group to develop the Sustainable Aluminum Finance Framework. This pioneering framework enables banks to measure and disclose aluminum-related CO_2 emissions in their lending portfolios.

International Aluminum Institute (IAI)

As a member of the IAI, Alcoa continued its participation on the Climate Change Committee, including support for carbon footprint and life cycle assessment tools and supporting policy engagement on regulatory definitions and strategy. We also provided input to the IAI's Climate Resilience Project and GHG Initiative. The IAI GHG Initiative facilitates industry target setting and transparency by inviting member companies to demonstrate their commitment to reducing GHG emissions through long-term target setting, including an interim milestone and a plan to achieve the target. Member companies are also invited to disclose their progress annually and report their absolute Scope 1 and 2 emissions and, ideally, Scope 3 emissions.

Helping Communities Prepare for Climate Change

As climate-related risks intensify, supporting the resilience of our host communities has become increasingly important. Alcoa Foundation contributes to this effort by funding initiatives that help communities understand, adapt to, and mitigate the effects of climate change.

One example is our support for a global mangrove restoration and monitoring initiative led by The Nature Conservancy and partners.

Mangroves play a crucial role in carbon sequestration and coastal stabilization. With half the world's mangroves already lost, communities and ecosystems are increasingly vulnerable to climate change. Alcoa Foundation supported the Global Mangrove Watch platform, launched by The Nature Conservancy, Wetlands International, Aberystwyth University, and soloEO, to improve global monitoring and training; the platform is publicly available as to enable more sustainable policy and development decisions. In 2024, a local training in Kenya reached 70 participants, helping raise awareness and restore mangrove habitats worldwide.

Energy Use and Efficiency

As our refining and smelting processes are energy-intensive by nature, we need access to significant volumes of reliable and affordable energy that also aligns with our decarbonization ambitions. We work to reduce our energy intensity and support the global transition to more renewable energy by pursuing decarbonization opportunities.

Reducing Scope 2 Emissions

Scope 2 emissions include GHG emissions associated with the electricity we purchase to power our facilities. Part of our strategy for reducing Scope 2 emissions involves reducing our reliance on fossil fuel sources and obtaining long-term renewable energy contracts.

In late 2019, Alcoa set a goal to source 85 percent of our electricity for our global smelting portfolio from renewable sources by 2025, which we first achieved in 2022. In 2024, our overall use of renewable electricity slightly decreased from 87 percent to 86 percent due to stagnating adoption rates in selected markets (starting from high initial levels) along with increased production at our Warrick smelter in the U.S. and at our São Luís smelter in Brazil, where the Brazilian grid factors increased due to dry weather reducing hydropower production in 2024.

To read more on how we are working to reduce our Scope 1 and 2 emissions, please refer to the **Climate Change** section of the Sustainability Report.

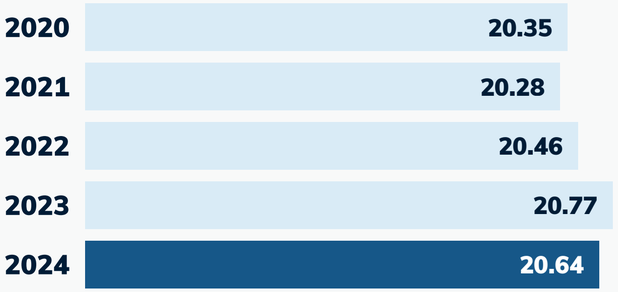
We report our energy consumption based on the management controls of the Greenhouse Gas Protocol. We also use other global and national data sources, including but not limited to the guidelines published by the Intergovernmental Panel on Climate Change (IPCC), the Australian National Greenhouse and Energy Reporting Scheme, and the U.S. EPA's Emissions & Generation Resource Integrated Database, to calculate emissions associated with power generation and heating fuel sources.

ERM CVS provided limited assurance of our 2024 energy consumption data. (See the Limited Assurance Report in **Appendix D**.)

SDG Alignment

Energy Intensity

Megawatt-hour per metric ton of aluminum produced



Energy intensity values reflect the net energy value after energy is sold to the grid. Refining is included at a ratio of 1.9 metric tons of alumina produced to 1.0 metric tons of smelted aluminum. The intensity data represents the amount of energy we use onsite in the form of fuels or purchased electricity to produce alumina and aluminum.

Energy by Source^

Direct

	Thousands of Megawatt-hours	Percent
Natural Gas	22,608	53.9%
Hydro	0	0.0%
Coal	14,556	34.7%
Oil	3,384	8.1%
Other Renewables	34	0.1%
Diesel	1,144	2.7%
Nuclear	0	0.0%
Propane	192	0.5%
Distillates	4	0.0%
Total	**41,922**	**100.0%**

Other renewables include geothermal, biomass, solar and wind energy.
^ Data assured to a limited level of assurance by ERM CVS

Purchased Electricity

	Thousands of Megawatt-hours	Percent
Natural Gas	3,967	9.4%
Hydro	28,236	67.0%
Coal	2,914	6.9%
Oil	9	0.0%
Other Renewables	6,277	14.9%
Diesel	502	1.2%
Nuclear	246	0.6%
Propane	0	0.0%
Distillates	0	0.0%
Total	**42,151**	**100.0%**

Other renewables include geothermal, biomass, solar and wind energy.

Scope 1 and Scope 2 Emissions (Location-based and Market-based)^

Million metric tons of CO_2e

Year	Scope 1	Scope 2 Location-based	Total
2024	15.57	4.44	**20.01**

Million metric tons of CO_2e

Year	Scope 1	Scope 2 Market-based	Total
2024	15.57	10.65	**26.22**

^Data assured to a limited level of assurance by ERM CVS

Energy intensity has improved slightly year on year, from 20.77 to 20.64 MWh per metric ton of aluminum produced, including energy consumed in the alumina refining process. Energy intensity is driven by efficiency improvements, but also to a large degree by the stability of operations. During asset ramp-up periods, intensity deteriorates.

Direct energy is primarily consumed in the refineries, where fuel is combusted to create steam. Purchased electricity is primarily consumed in the electrolytical process in the smelters.

The reason why our market-based Scope 2 (indirect) emissions are more than double the location-based emissions is because we do not purchase green attributes (GOs/RECs/iRECs) for our renewable PPAs, as outlined in our position statement on the following page.

Long-term Energy Commitments for Supply Security

As an industrial company with a global footprint, securing our energy supplies is critical to our operations. In 2024, we purchased approximately 236 terajoules of natural gas per day and supplemented our self-generated power with 3.2 gigawatts of purchased electricity. Around 42 percent of our natural gas and 83 percent of our electricity are secured with agreements exceeding ten years.

Our renewable energy asset portfolio includes both equity interests in consortia and joint ventures. Our share of the generation capacity of these assets is 1.3 gigawatts, 49 percent of which comes from hydroelectric power.

Energy Efficiency

Along with increasing our use of renewable energy, we also work to make better use of existing energy resources. Our energy efficiency approach includes efforts to reduce our consumption through a range of operational and technological improvements. Energy efficiency initiatives are also a key priority in the development of our global decarbonization roadmap.

A growing focus of our energy efficiency efforts has been to utilize the International Standards Organization (ISO) 50001 Energy Management Standard at various Alcoa smelter locations. Locations currently certified under ISO 50001 include:

- Deschambault, Canada,
- Lista and Mosjøen, Norway,
- Fjarðaál, Iceland (awaiting issuance of certification).

Additionally, our Alcoa Bécancour smelter (ABI) in Bécancour, Québec, Canada has been working on implementing an energy management system based on the ISO 50001 standard. This framework is allowing ABI to carefully monitor its energy consumption and ensure more efficient and effective energy use, while also promoting energy management best practices and behaviors. The plant is aiming to become certified by June 2025, demonstrating its commitment to energy efficiency and GHG emissions reductions.

Calculating Scope 2 Emissions

Alcoa calculates its Scope 2 emissions using a location-based approach, which we believe most accurately represents the physical realities of the energy delivered to our locations. We prefer location-based reporting because of the clear link with renewable generation and consumption. In an effort to expand our reporting approach to make it easier to assess and compare our GHG emissions to others, in 2024 we published our location-based and market-based GHG emissions. This expanded reporting approach will make it easier to assess and compare our GHG emissions while ensuring greater transparency. Alcoa does not acquire unbundled or bundled green attributes, with the exception of limited compliance buying for mine-related emissions in Australia, bundled mandatory renewable energy certificates RECs in New York State, and self-generation certificates from Alcoa-owned hydro power assets in Brazil. Unfortunately, this means that the market-based footprint is higher than location-based. This is particularly evident for Alcoa's Nordic operations, which while served by renewable power, are higher when assessed based on the residual mix under the market-based approach, as compared to the location-based approach.

Location-based Reporting

Location-based reporting calculates a site's electricity emissions based on the average carbon intensity of the local power grid. This method aims to provide a clear indication of the physical emissions created by a location's electricity consumption.

Market-based Reporting

Market-based reporting calculates the emissions of purchased electricity by considering "green attributes" such as Guarantees of Origin, international renewable energy certificates (I-RECs), and RECs. While this method aims to support the growth of renewables, the tradeable nature of these instruments means they may not always reflect direct investments in clean energy.

Renewable Energy Certificates

RECs are tradeable certificates used to verify the amount of energy generated from renewable sources and the ownership of their associated "green attributes." When using market-based reporting, companies may purchase these certificates and count them toward their own emission reduction targets.

Unbundled Green Attributes

Unbundled green attributes refer to when RECs are sold separately from the physical electricity produced by the renewable energy source. In contrast, bundled green attributes tie the green attributes of an energy source directly to the physical energy produced. Unbundling can allow purchasers to apply RECs to otherwise non-renewable energy sources when they report.

Three-Year Progress Against Climate Priorities

2022

- Established a dedicated role on Climate Change within the Sustainability organization to provide strategic climate leadership and advice, informing decision-making and enabling cross-functional alignment with our Climate Change Policy.
- Completed the installation of a new furnace that uses renewable energy to recycle scrap aluminum, saving energy at Mosjøen smelter in Norway.

  Read more: Alcoa advances sustainably with recycled aluminum, produced using renewable energy

- Our C611 EZCast™ alloy earned top recognition for excellence in structural die casting at the 2022 International Die Casting Competition due to its application in mega castings.
- Apple announced the use of ELYSIS® aluminum for their latest iPhone SE.

  Read more: ELYSIS aluminum for iPhone SE

- Joined the Mission Possible Partnership.

  Read more: Mission Possible Partnership

2023

- Established a cross-functional working group to discuss and monitor progress on Alcoa's climate change goals, decarbonization plan, products and risks.
- Hosted a two-day climate change workshop with leaders from various functions across the company to discuss key challenges and priorities and to define key actions needed to achieve our climate change commitments, including decarbonization and energy strategies.
- Conducted high-level climate physical risk assessment at the portfolio level and specific climate change physical risk assessments for a portion of our assets and high-risk impoundments.
- Expanded our EcoSource® line to offer non-metallurgical grades of lower-carbon emissions and flame-retardant materials.
- Our C611 EZCast™ alloy earned top recognition for excellence in structural die casting at the 2023 North American Die Casting Association's annual Congress and Exhibition for the second year in a row due to its application in mega castings.[1]

2024

- Completed the development of a global decarbonization roadmap along with refinements to regional decarbonization roadmaps. The roadmaps identify specific opportunities for short- and mid-term decarbonization efforts that align with our climate goals and ambitions. We plan to further refine the global roadmap in 2025.
- Initiated a review of transitional and physical climate risk assessments as well as planning for transition, adaptation and resiliency plans. We aim to complete this project in 2025.
- Participated in strategic climate events, including the New York City Climate Week and the Climate Leadership Conference in Cleveland, Ohio.
- Collaborated with Caterpillar Inc. on the electrification of mining vehicles.
- Joined the World Economic Forum's First Suppliers Hub as part of the First Movers Coalition.

Read more in the **Innovation, Technology, and Products** section.

[1] The C611 EZCast™ reduces GHG emissions in production by not requiring dedicated heat treatment, which also lowers manufacturing costs and increases energy efficiency during the casting process. Learn more: **Alcoa Advanced Alloys**

Impoundment Management

With rigorous protocols developed over decades, we work to minimize the impact of our impoundments on communities and the environment. We leverage advanced technologies to measure and manage potential risks at our active, inactive and closed sites worldwide.

Monitoring and Management

Our impoundments primarily store two types of material: washed bauxite mine tailings and bauxite residue, which is a standard byproduct of alumina refining. For simplicity, we refer to both as “tailings.” At certain locations, we also manage fresh and alkaline water dams. Our management approach is focused on minimizing the impact of our impoundments and, where possible, rehabilitating the land for future use.

Our Global Impoundment Team offers geotechnical engineering expertise, oversees standards, systems reporting and governance in line with the Alcoa Impoundment Policy. This applies across the 160 large impoundments within Alcoa’s mining, refining and smelting operations worldwide, including both operational and closed impoundments. These impoundments cover bauxite residue storage, bauxite tailings storage, and alkaline/storm and freshwater dams larger than 3 hectares in size or greater than 2 meters in height.

At joint venture locations where Alcoa is not the operator, we encourage the adoption of our policy and standards to promote good management practices. For closed sites, management of impoundments is overseen by our Global Transformation Team.

Read more: Global Impoundment Policy

In line with ICMM requirements and our Global Impoundment Policy, we implemented Stage 1 of the GISTM standard in 2023. By August 2023, all tailings dams with a “very high” or “extreme” consequence rating (as defined by the GISTM Consequence Classification Matrix) were brought into conformance. Alcoa is committed to meeting the GISTM for all remaining lower-consequence facilities by August 2025. This is an International Council of Mining and Metals (ICMM) member commitment and is externally verified and publicly reported on the Alcoa website.

SDG Alignment

As of April 2025, 90 percent of our remaining tailings facilities are in conformance with the GISTM (Global Industry Standard on Tailings Management), and we are on track to meet the August 2025 disclosure deadline for ICMM Members. Any gaps in conformance at specific locations will require a detailed action plan to address them, which will be reviewed during external audits and tracked until resolved.

Read more: GISTM

We continue exploring new ways to reuse bauxite residue (mud and sand), including as construction sand or feedstock for road materials such as cement and pavers.

See **Circular Economy** for further details.

Terminology

Washed bauxite mine tailings
Clay, soil organics, and other materials remaining after bauxite is washed at a mine site.

Bauxite Residue Storage
Mud, residual caustic soda and, in some cases, a coarse sand fraction.

Impoundment
A dam or engineered structure for confining a body of water (fresh, alkaline or acidic), bauxite mine tailings, refining residue (mud/sand), coal ash, or any other solid or liquid waste material.

Construction and Design

A primary environmental risk of storing bauxite residue is alkaline water leaking into groundwater. To reduce this, we construct residue storage or alkaline water impoundments using a composite-base high-density polyethylene (HDPE) liner and geosynthetic (or natural) clay. We also install a second HDPE layer above the geosynthetic clay, as well as an underdrain piping system, which removes water from the bauxite residue more efficiently and reduces water pressure on the liner. This construction method reduces the risk of alkaline water leaking into the groundwater. We incorporated this liner system into our Global Impoundment Engineering Standards over 40 years ago, a first in our industry.

2030 Strategic Long-Term Goal:

15 percent reduction

of bauxite residue land storage requirements per metric ton of alumina produced against the **2015 baseline**.

Goal further exceeded in 2024:

17.5 percent reduction

against the **2015 baseline**.

Management Process

For over 30 years, we have developed processes and standards to manage washed bauxite tailings and store bauxite residue. We seek ways to refine our methods based on industry best practices and internal learnings to maintain the integrity of our impoundment facilities worldwide.

