

Alcoa

2023

Sustainability  
Report

# Contents

About This Report	3	Social	43	Appendices	101
2023 Highlights	4				
Letter to Stakeholders	5	Health and Safety	44	Acronyms	102
		Local Commitment with Communities	49	Materiality Assessment Process	103
<b>Overview</b>	<b>6</b>	Human Rights	57	Content Index	104
		Indigenous and Land-Connected Peoples	59	Limited Assurance Statement	114
Corporate Overview	7	Inclusion, Diversity and Equity	61	Key 2023 Stakeholder Issues	118
Approach to Sustainability	9	Talent Attraction, Retention and Development	65	Associations and Memberships	120
Strategic Long-Term Goals	11			2023 Awards and Recognition	122
Reporting and Materiality	13				
		<b>Environment</b>	<b>68</b>		
<b>Governance</b>	<b>16</b>				
		Climate Change	69		
Ethics and Good Governance	17	Impoundment Management	77		
Decommissioning, Closure and Divestments	23	Biodiversity and Mine Rehabilitation	81		
Innovation, Technology and Products	26	Emissions and Waste	85		
Supply Chain Management	31	Water Stewardship	89		
Due Diligence on CAPEX and M&A	36	Circular Economy	96		
Political, Regulatory and Economic Uncertainty	38				
ESG Transparency and Disclosure	40				

# About This Report

Our Sustainability Report aims to provide insight into our approach to managing 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 those sustainability goals for the 2023 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](#).

Alcoa received independent limited assurance on several indicators for this report by ERM Certification and Verification Services Inc. (ERM CVS). The limited assurance statement is available in [Appendix D](#).

## Forward-Looking Statements and Other Information

This Sustainability Report includes forward-looking statements regarding our environmental, social and 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, 2023, filed with the Securities and Exchange Commission on February 21, 2024.

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.

## 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 [2023 Alcoa Data Book](#) for additional information.

### Read More

More information regarding our policies, processes 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](#)

# 2023 Highlights

## Environment

**2.2%**

decrease in CO<sub>2</sub>e emissions year-over-year

**87%**

of electricity powering our smelters came from renewable sources

**15.5%**

reduction since 2015 of bauxite residue land requirements\*

**9.7%**

increase in spent pot lining diverted for recovery

**Disclosed**

performance against the Global Industry Standard on Tailings Management (GISTM) for facilities with the highest potential consequences

\*Per metric ton of alumina produced.

## Social

**Zero**

worker fatalities

**19.1%**

female workforce

**Listed**

as one of America's Greatest Workplaces in 2023 by Newsweek magazine

**85 scored**

on the Human Rights Campaign Foundation's Corporate Equality Index

**32.7%**

of total workforce is diverse employees

**US\$4.1M**

invested in skills development programs benefitting local communities

**US\$5.9M**

invested in communities through Alcoa Foundation grants and corporate giving programs

## Governance

**Issued**

first global Modern Slavery Statement

**Implemented**

a new Supplier Site Collaboration program

**Top 5%**

of companies within the manufacture of basic precious and other non-ferrous metals industry according to EcoVadis

**Conducted**

a portfolio-wide assessment of physical and transition risks of climate change across Alcoa's operations

**18**

locations certified to Aluminium Stewardship Initiative (ASI) Performance Standard

**Reported**

against ICMM's Social and Economic Reporting Framework for the first time



# Letter to Stakeholders

Dear Stakeholder,

At Alcoa, our values are constant. We act with integrity, operate with excellence, care for people and lead with courage. Simple words that guide us daily and propel us forward.

As I stepped into the CEO role in September 2023, it became clear that we have ambition for this company – to expect excellence in everything we do, including our relentless focus on safety and our efforts toward achieving our sustainability targets.

Alcoa continued our trend of positive safety performance with zero fatalities across our managed operations and annual improvement in our key leading safety metrics of critical control verifications in the field. Unfortunately, we did have two serious injuries in 2023. These incidents are reminders to stay laser focused on safety.

Safety performance as well as our performance across other areas of sustainability is a key indicator of the stability and quality of our operations. Excellence in environmental, social and governance (ESG) practices and performance, particularly safety, goes hand in hand with operational excellence. It is no surprise that with our continued focus on safety that we saw production records set at our smelters in Canada and Norway and were able to successfully restart a potline at Warrick in the United States.

Throughout 2023, we took great care to act with integrity as we addressed challenging stakeholder and operational issues within our portfolio.

Through extensive focus and collaboration with stakeholders, we have secured government approval of our mine plans for our bauxite operations in Western Australia. The necessity of maintaining government approval and understanding the path forward for our operations cannot be overstated. Australia is critically important to our portfolio and our future operations. In Spain, we are engaging with key stakeholders and representatives of the national and regional government authorities to address the financial situation at our San Ciprián complex.

These complex environments demonstrate the importance of robust ESG practices. As you review this year's sustainability report and data book, you will see a company focused on our long-term sustainability actions, with progress in 2023 in human rights oversight, diversity and investing in our host communities. We recognize that for Alcoa to be successful, we must have stable operations, continuously improve across all areas of our business and act in good faith with transparency.

As I close, I would like to comment on the true heart of Alcoa: our people.

Throughout my 23 years in the aluminum industry, I have understood that very little can happen without the talent and ingenuity of our people. I am honored to lead Alcoa. We are a company with a rich history. We enter the lives of nearly everyone around the world every day through our products. The materials we produce are vital and I am proud of the approximately 13,000 Alcoans who commit themselves every day to ensuring that we remain the material of choice.

Sincerely,

A handwritten signature in black ink, appearing to read 'William F. Oplinger'. The signature is fluid and cursive, with a long horizontal stroke at the end.

**William F. Oplinger**  
President and Chief Executive Officer



Overview

# Turning Raw Potential into Real Progress

**7** Corporate Overview

**9** Approach to Sustainability

**11** Strategic Long-Term Goals

**13** Reporting and Materiality

# Corporate Overview

Alcoa is a globally competitive industry leader in bauxite, alumina and aluminum products. With a values-based approach that encompasses acting with integrity, operating with excellence, caring for people and leading with change, our purpose is to *Turn Raw Potential into Real Progress*.

We operate or have an ownership interest in 27 locations across nine countries, with our global headquarters in Pittsburgh, Pennsylvania, USA. We pride ourselves on a culture of innovation, which, over our long history, has helped turn ideas into outcomes.

Alcoa common stock is traded on the New York Stock Exchange (NYSE:AA), and our business is organized into two business segments—Alumina and Aluminum.

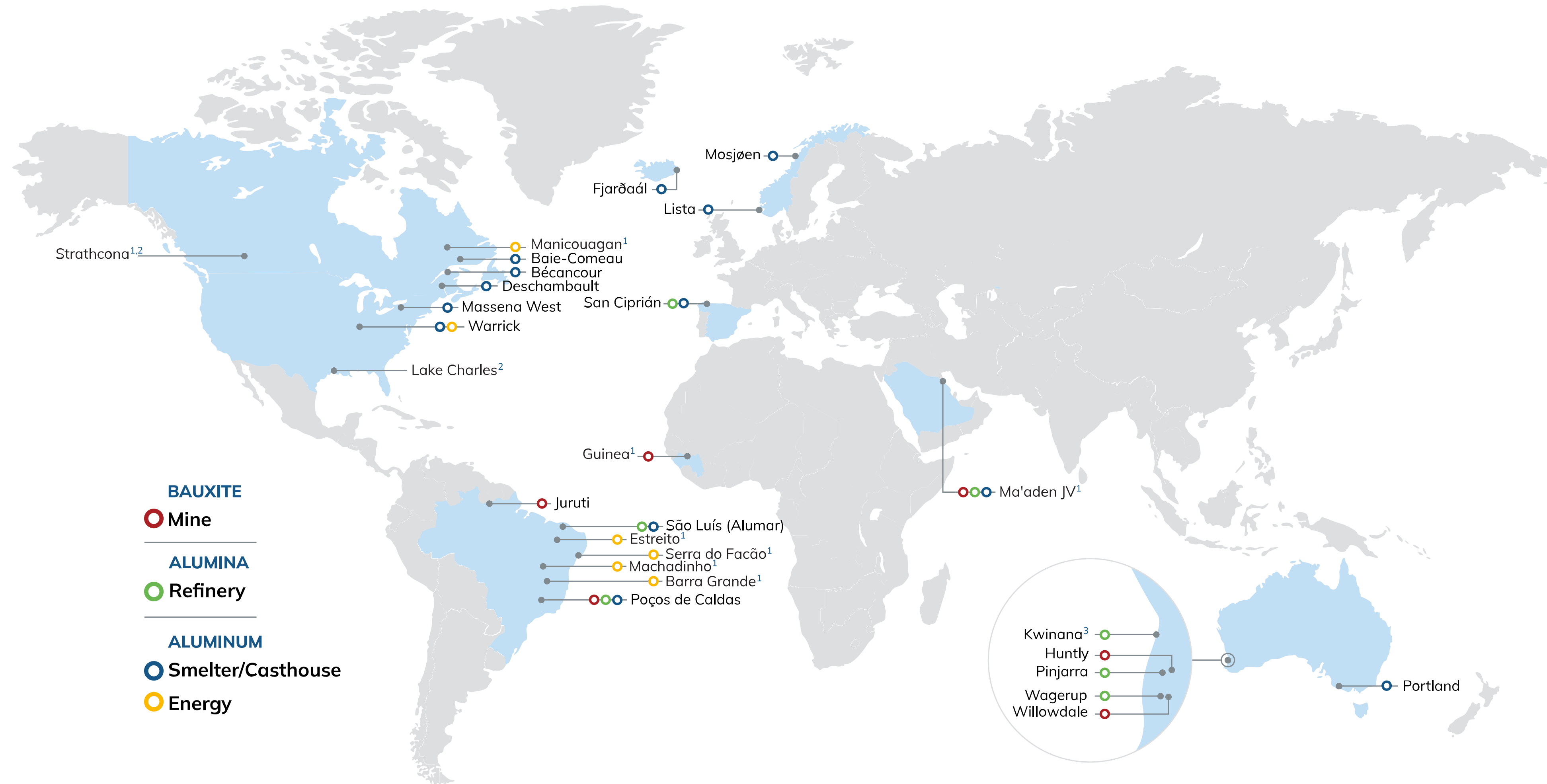
Our Alumina segment is comprised of our global bauxite mines and alumina refineries. With significant mining operations in Australia and South America, we maintain our position as one of the world's foremost bauxite miners. We also have one of the world's largest alumina businesses outside of China, with refineries on three continents. Our Aluminum segment includes aluminum smelting and casting and the majority of our energy assets.

More information about Alcoa can be found in our 2023 Annual Report.

[Read more: Alcoa 2023 Annual Report](#)



## Alcoa Locations



Location data as of December 31, 2023.

<sup>1</sup> Minority ownership, non-operating partner.

<sup>2</sup> Processes petroleum coke, a raw material used to create anodes used in aluminum smelting.

<sup>3</sup> Alumina refinery capacity curtailed in 2024.



# Approach to Sustainability

At Alcoa, we work toward embedding sustainability in a holistic and meaningful way throughout our company. Incorporating sustainability in our decision-making is a continuously evolving process of learning and improving our systems, practices and approaches.

Our sustainability practice is guided by three principal areas of focus:

## Our Communities

We aim to create value for our stakeholders and our host communities. By engaging with local communities from exploration to post-closure, we work to develop strong relationships with local stakeholders and understand their needs. We collaborate with the Alcoa Foundation and Instituto Alcoa to identify and realize opportunities that bring long-lasting value to local communities.

[Read more: Alcoa Foundation and Instituto Alcoa](#)

## Our Operations

We strive to minimize the social and environmental impacts of our operations. To support the Paris Agreement, Alcoa has a long-term ambition to achieve net zero greenhouse gas (GHG) emissions across our smelter and refinery operations by 2050 for direct (Scope 1) and indirect (Scope 2) emissions, with interim targets to achieve a 30 percent reduction by 2025 and a 50 percent reduction by 2030, using our 2015 baseline (intensity basis). Additionally, we follow rigorous biodiversity, mine rehabilitation and asset management plans throughout the life cycle of our operations and we adopt technological innovations that aim to reduce the environmental footprint of aluminum production. See [Innovation, Technology and Products](#) section.

## Our Products

We develop products that are designed to improve performance and minimize environmental impact. Our alumina refinery products have lower emission intensities and aluminum with at least 50 percent post-consumer recycled content and our Sustana™ product line offers primary aluminum with a lower carbon footprint. We also have earned ASI certifications, which provide independent assurance that our bauxite, alumina and aluminum products meet globally recognized sustainability standards.