Read more: Impound Management Programs

We apply an impoundment consequence rating system based on mandated local regulations, GISTM, or internal standards, depending on which is most rigorous. For example, in Brazil, we use the GISTM consequence rating system and Brazilian National Mining Agency (Agência Nacional de Mineração - ANM) regulations or Brazilian state regulations.

In accordance with the Mining and Tailings Safety Initiative and GISTM requirements, we also maintain an inventory of our impoundment facilities worldwide. The last update was in July 2024, and the next update is scheduled for July 2025.

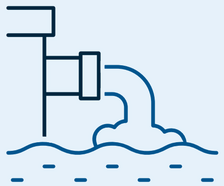
Read more: Alcoa Tailings Impoundment Database

We also work to improve the technologies we use to store, monitor, manage and reuse tailings. We have spearheaded numerous industry-leading research and engineering projects, including:

- Storing washed bauxite mine tailings at Juruti (Brazil) within the mine's footprint to reduce land disturbance.
- Implementing advanced bauxite residue filtration technology that reduces water consumption, removing the majority of water from residue, enabling the storage of filtered residue and reducing the amount of land needed for storage.
- Moving from traditional "wet" bauxite residue storage to solar drying using natural evaporation (where practical), with the use of thickeners and amphirolls.
- Using underdrainage piping systems to reduce water pressure on embankments and liner systems, allowing bauxite residue to dry and consolidate quicker.
- Developing Red Sand™ opportunities using CO_2 to wash and neutralize alkalinity in sand and selling it as a construction or road material.

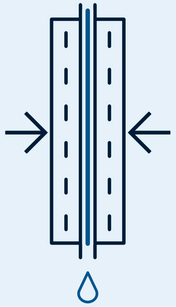
Zero impoundment failures across our global operations in 2024

Impoundment Management Filtration Process



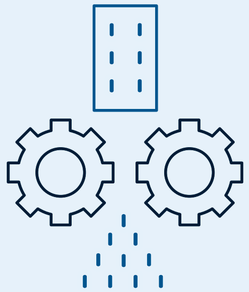
Liquid Slurry

Mud enters the process as a liquid slurry.



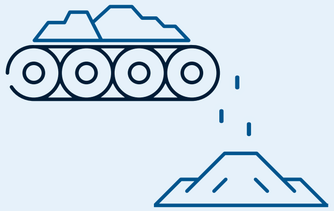
Water Removal

The slurry is forced through large filters that squeeze the water from the mud to produce dry mud cakes.



Crush

The dried cakes are then fed through a cake breaker and crushed into a residue.



Storage

The crushed residue is transported via conveyors or trucks to the storage area and spread with dozers.

Integrated Impoundment Governance

To safeguard our employees and local host communities, we perform daily, weekly and monthly governance activities at our impoundment sites. For example, we perform monthly operational risk assessments at all locations, which include reviewing potential consequences and mitigation controls. These are stored in the location ORM system. Additionally, we track risks at a global ERM level and update these monthly.

We also perform daily checks at locations for significant variations in key metrics, such as water storage levels, as well as existing and forecast storage capacity, along with impoundment stability metrics. If we identify any notable changes, we escalate the matter to internal and external technical experts, Alcoa operating managers and, if necessary, the impoundment's accountable executive for action.

Biodiversity and Rehabilitation

Maintaining our mining operations while conserving the natural environment is a challenging yet important responsibility for Alcoa. Alcoa is committed to taking action, including through the application of the mitigation hierarchy, to help contribute to a positive future for biodiversity and ecosystem services at all our sites. We conduct dedicated progressive rehabilitation efforts at our mine sites to return native vegetation, or in some instances, return to other productive uses.

Biodiversity and Ecosystem Services

Our approach to managing our impacts on biodiversity has been guided by Alcoa's Biodiversity Policy and Biodiversity Standard.

In an ongoing effort to meet stakeholder and host community expectations and address nature-based material risks, we updated our Biodiversity and Ecosystem Services Management Standard in 2023. It outlines our expectations for the consideration of priority ecosystem services and expands our scope for managing biodiversity impacts and dependencies. We began progressively rolling out this updated standard at all our locations in 2024 and will continue these efforts in 2025. To support the updated Standard, a series of guidance documents were created in the areas of biodiversity and ecosystem services action plans, biodiversity and ecosystem services risk assessments, areas of influence, priority biodiversity ecosystem services, and invasive alien species management.

During the reporting year, we conducted a review of our performance against Alcoa's biodiversity standard and expectations. This review is being used to inform a global biodiversity strategy, the development of which will continue into 2025. This assessment helped us better understand our strengths, identify new focus areas and find practical opportunities to help contribute to improved management for nature.

SDG Alignment

CASE STUDY HIGHLIGHT

Strategic Planning to Avoid Biodiversity Impacts in Huntly, Western Australia

In 2023, site development planning for a 9,997ha mining region in the south-west Western Australia implemented the first step of the mitigation hierarchy to identify and avoid impacts on biodiversity in this ecologically rich area.

Comprehensive vegetation surveys were conducted to identify and assess key biodiversity features within the mine region, highlighting the presence of important fauna habitats and vegetation complexes.

Informed by these findings, approximately 41 percent of the mine region was designated as a mining avoidance zone, ensuring these important fauna habitats and sensitive vegetation types (e.g. riparian habitat), and cultural heritage sites will be protected from mining disturbance.

By applying the concept of 'avoid' through the strategic planning process, Alcoa has been able to position mine pits, haul roads and other infrastructure in such a way as to minimize impacting key biodiversity features. Pre-clearance surveys will identify additional ecological sensitivities within the disturbance areas, enabling the implementation of micro-level avoidance measures such as buffer zones and exclusion areas around nesting trees and threatened flora.

Through a focus on avoidance, applied during the mine planning phase at both broad and micro scales, Alcoa will significantly reduce its disturbance footprint while protecting important biodiversity features. This study highlights how strategic planning and a commitment to impact mitigation can align mining activities with biodiversity conservation, balancing operational requirements with environmental stewardship.

Read the full case study

Mitigation Hierarchy

A framework to manage risks and potential impacts

Descending Order of Priority

1. Avoid

Avoid impacts where possible

2. Minimize

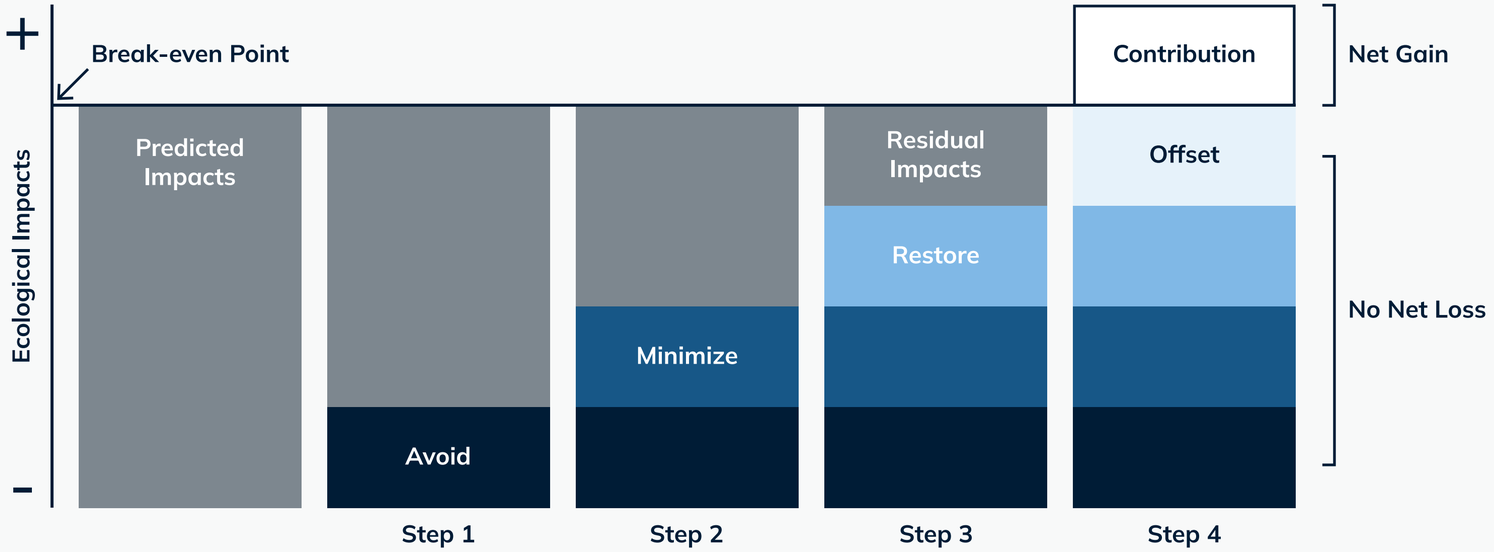
Reduce the duration, intensity and/or extent of impacts

3. Rehabilitate/Restore

Mine rehabilitation

4. Offset Residual Impacts

A measure of last resort, apply conservation actions elsewhere



Biodiversity and Ecosystem Service Action Plans

One of the ways we actively work to protect biodiversity is through our Biodiversity and Ecosystem Service Action Plans. At our operating sites that are adjacent to protected areas or within those of high biodiversity value, we have implemented Biodiversity and Ecosystem Services Action Plans to address each site's specific risks and impacts. At all other operating locations (except for one site that temporarily reopened in 2022 and closed in 2024), we are either developing a Plan or one is already in effect.

These plans help us identify the biodiversity that exists within the areas under our direct management and within our areas of influence, including listed or conservation-significant species and affected populations or communities. They consider our potential positive and negative impacts on local flora and fauna and help us develop actions and targets to minimize negative impacts, monitor our progress, and establish adaptive management for continual improvement. A vital aspect of our plan development process is engaging with and informing our stakeholders and host communities about our biodiversity and ecosystem services actions and outcomes.

CASE STUDY HIGHLIGHT

Greening Australia

Alcoa Foundation

In Southwest Victoria, over 75 percent of Manna Gum woodlands have been lost due to agriculture, threatening native biodiversity. Alcoa Foundation supported Greening Australia, an organization that will help restore ecological connectivity across 18 million hectares and 12 national parks in the region. This effort is part of Habitat 141, a 50-year initiative supported by an alliance of active partner organizations to reconnect landscapes along the 141st longitude. By re-establishing corridors for wildlife across these iconic regions, the project supports a more sustainable future for Victoria's unique ecosystems.

Read the full case study

Operating Sites Within or Adjacent to Protected Areas or Areas of High Biodiversity Value

Operating Site and Location	Site Size	Position	Biodiversity Value
Huntly and Willowdale Bauxite Mines Jarrah Forest, Western Australia	24,354.11 hectares (60,154.65 acres)[1]	Adjacent to protected areas; within an area of high biodiversity value.	Recognized by Conservation International as an international biodiversity hotspot; threatened species and ecological communities (International Union for Conservation of Nature [IUCN] and federal government listed).
Pinjarra Alumina Refinery Pinjarra, Western Australia	6,088 hectares (15,044 acres)	Adjacent to areas of high biodiversity value.	Ramsar listed wetlands adjacent; threatened species and ecological communities (IUCN and federal government listed).
Wagerup Alumina Refinery Wagerup, Western Australia	6,000 hectares (14,826 acres)	Adjacent to areas of high biodiversity value.	Ramsar listed wetlands adjacent; threatened species and ecological communities (IUCN and federal government listed).
Portland Aluminum Smelter[2] Portland, Victoria, Australia	522 hectares (1,290 acres)	Adjacent to a protected area.	Threatened species and ecological communities (IUCN and federal government listed).
Juruti Bauxite Mine and Related Railroad and Port Facility Juruti, Pará, Brazil	9,503.46 hectares (23,473.55 acres)[1]	Within an area of high biodiversity value.	Amazon rainforest and river; threatened species and ecological communities (IUCN listed).
Poços de Caldas Operations (Bauxite Mine and Alumina Refinery) Poços de Caldas, Minas Gerais, Brazil	461.40 hectares (1,139.66 acres)[1]	Within an area of biodiversity value.	Fragmented native forests; threatened species (IUCN listed).
Baie-Comeau Aluminum Smelter Baie-Comeau, Québec, Canada	729 hectares (1,801 acres)	Within the Manicouagan-Uapishka Biosphere Reserve.	Salt marshes and marine environments of the Saint Lawrence River; boreal forests.
Lista Aluminum Smelter Lista, Norway	248 hectares (613 acres)	Within the Lista Wetlands System, which is a network of Ramsar-listed reserves.	Varied habitat types including dunes, lakes and wetlands; rich bird diversity, including migratory species; conservation-significant plant species.

Protected area status follows definitions described in Dudley, N. (Editor) (2008). *Guidelines for Applying Protected Area Management Categories.* Gland, Switzerland: IUCN. x + 86pp.

[1] Mining leases are typically significantly larger than the area that is intended to be mined. The figures used as the 'site size' in the 2023 Sustainability Report reflected total lease or part lease sizes. The figures used in the 2024 report have been recalculated to show the 'site size' as our current approved operating area. This current operating area consists of the site's disturbance area, the area of long-term infrastructure, the area of progressive rehabilitation and the area of current environmental approvals. The 'site size' does not consider future mining areas and does not preclude future expansion.

[2] Area reported is the size of the land holdings or mining concession.

Mine Rehabilitation

We operated five active mine sites in 2024, with two bauxite mines each in Australia and Brazil and one coal mine in the United States, which closed during the reporting year.[1] We also have several inactive mines in the United States, Australia and Suriname that are in the process of final rehabilitation and closure.

We prioritize avoiding or minimizing our impacts on biodiversity and ecosystem services wherever possible. When these impacts are unavoidable, we focus on restoration through progressive rehabilitation, which we carefully plan and consider from the early stages of mine development. Where our mines operate within forest ecosystems, we are actively working to reduce the time between disturbance and progressive rehabilitation, aiming to return native vegetation to reduce both direct and indirect temporary landform changes. We monitor the quality of the rehabilitation to enable adaptive management for continuous improvement.

To further assist in minimizing of the environmental impact of Alcoa's mines, we have established a goal to maintain an annual mine rehabilitation area to mine disturbance area ratio of 1:1 or better.

In 2024, we achieved an annual 2.03:1 rehabilitation to disturbance ratio, which means more area was rehabilitated than disturbed for all our mines. Over 95% of this rehabilitation was a return to native ecosystems, while the remaining land, in Brazil, was returned to its prior uses as pasture and eucalyptus plantations.

Land Disturbance and Rehabilitation Areas

Past Five Years

Hectares

	2024	2023	2022	2021	2020
Area Disturbed					
Australia	306.42	342.49	378.60	472.00	822.00
North America	20.00	20.00	16.00	0.00	0.00
South America	185.12	412.77	658.20	198.35	532.00
Total	**511.54**	**775.26**	**1,052.80***	**670.35**	**1,354.00**
Area Rehabilitated					
Australia	659.50	454.33	509.10	614.40	675.00
North America	4.00	4.30	11.00	12.80	80.00
South America	356.11	546.09	452.50	287.13	768.00
Total	**1,019.61**	**1,004.72**	**972.60***	**914.33**	**1,523.00**
Open Area					
Australia	5,437.15	5,791.06	5,901.40	6,033.47	6,176.00
North America	702.00	686.00	648.60	643.60	656.00
South America	7,965.69**	8,090.38	8,920.60*	8,714.84	8,804.00
Total	**14,104.84**	**14,567.44**	**15,470.60**	**15,391.91**	**15,636.00**

*Data updated post data correction.

**Variation due to ongoing spatial reconciliation.

One hectare equals approximately 2.5 acres.