[Read more: Sustana™ and ASI Certifications](#)

SDG Alignment



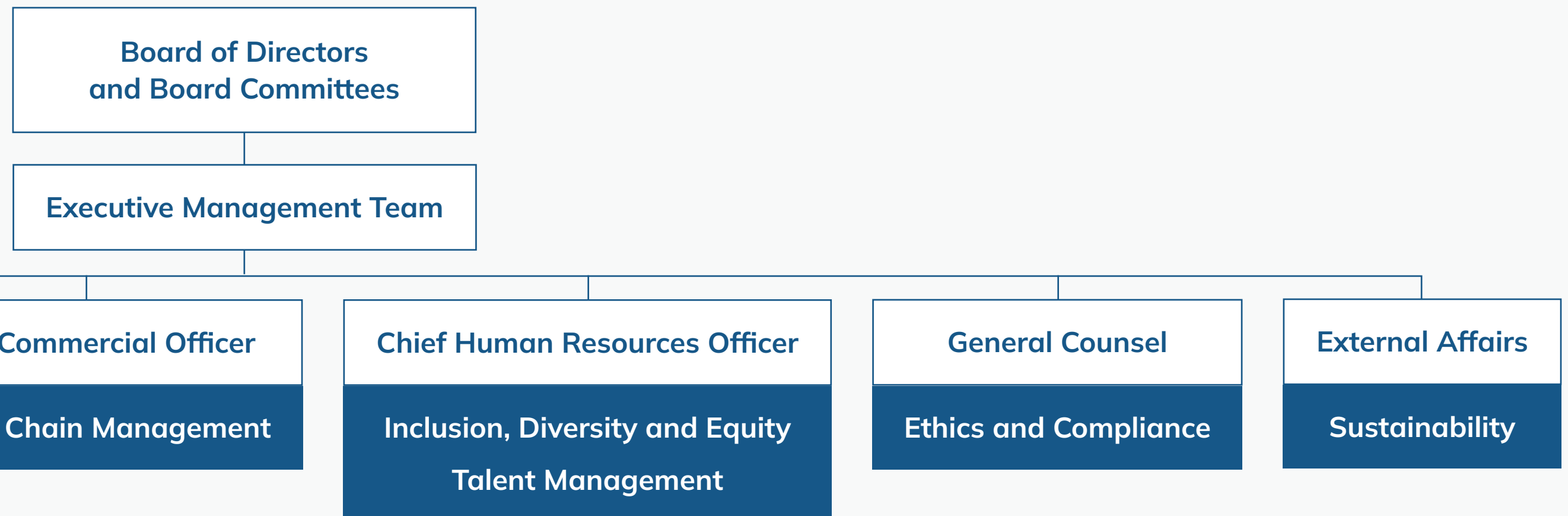


## Sustainability Initiatives

In addition to the new Centers of Excellence (CoE) created in 2022 for Social Performance, Climate Change and Biodiversity, we introduced a new CoE in 2023 for Human Rights. (See the [Human Rights](#) section). Our CoEs work on important themes that cut across environmental, social and governance matters at the same time, taking a deep dive into these core issues. They provide support and build capacity across our operations, develop policies and standards, set goals and targets and track key performance indicators (KPIs) so we can build and implement informed and effective strategies.

Other major sustainability initiatives launched across the company in 2023 included a portfolio-wide assessment of physical and transition risks of climate change across our operations, an independent assessment of our biodiversity and mine rehabilitation practices, the implementation of the GISTM for our high-consequence impoundments and the certification of our Lista smelter and San Ciprián refinery to ASI's updated v3 Performance Standard. These initiatives help us continue to address our sustainability priorities and strengthen our understanding and capacities in key areas.

### Governance Structure





# Strategic Long-Term Goals

Alcoa developed a series of strategic long-term sustainability goals to guide decision-making and management practices across the company. These goals align with our highest-priority material topics and enable us to stay focused on achieving progress in key areas. See the [Reporting and Materiality](#) section.

Our goals are not static; they are regularly reviewed and refreshed, as necessary, so they remain relevant to Alcoa and our stakeholders. This enables us to build on our strengths and address areas of opportunity.

In 2023, we adjusted the reporting of our mine rehabilitation to mine disturbance ratio from a 5-year period to an annual basis. This allows us to conduct a more responsive review of our performance. We also revised the implementation plan for our social performance management system, SP360, to allow further embedding of related requirements through a staged approach that includes staff training. Notwithstanding, all sites have been introduced to the system's fundamentals.

The majority of our current goals were defined in 2019, with completion dates set for 2025 and/or 2030. In several areas, such as waste, impoundment management and shared value creation, Alcoa has already achieved or surpassed our interim goals. As we near our interim goal date of 2025, we will continue our ongoing work of evaluating our sustainability priorities and considering other potential long-term goals.

# Strategic Long-Term Sustainability Goals<sup>1</sup>

SDG	Goal	Progress
	Zero fatalities and serious injuries (life-threatening or life-altering injuries and illnesses).	<b>Health and Safety</b> Zero fatalities; two serious injuries in 2023.
	By 2030, deploy skills development programs in collaboration with Alcoa Foundation and Instituto Alcoa to equip members of our host communities with the necessary competencies to participate in local economic activities.	<b>Local Commitments with Communities</b> Inaugural funds benefited 81 programs and 15,995 participants in 2023.
	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.	<b>Shared Value Creation</b> Completed rollout of the system across our global operations.
	Achieve a more inclusive culture that reflects the diversity of the communities where we operate.	<b>Inclusion, Diversity and Equity</b> Increased the percentage of women in our global employee population from 18.48 percent in 2022 to 19.1 percent in 2023.  The percentage of new hires from underrepresented populations was 44 percent.

SDG	Goal	Progress
	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 <sub>2</sub> e/mt Al.  The ambition to achieve net zero GHG emissions by 2050.	<b>Climate Change</b> 27.2 percent reduction from 2015.
	From a 2015 baseline of 53 m <sup>2</sup> /kmt alumina, reduce bauxite residue land requirements per metric ton of alumina produced by 15 percent by 2030.	<b>Impoundment Management</b> 15.5 percent reduction from 2015.
	Maintain a corporate-wide annual ratio of 1:1 or better for mine rehabilitation to mine disturbance.	<b>Biodiversity and Mine Rehabilitation</b> 1.31:1 ratio for 2023.
	From a 2015 baseline of 131.7mt, reduce landfilled waste by 15 percent by 2025 and 25 percent by 2030.	<b>Emissions and Waste</b> 22.8 percent reduction from 2015.
	From a 2015 baseline of 3.79 m <sup>3</sup> water/mt alumina, reduce the intensity of our total water use from Alcoa-defined water-scarce locations by five percent by 2025 and 10 percent by 2030.	<b>Water Stewardship</b> 2.1 percent increase <sup>2</sup> from 2015.

<sup>1</sup> 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.

<sup>2</sup> Lower-grade bauxite has contributed to the increase in water intensity because more bauxite needs to be processed to produce each ton of alumina. Additional details can be found in the [Water Stewardship](#) section.



# Reporting and Materiality

In 2023, we conducted a materiality assessment to identify our priority sustainability topics.

Our 2023 materiality assessment was informed by GRI Standards and conducted to consider the impacts that Alcoa has on people and the environment, as well as the impacts that relevant topics can have on the business. These topics were reviewed for alignment with our Enterprise Risk Management (ERM) and Operational Risk Management (ORM) framework (see [Risk Management](#) section) and voluntary disclosure standards, such as International Financial Reporting Standards Foundation (IFRS) Sustainability Standards, Taskforce on Climate-Related Financial Disclosures (TCFD), ASI, ICMM, Extractive Industries Transparency Initiative (EITI) and GISTM.

We reviewed the list of relevant topics against a materiality assessment scoring and internal risk prioritization. We also collected inputs from both a stakeholder consultation and an in-depth analysis of internal documents to inform the determination of the priority topics for Alcoa. The consultation was conducted through online surveys and interviews, involving both internal and external stakeholders.

**About the photo:** Left to right: Lesley Ugle (Bindjareb Noongar Elder) and Darrin Strange (Western Australia Mining Manager, Alcoa) participate in a Smoking Ceremony at the official opening of the Larego region of the Willowdale mine in Western Australia.

## Our Approach

Our 2023 assessment was designed and executed in collaboration with an external consultant and included input from key internal and external stakeholders.

Throughout the exercise, particular attention was devoted to ensuring alignment of the materiality assessment and Alcoa's risk management process and outcomes.

The process involved four key steps:

1

### Determination of Relevant Topics

Alcoa reviewed more than 150 internal and external documents, including biodiversity, water and climate change impact assessments, external stakeholder surveys and local community engagement records.

2

### Stakeholder Engagement

We collected qualitative and quantitative data regarding specified topics from more than 350 stakeholders, including over 250 employees and nearly 100 external stakeholders.

3

### Analysis and Collation of Findings

We evaluated the findings from the internal and external document review, as well as the stakeholder engagement, to synthesize and define the priority topics.

4

### Review Key Findings

Internal subject matter experts and senior management reviewed and validated the defined priority topics identified through this process.



## Key Insights From the Assessment

The outcomes of our assessment are presented through a matrix featuring four quadrants that illustrate the level of priority for the environment and people, the business or both.

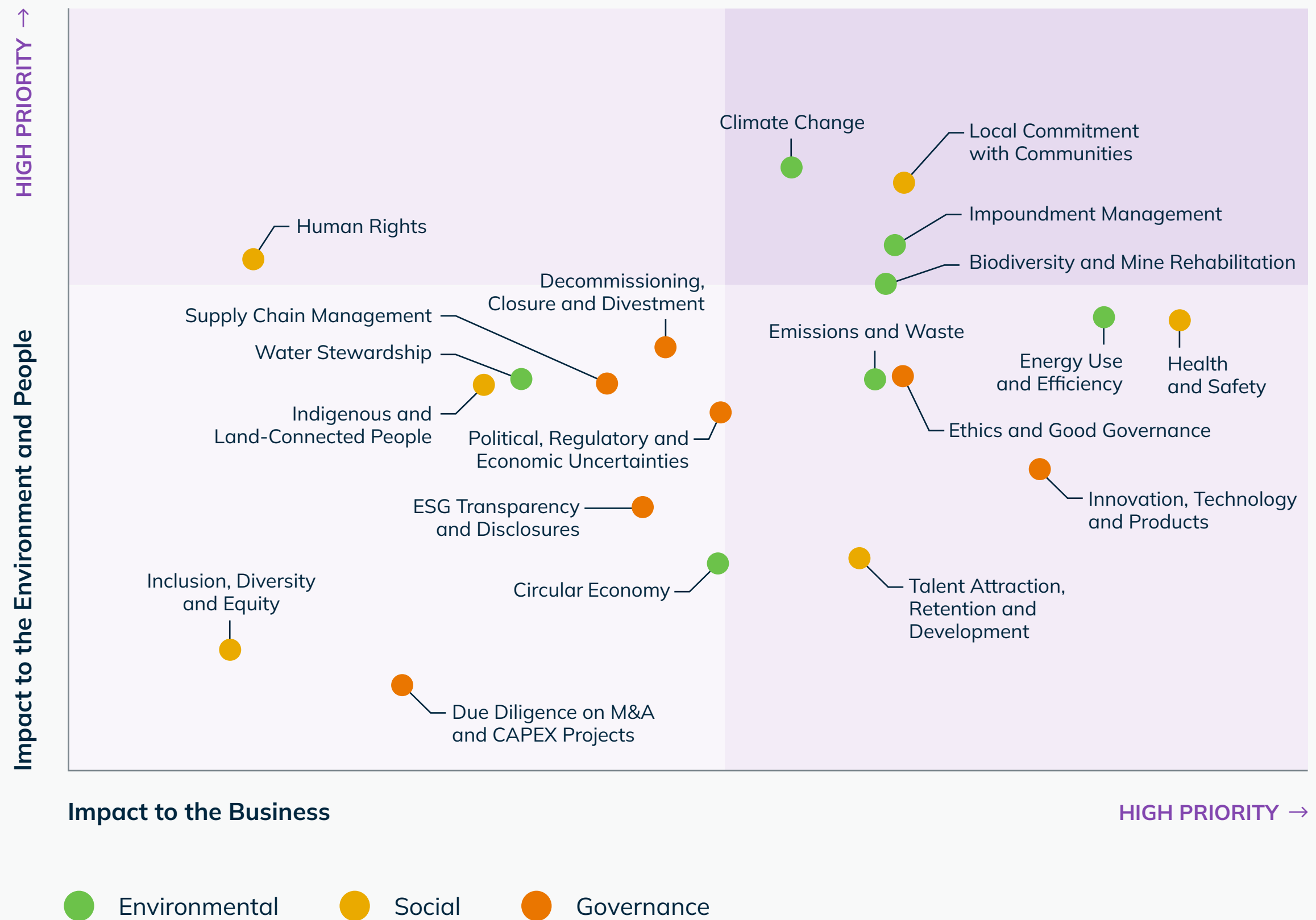
The total number of topics assessed that are considered relevant to Alcoa increased from 14 in 2022, to 20 topics in 2023. This outcome was informed by the GRI Standards, as well as ICMM, ASI and our wider business context.

The priority topics were defined as those rated by stakeholders as major or critical as defined by our internal risk management methodology.

- **Impact priorities for both the business and the environment and people:** climate change, biodiversity and mine rehabilitation, local commitment with communities and impoundment management.
- **Impact priorities for the environment and people:** climate change, local commitment with communities, biodiversity and mine rehabilitation, impoundment management and human rights.
- **Impact priorities for the business:** climate change, local commitment with communities, biodiversity and mine rehabilitation, impoundment management, energy use and efficiency,<sup>1</sup> health and safety, emissions and waste, ethics and good governance, innovation, technology and products and talent attraction, retention and development.

For more information on our materiality assessment process, please see [Appendix B](#).

## Materiality Matrix



<sup>1</sup> Due to content overlaps, energy use and efficiency can be found in the [Climate Change](#) section.



Governance

# Managing Responsibly

**17** Ethics and Good Governance

**23** Decommissioning, Closure and Divestments

**26** Innovation, Technology and Products

**21** Supply Chain Management

**36** Due Diligence on CAPEX and M&A

**38** Political, Regulatory and Economic Uncertainty

**40** ESG Transparency and Disclosure



# Ethics and Good Governance

Acting with integrity is a core Value and is fundamental to the way in which Alcoa operates. Our corporate governance structure, policies and procedures are designed to advance safe and ethical conduct throughout our business operations.

## Ethics

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](#)

### Communicating and Training

At Alcoa, 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, Ethics and Compliance (E&C) newsletters and regular training courses.

We also reinforce the importance of ethics through our global network of Integrity Champions. These employee volunteers help nurture and promote an ethical working culture and serve as trusted advisors. In 2023, we announced a series of new champions to refresh the program and empower our new champions to lead us by example.

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 and data privacy training, as well as an annual Business Conduct Survey to disclose any conflicts of interest.

[Read more: Code of Conduct and Ethics](#)

SDG Alignment





### Additional Ethics Training

- ✓ Live anti-corruption training for employees whose roles place them in a higher risk category.
- ✓ 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, 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 2023, 10 percent of Integrity Line submissions resulted in disciplinary action, while 60 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, policies or procedures. Most submissions (76 percent) were employment-related, while the remainder pertained to business integrity, environment, health and safety (EHS), human rights and general inquiries.

[Read more: Integrity Line](#)

An independent third-party receives all Integrity Line submissions. All submissions are directed to our global E&C team, which also 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, Chief Financial Officer (CFO), and General Counsel receive a subset of these metrics every quarter and our Board's Audit Committee receives a report annually.

## 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 Supplier Sustainability Program, which manages supply chain risks for anti-bribery, anti-corruption and other ESG-related issues. See the [Supply Chain Management](#) section.

## Political Contributions

Our Political Contributions Policy explicitly prohibits using company funds, property, services or other resources for political purposes. In rare cases, we may make exceptions, such as supporting or opposing a ballot or referendum that directly impacts Alcoa.

In 2023, we reviewed and updated our lobbying and political contributions policies to align with best practices. For the first time, we also released a standalone report on our political contributions to improve transparency for our stakeholders, so they can ensure our contributions align with our public commitments.

[Read more: Policy Advocacy Disclosure](#)

Alcoa did not make any direct donations to the election campaigns of politicians in 2023. Qualified Alcoa employees voluntarily donated approximately US\$21,250 to U.S. candidates for political office through the Alcoa Corporation Employees' Political Action Committee (AlcoaPAC) as permitted by U.S. and state law.



## Risk Management

We continually work to align our risk management processes with industry best practices to maintain our resilience as an organization.

The foundation of our risk management process is the Integrated Framework for Enterprise Risk Management (ERM) from the Committee of Sponsoring Organizations of the Treadway Commission (COSO). We also use ISO-31000 (risk management) as a guideline.

[Read more: COSO](#)

Alcoa's Board of Directors maintains oversight of risk management. The Chief Financial Officer oversees the ERM function, including Alcoa's central risk management program, ensuring that risks are assessed, prioritized and reviewed at least twice a year or more regularly and reported to the Board of Directors.

We group risks into categories that our management team can assess and prioritize on a regular basis, considering factors such as likelihood of occurrence, impact, vulnerability and velocity.

We take a collaborative approach to identify, monitor and manage risks. Risk owners across the organization are responsible for identifying and managing the risks in the day-to-day operations. Senior management is accountable for ensuring that risks are monitored and reviewed and preventive and mitigating controls are in place and effective.

Internal audit incorporates critical risks from both the enterprise and operational risk management reports into the audit plan.

We have linked our assessment of sustainability to our enterprise and operational risk management processes. This step helps us to evaluate sustainability-related matters, assess their potential impacts and establish management controls.

We conduct focused training on risk management principles to promote an effective risk culture and we have a cloud-based system with reporting capabilities that centrally manages our risks.

In 2023, we began a comprehensive review of our risk management program, including ERM and ORM, to identify improvement opportunities and align with industry best practices.

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.

### Risk Management Systems for Specific Business Activities

#### New Facilities or Expansion Projects

We perform an ESIA to identify potential risks and opportunities.

#### Environment, Health and Safety

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

We use various cybersecurity risk management processes, covering third-party suppliers to vulnerability management. We are also aligning our global security program with the International Standards Organization (ISO) 27001 Information Security Management standard.

[Read more: ISO-27001 standard](#)

# Corporate Governance

Alcoa’s commitment to ethics and compliance starts at the top. Our Board of Directors takes an active role in Alcoa’s governance, including our efforts in sustainability, while our Executive Team drives the actions of the organization.

The Alcoa Board of Directors has adopted Corporate Governance Guidelines and board committee charters to promote the effective functioning of the board, its committees and our overall corporate governance practices.

[Read more: Corporate Governance Guidelines and Board Committee Charters](#)

Among our board committees is the Safety, Sustainability and Public Issues Committee, whose responsibilities include providing guidance on, and oversight over Alcoa’s corporate and social responsibility, including environmental sustainability.

[Read more: Board of Directors](#)

Additionally, our approach to corporate governance includes regular consultation with internal subject matter experts through a variety of initiatives. These initiatives play a crucial role in informing decision-making and shaping our strategic direction.

- A Climate Strategy team that consists of a cross-functional group of senior-level employees that support the governance and overarching strategy for a decarbonization roadmap, renewable energy strategy and commercial opportunities.
- Alcoa’s Human Rights Council oversees our Human Rights Policy and related systems in support of human rights that may be impacted by our operations. It is sponsored by two members of our Executive Team who provide oversight management and report ongoing progress to the rest of the Executive Team.

[Read more: Human Rights Policy](#)

- Our EHS compliance committee oversees Alcoa’s EHS compliance-related risks. It meets monthly and is formed by leaders from Internal Audit, E&C, Legal and EHS.



# Compliance

Compliance is a fundamental building block of our success and how we put our core 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.

Our Legal Department also identifies and maintains relevant information in collaboration with other compliance-related functions in specific departments. These include EHS (laws and regulations), Human Relations (labor and employment laws and regulations), E&C (bribery, anti-corruption and Code of Conduct) and our Human Rights Council.



### 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](#) section.)



## Environmental Compliance

At Alcoa, each of our operations is required to adhere to the internal 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 2023, Alcoa paid environmental penalties and fines totaling approximately US\$300,500. The grounds for these charges include past regulatory settlements, unauthorized disposal of bauxite residue and waste alumina in an area fit for purpose but not authorized for use, for submission of a late report and for failing to submit an annual emissions report (CY2021) for an Alcoa subsidiary. All violations were self-identified and disclosed to the regulatory agencies.

We work transparently and collaboratively with environmental agencies and external stakeholders 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 also use the system to manage various iterations of our draft and final permit conditions.

We integrate environmental compliance assessments into our risk-based 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.

### Environmental Non-Compliances

Year	Total	Significant	Penalties US\$
2018	3	0	141,207
2019	5	0	70,500
2020	4	0	70,200
2021	1	0	12,240
2022	6	0	102,867
2023	5	1	300,447

We define a significant non-compliance as receiving a fine or penalty exceeding US\$100,000.

### Compliance in Western Australia

In 2023, concerns were raised over the construction of a wastewater pipeline over the Samson Brook dam, a source of drinking water for the Waroona community in Western Australia.

The pipeline has been dismantled and will be replaced with a government-approved onsite water treatment plant. See our [Stakeholder Issues table](#) for more details.

# Decommissioning, Closure and Divestments

Our commitments do not end when a site closes. We continuously strive to create positive outcomes for the local environment, community and economy by transforming closed sites into a productive and beneficial state of reuse.

## Our Site Closure Process

The effective closure and transformation of a site requires significant investment, effort, time, expertise and attention to detail. Once we make the official decision to close a location, further action is taken by our global Transformation team, who works to manage all aspects of the site's decommissioning, closure and redevelopment.

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

In keeping with Alcoa's closure policies, our Transformation team works to carefully ensure we restore the site to the applicable regulatory standards. The team also measures the quality and cost of this work through various internal control 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, it can help achieve positive environmental and social outcomes that are 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 apply to former mine sites, 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. This includes land rehabilitation.

#### Maintenance

We continuously maintain our sites throughout their curtailment and closure life cycle—both in the midst of demolition and remediation activities and following their completion. Maintenance activities are coupled with monitoring activities that ensure compliance with environmental regulatory standards in support of the site's best and highest uses.

### SDG Alignment



## Transformation Locations

● Alcoa owned ● Not owned



### North America

- 1. Arkansas (Bauxite Mine)
- 2. Badin (Smelter)
- 3. Copano (Bauxite Reside)
- 4. Fort Meade (Al Fluoride)
- 5. Longview (Smelter)
- 6. Massena East (Smelter)
- 7. Northwest Alloys (Magnesium)
- 8. Rockdale (Smelter) – *Not owned*
- 9. Tennessee (Smelter)
- 10. Troutdale (Smelter) – *Not owned*
- 11. Wenatchee (Smelter)
- 12. Intalco (Smelter) – *Not owned*
- 13. Point Comfort (Refinery)

### South America and Caribbean

- 14. Jamalco (Refinery) – *Not owned*
- 15. Poços de Caldas (Smelter)
- 16. St. Croix (Refinery) – *Not owned*
- 17. Suralco (Bauxite Mine / Refinery)

### EMEA

- 18. Fusina (Smelter)
- 19. Portovesme (Smelter) – *Not owned*

### Australia

- 20. Anglesea (Power Plant / Mine)
- 21. Point Henry (Smelter)
- 22. Hedges (Gold Mine)



## Addressing Community Concerns

We value opportunities for engagement with stakeholders in communities throughout our portfolio. During our remediation processes, the local community may ask questions or express an interest in learning more about the environmental integrity of a site. For example, at our site in Badin, North Carolina, we received inquiries regarding fluoride and cyanide discharges from site stormwater outfalls.

[Read more: Badin Business Park](#)

In response to these concerns, we made concerted efforts to increase our communication with local stakeholders, including holding community Q&A sessions and holding regular community meetings attended by a cross-section of community members who share the information provided with their networks. These engagements have enabled us to share the same information that was provided to regulators in a more accessible format for the community, demonstrating how Badin Business Park's discharges are within US EPA limits for fluoride in drinking water and do not contain any detectable levels of free cyanide.

Monitoring is ongoing and water samples are collected monthly from Badin Lake for analysis and early detection. We also continue working with the local community to maintain an open dialogue.

## Making Responsible Divestments

We understand that our portfolio decisions impact not only Alcoa, but also individual locations, communities and other stakeholders. That is why when divesting a location, 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.

Our sales agreements 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.

Read more in the [Due Diligence on CAPEX and M&A](#) section.

## 2023 Site Closure

Our Intalco smelter in Ferndale, Washington, was permanently closed following curtailment in 2020. The site's new owner, AltaGas, is considering a green hydrogen production facility utilizing renewable energy for the site.





# Innovation, Technology and Products

For over 135 years, Alcoa has been an innovator in alumina and aluminum production. Aluminum is, and continues to be, a critical material to everyday life, thanks to its superior malleability, resilience, lightness and recyclability.

## Innovating for Sustainability

Alcoa actively seeks to build strategic partnerships, innovation strategies and new product solutions that take advantage of and scale growth opportunities to utilize aluminum's unique properties. To support our aims, we work to gather feedback from our customers and other stakeholders and strive to incorporate their changing needs and expectations into our research and development (R&D). This includes an increasing emphasis on reducing GHG emissions and waste in our production process through innovation and new technologies.

Through our breakthrough technology development projects like ASTRAEA™, ELYSIS™ and the Refinery of the Future™, we are continuously innovating to reduce GHG emissions and waste.

To learn more about aluminum's recyclability, visit the Aluminum Association's website.