The rehabilitation area is defined as areas where rehabilitation earthworks (such as recontouring and topsoil return) are completed. Seeding and planting can occur immediately or at a scheduled time after rehabilitation earthworks, and areas remain under monitoring and maintenance until relinquished. Land is returned to native vegetation or an agreed alternative use, such as pasture land or repurposed infrastructure and can include pit lakes where no further earthworks are needed and water quality is at acceptable levels.

Disturbance area means the land cleared for mining or mine infrastructure (such as roads or crushing equipment) during the reporting year. Open area is the cumulative area of land that has been disturbed and is yet to be rehabilitated at the end of the reporting year.

[1] Mine is located in Warrick, Indiana, U.S.

Reclamation and Closure

Through our diligent efforts to maintain curtailed sites and return closed sites to productive beneficial reuse, we strive to create positive outcomes for the local environment, community and economy.

The effective closure and transformation of a site requires significant investment, effort, time and expertise. Once we make the decision to close a location, our global Transformation team manages all aspects of the site's decommissioning, closure and redevelopment.

We perform closure and reclamation work in accordance with Alcoa's global policies and regulations in the countries where we operate. Our transformation sites with impoundments also conform to the Global Industry Standard on Tailings Management, the first global standard on tailings management.

Our Site Closure Process

Closure processes are guided by regulatory authorities, customized for each site, and designed to support the highest and best use or reuse for each property.

In keeping with Alcoa's closure policies, our Transformation team works to restore the site to the applicable regulatory standards. The team also measures the quality and progress through various internal processes.

We aim to prepare the formerly operated locations to be reused or redeveloped by new operators and users. While this objective can extend the timeframe and cost needed to close a site, this aim can help achieve more positive outcomes in line with industry best practices.

Our Transformation team oversees three key steps during site closures:

- **Demolition**: Involves careful and selective deconstruction of existing structures based upon their potential for reuse, following the guidance of regulatory authorities. The team also works to identify and preserve buildings, assets and infrastructure that can be reused by a new or different operator of the site.
- **Remediation**: We carefully manage, according to best practices and the regulations governing our sites, remediation of site land and water resources. Remediation may address former bauxite storage areas, retention ponds, residue impoundments, and landfills. Alcoa works to remediate the sites to a standard that will allow reuse or redevelopment in accordance with the site's highest and best use or redevelopment plan.
- **Maintenance**: We maintain our sites throughout their curtailment and closure lifecycle—both in the midst of demolition and remediation activities and following their completion. Maintenance activities are coupled with monitoring activities to support compliance with environmental regulatory standards in support of the site's highest and best use.

SDG Alignment

Addressing Community Concerns

We engage with stakeholders and Indigenous groups in communities throughout our portfolio. During our remediation processes, we may receive questions or have interested community members seeking to learn more about the environmental integrity of a site.

In response to community feedback, we have established platforms and other channels to increase our communication with local stakeholders and host communities. We routinely hold community meetings and Q&A sessions, attended by a cross-section of community members who share the information provided with their networks. These engagements, as well as location-specific websites, allow us to provide the same information we provide to regulators, in a more accessible format.

Read more: Badin Business Park Website

In our 2023 report, we included a case study that highlighted our engagement with the Badin, North Carolina community. These efforts continue to be beneficial.

Making Responsible Divestments

We understand that our portfolio decisions impact not only Alcoa, but also individual locations, host communities and other stakeholders. Therefore, we strive to position the divested asset for continued success for its employees and the local community.

As part of a divestiture, we aim to manage our closure liabilities and restoration obligations through forward-looking contractual mechanisms. For instance, Alcoa could require potential buyers to demonstrate that they have the means to manage potentially complex responsibilities and liabilities, such as residue disposal areas.

Our divestment purchase contracts may also include a Transition Services Agreement to facilitate a smooth ownership transition, including provisions relating to employee management, operations, human resources and IT. These services are optional and can be accepted or declined by the new owners.

Mine Closure and Rehabilitation Plans

At Alcoa, we recognize that mining is a transient land use and are dedicated to restoring mined areas to agreed-upon land uses that support ecosystem services and community needs. We are committed to being responsible operators throughout the entire life of our assets from asset project definition to closure.

Currently our approach is guided by our corporate standard on Mine Rehabilitation, which outlines minimum requirements to conduct mining activities with the goal of progressive rehabilitation.

Today, we are committed to thinking about closure from the beginning. We work with communities, governments and other stakeholders to plan and execute progressive rehabilitation activities in-line with closure objectives.

Planning for closure and rehabilitation aims to be undertaken in an effective and progressive manner in order to prevent and minimize adverse long-term environmental, social and economic impacts. Planning for closure needs to be conducted over the life of an operation. In general, planning aims to:

- Minimize the footprint of operations upon closure.
- Determine the optimum strategies for effective closure and rehabilitation of the site.
- Progressively rehabilitate disturbed areas during the life of the operation.
- Monitor the site during operations and upon completion of rehabilitation activities to demonstrate compliance with closure objectives.

Alcoa aims to implement and maintain mine rehabilitation and closure plans for mining operations with continuous improvement activity underway to achieve all mining operations closure plans are consistent with both Alcoa internal requirement and jurisdiction requirements, such as local regulations and include provisions for progressive rehabilitation and financial resources to meet closure requirements.

Rehabilitation of mined areas is a key aspect of our mine closure plans. We engage with local communities on rehabilitation practices. For example, in Juruti, we have engaged with the ACORJUVE association on this topic. This involved field visits and resulted in feedback from the association on ways to further improve our practices. In addition, a program is maintained with four associations, representing around 20 communities, to produce, sell and plant seedlings on areas to be rehabilitated. This is a program through which communities directly participate in the rehabilitation of the mined areas.

> More information on mine rehabilitation practices can be found in our **Biodiversity & Rehabilitation** section.

Our Mining Operations

WA (Western Australia) Mines

The WA mines have a program underway to improve mine closure plans developed to meet local regulations where applicable. For example, at Huntly Mine, an updated Mine Closure Plan Draft has been developed and public consultation is planned in 2025. In addition, the Mining and Management Plans (2024-2028) for the Huntly and Willowdale mines, which include information on rehabilitation plans and community engagement activities, are publicly available on the Alcoa Australia Webpage.

Read more: Mining and Management Plans

Juruti

The Juruti mine has rehabilitation and mine closure plans designed to meet applicable local regulations. These plans are submitted to the environmental authority where they can be accessed upon request. The outcomes of the rehabilitation plans are annually reported to the environmental agency. Rehabilitation practices are discussed as part of ongoing community engagement activities, as previously reported in this section. In addition, in 2024, the closure and future use themes have been identified as a key theme for ongoing engagement under a written agreement between Alcoa and ACORJUVE.

Poços de Caldas

In Poços de Caldas, the operation has developed closure plans for all active mining concessions which include rehabilitation plans. The rehabilitation is implemented in accordance with the agreement established between Alcoa and landowners. The location discusses rehabilitation practices and performance as part of ongoing community engagement activities, including in specific social dialogue sessions with communities.

Emissions and Waste

Across our global operations, we work to reduce air emissions, enhance our recycling and recovery initiatives and achieve our waste management goals. Our efforts help to reduce both our operating costs and our environmental footprint.

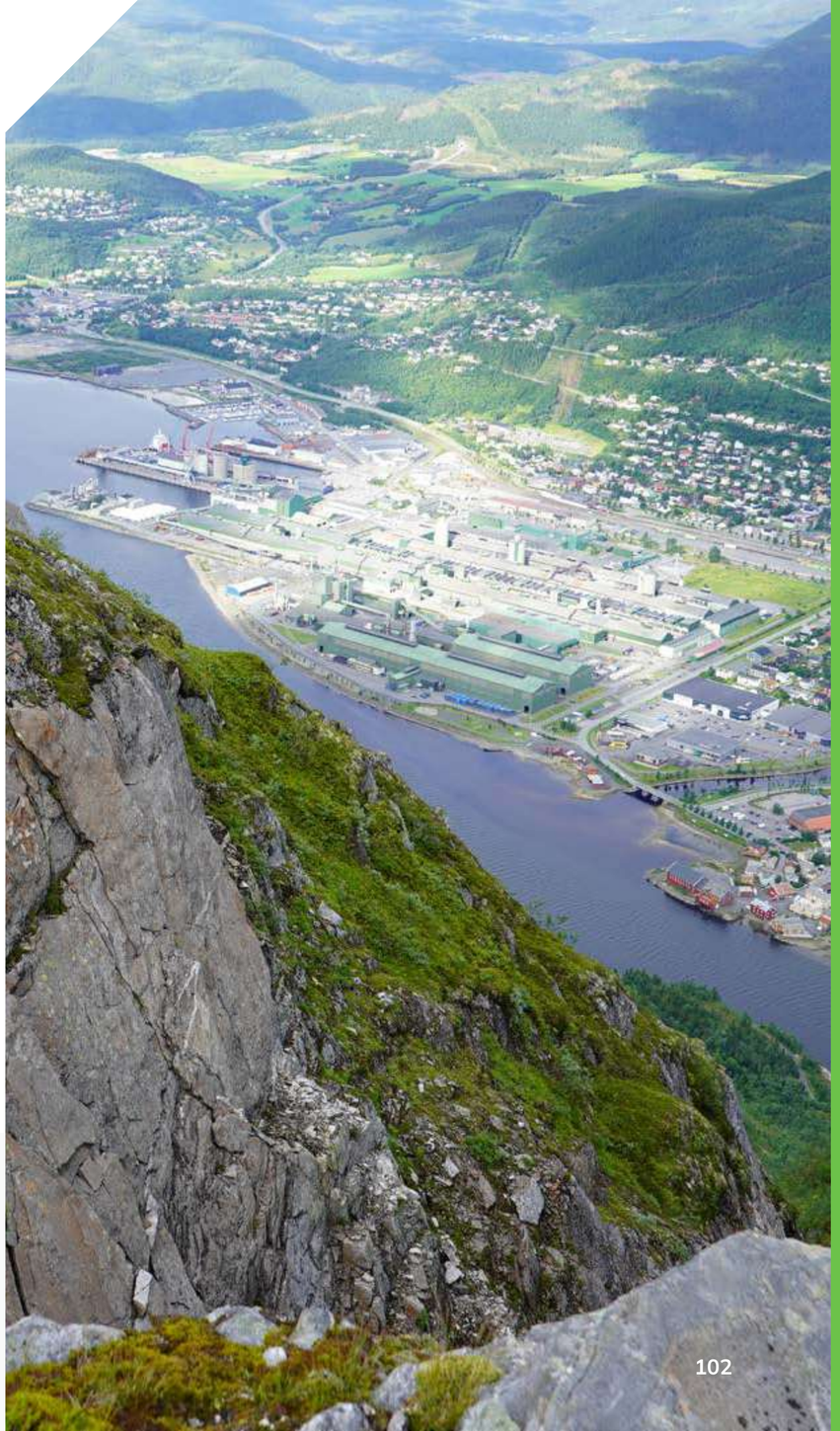
Air Emissions

In line with our commitments to compliance and stewardship, and in accordance with our Air Emissions Management Standard, our facilities reduce air emissions through the use of emissions controls and operational practices to comply with applicable air emissions regulations and to minimize potential adverse impacts on the environment and community.

Our global air emissions data is available in the 2024 Alcoa Data Book and provides an overview of performance for the past five years.

Read more: 2024 Alcoa Data Book

Fluoride emissions are a significant environmental aspect of aluminum smelting. In 2024, we conducted comprehensive three-day training sessions on fluoride emissions management across North America, Europe and Australia. These sessions included participants from eight of our operating smelters and were led by a globally recognized expert in fluoride emissions management. This training was designed to improve understanding of fluoride evolution and controls. Looking ahead to 2025, we plan to introduce an updated Air Emissions Management Standard, which will incorporate new requirements related to control reliability measures improvements.



SDG Alignment

Waste Management

We seek new ways to minimize our material use and generation in line with waste minimization and circular economy principles. These efforts help to make better use of natural resources, stimulate material recovery industries and mitigate the negative impacts of landfilling, such as loss of resources, land use, emissions and potential soil or groundwater contamination.

We govern our waste management efforts through our Waste Management Standard and supporting standards, which outline our expectations for dross and spent pot lining (SPL) management, as well as reviews of offsite waste management facilities and transporters. See **Reporting and Assessments**.

Waste Management Standard

In 2024, we updated our Waste Management Standard to place greater emphasis on circularity and drive waste minimization actions at the location level. We also revised our Alcoa Self-Assessment Tool (ASAT) to align with the changes, enabling our locations to conduct self-assessments against standard requirements. Additionally, we conducted training sessions covering the updated standard requirements and the revised ASAT, including enhancements to our waste facility and transporter assessment process. To support our operations, we published a waste management reference guide and updated the waste-related environmental control field verification questions to better identify and manage risks.

Updated Waste Management Standard Requirements

- Site-specific waste management manual governing the management of waste and associated EHS risks reviewed at least every three years
- Waste minimization plan requiring time-bound actions and location targets, developed in alignment with the **10 R Strategies for Circular Economy**
- Inventory and classification of all on-site waste streams
- Pre-planning for construction and demolition activities to optimize material recovery
- Management of on-site waste storage areas that prevent releases and meet local regulations
- Comprehensive waste training programs
- Waste reporting and record keeping
- On-site landfill management including environmental monitoring requirements

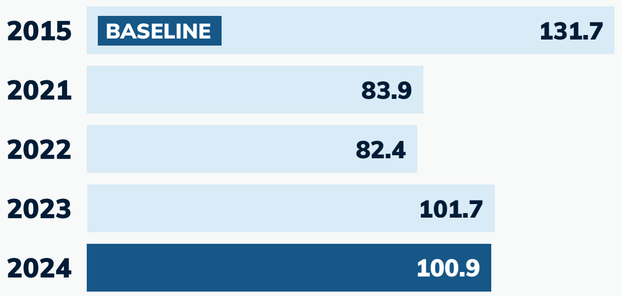
10 R Strategies for Circular Economy

R Strategy	Description
R0 Refuse	Prevent the use of products and raw materials in the creation of goods, processes, and services
R1 Rethink	Reconsider ownership, use, and maintenance of products (e.g. sharing)
R2 Reduce	Increase efficiency in product manufacture and decrease the use of raw materials
R3 Reuse	Secondary use of products by another owner for the same intended purpose
R4 Repair	Maintain and repair existing products for extended use of original function
R5 Refurbish	Restore and improve products to a satisfactory condition for extended use
R6 Remanufacture	Make more products with the same function using discarded products or parts
R7 Repurpose	Make new products with a different function using discarded products or parts
R8 Recycle	Process waste into new products or materials usable in new products
R9 Recover	Process waste to recover energy

Adapted from Circularise: R-Strategies for a Circular Economy.

Landfilled Waste^

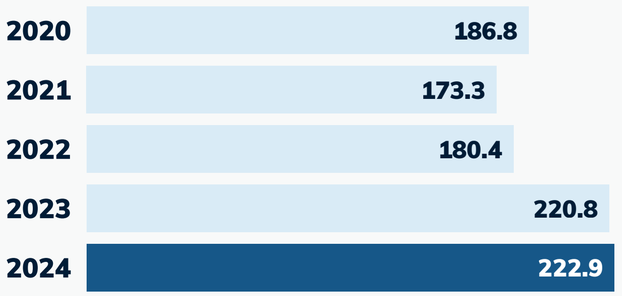
Thousands of metric tons



^ Data assured to a limited level of assurance by ERM CVS.
Non-mineral waste. 2021 data updated post data correction.