[Read more: The Aluminum Association](#)

SDG Alignment



# Technology and Risk Management

We work to manage technology and innovation risks by conducting risk assessments for all new projects. These assessments consider potential setbacks during the R&D phase and impacts related to the introduction of new technologies.

We also work closely with our customers and stakeholders by communicating our progress on new R&D. These communications and response plans help us manage expectations and minimize resulting risks from potential project delays or challenges.

Our continued focus on innovation means Alcoa is looking ahead to 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.



### CASE STUDY HIGHLIGHT

## Enhancing Workplace Productivity and Safety with Advanced Technologies

Our Deschambault smelter in Québec, Canada has been leading the way in R&D, with the goal of improving both worker safety and operational efficiency via a new robotics program.

[Read the full case study](#)



## Our Products

### Sustana™ Family of Products

We offer a comprehensive product portfolio made with lower carbon emissions with our Sustana™ line, which includes EcoSource™ alumina, EcoLum™ primary aluminum and EcoDura™ aluminum.

Our ASI certifications allow us to globally market and sell our Sustana line of products with third-party verification.

For additional information and data on Alcoa's Sustana™ line of products, visit our website

[Read more: Sustana™](#)

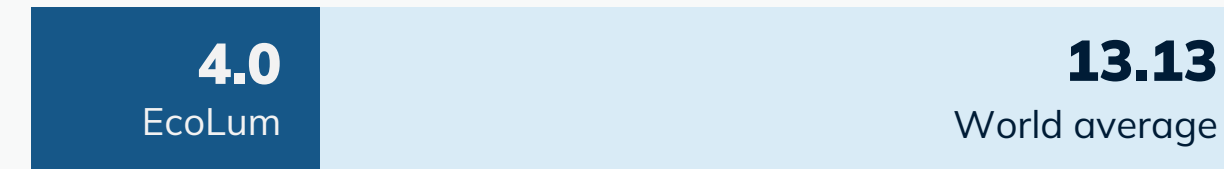


### EcoLum™

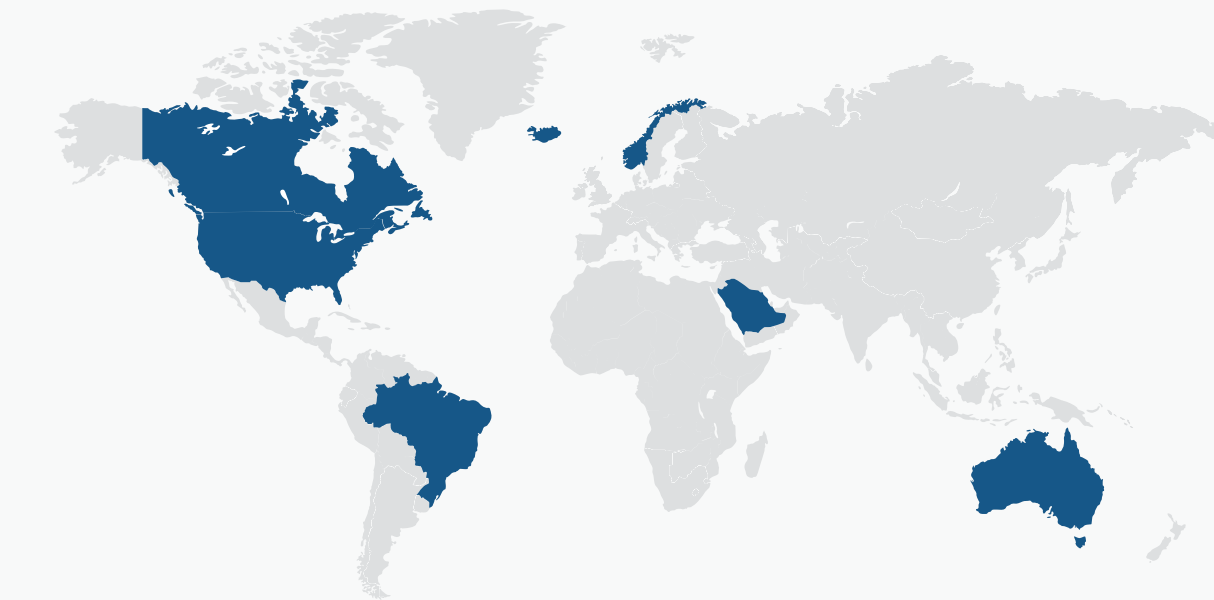
EcoLum™ is our primary aluminum produced from smelters that use renewable power, with an emission intensity of less than four metric tons of CO<sub>2</sub>e for every metric ton of aluminum, including both direct and indirect (Scope 1 and Scope 2) emissions across the full value chain, from bauxite mining, alumina refining, aluminum smelting and casting.

#### EcoLum™ Emissions Intensity vs. Global Average

Metric tons of CO<sub>2</sub>e/ton of aluminum<sup>1</sup>



#### Region of Production (Smelting)



<sup>1</sup> Source: CRU emission intensity data, 2023

#### CUSTOMER TESTIMONIAL



### Arruti Group

An Alcoa customer since 2015, Arruti Group is a market leader in the design, manufacturing and selling of hardware and accessories for power transmission and distribution lines.

[Read more: Arruti Group](#)

“At Arruti Group, we believe in a world where commitment to the environment starts with emissions reductions. Our association with Alcoa and our decision to buy EcoLum™ is enabling us to reduce the carbon footprint in our manufacturing and production processes, as well as helping our clients achieve their own decarbonization goals.”

— MIGUEL RIVERO  
General Manager

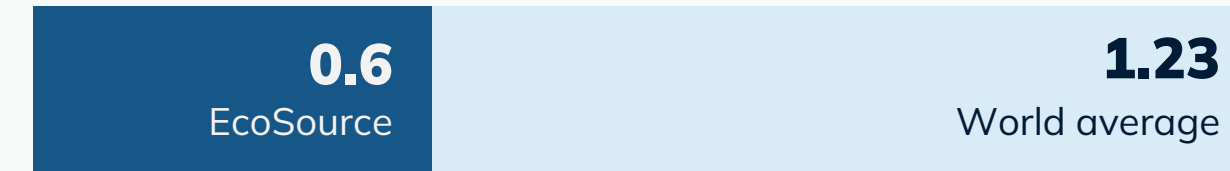
### EcoSource™

EcoSource™ alumina is lower carbon alumina offered in both smelter-grade and non-metallurgical grades. EcoSource is available globally and delivered from a refinery portfolio with an average emissions intensity that is no more than 0.6 metric tons of CO<sub>2</sub>e per ton of alumina produced, including both direct and indirect (Scope 1 and Scope 2) emissions from bauxite mining and alumina refining, leveraging Alcoa’s mine-to-refinery advantage.

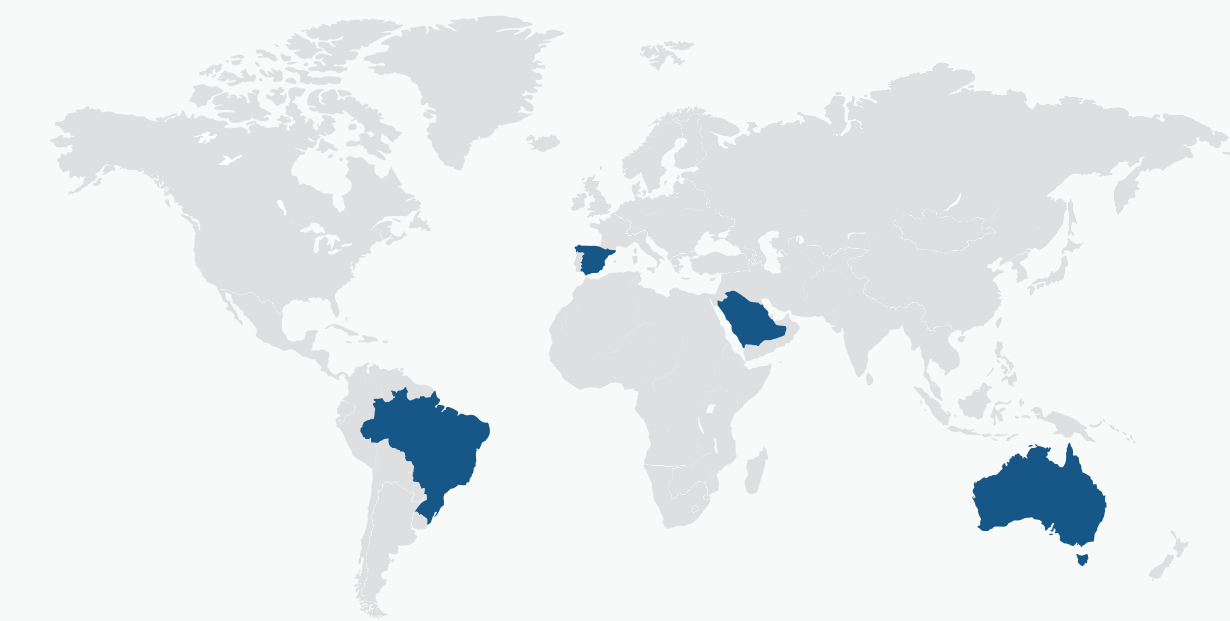
This year, we expanded our EcoSource™ line to offer non-metallurgical grades of lower-carbon alumina for use in municipal water treatment and the manufacturing of ceramic tiles, glass and flame-retardant materials.

#### EcoSource™ Emissions Intensity vs. Global Average

Metric tons of CO<sub>2</sub>e/ton of alumina<sup>1</sup>



#### Region of Production – Refining



<sup>1</sup> Source: CRU emission intensity data, 2023

### EcoDura™

EcoDura™, which is our aluminum that has a minimum of 50 percent pre-consumer scrap, helps to support the circular economy. Available globally, EcoDura is manufactured in North America and Europe using "clean" scrap, or scrap not previously used in further manufacturing.

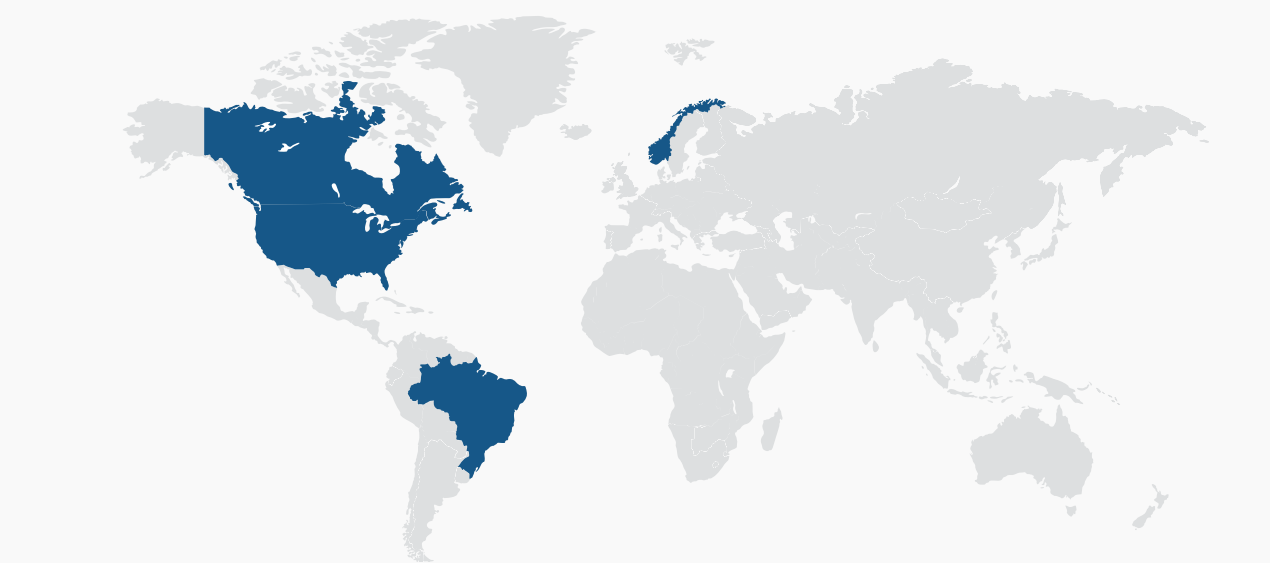
Read more in the [Circular Economy](#) section.