Total Waste Recovered^

Thousands of metric tons recovered through recycling, preparation for reuse or other recovery options

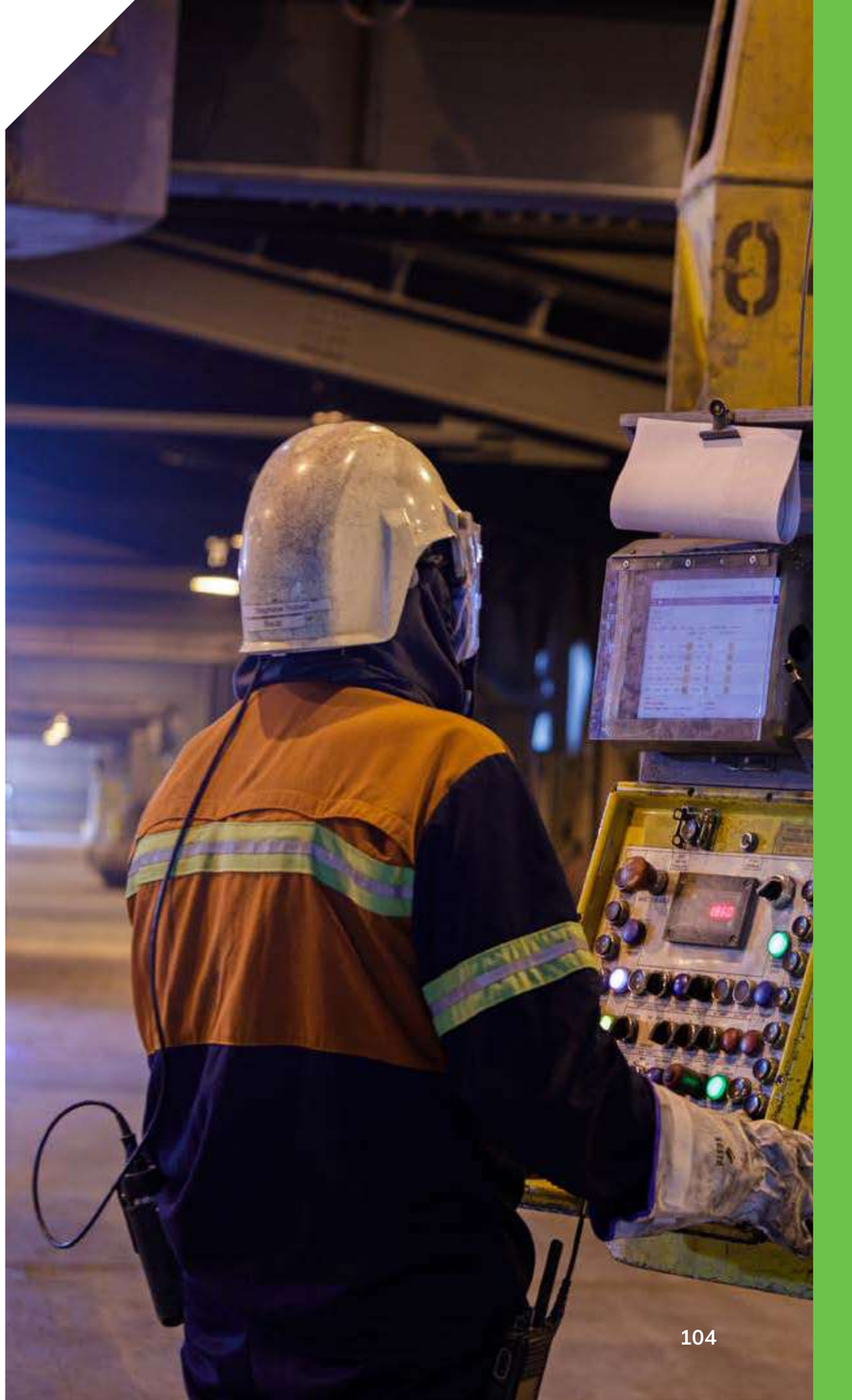


^ Data assured to a limited level of assurance by ERM CVS.
Non-mineral waste. 2020, 2022 & 2023 data updated post data correction.

We track our global progress through our strategic waste-to-landfill reduction goal. Each Alcoa location contributes to this effort by implementing their waste minimization plans. These plans are developed with input from various divisions, including operations, maintenance and procurement, and focus on managing higher-risk and higher-volume wastes and materials.

Alcoa's strategic long-term goals are to reduce landfilled waste by 15 percent by 2025 and 25 percent by 2030, using 2015 as a baseline. By specifically focusing on landfill, we emphasize reducing waste at the source and supporting our transition to circular material management. In 2024, we achieved a 23.4 percent decrease in landfilled waste from our baseline and a 0.8 percent decrease from 2023.

Total waste recovered increased from 220.8 thousand metric tons in 2023 to 222.9 thousand metric tons in 2024. This result was due to continued material recovery activities related to the restart and operation of the Alumar Smelter.



Waste Type and Management Method^

Thousands of metric tons

Management Method	Hazardous Waste	Non-Hazardous Waste	Total
Generated	154.4	175.7	**330.1**
Preparation for Reuse	0.2	0.0	**0.2**
Recycling	65.0	137.5	**202.5**
Other Recovery Operations	17.3	2.9	**20.2**
Incineration (With Energy Recovery)	1.5	1.2	**2.7**
Incineration (Without Energy Recovery)	0.5	0.1	**0.6**
Landfilling	68.8	32.1	**100.9**
Other Disposal Operations	38.3	0.0	**38.3**

^ Data assured to a limited level of assurance by ERM CVS.

Non-mineral waste.

Waste generation increased from 325.2 thousand metric tons in 2023 to 330.1 thousand metric tons in 2024. Activities related to the restart and operation of the Alumar smelter, including management of previously stored materials and the offsite management of wastewater from the Willowdale Bauxite Mine were the main contributors to this increase.

It should be noted that we exclude mineral wastes from our waste generation, disposal and recovery data. These include bauxite residue, mine tailings, refining process waste, fly ash and certain other waste streams. We primarily manage these materials separately within on-site storage or impoundment areas, with some sent off-site for recovery.

Overburden, rock and topsoil generated from our mining activities are also not included in this data, as these materials are returned for reuse during mine landscaping and rehabilitation.

In 2023, we broadened our reporting scope to include mineral wastes, focusing on our mining sites. The initial phase involved collecting data on the generation of mine tailings, mine overburden and rock and mine topsoil. In 2024, we expanded our efforts to also gather data on the recovery of these materials. This information is summarized in our **2024 Alcoa Data Book**.

Mineral Waste^

Millions of metric tons

	Generated	Recovered
Mine Tailings	1.7	0.0
Overburden and Rock	43.3	40.9
Topsoil	1.8	1.7

^ Data assured to a limited level of assurance by ERM CVS.

Overburden and waste rock include the mineral materials and low-grade ore with no economic interest at the time of mining, which is removed to access ore during mining activities. Note: Does not include topsoil which is reported in a separate category.

Reporting and Assessments

Our sites report their waste metrics to Alcoa's centralized corporate environmental metrics database in accordance with our Waste Data Reporting Standard.

We have a detailed assessment process for the transporters and facilities that receive industrial waste or by-products from our facilities. In 2024, we updated the standard and associated audit templates we use for these reviews and assessments enhancing our waste management processes.

Sites are now required to manage according to a documented schedule, and the assessment content has been expanded. We also introduced non-mandatory recommendations for locations to implement based on risk. These included:

- Cradle-to-cradle/grave assessments for higher-risk hazardous and dangerous waste and higher-risk transporters
- Competency requirements for assessors
- On-site rather than desktop reviews of transporters and by-product facilities
- Supplier permit reviews

Additionally, to support our understanding of waste management approaches across our value chain, we audit our suppliers' waste policies as part of our Responsible Sourcing Framework.

See the **Supply Chain Management** section.

Transformation Waste

We also track and report waste generated by our Transformation team's activities, the group that manages Alcoa's closed and curtailed operations. As closure activities are non-recurring and episodic in nature, we do not directly compare waste trends between our active and inactive sites. Instead, we capture this data separately. In 2024, significant demolition works were commenced at our Point Comfort location contributing to the increased waste to landfill.

Read more: Reclamation and Closure

Transformation Waste

Thousands of metric tons

Year	Landfilled	Waste Recovered*
2020	71.9	28.5
2021	18.5	15.9
2022	39.9	7.6
2023	82.2	17.1
2024	236.0	3.2

*Recycling, Preparation for Reuse & Other Recovery Operations

Variations in waste volumes from year to year are reflective of current year projects and not ongoing recurring operations.

Spill Management

We manage and mitigate spills using various measures that help us minimize potential exposure risks associated with managed materials. These measures include:

- Secondary containment
- Inspection practices
- Work practices during loading and unloading operations
- Technology-based leak detection systems for critical piping and tank systems

During the reporting year, we updated our internal EHS Incident Reporting Standard to increase the rigor of our incident investigations and underlying cause analyses and to add new thresholds for our internal spill reporting. Our EHS Incident Reporting Standard defines a major spill as having a significant and potentially lasting impact on ecosystems or communities. In the 2024 standard update, we added a new category of "significant" spill to increase the visibility of spills that do not meet the major threshold. In 2024, we recorded no spills meeting the definition of "major." In February 2024, our Alumar Refinery in Brazil experienced a spill involving caustic, meeting our new "significant" threshold. The spill is described in the **Key 2024 Stakeholder and Host Community Issues**. The facility has implemented additional controls to reduce the likelihood of recurrence and improve spill detection capabilities.

Pursuant to our Emergency Preparedness and Response standard, updated in 2023, our locations must implement written emergency preparedness and response plans to protect people and the environment and have personnel trained in preventing and responding to emergencies, including spills. To ensure we maintain awareness and readiness, all emergency preparedness and response plans are tested at least annually.

Water Stewardship

Water is a precious natural resource and a critical raw material for our operations. We recognize the value of responsible water stewardship to the well-being of our host communities and the environment. We strive to ensure that we use water efficiently, that we promote sustainable management of water in and around our facilities and that we comply with applicable environmental requirements in the countries in which we operate.

Water Management

With the impacts of climate change exacerbating water scarcity and water-related hazards worldwide, striving for excellence in water stewardship continues to be increasingly important for both Alcoa and our stakeholders and host communities.

See the **Reporting and Materiality** section.

Our approach to water management is outlined in our **Water Stewardship Policy** and guided by our Water and Wastewater Management Standard, which we reviewed in 2023 to more closely align with our new approaches and targets. Our Policy and Standard also align with the ICMM's Position Statement on **Water Stewardship**. The standard not only includes operational water management aspects, but it also outlines our governance and collaboration requirements (see side box).

Water and Wastewater Standard Requirements

- Catchment and operational water risk assessment updated at least every three years.
- Location-specific water management and action plans including stakeholder collaboration updated at least every three years.
- Documented operational water balance for each location that is reviewed and updated at least every three years or within three months of significant changes.
- Risk-based monitoring program including trend analysis and trigger and response plan.
- Baseline surface water and groundwater assessments and change management requirements.
- Access to high-quality potable water, where supplied by Alcoa.
- Wastewater treatment facilities operated and maintained in accordance with permit conditions and standard industry practices.
- In greenfield expansions where no local discharge requirements exist, senior leadership must adopt and approve limits and thresholds that are consistent with international standards and/or scientific assessment of receiving waters, helping to protect the surrounding community and environment.

SDG Alignment

Water Stewardship Work Program

In 2024, we advanced our multi-year water stewardship work program. The program aims to enhance our water stewardship practices, identifying and managing risks while supporting our operations in addressing these challenges.

We continued implementation of the updated Water and Wastewater Management Standard, supporting our locations with tools to identify and embed improvements. We updated the Alcoa Self-Assessment Tool (ASAT) to reflect the changes, which enables our locations to complete self-assessments and gap analyses against standard requirements. We supported these efforts by conducting training sessions on the new standard and ASAT, completing our first environmental reference guide for water and wastewater controls and updating our water-related environmental field verification questions to support identification and management of risks in our operations.

Understanding Water Risks and Opportunities

In line with our water stewardship work program, we completed risk assessments at all of our operating sites in 2024, a process we started in 2023. These assessments will form the foundation of our location Water Management Plans and help us improve our management of risk and enhance our collaboration and disclosures to meet rising stakeholder and host community expectations. As each of our locations can have differing and unique water risks, we conduct our risk assessments using a multi-faceted process that considers the following contexts:

- Physical, regulatory and reputational risks at the catchment level and assessing climate scenarios using the Waterplan® AI sustainability platform, complemented with publicly available World Wildlife Fund (WWF) Water Risk Filter data.

Read more: Waterplan and the WWF Water Risk Filter

- The operational risks specific to each site.
- Social, cultural and ecological values of water related to our activities in the catchments where we operate.

During the year, we focused on mapping and understanding our location-level material water risks as defined in our standard. The outcomes of this work identified water risks that we reviewed and categorized as Operational Security Risks, those risks that impact our ability to operate as planned, and Catchment Impact Risks, impacts on water resources, nature and people. Within Operational Security Risks we identified challenges related to water security such as physical water risks linked to availability, quality and infrastructure and access risks related to permit restrictions. Extreme events linked to flooding and increasing water scarcity were also identified. Within Catchment Impact Risks, we identified challenges related to water contamination, erosion and sedimentation and water balance management. This process of detailed analysis supported the development of detailed action and opportunity plans in our operational risk management (ORM) system. These plans are designed to effectively manage these risks and deliver risk reduction and mitigation.

Additionally, we have commenced development of location-specific targets linked to our most material water risks. This approach enables focus on the specific water challenges of our operations and the catchments and communities that they operate within. Our risk assessment and target-setting process is iterative, and we will review and update it in response to evolving contexts.

Water Use

Water is a key raw material used in our operations, particularly for ore processing, cooling, casting, dust suppression and potable uses. It is important to us that water resources are shared equitably between our operations and host communities. Our approach to water access is grounded in scientific methods and stakeholder engagement. We customize our water management strategies at each site to consider factors such as the availability of water sources, the water demands of other users in the catchment, water scarcity and environmental sensitivities.

Where we operate in regions where water can be scarce, we aim to reuse and recycle water as often as possible to minimize freshwater withdrawals and water discharge. At other facilities where water is more abundant, we focus on returning treated or non-contact water to its original source to minimize our impacts on local ecosystems. At all of our locations, we seek opportunities to use less water in more efficient processes, use fit-for-purpose water sources and increase recycling and reuse, so that we can be good stewards of this precious resource.

External Engagement

We also engage with government agencies and non-governmental organizations within host communities that are focused on water stewardship and conservation, such as Le Comité ZIP de la Rive Nord de l'Estuaire (Coastal protection and conservation) and L'Organisme de Bassin Versant Manicouagan (OBV, Inland watershed system) in Baie-Comeau. Also, in 2024 our Brazil team worked with the Brazilian Mining Association (IBRAM) and the National Water and Sanitation Agency (ANA) to support the development of a book that explores the advancements and perspectives in water resource management within the mining sector. The Alcoa Foundation also provides financial support for various water-based community opportunities.

As part of our Responsible Sourcing Framework, we assess all our suppliers against water management criteria and plan to expand our understanding of supply chain water risks commencing in 2025.

Compliance

We strive to manage all water discharges from our sites in accordance with the applicable regulatory requirements and local standards. In 2024, we received two formal enforcement actions related to self-disclosed water effluent exceedances at a closed facility.

See the **Environmental Compliance** section.

Water Reporting

In 2024, we reported our operational and other managed water withdrawal, discharge and consumption in accordance with the ICMM Water Reporting Good Practice Guide, 2nd Edition. Operational water is water that enters the operational water system and is used to meet the operational water demand. Other managed water includes water that is actively managed (e.g. pumped, treated) without the intent to supply the operational water demand. Each year, we calculate and review our company-wide water account to measure and monitor our rates of water withdrawal, discharge and consumption.