#### Average Recycled Content in Aluminum

Percent

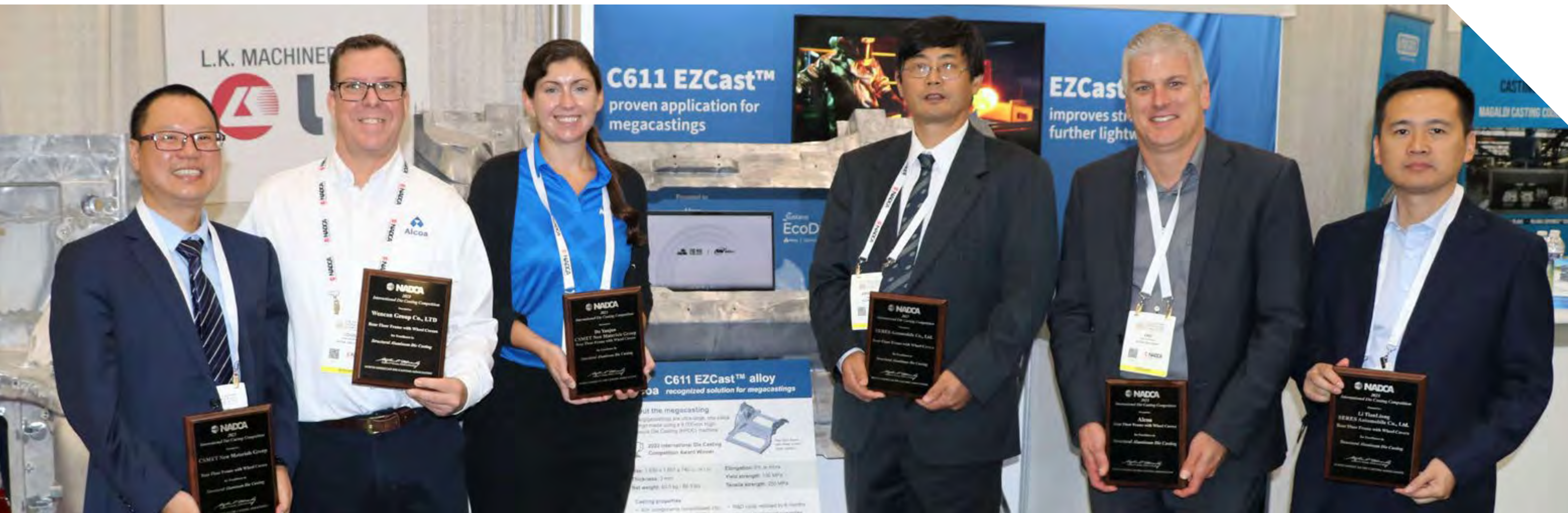


#### EcoDura™ Availability



<sup>2</sup> Source: IAI, 2021





## Advanced Alloys

In addition to our Sustana™ line of alumina and aluminum products, Alcoa has developed patented specialty alloys that are powering advances in the automotive, building and construction, electrical, industrial and transportation markets.

In the automotive market, Alcoa has developed alloys that offer a stronger alternative to traditional casting alloys, which are single-piece castings used for battery enclosures and vehicle frames. These alloys can be used for the production of megacastings. Megacastings are especially crucial for the transition to electric vehicles, which require technology improvements to offset the carbon footprint and the extra weight of electric batteries.

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 megacastings. The alloy reduces GHG emissions in production by not requiring dedicated heat treatment, creating added value by lowering manufacturing costs and increasing energy efficiency during the casting process.

[Read more: Alcoa Advanced Alloys](#)

**About the photo:** Individuals being recognized by the 2023 North American Die Casting Association. Left to right: Cheng Shuai (CSMET), Louis Gendreau (Alcoa), Amanda Beck (Alcoa), Xinyan Yan (Alcoa), Eric Bellemare (Alcoa) and Hu Bing (CSMET).

## Innovation Priorities

### ASTRAEA™

Our ASTRAEA™ scrap purification technology, a project under development, has the potential to process aluminum-based scrap to purity levels that far exceed most commercial primary aluminum smelters. If successful, it would offer the opportunity to use more post-consumer scrap for an even wider range of purposes.

### Refinery of the Future™

Our Refinery of the Future™ program aims to reduce the emissions generated from the thermal energy used in the refining process as well as reduce water usage. Refining is the third-largest contributor to the carbon footprint of aluminum after power and smelting. While still in the research and development phase, the Refinery of the Future™ is underpinned by technology that has or is in the process of being proven.

### ELYSIS™

Our ELYSIS™ technology partnership with Rio Tinto and Investissement Québec aims to eliminate direct GHG emissions and seven other by-products from the traditional aluminum smelting process. This technology involves replacing the carbon anodes used in traditional aluminum smelting with inert, proprietary materials to emit pure oxygen rather than CO<sub>2</sub> in the electrolytic process.

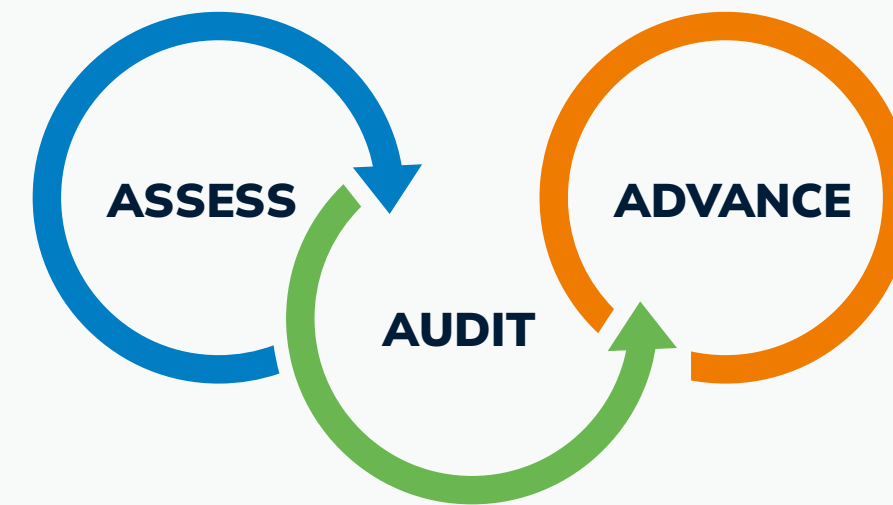
# Supply Chain Management

Our commitment to environmental and social sustainability extends beyond our operations into our supply chain. By encouraging and assisting our suppliers to adopt responsible, ethical and environmentally sound practices, we ensure mutual success. Our procurement approach aims to consider the full life cycle of the goods and services we procure. This is meant to reduce risk and improve the social and environmental impacts 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. Our approach is based on a continuous cycle of Assess – Audit – Advance.

[Read more: Responsible Sourcing Framework](#)



### Assess – Audit – Advance

All suppliers are mapped, screened and given initial risk ratings before proceeding to further due diligence by leading third-party providers. Select suppliers are audited to evaluate the severity and likelihood of identified risks. We work with suppliers to make targeted improvements, advance sustainability goals and protect human rights.

### SDG Alignment



Alcoa earned an **EcoVadis gold rating** in recognition of its responsible and sustainable business practices.

Our Responsible Sourcing Framework rests on the following pillars:

- ✓ Our Values.
- ✓ Our value proposition to customers, shareholders, investors and other stakeholders to provide responsibly sourced products.
- ✓ Our voluntary commitments, including those aligned with ASI, ICMM, the London Metal Exchange (LME) and the SDGs.
- ✓ Our regulatory compliance policy applicable in all the regions where we operate.

➤ [Read more: Our Values](#)

The Framework is implemented through our Responsible Sourcing Program, which consists of a series of internal guidelines and tools to inform internal decision-making. It also guides our engagement with suppliers through our Supplier Sustainability Program.

We use EcoVadis Ratings audits and our Supplier Site Collaboration (SSC) program to conduct supplier due diligence. We also use external benchmarking by organizations including EcoVadis, World Wildlife Fund, Monash University and the Dow Jones Sustainability Index (DJSI) to identify risks and evaluate the effectiveness of our program.

Please refer to the [2023 Alcoa Data Book](#) for information regarding supplier performance indicators.

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



## Supplier Audit Highlights

Percentage of 907 suppliers who have completed EcoVadis Ratings assessment

**56%**

have an active whistleblower procedure

**42%**

are taking action to promote diversity

**72%**

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

**10,044**

suppliers assessed

**321**

identified as higher risk

**51%**

of Alcoa's annual spend represented by 907 audited suppliers

**52.1**

average Alcoa supplier score (vs. 45.9 average EcoVadis score)





## Human Rights in Our Supply Chain

The complex and global nature of our business requires that we make a concerted effort to detect, address and prevent human rights risks within our supply chain. In 2022, Alcoa enhanced our Responsible Sourcing Program with increased focus on human rights and social performance within our supply chain.

A key area of focus in 2023 was our SSC program. Initiated in 2022 and implemented in 2023, this field audit program helps us engage collaboratively with our suppliers on all aspects of ESG performance, with a particular focus on human rights. We use the program to help our suppliers identify ways to strengthen their ESG due diligence and performance, thereby advancing Alcoa's supply chain transparency and human rights compliance.

Our trained internal auditors carried out the collaborations using an independent expert. This was supplemented with the Collaboration Framework and checklists developed in partnership with a third-party consultant. Our intent is to support the development of our supply chain ESG maturity, identify leading and innovative practices and uncover any evidence of modern slavery or poor human rights practices within our supply chain.

In 2023, to support the implementation of the SSC program, we expanded the participation criteria requirements of our third-party audit program, resulting in more suppliers undertaking the assessment during the year and more suppliers becoming eligible to participate in the SSC program. Eligibility is based on the following criteria:

- An audit score below 25 in the Labor and Human Rights section.
- Suppliers in industries at high risk of modern slavery.
- A negative human rights finding.
- Nomination by an Alcoa representative.

Our human rights assessments continue to be informed by the EcoVadis 360° Watch program. This program provides ongoing monitoring of our supply chain for positive and adverse media, including sanctions screening.

Please refer to the [2023 Alcoa Data Book](#) for additional supply chain data and information regarding Alcoa Suppliers Year-on-Year Performance.

## 2023 SSC Outcomes

Responsible sourcing performance indicators



### SSC Potential Red Flags

- Employees of on-site industrial maintenance suppliers were unaware of the grievance procedure.
- Suppliers were unfamiliar with available reporting channels.

### Remedy

- ✓ Corrective action plan to establish and implement communication and awareness strategy for employee grievance mechanism.
- ✓ EcoVadis Academy training – Introductory course and Labor and Social Practices Module.

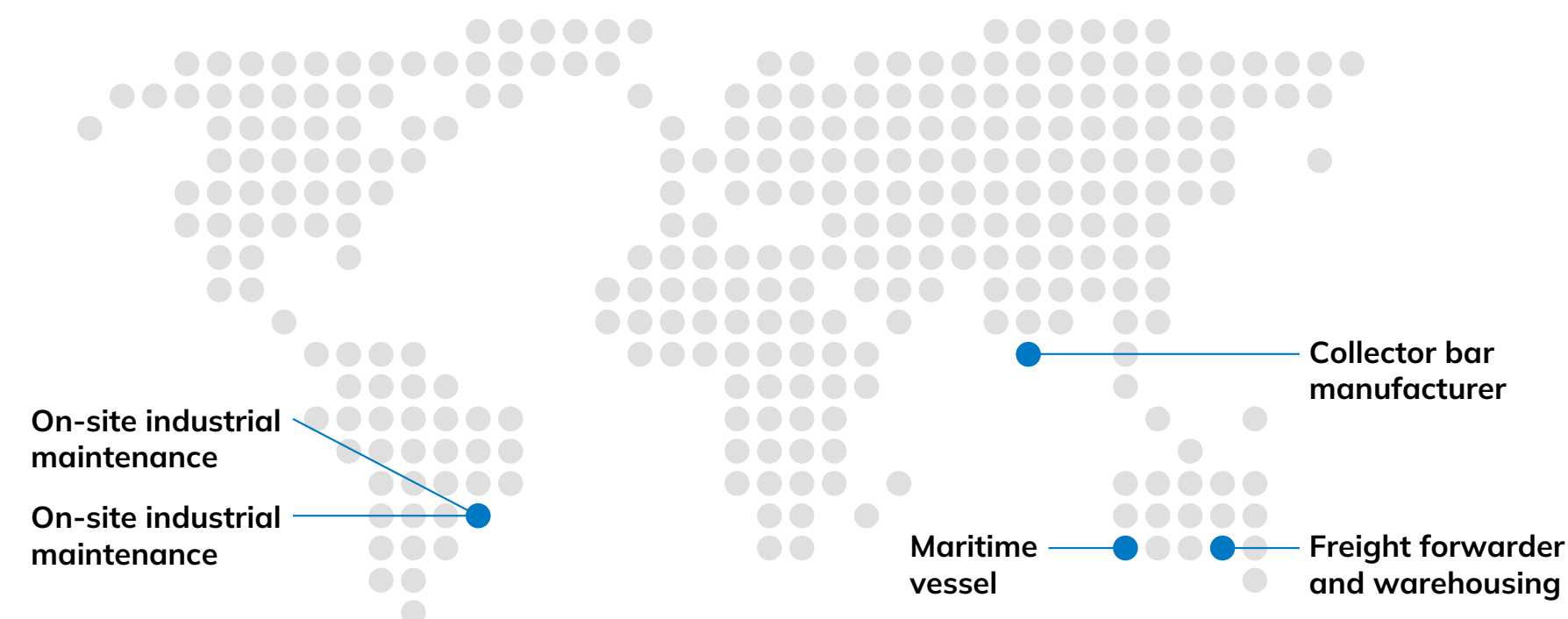
## 2023 Supplier Site Collaboration Program Key Findings

- In-person collaborations facilitate greater transparency and trust.
- Social accountability training provided our auditors with the necessary competence to conduct effective collaborations.
- Employee and subcontractor interviews provided the greatest insights into supplier activities, especially if translation is facilitated where needed.
- The use of technology in incident reporting was found to eliminate hierarchical and language barriers.
- Marine surveyors are key to understanding vessel operations and global requirements and present an opportunity to establish regular check-ins.
- Maritime collaborations and commercial arrangements require their own approach due to the unique nature of the industry.
- Suppliers valued the feedback and guidance on how to improve their audit scores.

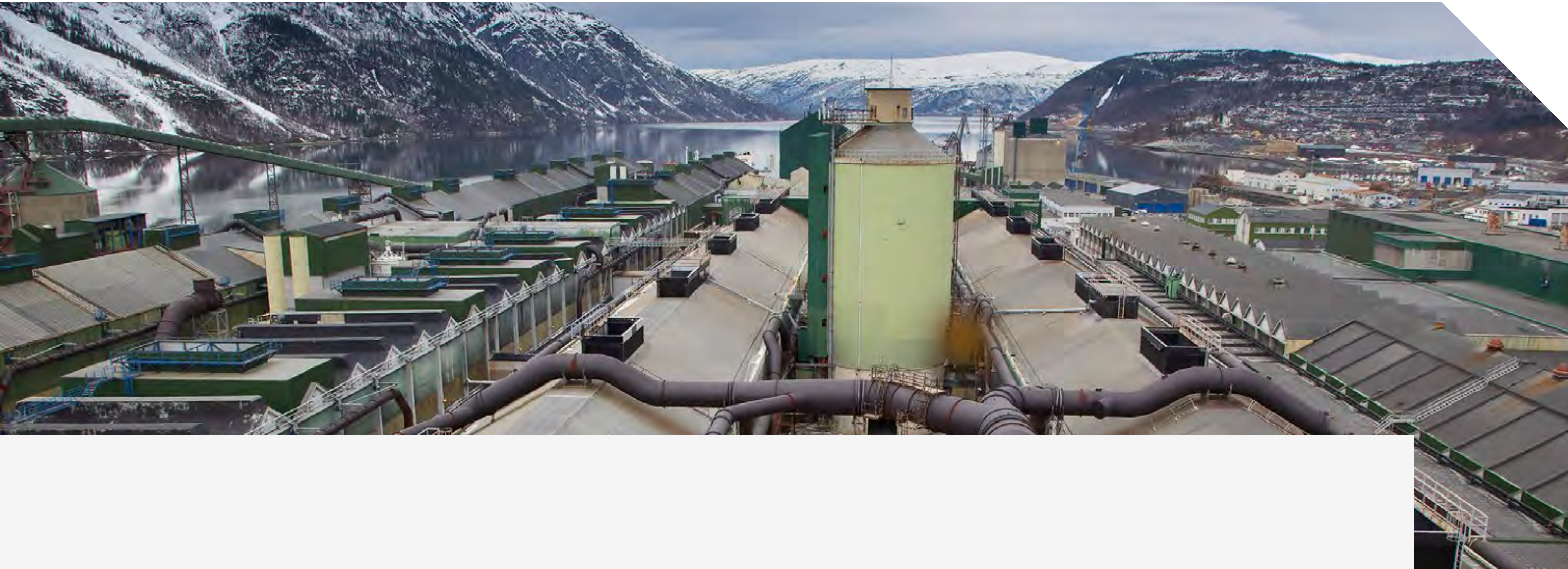
### Labor Rights Controversy Management

In 2023, the EcoVadis 360° Watch program did not identify any severe human rights controversies in our direct supply chain. However, the platform identified a human rights issue related to the business practices of a supplier in an unrelated sector. Alcoa engaged with this supplier to comprehensively assess the concern, exploring both the investigative steps taken and the corrective measures proposed. Furthermore, Alcoa undertook an internal review to ascertain whether analogous risks existed within our supply chain. No comparable risks of forced labor were found as a result.

### 2023 SSC Supplier Location and Industries



In 2024, we aim to increase supplier collaborations and to continue implementing changes to our systems based on the valuable lessons learned from these engagements.



## Supply Chain Inclusion and Diversity

Our commitment to advance inclusion and diversity also applies to our supply chain. Our partnership with TealBook makes it easier for diverse suppliers to share their information with us and for us to identify and reach out to more diverse suppliers, particularly from underrepresented or underserved groups.

This year, we made progress on several new initiatives related to supply chain inclusion and diversity. 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 and diversity. This working group meets at regular intervals to share ideas and collaborate on best practices and continuous improvement.

▶ [Read more: Supplier Diversity and TealBook](#)

Please refer to the [2023 Alcoa Data Book](#) for information regarding supplier diversity.

## Supply Chain Impacts on Biodiversity

We have begun to evaluate the potential and actual impacts our supply chains have on biodiversity. Our first step was to identify the industries in our supply chain that have potentially significant biodiversity impacts by leveraging EcoVadis IQ, which categorize impacts based on high or medium significance. As a result, we are taking preliminary steps to address these impacts. These steps include:

- ✓ Helping suppliers identify risks and opportunities for improvement by conducting a third-party audit.
- ✓ Identifying suppliers who operate in areas with significant biodiversity risks.
- ✓ Identifying suppliers whose supply chains contain elements sourced from ecologically sensitive areas or areas of significant deforestation.
- ✓ Partnering with suppliers to undertake biodiversity training.
- ✓ Upon completion of our impact assessment, we plan to develop guidelines and measures to reduce supply chain impacts on biodiversity.

We recognize that building responsible and sustainable supply chains takes time, careful consideration and joint effort with our suppliers. We intend to continue working with our suppliers to help them advance their sustainability goals. Together, we can reduce risks to our operations while improving lives and livelihoods across the world.

# 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. We aim for our commercial investments to support our operational success and result in positive outcomes for employees, communities and the environment.

## Capital Expenditure

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 improve workplace safety, save water, reduce emissions and minimize our operational footprint.

When identifying new projects, we conduct due diligence and establish a sound business case that complies with our Capital Management Standard. Beginning in 2020, we carried out an extensive internal consultation process across Alcoa's sustainability and capital management teams to better connect capital projects with Alcoa's long-term sustainability goals. As a result, we incorporated four new criteria into our capital management process: bauxite residue and land use, carbon emissions, water consumption and waste generation.

### CAPEX Initiatives in Western Australia

In 2023, our CAPEX team oversaw several initiatives aimed at reducing water usage, advancing land rehabilitation efforts and reducing air emissions. For example, we continued developing the Pinjarra Refinery Residue Filtration infrastructure project in Western Australia. This project will enable Alcoa to utilize innovative residue filtration technology that significantly reduces water consumption and storage area requirements compared to the traditional method of solar drying bauxite residue. It is the fourth of its kind across Alcoa's operations and is expected to reduce water intake by around one gigaliter (one billion liters) per year, equivalent to 400 Olympic-sized swimming pools.

In alignment with our strategic long-term goal to rehabilitate more land than we are disturbing, our CAPEX team is working to support our rehabilitation efforts through the acquisition of mobile equipment. The addition of bulldozers to our fleet is allowing the land rehabilitation team to accelerate their activities in Western Australia.

#### SDG Alignment



## Mergers and Acquisitions

We seek to make informed M&A decisions that 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. These include assessing employee working conditions and well-being, tax and legal compliance, reports on pollutants and residual impacts and historical communications with communities, stakeholders and government agencies.



### Environmental and Social Impact Assessments

When considering any new facilities or expansions, we conduct an ESIA to meet local regulatory requirements and to identify potential risks and opportunities. This process involves significant stakeholder engagement and the assessment's results are made available to the public.

Alcoa has internal procedures and tools to evaluate environmental and social impact when considering significant changes to existing projects, such as a Project EHS Review (PEHSR) that covers environmental and social aspects for capital projects.

We use our **Social Management System** to improve how social impacts are considered in project design and decision making, including a specific social impact assessment. We also have an Environmental Management System and EHS due diligence procedures for all new projects. Certified to ISO 14001 standards, our Environmental Management system is routinely reviewed according to ISO requirements.

[Read more: Alcoa Sustainability Policies and ISO Certifications](#)

# Political, Regulatory and Economic Uncertainty

Political, economic and regulatory changes have the potential to impact our business. As such, we work to continually assess and manage related risks and work with external stakeholders to shape potential changes and manage Alcoa's preparation efforts.

## Government Engagement

We have an in-house team that tracks legal and regulatory changes and is actively involved in policy discussions. This work is done from local to global levels.

In 2023, we engaged with government and regulatory officials in all our operating regions. Besides providing regular updates on top issues and emerging risks, our public policy advocacy efforts focused broadly on trade, climate and energy. Alcoa supports the principles of free and fair trade. Our advocacy and engagement support the climate targets set in the Paris Agreement. We support legislation and public policy to encourage the development of affordable and reliable low carbon energy needed to support industrial operations.

## Local and Regional Engagement

We actively engage with local and regional governments in countries where we operate. This includes regular dialogues, consultations and partnerships.

Our aim is to understand local priorities, regulatory frameworks and community needs. We work closely with our counterparts to address concerns and collaborate on sustainable solutions.

## National and International Engagement

At the national and international levels, we participate in industry associations such as the Aluminum Association and the International Aluminium Institute (IAI) among others. (See [Appendix F](#) for a list of associations).

Our collective participation in legislative forums provides us the opportunity to inform and enhance new policies, as well as address regulatory concerns.

SDG Alignment





## Monitoring and Evaluation

In addition to our policy engagement efforts, we risk assess possible policy changes and industry trends to understand how they may impact our operations or markets. This information allows us to proactively adjust our activities across our business and communicate with relevant stakeholders.

[Read more: Policy Advocacy Disclosure](#)



# ESG Transparency and Disclosure

Alcoa has a long legacy of ESG transparency and disclosure. Alcoa was among the first in our industry to announce strategic long-term goals related to emissions, water and waste. We work to transparently report our ESG progress to maintain trust with our stakeholders.

## Disclosing Our Impact

We work to align our sustainability approach with internationally recognized standards and commitments such as GRI, SASB, the SDGs, ICMM performance principles and ASI standards.

➔ [Read more: GRI, SASB, SDGs, ICMM performance principles and ASI standards](#)

For more information about our alignment with these standards and frameworks, see [Appendix C](#). Alcoa is an active member in several associations and initiatives. View the list of memberships in [Appendix F](#).

To encourage the adoption of best practices, Alcoa actively participates in industry standard setting. For example, as a member of ICMM and ASI, we actively contribute to the continual revision of each of their performance standards.

We also engage with ESG ratings agencies and investors regularly to understand how their expectations are changing and enhance our disclosures to reflect those expectations.

### SDG Alignment







## Aluminium Stewardship Initiative

As a member of ASI, Alcoa is required to adhere to a set of 59 sustainability principles within the ASI Performance Standard. So far, we have certified 18 of our sites to the Performance Standard, including one new certification issued in 2023 for our Portland smelter.

In the last year, ASI released Version 3 of their Performance Standards, increasing the requirements for certification to 62 principles.

At the end of 2023, two Alcoa sites were certified against this latest version of the standard: our Lista smelter in Norway and San Ciprián refinery in Spain. Alcoa Corporation’s global headquarters was also recertified to Version 3 of the Performance Standard. In addition to the Performance Standard certifications, Alcoa has Chain of Custody certifications to globally market and sell ASI-certified bauxite, alumina and aluminum.

We also underwent two follow-up audits against Version 2 of the Performance Standard in 2023. These follow-up or surveillance audits are typically conducted 18 months after certification to ensure ongoing conformance. The audits were conducted at our Juruti and Poços de Caldas sites in Brazil.

## International Council on Mining and Metals

Our membership with ICMM requires us to meet their requirements for sustainability performance.

[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 Performance Expectations (PE). We developed our approach to self-assessment to comply with both ICMM and ASI requirements, optimizing our process to better meet each standard. 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 ICMM PEs not fully covered by the ASI Performance Standard.

By integrating the ICMM validation process with ASI certification, we finished the year with four locations completing their ICMM validation in addition to ASI certification audits: Lista, San Ciprián, Juruti and Poços de Caldas.

Overall, the results demonstrated that all of our operating locations met 93 percent of the applicable PEs. The remaining seven percent of PEs were partially met. These remaining PEs include:

- Environmental performance
- Biodiversity and water management
- Responsible production
- Local economic opportunities
- Stakeholder 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.

Please refer to the [2023 Alcoa Data Book](#) for additional information regarding PE compliance.