Operational Water

The largest users of water within our operations are our power stations, refineries and casthouses. At 88.4 percent of total water withdrawn in 2024, surface water is our highest-volume withdrawal. It is also our highest-volume discharge at 86.1 percent of total water discharged. Our main forms of water consumption are evaporation from tanks, vents and storage, dust suppression and entrainment in tailings.

While overall global water use remained stable, with a 1.2 percent decrease compared to 2023, some locations experienced more significant changes. At our Juruti mine, water use increased by 4.1 million cubic meters due to higher rainfall and runoff collection, especially when compared to the historically dry conditions in 2023. This increase was largely offset by substantial reductions at our Mosjøen and Lista facilities. These reductions were linked to decreased seawater usage in pollution control systems, with Lista also increasing internal seawater reuse following a capital project upgrade.

Operational Water Summary

	Million cubic meters	% Increase/Decrease from Previous Year
Water Use	776.5	▼ -1.2%
Water Withdrawal	782.3	▼ -0.3%
Water Discharges	720.6	▼ -0.7%
Water Consumption	58.3	▼ -2.1%
Total Water Outputs (Discharge and Consumption)	778.9	▼ -0.8%
Recycled/Reused	148.1	▼ -4.5%

Other Managed Water

On Alcoa sites, other managed water primarily includes:

- Stormwater that is captured and actively managed prior to release,
- Groundwater that is captured and released to maintain levels, and
- Water that is withdrawn for supply to a third party.

In 2024, we withdrew 10.7 million cubic meters of other managed water, and discharged and consumed 10.0 and 0.2 million cubic meters respectively.

2024 Water Balance

Million cubic meters

Operational Water
Water Withdrawal^

Surface Water	691.6
Groundwater	21.8
Seawater	56.9
Third-Party Water	12.0

782.3
Total Withdrawal

893.9
Total Operational Use

148.1
Operational Reuse/Recycle

5.8
Change in Storage (Delta Storage)

Operational Water
Water Discharge^

Surface Water	620.2
Groundwater	15.8
Seawater	83.2
Third-Party Water	1.4

Water Consumption^

Evaporation	44.9
Entrainment	13.3
Other	0.1

778.9
Total Discharge and Consumption

Other Managed Water

10.7
Total Withdrawal

Other Managed Water

10.3
Total Discharge and Consumption

^Data assured to a limited level of assurance by ERM CVS.

Water-scarce Locations

There are five facilities—representing 22 percent of our global water reporting locations—that are located in areas where water can be scarce and that meet Alcoa's definition of a water-scarce location. The five facilities are all in Western Australia: the Huntly and Willowdale bauxite mines and the Kwinana, Pinjarra and Wagerup alumina refineries. This assessment was based on an internal evaluation completed in 2018 supported by the World Resources Institute Aqueduct tool.

In 2024, we partnered with Waterplan to reassess our water-scarce sites using the water scarcity indicator[1] in Waterplan's risk framework supplemented by the baseline water stress indicator in Aqueduct 4.0. Using multiple screening processes enabled us to utilize consistent, science-based and up-to-date insights that reflect location-specific conditions supported by important catchment-level indicators referenced in disclosure requirements. The review confirmed that our identified locations continue to represent Alcoa's risk conditions relating to water scarcity.

Recognizing the water scarcity challenge our operations face, we established a strategic long-term goal to reduce the intensity of our total water use in Alcoa-defined water-scarce locations by five percent by 2025 and ten percent by 2030, compared to a 2015 baseline. These goals were underpinned by capital projects that supported our water intensity reduction, including residue press filtration at the Pinjarra refinery. Although we continue our progress and have seen reductions in water intensity in 2020 and 2021, our current data forecasts that we will be delayed in meeting our water intensity reduction targets.

Continued challenges with lower bauxite grades from the Western Australian mines have resulted in recent increases in annual water intensity at the Western Australian refineries. Lower bauxite grades result in a requirement to process more ore to generate the same quantity of alumina. It also results in higher generation of bauxite residue per metric ton of alumina, increasing the amount of entrained water locked up in that residue. This challenge, coupled with a revised capital investment timeline to meet location operational requirements, will result in a delay in achieving our water intensity reduction targets. We intend to achieve this water intensity reduction, but at an extended timeline, and will provide additional updates in future sustainability reports.

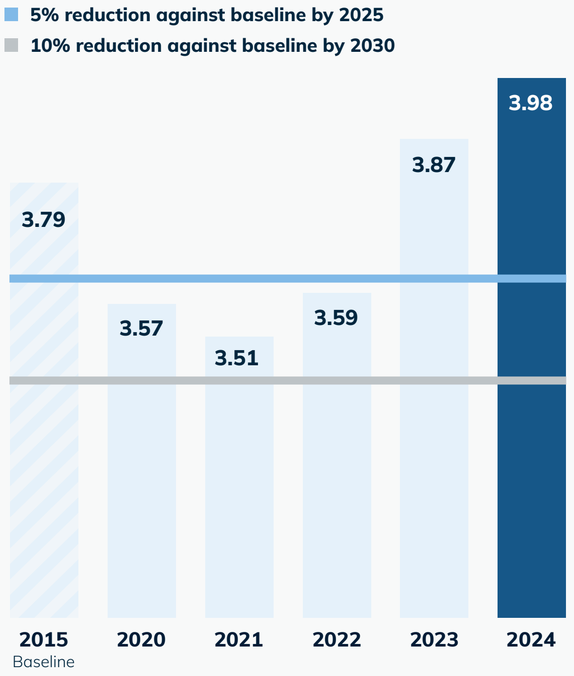
In 2024, we reported a 5.0 percent increase against the baseline water-use intensity for water-scarce sites and a 2.9 percent increase from the previous year. While total water usage dropped slightly from 32.3 to 31.0 million cubic meters, the increase in water use intensity is linked to the challenges with lower bauxite grades.

Our Alcoa-defined water-scarce locations used 31.0 million cubic meters of water in 2024, which was a 4.0 percent decrease compared to 2023 and accounted for 4.0 percent of our total water use. These locations recycled or reused 107.0 million cubic meters of water during the year.

Their high-quality water withdrawal as a percentage of total high-quality water withdrawn was 2.8 percent, with high-quality water consumption as a percentage of total high-quality water consumption at 30.8 percent.

Water Use Intensity in Alcoa-defined Water-scarce Locations

Cubic meters of water per metric ton of alumina produced



[1] Alcoa uses Waterplan's definition of water scarcity, which is a measure of the available volume of water compared to the water volume needs of humans and nature.

Circular Economy

We work to identify and integrate circular economy principles into our operations, processes and products. These efforts help Alcoa reduce waste, make smarter use of natural resources and reduce carbon emissions across our value chain.

Working to Embrace Circularity

With climate change, biodiversity loss and resource scarcity impacting all areas of the globe, adopting circular economy principles is an expectation among our employees, customers, stakeholders and host communities.

For information on how these principles are applied to other work areas, see the **Local Commitment with Communities**, **Supply Chain Management**, **Climate Change** and **Biodiversity and Rehabilitation** sections.

Our circularity efforts are a natural extension of our existing sustainability approach, which guides our ambitions to deliver measurable, long-term benefits. For example, our EcoDura® aluminum contains at least 50 percent pre-consumer recycled content. It conserves energy during production and decreases the environmental impacts of producing virgin aluminum.

We are pursuing R&D efforts through our ASTRAEA™ technology, which has the potential to process any aluminum-based scrap to purity levels that match and surpass commercial primary aluminum purity. If successful, this would enable an increased use of post-consumer scrap in a large number of applications, currently unattainable through conventional recycling.

Our global circularity efforts are supported by our Waste Management Standard. It requires each of our locations to have a specific waste minimization plan that aligns with the **10 R Strategies for Circular Economy** and supports our strategic waste to landfill goal.

See the **Emissions and Waste** section.

As part of our global circular economy program, we also progressed two important projects:

Educational videos

We completed our new series of circular economy videos and performed an initial rollout to our locations during the year, which we will continue in 2025. The videos introduce the concepts of circular economy, including the three principles, circular business models and the butterfly diagram and encourage viewers to consider and apply these approaches to their work at Alcoa.

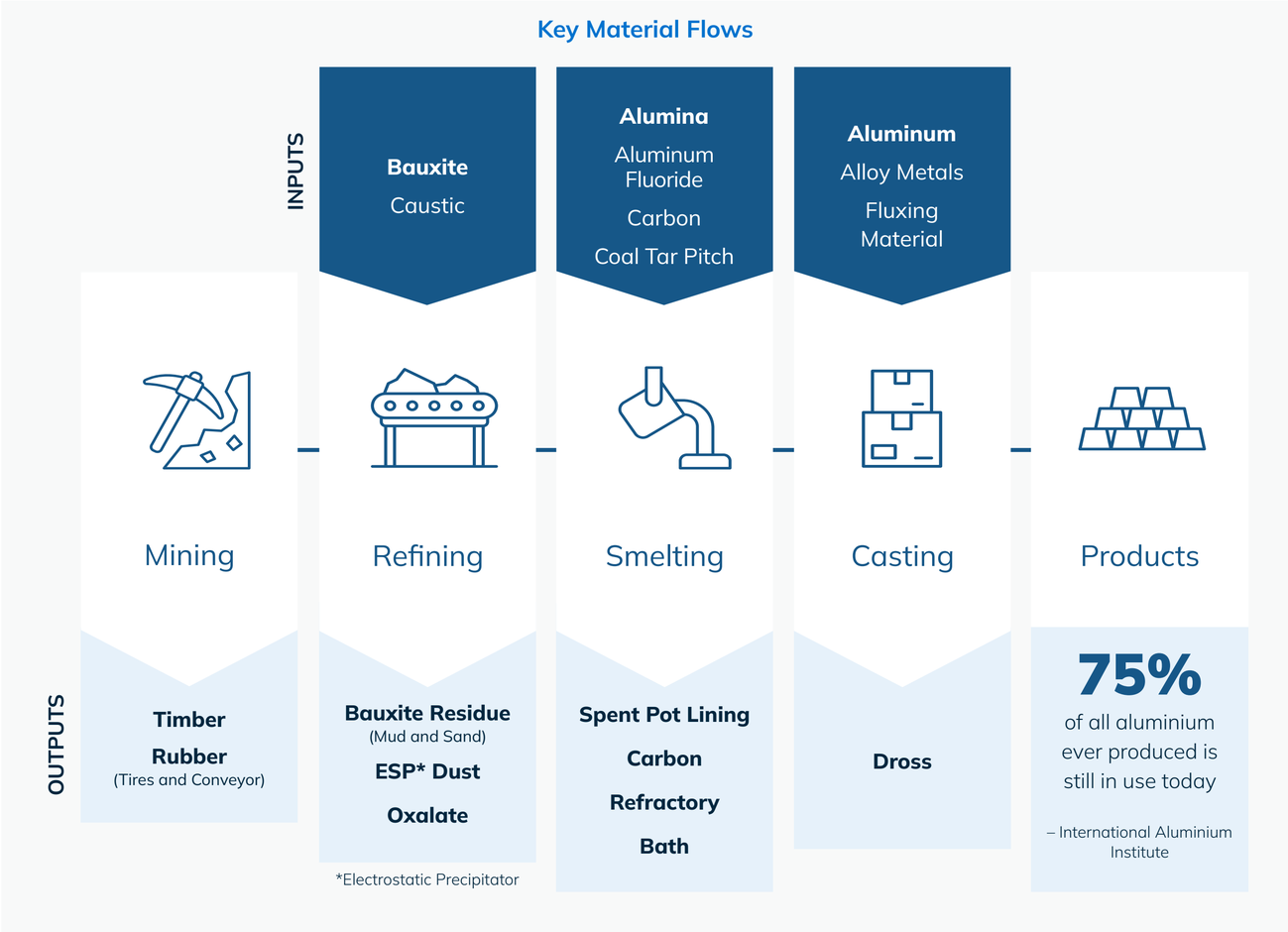
Supplier Packaging Standard

To reduce packaging-related waste and emissions, we started formulating a Supplier Packaging Standard in 2024. We completed a final draft, which is currently undergoing an internal review and we aim to publish the standard in 2025.

SDG Alignment

Waste Optimization

Throughout the reporting year, we continued working on a range of waste optimization activities, drawing from circular economy and waste hierarchy principles. We also shared new innovations and best practices across our global operations which our individual locations can learn from and translate into site-level initiatives.



Waste Stream Highlights

Spent Pot Lining (SPL)

Both our Portland and Alumar facilities increased recovery of SPL in 2024 compared to the previous year.

> Learn more about our **SPL management and recovery activities**.

Bauxite Residue

In 2024, we launched a major red sand project at the Pinjarra refinery in Western Australia. The project made rapid progress toward internally utilizing bauxite residue to meet the requirements of higher dam construction standards.

> Read more about our **initiatives with bauxite residue**.

Mining Tire and Conveyor Recycling Program

In October, we started recycling large mining tires from our Western Australian mining operations. In our “Off-the-road” (OTR) tire recycling initiative, tires at the end of their operational life are transported from our bauxite mines in the Peel and South West regions to Tyrecycle’s new facility in East Rockingham, where they are processed into a crumbed rubber product.

During the year, we also completed our engineering and feasibility study into recycling our end-of-life conveyor belts. We are currently exploring and investigating viable solutions, including discussions with potential suppliers.

Dross

We remain committed to reducing dross and enhancing recovery opportunities. Our initiatives include deploying crucible emptying trucks at the Bécancour smelter to minimize dross production by transferring below metal surface and expanding our Dross-to-Pots initiative. This initiative recycles dross by-products, rich in aluminum oxide and other valuable elements, back into the aluminum smelting process. In 2024, we successfully licensed the Dross-to-Pots technology to our partner for commercialization, promoting broader industry adoption of this circular solution.

Spent Pot Lining

A typical waste material of the smelting process is spent pot lining (SPL), a carbon and refractory lining material generated from relining smelting pots. The total amount of SPL Alcoa produces each year can be significant and is influenced by the age and number of smelting pots we operate.

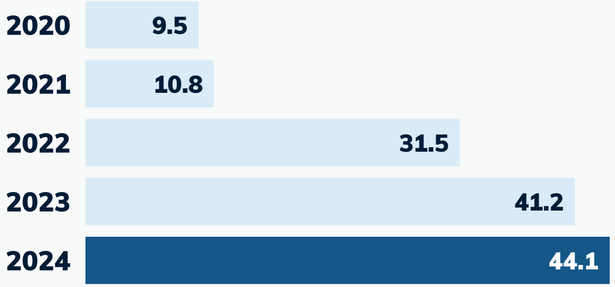
To minimize the potential impacts of this hazardous material, we follow waste hierarchy principles to reduce the amount of SPL we generate. Our efforts include seeking to extend the lifespan of existing pot linings and investigating more sustainable relining methods. We recycle or treat all SPL we generate in line with country-specific regulations and our SPL Management Standard and prioritize recycling options in line with our sustainability goal to reduce waste to landfill.

In 2024, we shipped significant quantities of accumulated SPL offsite from our facilities in Brazil and Australia for recovery, resulting in a 55 percent increase compared to the previous year. We also continued our efforts to identify and secure options for SPL recycling in North America and Europe, which we aim to commence prior to 2030.

Read more: Strong Partnerships: Carbon Materials Innovation with Fusão Ligas

Spent Pot Lining Recovered

Amount of SPL recovered in the reporting year as a percentage of the amount of SPL generated in the same year.