## 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 indicators to measure and compare mining companies' contributions to social and economic development. For the first time, Alcoa is reporting against this framework and we are eager to show how these indicators play a crucial role in monitoring our progress toward our recently adopted strategic long-term goal in skills development.

Please refer to the [2023 Alcoa Data Book](#) for additional information regarding the Social Economic Reporting Framework which outlines Alcoa's performance across the framework's various reporting categories.

## Certification and Assurance

As part of meeting our commitment to transparency with our stakeholders and adhering to ICMM and ASI standards, 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.

### 2023 Topics with Limited Assurance

- GHG emissions
- Energy consumption
- Water withdrawal, consumption and discharges
- Hazardous and non-hazardous waste
- Active mine disturbance and mine rehabilitation
- Occupational health and safety
- Community complaints raised through local grievance mechanisms
- ICMM Social and Economic Reporting Framework social investment metrics
- ICMM Subject Matters one to five

Specific details and limitations of 2023 metrics and issues that received limited assurance are outlined in the Limited Assurance Statement in this report's [Appendix D](#).





## Social

# Our People and Communities

**44** Health and Safety

**49** Local Commitment with Communities

**57** Human Rights

**59** Indigenous and Land-Connected People

**61** Inclusion, Diversity and Equity

**65** Talent Attraction, Retention and Development

# Health and Safety

Across our global operations, robust safety is central to everything we do. We actively work to foster a safety culture that strives for living our Alcoa values especially caring for people.

## Managing Health and Safety

Sustainable EHS management systems are the cornerstone of our efforts to protect and care for our people and the host communities we work in. Our safety culture is supported by robust risk management framework and consistent operational leadership. Our ongoing safety training and communication underpins the work of our employees and contractors. Through these combined efforts, we aspire to prevent incidents before they result in injuries, illnesses and/or environmental damage.

[Read more: Alcoa's EHS Policy](#)

For additional information on Alcoa's environmental impact, see the [Environment](#) section.

## Health

As part of our EHS Center of Excellence, Alcoa's global health team identifies our organizational priorities and develops strategies and standards relating to occupational health and hygiene.

In addition to the health team's focus areas, the team also develops, maintains and governs our global standards for occupational health and hygiene and provides specialist knowledge and coaching to regional and location-based stakeholders and medical teams.

### Health Team Focus Areas

- ✓ Preventing occupational diseases
- ✓ Eliminating and controlling health hazards
- ✓ Monitoring the health of workers
- ✓ Providing treatment and rehabilitation services for injury or illness
- ✓ Supporting worker well-being
- ✓ Considering impacts to the health of our host communities by our operations
- ✓ Conducting quantitative exposure assessment of workers who are exposed to physical and chemical agents



## Prioritizing Health

As a global company, we understand that injury and illness impact not only our employees but also their families and communities. That is why we work to actively identify and prevent occupational diseases, many of which can take decades to develop. Our approach focuses on eliminating or controlling health hazards. Our medical surveillance program also periodically monitors our employees for acute and long-term health risks and helps us assess effectiveness of our controls.

We have developed a four-pillar framework for maintaining employee health, underpinned by a suite of internal policies and standards.

[Read more: Alcoa's EHS Policy and Health Hazard Controls](#)

### Employee Health Framework

Health Hazard Controls

Community and Public Health

Personal Health and Well-being

Health Status and Fitness for Work

## Worksite Wellness

In 2023, we published a new Fatigue Management Standard, which follows a risk-based approach and requires locations to implement preventative and mitigating controls such as rosters and work design as well as fatigue detection technology.

We also continued our Good Work Design (GWD) program across all sites. It aims to redesign our most physically demanding roles to reduce injuries and increase job satisfaction. In 2023, we launched the GWD online portal, shared 43 best practices, reassessed 123 job roles, held four global online town hall meetings and launched four engineering and automation solutions addressing workplace hazards. Since 2021, the program has redesigned 34 physically demanding job roles, reducing them to a low or medium rating.

In 2023, we implemented numerous local exhaust ventilation systems, noise controls and assessed exposure to heat and deployed physiological monitoring in high risk locations.

## Mental Health and Well-being

We have identified psychosocial risk management as a priority. Our efforts align with new global trends seeing mounting expectations of 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 release of the ISO 45003 standard for psychological health and safety at work.

In response, our initial priority was to work with our locations impacted by the new legislation. In 2024, we aim to expand our focus by developing a global strategy that incorporates psychosocial risk management into our existing standards and provide education and training for our employees and leaders. These measures aim to raise awareness about this critical aspect of EHS and continue supporting physical and mental well-being.

# Safety

We promote a global safety culture that starts with our leadership and cascades throughout our global operations. 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 ensure we prevent fatalities and mitigate serious injuries and incidents.

In 2023, we continued reviewing and updating our safety standards and critical controls as part of a comprehensive process that began in 2022. These updates include making the standards more user friendly, as well as creating posters and videos to promote learning and application of critical controls at our locations.

## Working to Eliminate Fatalities

Fatality risk management is a fundamental element of our EHS system. In 2023, we updated and reformatted our Fatality Risk Management standards, including more accessible language to make it easier for employees and contractors to understand and implement our critical controls.

As a result of these and other efforts, we have seen an improvement in our safety performance in high-severity and fatal incidents over the last five years. Since 2018 we have had three or fewer life-altering or life-threatening incidents per year. Unfortunately, one of those incidents was a fatality of a contractor at our Poços De Caldas facility in 2020. We continue to work toward improving our safety performance year-over-year by fostering trust in our procedures and controls and by promoting a universal safety culture that is inspired by our leadership.



### EMPLOYEE SPOTLIGHT

## Louis-Pierre Clément, Operations Manager

At Alcoa, we are always looking for opportunities to acknowledge excellence in EHS. One team member who regularly shows a commitment to making his facility a safer place to work is Louis-Pierre Clément, Operations Manager at our Warrick site in Indiana.

Since he started with Alcoa in 2009, Louis-Pierre has been an EHS champion. When asked what excites him about his work, he replied, “working with my team to make Warrick a safe, sustainable and stable workplace.”

In 2023, Louis-Pierre supported the Warrick team in taking a major step forward in safety, environmental compliance and stability. The Warrick team worked together to bring two production lines back to full capacity and started a third line, all while continuing to prioritize

safety and stability in the workplace. During this process, the team reviewed the organization to have safety support in each of the departments. They also revamped their fatality prevention team and implemented new engineering controls in areas identified as having additional risks. In addition, the facility’s EHS team implemented a new notification system for when incidents happen to ensure actions are taken right away and investigations are triggered.

Maintaining a consistent level of safety while making substantial changes to a work environment is not easy—it takes dedication from all members of the team, as well as commitment from managers like Louis-Pierre to lead with a safety-first approach. We commend the entire Warrick team for working collaboratively to make the facility a safer place to work.

## Injury Prevention

We understand that safety is not merely the absence of incidents and injuries; it is the implementation of effective controls that prevent and mitigate incident outcomes. Our safety teams continually analyze our global operations for incident and injury trends at specific locations or in particular job roles. If necessary, they implement injury reduction plans utilizing safety controls, training, programs, work design and campaigns.

In 2023, our fatality and serious injury/illness potential (FSI-P) rate was 1.07 incidents per 100 full-time workers, which was a 8.08 percent increase compared to 2022.

The final safety performance data at the end of 2023 indicated a days away, restricted or transferred (DART) rate of 0.58, which can be seen in the DART table and was reported in our 2023 Annual Report.

[Read more: Alcoa 2023 Annual Report](#)

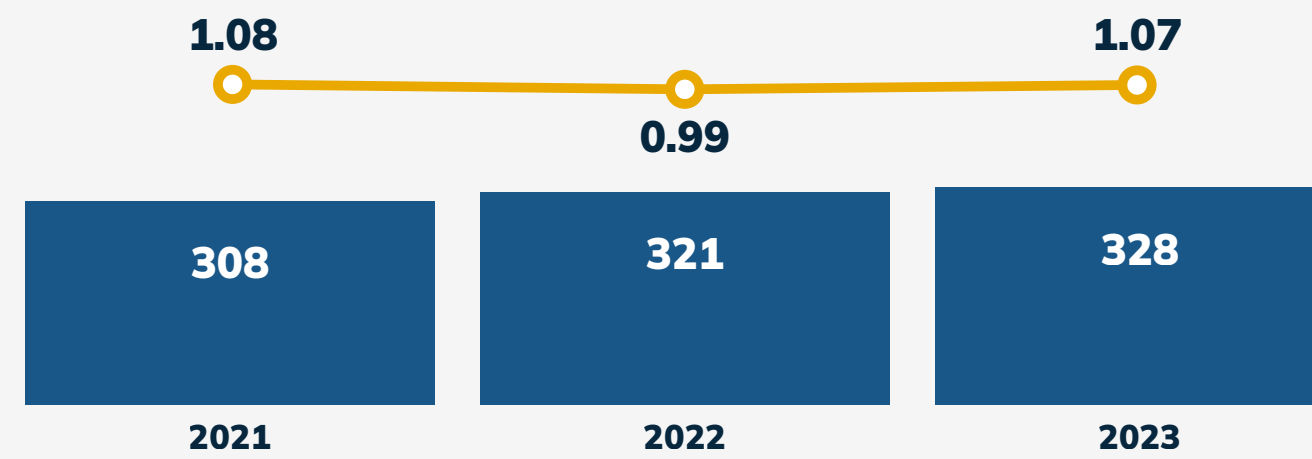
In early 2024, Alcoa made improvements to our identification and classification of work-related musculoskeletal injuries (MSDs). As part of this work, MSDs in 2023 were reclassified; these injuries were not reclassified for 2022, or 2021, due to inconsistent records. Most cases were not severe, but reclassification 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 the 2022.

The adjusted DART incidents have been subject to independent limited assurance by ERM CVS.

### FSI-P

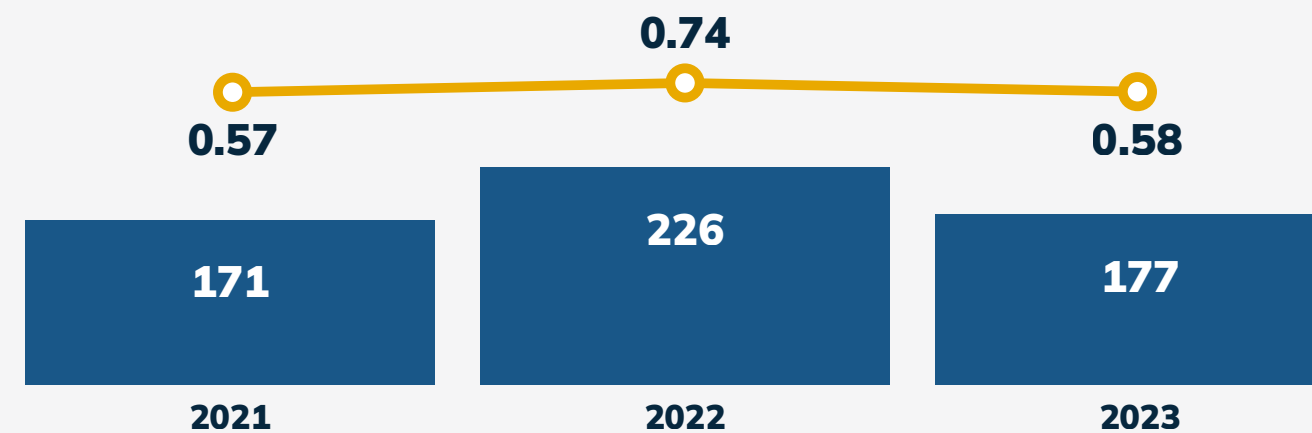
Fatal or Serious Injury – Potential

● Rate per 100 full-time workers  
■ Total for all employees and contractors

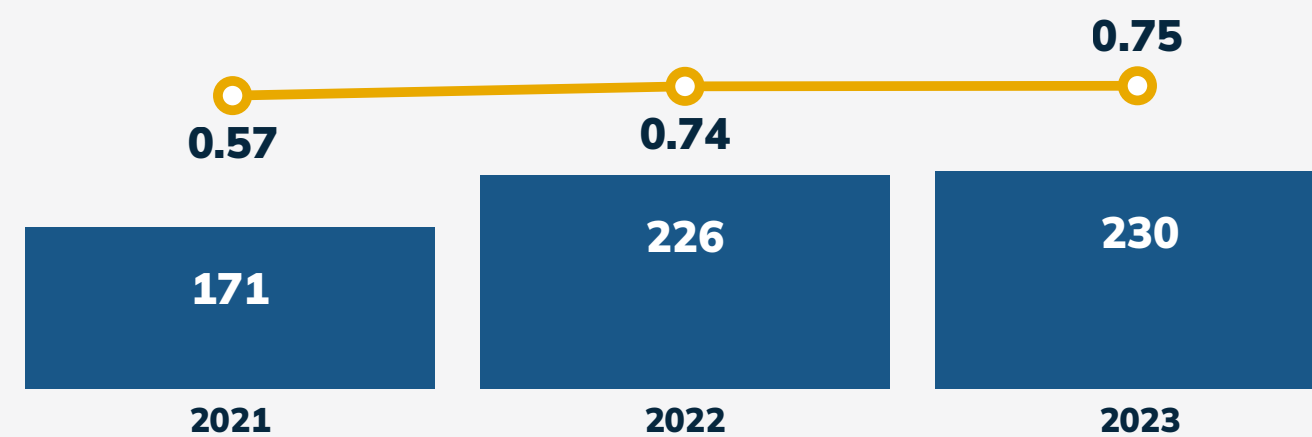


### DART

Days Away, Restricted or Transferred



### DART – MSD Reclassification



#### CASE STUDY HIGHLIGHT

## Improving Process Safety and Organizational Culture

Alcoa's EHS team has been working hard to improve how we prevent, identify and address safety risks across the company. This year, their work included creating a tailored, best in class Process Safety Management standard.