The decreases in 2020 and 2021 reflect our internal decision to delay pot digging and/or store SPL for treatment at a later date (where legally permissible) and/or pursue alternative waste management options. This includes SPL generated by the Transformation Group.

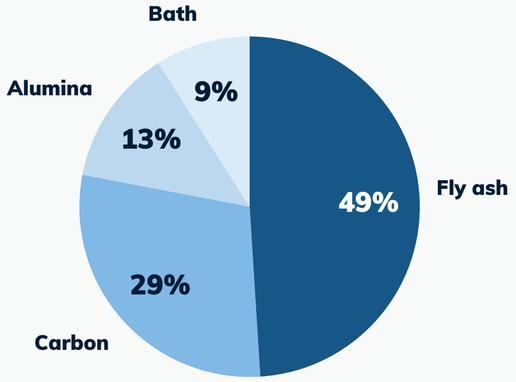
Secondary Minerals

Giving Our Materials a New Life

Maximizing resource recovery and minimizing waste are key priorities for our locations worldwide. One effective solution to these challenges is to identify opportunities for our secondary minerals to be repurposed as products. This approach can reduce landfill waste and support the circular economy by promoting these materials as valuable resources. These efforts are led by our secondary minerals team, which is responsible for selling a group of by-products that can give existing materials a new life and unlock new revenue streams across our company. These secondary minerals include Hall cell bath, carbon, fly ash and alumina. In 2024, we sold 220,100 mt of secondary minerals generating sales of US$15.1 million.

The team also supports solutions for used refractories, sodium oxalate, bauxite residue and spent pot lining (SPL). These materials are frequently recycled in industrial manufacturing to create products used in steel, cement, abrasives, foundries and refractory ceramics production.

Secondary Minerals Sold in 2024



Our team carefully evaluates potential customers, manages transactions, facilitates deliveries and provides technical support for the use of our secondary minerals. We also seek new applications and markets to further our circularity efforts and create innovative solutions for an expanding field of industries.

In 2024, projects of note include offsite shipments of fly ash from our Alumar smelter in Brazil and fly ash and gypsum from our Warrick facility for recovery. The fly ash was recovered for use in industries such as concrete compositions, and the gypsum was recovered and transformed into functional products like wallboard material for construction.

Fusão Ligas foundry facility in João Monlevade, Brazil.

Inside Fusão Ligas facilities in João Monlevade, Brazil.

CASE STUDY HIGHLIGHT

Strong Partnerships: Carbon Materials Innovation with Fusão Ligas

Through a collaboration between Alcoa and its partner Fusão Ligas, development teams have been working across various Alcoa departments and leveraging new technologies to create innovative applications for a wide range of materials generated at Alumar in São Luís, Brazil. A notable achievement is the transformation of burn-off (failed anodes, also known as fish butts) and SPL into a carbon product for recovery in Fusão Ligas foundries. These materials are often disposed to landfills in other parts of the world.

In partnership with Brazilian research centers and Alcoa, Fusão Ligas has been pioneering treatment and processing procedures to enable the use of these materials in foundries and steel plants.

Furthermore, Fusão Ligas is establishing a foundry at its João Monlevade, Brazil, facility, specifically designed to optimize the application of these carbonaceous materials.

In 2024, Alcoa sold thousands of tons of burn-off to Fusão Ligas, which have already been effectively utilized. By 2025, following a year of advancements working closely with Alcoa's technical and environmental departments, we anticipate having the capacity to transform even more of these materials for recovery.

Read the full case study

By-Product Business Development

Our strategy and business development team helps Alcoa realize new growth opportunities to commercialize the by-products from our operations. By-products are different to secondary minerals in that they have commercial potential, however they are currently not generating financial value through a sales contract.

Business Development projects can help our locations reduce their environmental footprint, unlock new revenue streams, lower operating costs and improve Alcoa's overall sustainability profile through repurposing these by-products in suitable applications. We also provide commercial support for a broader project base, including wastewater treatment, land use optimization and infrastructure reuse for closed or curtailed assets.

By-products include incidentally manufactured materials and/or residual materials for which Alcoa has limited applications but in which a third party has commercial interest in using, recycling or reclaiming. They result from Alcoa's activities of bauxite mining, alumina refining and smelting, and have commercial potential. Examples include bauxite residue, mine tailings, smelter underpot, carbon dust, sodium oxalate and critical minerals found in bauxite but not independently produced as part of the alumina refining process.

Our team explores new markets for utilization of our by-products, with a focus on high-volume projects that can deliver environmental benefits and further our circular economy ambitions. In 2024, to support our circularity efforts, Alcoa established a multi-department commercialization committee to organize, prioritize and develop new by-product solutions and opportunities.

Project milestones in 2024:

- Launched a red sand project at the Pinjarra refinery in Western Australia, which has been paused while the product is used for internal purposes.
- Executed a strategic prioritization exercise for our red mud product that evaluated nine projects and completed detailed assessments on six new opportunities.
- Identified cement and geopolymer as valuable projects that require increased focus, while continuing to progress with ongoing initiatives for using bauxite residue to manufacture bricks and as a soil amelioration product.
- Applied the key learnings from previous cement work to the geopolymer project in Western Australia, where bauxite residue can be used as a filler material to generate a lower-carbon concrete alternative.
- Achieved new milestones in our understanding of the potential for carbon dioxide storage in bauxite residue and continued testing mechanisms for advancing our mineral carbonation initiative.

Bauxite Residue

Bauxite residue is a standard by-product of the alumina refining process. In 2024, we generated 21.4 million metric tons of the material. The amount of bauxite residue produced decreased in 2024 due to the curtailment of the Kwinana refinery. The amount of residue per metric ton of alumina produced increased from 1.79 metric tons in 2023 to 1.82 metric tons in 2024 due to reduced bauxite grade.

In 2024, we completed several trials focused on reusing bauxite residue by-products and identified a significant number of promising opportunities. We continue to assess bauxite residue projects based on the value they provide from a triple bottom line perspective. In line with our circularity objectives, we have ongoing collaborations with partner organizations and universities to develop new ways of reusing bauxite residue, including in cement production.

The focus of this team remains on by-products commercialization. Hence, we assess opportunities that are at a high technology readiness level and have a strong use case that could be developed over a short-term timeframe.

Ongoing bauxite residue initiatives:

- The EU-funded ReActiv project aims to transform bauxite residue into a reactive material suitable for lower-carbon cement products.
- A collaborative project with an industrial partner to explore using bauxite residue in lower-carbon concrete products continues. The project aims to discover whether Alcoa can contribute to the establishment of a concrete alternative that reduces emissions in the carbon-intensive cement industry.
- Trials continue in Brazil investigating the use of bauxite residue as a raw feedstock in cement kilns to produce Portland cement clinker and offset the primary materials currently used.
- The red sand commercialization project, which is working to develop a product that can be used for construction fill, road base, oval top dressing and golf bunker sand. Development of a customer base for this product is ongoing, while we investigate avenues to generate the material with minimal impact on existing operations.
- A soil treatment project that continues to evolve and will form the basis of further research in 2025.
- Improving our valuation methodologies as part of dedicated efforts to more actively participate in the circular economy through by-product opportunities.

We also continued developing our understanding of the total addressable markets for bauxite residue by-products in the areas of construction, agriculture and decarbonization. Market studies have highlighted how our products can help solve problems for customers in these sectors.

Bauxite Residue Intensity^

	2024	2023	2022	2021	2020
Total Bauxite Residue Million metric tons	21.4	22.3	23.0	23.5	23.9
Total Bauxite Residue Intensity * Metric tons of residue per metric ton of alumina produced	1.82	1.79	1.61	1.58	1.54

^ Data assured to a limited level of assurance by ERM CVS.

* The Kwinana Refinery was curtailed in June 2024, so has been excluded from intensity-based calculations from June through the remainder of 2024.

Appendices

Disclosures and References

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136 2024 Key Stakeholder and Host Community Issues

Appendix A

Acronyms

ACORJUVE
Associação das Comunidades Remanescentes de Quilombos do Município de Juruti

ASI
Aluminium Stewardship Initiative

BANJUS
Banco Juruti Sustentável

CAPEX
Capital Expenditure

CCFV
Critical Control Field Verifications

COSO
Committee of Sponsoring Organizations of the Treadway Commission

DART
Days Away, Restricted or Transferred

DOJ
U.S. Department of Justice

DWER
Western Australia Department of Water and Environmental Regulation

E&C
Ethics and Compliance

EHS
Environment, Health and Safety

EITI
Extractive Industries Transparency Initiative

ERM
Enterprise Risk Management

ERM CVS
ERM Certification and Verification Services

ESG
Environmental, Social, and Governance

ESIA
Environmental and Social Impact Assessment

EVP
Employee Value Proposition

FSI-P
Fatal or Serious Injury – Potential

GHG
Greenhouse Gas

GISTM
Global Industry Standard on Tailings Management

GRI
Global Reporting Initiative

GWD
Greater Workforce Diversity

H&S
Health and Safety

HDPE
High-Density Polyethylene

HRDD
Human Rights Due Diligence

HRIA
Human Rights Impact Assessment

IAI
International Aluminium Institute

ICMM
International Council on Mining and Metals

IDE
Inclusion, Diversity and Equity

IFRS
International Financial Reporting Standards

IG
Inclusion Group

IPCC
Intergovernmental Panel on Climate Change

ISO
International Standards Organization

M&A
Mergers and Acquisitions

ORM
Operational Risk Management

PDP
Performance and Development Process

PE
Performance Expectations (ICMM context)

PFAS
Per- and Polyfluoroalkyl Substances

REC
Renewable Energy Certificate

SDG/SDGs
Sustainable Development Goals

SPL
Spent Pot Lining

TCFD
Task Force on Climate-related Financial Disclosures

U.S. EPA
United States Environmental Protection Agency

Appendix B

Materiality Assessment Process

Our methodology was informed by the Corporate Sustainability Reporting Directive (CSRD)/European Sustainability Reporting Standards (ESRS) guidelines and aligns with the GRI framework, see Appendix C (the Content Index) below for more detail.

Business context review and development of list of topics

- The business context review included an in-depth analysis and identification of sustainability-related impacts, including human rights, both actual and potential, both positive and negative, across the entire value chain and considering business relationships as well.
- Over 150 internal documents were reviewed including information regarding regulations and the sustainability landscape, performance assessments and audits, topic specific management reports, risk assessments (both at topic level as well as operational and enterprise level), policies and standards as well as stakeholder engagement evidence and outcomes (e.g., employees, customers, investors, and local communities).
- As a result, a list of 20 sustainability topics and associated sub-topics and definitions were drafted for testing with stakeholders.

Stakeholder engagement and prioritization of topics

- To understand and test the materiality of the topics with Alcoa's stakeholders we launched a survey in collaboration with our third-party consulting team to prioritize topics by 'impact to the environment and people' and 'impact to the business'.
- We reached a total of 377 stakeholders, which includes 285 internal and 92 external stakeholders.
- We then probed the findings in more depth during confidential interviews with our independent third-party consulting team.
- We interviewed 22 selected internal subject matter experts (SMEs) across multiple disciplines, and 12 external stakeholder group representatives, including entities of civil society, customers, industry associations, joint venture partners, community representatives and financial institutions.
- Impact to the environment and people prioritization: stakeholders were asked to rank topics based on Alcoa's inherent impact on people or the environment, both positive and negative. Criteria were provided for the scoring based on the scope, scale and severity of the impact on stakeholders' rights and/or their interests. Internal SMEs were asked to respond based on their expertise whilst external stakeholders were asked to respond from the perspective of their organization and the stakeholders they represent.
- Impact to the business prioritization: internal stakeholders were asked to rank topics based on the inherent impacts these could have on Alcoa's success, both positive and negative. Criteria were provided for the scoring based on the magnitude of the impact across multiple qualitative fields (e.g., reputational, operational, financial, strategic, and regulatory).
- As part of follow up questions within the survey and during interviews, more detailed information was collected such as: what kind of specific impacts are included for each topic, where in the value chain the main impacts occur, the likelihood of impacts and how well Alcoa is managing these.

Analysis and collation of findings

Quantitative data from the survey and qualitative data from the business context review and the stakeholder interviews was collated and analyzed to:

- Identify key themes for Alcoa to consider as part of its current impacts and potential ones.
- Develop a materiality prioritization matrix highlighting key priorities.
- Summarize key findings for each topic.
- Develop strategic insights for Alcoa's ESG strategy.

Internal validation and sign-off

- The outcomes were presented to over 30 internal SMEs for validation which enabled SMEs to test and review outcomes in their final form and contest any gaps.
- Once the outcomes were finalized and validated by experts they were presented for sign-off to executive senior members.
- As part of the final validation and sign-off implications for Alcoa's strategy and reporting were discussed to develop a roadmap for next steps.

Appendix C

Content Index

This index helps readers compare the information from our sustainability report, annual report and website with the GRI Standards, SASB Standards, UN SDGs and the ICMM 10 Principles. This report has been prepared in accordance with the GRI Standards 2024.

General Disclosures

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
			GRI 2: General Disclosures 2021				
2-1	Organizational details	Corporate Overview					
2-2	Entities included in the organization's sustainability reporting	About this Report, Corporate Overview, Annual Report					
2-3	Reporting period, frequency and contact point	About this Report					Contact point: Kristen Mariuzza - Vice President, Sustainability
2-4	Restatements of information	Changes in reporting from prior year are indicated throughout the report					
2-5	External assurance	About this Report, ESG Transparency and Disclosure, ERM CVS Limited Assurance Report			Assurance and validation		
2-6	Activities, value chain and other business relationships	Corporate Overview, Innovation, Technology and Products, Supply Chain Management, Annual Report, Quarterly Earnings, News Releases	EM-MM-000.A EM-MM-000.B		10		
2-7	Employees	Talent, Data Book	EM-MM-000.B				
2-8	Workers who are not employees	Ethics and Good Governance, Supply Chain Management, Health and Safety, Talent, Ethics and Compliance, Environment, Health and Safety	EM-MM-000.B				
2-9	Governance structure and composition	Governance, 2025 Proxy Statement, Board of Directors, Board Committees	EM-MM-510a.1		1		
2-10	Nomination and selection of the highest governance body	2025 Proxy Statement, Governance and Nominating Committee Charter					

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
2-11	Chair of the highest governance body	2025 Proxy Statement, Governance Documents					The Chairman of the Board at the end of 2024 was Steven W. Williams.
2-12	Role of the highest governance body in overseeing the management of impacts	Approach to Sustainability, Governance, Board of Directors, Officers, Safety, Sustainability and Public Issues Committee Charter, Audit Committee Charter					
2-13	Delegation of responsibility for managing impacts	Ethics and Good Governance, Safety, Sustainability and Public Issues Committee Charter		12	2		Alcoa's CEO, who reports to and is a member of the Board of Directors, has ultimate responsibility for environmental, social and governance topics.
2-14	Role of the highest governance body in sustainability reporting				2, 10		Alcoa's Board of Directors (BOD) and its committees review impacts, risks and opportunities at regularly scheduled board/ committee meetings. The BOD does not have an active role in the sustainability report's development. Senior leaders are responsible for the report's content.
2-15	Conflicts of interest	Ethics and Good Governance, Annual Report, 2025 Proxy Statement, Governance and Nominating Committee Charter	EM-MM-510a.1		1		
2-16	Communication of critical concerns	Ethics, Local Commitment with Communities, Ethics and Compliance, Integrity Line, Contact Overview			1, 3		
2-17	Collective knowledge of the highest governance body	Board of Directors			2		
2-18	Evaluation of the performance of the highest governance body	2025 Proxy Statement					The BOD annually assesses the effectiveness of the full board, the operation of its committees, and the contributions of directors.
2-19	Remuneration policies	2025 Proxy Statement					
2-20	Process to determine remuneration	2025 Proxy Statement					
2-21	Annual total compensation ratio	2025 Proxy Statement					We report the global ratio only.
2-22	Statement on sustainable development strategy	Letter from our CEO					
2-23	Policy commitments	2024 Sustainability Report - All material topics, Human Rights, Ethics and Compliance, Sustainability, Environment, Health and Safety	EM-MM-510a.1	3, 5, 8, 10, 12, 16	1, 3, 4	2.1f; 2.4b, 9.1	
2-24	Embedding policy commitments	2024 Sustainability Report – All material topics	EM-MM-510a.1	3, 5, 8, 10, 12, 16	1, 3, 4	2.1f; 2.4b, 9.1	

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
2-25	Processes to remediate negative impacts	2024 Sustainability Report - All material topics, Integrity Line, Community Engagement and Dialogue		16	3		
2-26	Mechanisms for seeking advice and raising concerns	Ethics and Good Governance, Community Engagement and Dialogue, Ethics and Compliance, Integrity Line, Contact Overview		16	1	3.4f	
2-27	Compliance with laws and regulations	Ethics and Good Governance, Annual Report, Ethics and Compliance		16			
2-28	Membership associations	ESG Transparency and Disclosure, Ethics and Good Governance			10		
2-29	Approach to stakeholder engagement	Community Engagement and Dialogue	EM-MM-210b.1		9, 10		
2-30	Collective bargaining agreements	Talent, Annual Report	EM-MM-310a.1	8	3		
	Environmental and Social Impact Assessments	Risk Management, Due Diligence on CAPEX and M&A			2, 4	2.5g	
			GRI 3: Material Topics 2021				
3-1	Process to determine material topics	Reporting and Materiality			10		
3-2	List of material topics	Reporting and Materiality			10	3.1b	
3-3	Management of material topics	Approach to Sustainability, 2024 Sustainability Report - All material topics, Annual Report			10	3.1a	The management of material impacts is described throughout the sustainability report.
			GRI 201: Economic Performance				
3-3	Management of material topics	Shared Value Creation, Data Book, Annual Report, Quarterly Earnings					
201-1	Direct economic value generated and distributed	Shared Value Creation, Data Book, Annual Report, Quarterly Earnings	EM-MM-210b.1	8	9	3.3b	
201-2	Financial implications and other risks and opportunities due to climate change	Climate Change		13	4, 6		
201-3	Defined benefit plan obligations and other retirement plans	Annual Report					

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
			GRI 204: Procurement Practices				
3-3	Management of material topics	Supply Chain Management, Suppliers			9		
204-1	Proportion of spending on local suppliers	Shared Value Creation, Data Book		8. 10	9		
			GRI 205: Anti-corruption 2016				
3-3	Management of material topics	Ethics and Good Governance, Ethics and Compliance			1, Assurance and Validation		
205-1	Operations assessed for risks related to corruption	Risk Management	EM-MM-510a.1	16			
205-2	Communication and training about anti-corruption policies and procedures	Ethics and Good Governance, Ethics and Compliance	EM-MM-510a.1	16		1.3c, 3.4f	
205-3	Confirmed incidents of corruption and actions taken	Ethics and Good Governance					
			GRI 206: Anti-competitive Behavior 2016				
3-3	Management of material topics	Ethics and Good Governance					
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Annual Report					
			GRI 302: Energy 2016				
3-3	Management of material topics	Energy Use and Efficiency					
302-1	Energy consumption within the organization	Energy Use and Efficiency, Data Book	EM-MM-130a.1	7, 9, 12, 13	6	5.1a	We do not purchase credits or certify specific renewable energy sources, but will evaluate the feasibility in the future.
302-2	Energy consumption outside of the organization	Climate Change		7, 9, 12, 13	6	5.1a	
302-3	Energy intensity	Energy Use and Efficiency, Data Book		7, 9, 12, 13	6	5.1a	
302-4	Reduction of energy consumption	Energy Use and Efficiency, Data Book		7, 9, 12, 13	6	5.1a	
302-5	Reductions in energy requirements of products and services	Innovation, Technology and Products, Climate Change		7, 9, 12, 13	6	5.1a	

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
			GRI 303: Water and Effluents 2018				
3-3	Management of material topics	Water Stewardship				6.2g, 7.2e	
303-1	Interactions with water as a shared resource	Water Stewardship, Data Book		6, 12, 14	6	6.2a	
303-2	Management of water discharge-related impacts	Water Stewardship	EM-MM-140a.2	6, 12, 14	6	7.1b	
303-3	Water withdrawal	Water Stewardship, Data Book	EM-MM-140a.1	6, 9, 12, 14	6	7.1a	
303-4	Water discharge	Water Stewardship, Data Book	EM-MM-140a.1	6, 9, 12, 14	6	6.2a	
303-5	Water consumption	Water Stewardship, Data Book	EM-MM-140a.1	6, 12, 14	6		
			GRI 304: Biodiversity 2016				
3-3	Management of material topics	Biodiversity and Rehabilitation					
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Biodiversity and Rehabilitation	EM-MM-160a.3	15	7		
304-2	Significant impacts of activities, products and services on biodiversity	Biodiversity and Rehabilitation, Data Book	EM-MM-160a.1	14, 15	6, 7		
304-3	Habitats protected or restored	Biodiversity and Rehabilitation, Data Book		14, 15	7		
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	Biodiversity and Rehabilitation	EM-MM-160a.3	14, 15	7		
			GRI 305: Emissions 2016				
3-3	Management of material topics	Climate Change				5.3e	
305-1	Scope 1 (direct) GHG emissions	Climate Change, Data Book	EM-MM-110a.1, EM-MM-110a.2	9, 12, 13	6	5.1a	
305-2	Energy Scope 2 (indirect) GHG emissions	Climate Change, Data Book		9, 12, 13	6	5.1a	
305-3	Other Scope 3 (indirect) GHG emissions	Climate Change, Data Book		9, 12, 13	6	5.1a	
305-4	GHG emissions intensity	Climate Change, Data Book		9, 12, 13	6	5.1a	

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
305-5	Reduction of GHG emissions	Innovation, Technology and Products, Climate Change	EM-MM-110a.2	9, 12, 13	6	5.1a	
305-6	Emissions of ozone-depleting substances (ODS)			12, 13	6		We use halon as a fire suppressant in several of our locations. These systems are being phased out once they are depleted or expired.
305-7	Nitrogen oxides (NOx), sulfur oxides (SOx) and other significant air emissions	Air Emissions, Data Book	EM-MM-120a.1	3, 9, 12	6	6.1a	Carbon monoxide and particulate matter are relevant only at certain locations and are, therefore, monitored at the location level. This information is available upon request. Lead is not material for our operations.
	GHG Emissions Reduction Plans	Strategic Long-Term Goals, Climate Change	EM-MM-110a.2		6	5.3b iii, 5.3e	
	Air Emissions Reduction Plans	Air Emissions			6	6.1f	
			GRI 306: Waste 2020				
3-3	Management of material topics	Emissions and Waste					
306-1	Waste generation and significant waste-related impacts	Emissions and Waste	EM-MM-150a.4	3, 12, 15	6, 8		
306-2	Management of significant waste-related impacts	Emissions and Waste, Data Book	EM-MM-150a.9, EM-MM-150a.10	3, 12, 15	6, 8	6.5a	
306-3	Waste generated	Emissions and Waste, Data Book	EM-MM-150a.4, EM-MM-150a.5, EM-MM-150a.6	3, 12, 15	6, 8	6.5a	
306-4	Waste diverted from disposal	Emissions and Waste, Circular Economy, Data Book	EM-MM-150a.8	3, 12, 15	6, 9	6.5a	
306-5	Waste directed to disposal	Emissions and Waste, Data Book		3, 12, 15	6, 10	6.5a	
	Total weight of hazardous waste generated	Emissions and Waste	EM-MM-150a.7		6, 11, 12	6.5a	
	Spills	Emissions and Waste	EM-MM-150a.9		6, 13	6.3g, 6.4b	
			GRI 308: Supplier Environmental Assessment 2016				
3-3	Management of material topics	Supply Chain Management, Suppliers					
308-1	New suppliers that were screened using environmental criteria	Supply Chain Management, Data Book		12	3, 9,10		We continuously screen all suppliers, but do not disaggregate counts. That is, we do not track new suppliers separately.

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
308-2	Negative environmental impacts in the supply chain and actions taken	Supply Chain Management		12	3, 9,10		
			GRI 401: Employment 2016				
3-3	Management of material topics	Talent					
401-1	New employee hires and employee turnover	Talent, Data Book					
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees						
401-3	Parental leave	Data Book		8			
			GRI 402: Labor/Management Relations 2016				
3-3	Management of material topics	Talent					
402-1	Minimum notice periods regarding operational changes			8			
			GRI 403: Occupational Health and Safety 2018				
3-3	Management of material topics	Health and Safety, Environment, Health and Safety				11.1e	
403-1	Occupational health and safety management system	Health and Safety		3, 8	5	11.1e	
403-2	Hazard identification, risk assessment, and incident investigation	Health and Safety, Environment, Health and Safety		3, 8	5	11.1e	
403-3	Occupational health services	Health and Safety		3, 8	5		
403-4	Worker participation, consultation, and communication on occupational health and safety	Health and Safety		3, 8	5		Elected H&S delegates or employee representatives assist with escalation and resolution of issues, facilitate communication, and provide input. They meet regularly with management at each location.
403-5	Worker training on occupational health and safety	Annual Report	EM-MM-320a.1	3, 8	5		
403-6	Promotion of worker health	Health and Safety, Environment, Health and Safety		3, 8	5		

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Supply Chain Management, EHS Policy		3, 8, 12	5		Our EHS Policy applies to subsidiaries, affiliates, partnerships, ventures and other business associations. Additionally, we have a contractor management standard that sets the EHS criteria for the selection, mobilization and work execution for the contractors working in our operations. Alcoa also conducts joint venture EHS audits, as well as supply chain audits.
403-8	Workers covered by an occupational health and safety management system	Health and Safety, EHS Policy		3, 8	5		
403-9	Work-related injuries	Health and Safety, Data Book	EM-MM-320a.1	3, 8	5		
403-10	Work-related ill health	Health and Safety, Data Book		3, 8	5		
GRI 404: Training and Education 2016							
3-3	Management of material topics	Talent					
404-1	Average hours of training per year per employee	Talent		4, 8			
404-2	Programs for upgrading employee skills and transition assistance programs	Talent, Data Book		4, 8			
404-3	Percentage of employees receiving regular performance and career development reviews	Talent		8			
GRI 405: Diversity and Equal Opportunity 2016							
3-3	Management of material topics	Talent, IDE			3	9.2e	
405-1	Diversity of governance bodies and employees	Talent, Data Book, IDE		5, 8, 10	3		
405-2	Ratio of basic salary and remuneration of women to men	Talent		5, 8, 10	3		
GRI 406: Non-Discrimination 2016							
3-3	Management of material topics	Talent, Equal Employment Opportunity Policy			3	9.2e	
406-1	Incidents of discrimination and corrective actions taken	Ethics and Good Governance, Talent, Equal Employment Opportunity Policy		8, 10	3		All concerns raised by employees through the Integrity Line are treated seriously and confidentially. Corrective action is administered when appropriate.

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
GRI 407: Freedom of Association and Collective Bargaining 2016							
3-3	Management of material topics	Supply Chain Management, Talent, Data Book			3	10.3c; 2.6h	
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Supply Chain Management, Talent, Data Book, Global Modern Slavery Statement		8, 12	3	10.3c; 2.6h	This risk is audited via EcoVadis Ratings and reflected in our EcoVadis IQ results.
GRI 408: Child Labor 2016							
3-3	Management of material topics	Supply Chain Management, Human Rights, Global Modern Slavery Statement			3	10.3c; 2.6h	
408-1	Operations and suppliers at significant risk for incidents of child labor	Supply Chain Management, Human Rights, Global Modern Slavery Statement		8, 16	3	10.3c; 2.6h	
GRI 409: Forced or Compulsory Labor 2016							
3-3	Management of material topics	Supply Chain Management, Human Rights, Global Modern Slavery Statement			3	10.3c; 2.6h	
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Supply Chain Management, Human Rights, Data Book, Global Modern Slavery Statement		8, 12, 16	3	10.3c; 2.6h	This risk is mitigated through our supplier risk management protocols, and audited via EcoVadis Ratings.
GRI 410: Security Practices 2016							
3-3	Management of material topics	Human Rights			3	10.3c; 2.6h	
410-1	Security personnel trained in human rights policies or procedures	Human Rights			3	10.3c; 2.6h	
GRI 411: Rights of Indigenous Peoples 2016							
3-3	Management of material topics	Indigenous and Land-Connected Peoples, Reconciliation Action Plan			3	9.3g	
411-1	Incidents of violations involving rights of indigenous peoples	Indigenous and Land-Connected Peoples	EM-MM-210a.3	16	3		
GRI 413: Local Communities 2016							
3-3	Management of material topics	Local Commitment with Communities					

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
413-1	Operations with local community engagement, impact assessments, and development programs	Local Commitment with Communities, Due Diligence on M&A and CAPEX	EM-MM-210b.1 EM-MM-210b.2	10, 16	3, 9, 10		
413-2	Operations with significant actual and potential negative impacts on local communities	Local Commitment with Communities, 2024 Key Stakeholder and Host Community Issues		10, 16	3, 9	9.7g	
			GRI 414: Supplier Social Assessment 2016				
3-3	Management of material topics	Supply Chain Management					
414-1	New suppliers that were screened using social criteria	Supply Chain Management, Data Book		12	3, 9		We continuously screen all suppliers, but do not disaggregate counts. That is, we do not track new suppliers separately.
414-2	Negative social impacts in the supply chain and actions taken	Supply Chain Management		12	3, 9		
			GRI 415: Public Policy 2016				
415-1	Political contributions	Ethics and Good Governance		16	1	3.3c	
	Payments to governments	Local Commitment with Communities, Data Book			1	3.3b	
			GRI Mining and Metals Sector Disclosures				
G4-MM1	Amount of land (owned or leased, and managed for production activities or extractive use) disturbed or rehabilitated	Biodiversity and Rehabilitation, Data Book		6, 14, 15	7	8.7	
G4-MM2	The number and percentage of total sites identified as requiring biodiversity management plans according to stated criteria, and the number (percentage) of those sites with plans in place	Biodiversity and Rehabilitation, Data Book	EM-MM-160a.1	6, 14, 16	7	8.2	
G4-MM3	Total amounts of overburden, rock, tailings, and sludges and their associated risks	Impoundment Management, Emissions and Waste, Data Book	EM-MM-150a.5, EM-MM-150a.6, EM-MM-540a.1, EM-MM-540a.2, EM-MM-540a.3	6, 12, 14, 15			
G4-MM4	Number of strikes and lock-outs exceeding one week's duration, by country	N/A	EM-MM-310a.2	8			No strikes occurred in 2024.

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
G4-MM5	Total number of operations taking place in or adjacent to Indigenous Peoples' territories, and number and percentage of operations or sites where there are formal agreements with Indigenous Peoples' communities	Indigenous and Land-Connected Peoples	EM-MM-210a.2	16	3	9.3	
G4-MM6	Number and description of significant disputes relating to land use, customary rights of local communities and Indigenous Peoples	Indigenous and Land-Connected Peoples, 2024 Key Stakeholder and Host Community Issues	EM-MM-210a.3, EM-MM-210b.2	16			
G4-MM7	The extent to which grievance mechanisms were used to resolve disputes relating to land use, customary rights of local communities and Indigenous Peoples, and the outcomes	Community Engagement and Dialogue, Indigenous and Land-Connected Peoples, 2024 Key Stakeholder and Host Community Issues	EM-MM-210a.3	16	1	3.4	
G4-MM8	Number (and percentage) of company operating sites where artisanal and smallscale mining (ASM) takes place on, or adjacent to, the site; the associated risks and the actions taken to manage and mitigate these risks	N/A					Due to the minimal artisanal and small-scale mining on Alcoa sites worldwide, there is not a formal corporate policy. Action is taken on a case-by-case basis.
G4-MM9	Sites where resettlements took place, the number of households resettled in each, and how their livelihoods were affected in the process	N/A		16	3	9.6	No resettlements took place in 2024.
			G4-MM10				
	Affected Populations and Organizations	2024 Key Stakeholder and Host Community Issues			3	9.7g	

Appendix D

Limited Assurance Report

The following is the content of the full assurance report. The original can be found on our website.

Read more: ERM CVS Limited Assurance Report

Independent Limited Assurance Report to Alcoa Corporation

ERM Certification & Verification Services Incorporated ("ERM CVS") was engaged by Alcoa Corporation ("Alcoa") to provide limited assurance in relation to the Selected Information set out below and presented in the Alcoa 2024 Data Book and Sustainability Report (the "Report").

Engagement summary	
Scope of our assurance engagement	Alcoa's assertions relating to the following ICMM Subject Matters (SM) are fairly presented in the Report, in all material respects, in accordance with the reporting criteria: • **SM1:** The alignment of Alcoa's sustainability policies, management standards and procedures to the ICMM Principles, any mandatory requirements set out in ICMM Position Statements, the corporate-level ICMM Performance Expectations (PEs) and corporate-level aspects of the combined PEs. • **SM2:** Alcoa's material sustainability risks and opportunities based on its own review of the business and the views and expectations of its stakeholders. • **SM3:** The existence of systems and approaches that Alcoa is using to manage selected material sustainability risks and opportunities. • **SM4:** Alcoa's reported performance during the given reporting period for selected material sustainability risks and opportunities, as listed in Table 1 below ("selected information"). • **SM5:** Disclosures regarding Alcoa's prioritization process for selecting assets for third-party PE Validation. Our assurance engagement does not extend to information in respect of earlier periods or to any other information included in the Report.
Reporting period	1 January 2024 – 31 December 2024
Reporting criteria	• ICMM Assurance and Validation Procedure (March 2023), including the ICMM Principles, ICMM Position Statements and ICMM Performance Expectations • Alcoa's Basis of Reporting (internal reporting criteria and definitions for the selected environmental, social, health, safety indicators as disclosed within the Report)

Engagement summary	
Assurance standard and level of assurance	We performed a limited assurance engagement, in accordance with the International Standard on Assurance Engagements ISAE 3000 (Revised) 'Assurance Engagements other than Audits or Reviews of Historical Financial Information'. The procedures performed in a limited assurance engagement vary in nature and timing from and are less in extent than for a reasonable assurance engagement and consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.
Respective responsibilities	Alcoa is responsible for preparing the Report and for the collection and presentation of the information within it, and for the designing, implementing and maintaining of internal controls relevant to the preparation and presentation of the Selected Information. ERM CVS' responsibility is to provide a conclusion to Alcoa on the agreed assurance scope based on our engagement terms with Alcoa, the assurance activities performed and exercising our professional judgement.

Our conclusion

Based on our activities, as described below, nothing has come to our attention to indicate that the Selected Information for 2024 is not fairly presented in the Report, in all material respects, in accordance with the reporting criteria.

Our assurance activities

Considering the level of assurance and our assessment of the risk of material misstatement of the Report a multi-disciplinary team of sustainability and assurance specialists performed a range of procedures that included, but was not restricted to, the following:

- Evaluating the appropriateness of the reporting criteria for the selected information;
- Performing an analysis of the external environment, including a media search, to identify sustainability risks and issues in the reporting period that may be relevant to the assurance scope;
- Interviewing a selection of staff and management to gain an understanding of:
  - Alcoa sustainability strategy, policies and management systems, including stakeholder engagement and materiality assessment;
  - The status of implementation of the ICMM Mining Principles (including the corporate-level PEs and corporate-level aspects of the combined PEs) and ICMM Position Statements in Alcoa's strategy and policies;
  - Alcoa's identification and management of sustainable development risks and opportunities as determined through its review of the business and the views and expectations of stakeholders; and
  - The relevant management systems and processes (including internal review and control processes) used for collecting and reporting the selected disclosures.
- Confirming that Alcoa's policies and procedures in effect remain aligned with the ICMM Mining Principles and other mandatory requirements set out in the ICMM Position Statements in effect as of 31 December 2024.
- Testing the processes and systems, including internal controls, used to generate, consolidate and report the selected information.
- Reviewing of a sample of qualitative and quantitative evidence supporting the Selected Information at a corporate level;
- Performing an analytical review of the year-end data submitted by all locations included in the consolidated 2024 group data for the Selected Information which included testing the completeness and mathematical accuracy of conversions and calculations, and consolidation in line with the stated reporting boundary;
  - Conducting visits to the Juruti, Brazil (in person) and Mosjoen, Norway (virtual) sites to review management processes relevant to ICMM subject matter 2 and 3, source data and local reporting systems and controls;
- Evaluating the conversion and emission factors and assumptions used; and
- Reviewing the presentation of information relevant to the assurance scope in the Report to ensure consistency with our findings.

The limitations of our engagement

The reliability of the Selected Information is subject to inherent uncertainties, given the available methods for determining, calculating or estimating the underlying information. It is important to understand our assurance conclusions in this context.

Our independence, integrity and quality control

ERM CVS is an independent certification and verification body accredited by UKAS to ISO 17021:2015. Accordingly, we maintain a comprehensive system of quality control, including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements. Our quality management system is at least as demanding as the relevant sections of ISQM-1 and ISQM-2 (2022).

ERM CVS applies a Code of Conduct and related policies to ensure that its employees maintain integrity, objectivity, professional competence and high ethical standards in their work. Our processes are designed and implemented to ensure that the work we undertake is objective, impartial and free from bias and conflict of interest. Our certified management system covers independence and ethical requirements that are at least as demanding as the relevant sections of the IESBA Code relating to assurance engagements.

ERM CVS has extensive experience in conducting assurance on environmental, social, ethical and health and safety information, systems and processes, and provides no consultancy related services to Alcoa in any respect.

May 28, 2025
Malvern, PA

ERM Certification & Verification Services Incorporated
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ERMCVS

Table 1. Selected information for the 2024 reporting period in our limited assurance scope and disclosed by Alcoa in the Report.

Indicator	Unit
Environment	
Direct (Scope 1) GHG emissions	Million metric tons of CO_2e
Indirect (Scope 2 location-based) GHG emissions	
Indirect (Scope 2 market-based) GHG emissions	
GHG Intensity (scope 1 + 2 (location-based), refining and smelting segments	Metric tons of CO_2e per metric ton of aluminum
Total Scope 3 GHG Emissions made up of the following categories: • **Category 1** • **Category 3** • **Category 4** • **Category 9** • **Category 10**	Million metric tons of CO_2e
Total Perfluorocarbon Emissions	Million metric tons of CO_2e: Total (smelters only)
Electricity from renewable sources	Percent (smelters only)
Energy consumption – Direct	Thousands of megawatt hours: Total
Energy consumption – Purchased Electricity	Thousands of megawatt hours: Total
Operational Water Withdrawal (Inputs) (All Water Quality Categories)	Million cubic meters: Total (all sites), Total (Locations in Alcoa-defined Water-scarce areas
Operational Water Consumption (Outputs) (All Water Quality Categories)	
Operational Water Discharges (Outputs) (All Water Quality Categories)	
Water Use	Million cubic meters: Locations in Alcoa-defined Water-scarce Areas

Indicator	Unit
Waste to Landfill	Thousands of metric tons: Total
Non-mineral waste generated	Thousands of metric tons: Total (Hazardous and non-hazardous)
Non-mineral waste recovered	
Non-mineral waste disposed	
Mineral waste generated	Millions of metric tons: Mine Tailings, Overburden and Rock, Topsoil, Bauxite Residue
Mineral waste recovered	Millions of metric tons: Mine Tailings, Overburden and Rock, Topsoil, Bauxite Residue
Active mining disturbance to mine rehabilitation ratio	Number
Social	
Community complaints raised through local complaint and grievance mechanism	Number: Total, per region
Beneficiaries, supported programs, and amount of investment related to skills development programs completed	Number: Total
Health and Safety	
Fatality Incidents	Number: Total
FSI-Actual incidents (FSI-A)	Number: Total
Total Recordable incidents (TRI)	Number: Total
Days Away, Restricted or Transfer (DART) incidents: Employees and supervised contractors; Non-supervised contractors	Number: Total
Lost Work Day (LWD) incidents: Employees and supervised contractors; Non-supervised contractors	Number: Total

Appendix E

2024 Key Stakeholder and Host Community Issues

Operational Sites

Location	Issue	Action
Warrick, Indiana, U.S.	Sierra Club filed a Notice of Intent to Sue in November 2023, citing violations of the Clean Water Act. Warrick Newco is holder of National Pollutant Discharge Elimination System permit IN0001155 and Sierra Club states in the NOI: "Over the last two years, Warrick Newco has repeatedly exceeded its permitted effluent limits for mercury, aluminum, chlorine, copper, fluoride, nickel, pH and zinc. These exceedances are continuing." In January 2024, the Indiana State Attorney General filed a Petition for Civil Enforcement related to these exceedances.	The litigation regarding this matter has been resolved with an agreed judgment entered by the court in January 2025. Warrick Newco is required to develop and implement a compliance plan to evaluate source minimization and treatment to restore compliance on an ongoing basis. Warrick Newco paid a penalty of $270,750 with a partial offset through support of a local NGO sponsored environmental restoration project in Warrick County.
San Ciprián, Spain	As reported in Alcoa's 2023 Sustainability Report, the San Ciprián smelter was curtailed in January 2022 due to ongoing challenges stemming from exorbitant energy prices.	In 2024, Alcoa's efforts to identify a pathway for San Ciprián's future included the identification of a possible partnership with IGNIS EQT to leverage their strong knowledge of energy markets, ability to create value via market access, and expert energy management services. In 2025, Alcoa and IGNIS EQT entered into a joint venture agreement to support the continued operation of Alcoa's San Ciprián complex.
Mosjøen, Norway	Impacts on the Jillen-Njaarke Sámi Reindeer District's herding from the construction and operation of the Øyfjellet Wind Farm, which supplies electricity to Alcoa Mosjøen.	Alcoa increased its direct engagement with the Jillen-Njaarke Reindeer District in 2024 to improve and formalize the bilateral relationship, raise cultural awareness in the plant and surrounding community, identify opportunities for Alcoa social investment, and offer support in facilitating an improved relationship between Øyfjellet and the Jillen-Njaarke Reindeer District. Alcoa held formal meetings with the District in August and November 2024 and will hold at least 2 meetings per year to monitor progress on collaborative projects and to exchange information on mutual priorities.
Juruti, Brazil	Stakeholders concerned with the lack of progress associated with studies to determine compensation for loss and damages for Juruti Velho.	In 2024, following extensive engagement, Alcoa reactivated the study group comprised by INCRA, ACORJUVE and Alcoa to advance with the final stage of the Loss and Damage Study for Juruti Velho. Alcoa has paid loss and damages for the period 2006-2010 in 2023. In this new stage, all parties agreed to co-develop a revised methodology that simplifies the calculation of compensation amounts and can enable Alcoa to pay for pending values from past years (2011-2025) in 2025 and move towards advance payments for future impacts after 2026.
Alumar, Brazil	In February 2024, the Alumar Refinery experienced a release of caustic material from the precipitation area due to power fluctuations that led to an overflow from tanks and outage of pumps which resulted in a release from the bunded area onto surrounding land.	The facility promptly implemented additional controls to reduce the likelihood of this type of event taking place in the future. Alcoa reported the release to the State Environmental Agency (SEMA), conducted cleanup operations and remedial actions to remove contaminated soil and vegetation, and is currently completing restorative measures to rehabilitate the affected area. Additionally, Alcoa launched a census of the entire affected area to develop enhanced engagement strategies with local stakeholders and work on emergency preparedness plans. Approximately 2,000 residents have been surveyed as part of this initiative. In December 2024, Alcoa signed a term of commitment with SEMA focused on environmental remediation.

Huntly and Willowdale, Australia	Alcoa's future mining operations and associated regulatory approvals were of stakeholder and public interest in 2024. Concern was centered around Alcoa's operations in the Northern Jarrah Forest and related environmental management practices.	We continued to work with stakeholders to share our approach to environmental management and responsible mining. In 2023 we committed to transition to a more contemporary approvals framework by working with the WA government to modernize our State Agreements and have all new major mining areas assessed by the Environmental Protection Authority of Western Australia (WA EPA). In 2024, we continued to enhance the way we operate to comply with environmental requirements, including enhanced protection for water and biodiversity, reduced forest clearing and accelerated forest rehabilitation. In response to stakeholder feedback, we deferred plans to mine within the Reservoir Protection Zones in Myara North and Holyoake and further refined our mining development envelopes to avoid areas of high social and environmental value. A targeted engagement program to support greater transparency and understanding of our current and future mining operations and environmental performance was implemented, consisting of publicly accessible tours of our operations, community consultation groups, information sessions, newsletters, regular briefings and pop-up offices in local communities; and we increased the accessibility of relevant operational information through our existing communications channels and local media. **Read more:** Our mining approvals
Kwinana, Australia	In January 2024, we curtailed our Kwinana Alumina Refinery, raising concerns within the local community regarding economic impacts and jobs.	To address concerns regarding economic impacts, and to ensure transparent communication, we implemented a thorough and targeted stakeholder engagement plan focused on employees, government, unions industry, neighbors and the community. To minimize impacts, a workforce plan was implemented including, where possible, redeployment within the business as well as job fairs, training opportunities and wellbeing support. Alcoa also maintained its social investment spend to support local community organizations, demonstrating our commitment to the local community despite the operational changes.

Curtailed and Non-Operational Sites

Location	Issue	Action
Badin, North Carolina, U.S.	The site is anticipating receipt of a draft National Pollutant Discharge Elimination System (NPDES) permit from the North Carolina Department of Environmental Quality in 2023. The impending draft has gained interest among non-governmental organizations who are concerned the site may have undiscovered environmental challenges. The site has complied with the existing fluoride permit limits in 2023 and 2024.	Community Advisory Board meetings are held throughout the year to gain perspective from the community and to understand the thoughts and concerns of residents representing diverse backgrounds. A website is available to both share information and receive feedback from the community. **Read more:** badinbusinesspark.com
Point Comfort, Texas, U.S.	The United States Environmental Protection Agency (EPA) issued a Record of Decision (ROD) designating the site a Superfund site in December 2001. The ROD and subsequent Consent Decree set forth the remedy, which included actions to address contaminated sediments and wastewater discharges in Lavaca Bay, and subsurface contamination at the former chlor-alkali processing plant and former Witco coal tar processing plant. Assessment, monitoring and remedial actions continue at the site; the U.S. EPA has determined that near-term effectiveness of the remedy has been achieved.	An annual stakeholder meeting was held in December to update a broad range of stakeholder representatives from the community, government, and area organizations on the continued progress of site cleanup measures. Meetings and discussions with the U.S. EPA also occurred throughout the year. Additionally, outside of Superfund requirements, quarterly meetings are held with Point Comfort officials to discuss site dust control measures and receive feedback on their effectiveness. There were no dusting issues reported at the site in 2023 and 2024.