[Read the full case study](#)

There is always progress to be made to improve incident and injury reduction, including addressing this increase in our DART rate. Each location has an injury reduction plan to reduce injury frequency and severity based on site-specific contexts and risks. Approximately 80 percent of FSI-Ps are injury-free events that we encourage our locations to report and analyze to prevent and mitigate future events, with DART-level events being a major focus. Each location evaluates their top FSI risks and works toward improving critical controls that prevent and mitigate the severity of events. Focus areas were created to drive various safety initiatives, including:

Focus areas were created to drive various safety initiatives, including:

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

## Contractor Safety

Our OneAlcoa safety approach applies to all temporary workers, contractors and visitors, not just our employees. We also run contractor-specific safety programs with customized safety and prequalification requirements. Our contractor management procedure applies before personnel arrive on site and they must complete an onboarding process before starting work. These measures are meant to help everyone, including site visitors, return home safely.

## Employee Engagement

We have formal and informal avenues for consultation and feedback on EHS issues. This feedback is critical as it allows us to identify prevention opportunities. Elected EHS delegates or employee representatives assist with escalation and resolution of issues, facilitate communication and relay employee input on EHS initiatives and practices. There are also regular formal meetings between EHS delegates/representatives and management at each location.

Please refer to the [2023 Alcoa Data Book](#) for information our safety performance.



## Preventing Chemical Burns

We implemented a company-wide initiative during the year to improve the prevention and management of chemical burns after a series of incidents occurred at our Pinjarra, Kwinana and Wagerup refineries in Western Australia.

Our global standard for chemical burns was revised to include additional requirements for preventing loss of containment during our refinery processes, improved controls for preventing contact with chemicals and specific personal protective equipment (PPE) requirements. In addition, the response and medical treatment protocols for chemical contact were reassessed to optimize outcomes after an injury occurs. This involved benchmarking our existing internal medical practices for the first aid, treatment and referral pathways of chemical burn injuries.

Ultimately, we released a new standard along with updated protocols and training materials. In 2023, efforts to reduce chemical burns resulted in a 37 percent reduction in chemical injuries across our Western Australian operations.

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.



# Local Commitment with Communities

Throughout our long history, Alcoa has strived to cultivate strong ties with its communities. Community engagement is crucial to maintain our license to operate. Our efforts go beyond compliance with regulations and encompass broader social expectations and responsibilities.

## Social Performance Management

We continuously adapt our social performance and community engagement practices to address the changing needs and expectations of our stakeholders. In 2023, we decentralized our efforts and assigned the responsibility for managing social performance to our sites.

Our social performance teams engage with stakeholders at our locations on various subjects—from biodiversity to water management and climate change, to procurement and human rights. Our comprehensive social performance management system, known as SP360, allows us to obtain global data to measure our performance and track progress against our goals. In 2023, we continued our journey toward full implementation and use of SP360, ensuring it is embedded in the way we work.

### Social Performance Priority Areas

Our relationships with Indigenous communities, including concerns around the preservation of cultural heritage

The social impacts of our impoundment management and our implementation of the GISTM

Ongoing implementation of our social performance standards and requirements

#### SDG Alignment



## Stakeholder Engagement

All of our locations have engagement processes in place to address the social, environmental, cultural and economic issues that are most important to our key stakeholder groups, including our host communities. We interact in a number of different ways including one-on-one, small groups, community forums and more.

[Read more: Key Stakeholder Groups](#)

### Addressing Stakeholder Concerns in Western Australia

In 2023, concerns were raised by stakeholders in Western Australia regarding certain aspects of our operations (see our [Stakeholder Issues table](#) for more information). In consideration of the concerns raised and the feedback we received, we are working to create opportunities for more thorough and direct engagement to give our stakeholders greater confidence in our operations and easier access to information about our current and future activities.

We are taking steps that we believe will make us even better partners and contributors. These include increasing opportunities for nimble community engagement, creating a new community consultation network, opening up pop-up offices and creating a new community relations advisor role.



In 2023, Alcoa continued to seek meaningful interactions with our stakeholders. Our engagements took place in a variety of ways; from direct one-on-one interactions to community consultation forums involving a cross section of local representatives. Through transparent and regular engagement, we hope to strengthen our relationships with the communities in which we operate.

Stakeholders always have access to our confidential Integrity Line (see [Ethics and Good Governance](#) section) and grievance mechanisms to raise concerns and complaints and to receive responses and remedies.

In 2023, there was a significant increase in the number of complaints received at our Juruti operation in Brazil. The historically low water levels in the nearby river required dredging work to alleviate the impact on shipping operations. This required closing the harbor which affected other waterway users.

The remaining complaints received in 2023 were primarily due to noise and dust generated by our operations. The majority of these concerns were promptly addressed and resolved and the others are under evaluation or have action plans underway.

For a list of key issues raised by or discussed with stakeholders in 2023, including the concerns raised by the Juruti community, please see the Stakeholder Issues table in [Appendix E](#).

### Community Concerns Raised through Local Grievance Mechanisms in 2023

**115** Australia **8** Europe

**245** South America **2** North America

We are working to improve our complaints and grievance procedures to ensure that stakeholders are familiar with the opportunity to provide feedback.



#### EMPLOYEE SPOTLIGHT

### Stacey Holmwood, Community Relations Advisor

Meet Stacey Holmwood, a member of our Community Relations team in Western Australia. Stacey is our boots on the ground, providing opportunities for improved communication and engagement with members of communities near our proposed future mining operations.

Over the last year, Stacey has been instrumental in new community engagement efforts including weekly pop-up offices and a monthly community consultation network, which discusses the proposed Myara North mining region. With her support, we have seen a growing interest in understanding Alcoa's operations and greater opportunities for meaningful discussions and feedback.

By actively listening, taking initiative and addressing issues, Stacey is working to cultivate genuine and respectful relationships in the communities where we work.

“I am humbled to work among environmentally and socially conscious colleagues who use their skills and knowledge to help ensure Alcoa operates responsibly. By emphasizing listening, engagement, reliable information and action, I believe Alcoa can align with community standards and successfully coexist with our neighbors.”

# Shared Value Creation

Our goal is to grow and thrive side-by-side with our host communities. Shared value creation can take many forms but the objective is that our operations will add lasting value to our local communities. We do this by providing employment and training opportunities, buying goods and services from local and regional suppliers where possible and investing in communities so they can build long-term capacity and resilience.

## ICMM Social Economic Reporting Framework

One way we can hold ourselves accountable to our shared value commitments is by tracking and reporting on our social performance in accordance with the new ICMM Social Economic Reporting Framework. This best practice framework, introduced in 2022, is designed to provide stakeholders with transparent, consistent and comparable data on the contributions of mining companies to social and economic development in the regions where they operate.

[Read more: ICMM Social Economic Reporting Framework](#)

In 2023, we began reporting on our performance in seven of the eight core indicators of the ICMM Social Economic Reporting Framework. (See [Appendix C](#)). These include workforce composition, pay equality, wage level, capacity and institutions, training provided, local procurement and education and skills.

## New Goal for Skills Development in Local Communities

In 2023, we introduced a new long-term sustainability goal related to furthering skills development within local communities. We see skills development as one of the best ways to empower individuals by helping them have better control over their lives, achieve their goals, develop resilience to cope with adversity and to fully participate in economic activities. By facilitating access to training opportunities, we also hope to assist in the development of a more skilled workforce in the communities in which we operate.

This new skills development initiative is split into two funding areas: Education and Skills Development and Capacity Building for Public Institutions and NGOs. Both are open to individual participants and external training and development programs. In its first year alone, the initiative's total investment across the two key areas neared US\$4.1 million.

### Skills Development Goal 2023 KPIs

	Education and Skills Development Programs	Capacity Building for Public Institutions and NGOs	Total
Number of Beneficiaries	10,965	5,030	15,995
Number of Supported Programs	49	32	81
Investment US\$	\$2,726,029.87	\$1,422,054.47	\$4,148,084.34

Alcoa operations, Alcoa Foundation and Instituto Alcoa projects completed as of December 2023.



## Key Focus Areas for Skills Development Programs

### Education and Skills

We plan to develop programs that help individuals access education and build on their skills at different stages of their life, including initiatives related to early childhood education, supporting primary, secondary and tertiary education, after school programs, online coaching, scholarships, career readiness and adult learning programs.

### Capacity Building and Income Generation

We aim to strengthen local institutions so they can build capacity and be self-sufficient. These may include programs to enhance institutional capacity within local government, provide funding and support for civic organizations or foster community leadership.

Over the coming years, Alcoa intends to collaborate with both the Alcoa Foundation and Instituto Alcoa to deploy social investment programs specially designed to increase access to skills development in communities where we operate.

To establish a solid foundation for this program's success, we spent much of the year making sure this new goal is well understood and well defined across the organization. This involved:

- Developing a manual that outlines the importance and objectives of the new goal, how it will be implemented and how we will collect data and measure success.
- Conducting training on the new goal within Alcoa, Alcoa Foundation and Instituto Alcoa so all stakeholders are aligned.
- Defining the KPIs we need to track. These include the number of beneficiaries, number of skills development programs and the amount of investment in our skills development projects.
- Beginning data collection and establishing a baseline to measure progress against the goal in accordance with the ICMM Social and Economic Reporting Framework (see [Appendix C](#)).
- Reporting and auditing the baseline data in our 2023 Sustainability Report.



CASE STUDY HIGHLIGHT

## Fostering Entrepreneurship-Led Economic Development in Juruti

In the Amazon region of Brazil, Alcoa, Instituto Alcoa and Alcoa Foundation have implemented skills development projects to promote local entrepreneurship.

[Read the full case study](#)

## Payments and Spending

Each year, we disclose our social and environmental payments and spending in every region where we operate in accordance with the 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 supports the EITI, who works to strengthen the corporate governance practices of mining companies and provide transparent data on mineral revenues around the world. 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 [2023 Alcoa Data Book](#) for information regarding economic value, payments and local spend data.



# Community Investment and Development

Alcoa works closely to foster resiliency in our host communities, now and into the future. Alcoa's charitable contributions originate from two sources: our corporate giving programs and our foundations. Alcoa's Sustainable Communities Fund in Canada and the Alcoa Harvey Waroona Sustainability Fund in Australia constitute our largest corporate community giving programs. The Instituto Alcoa in Brazil and the Alcoa Foundation are non-profit organizations that promote sustainable development by providing grants to trusted charitable organizations aligned with their respective areas of priorities and in compliance with regulatory requirements.

## Alcoa Sustainable Communities Fund

In Canada, we established the Alcoa Sustainable Communities Fund in 2011 to invest in communities in the Baie-Comeau, Bécancour and Deschambault-Grondines/Portneuf regions of Québec near our operations. We have committed to investing C\$1 million annually to fund projects developed and implemented in collaboration with local partners. As of 2023, the Alcoa Sustainable Communities Fund has invested approximately C\$12 million in the local communities and supported nearly 161 projects.

In 2023, we provided a total of C\$1 million to support 16 new projects. This included a three-story, 15,000 square foot Boreal Forest Research and Innovation Pavilion at the Baie-Comeau Cégep. The Pavilion includes four thematic libraries related to entomology, plant tissue culture, forest extractives and forestry. It also has the Desjardin Boreal Forest Interpretation and Awareness Room, an exhibition hall and social space to bring the community together for events and learning.

## Alcoa Harvey Waroona Sustainability Fund

Launched in 2008, the Alcoa Harvey Waroona Sustainability Fund has supported more than 85 projects within local communities in Western Australia, generating over A\$21 million in benefits for residents of the region since the fund was established in 2008. These projects have been implemented through partnerships between Alcoa of Australia and the shires of Waroona and Harvey, where proceeds from alumina production from our Wagerup refinery have been allocated to the surrounding communities. As of 2023, the fund has invested more than A\$4 million in community projects.

In December 2023, we celebrated the official opening of Railside Park, part of the Waroona Community Precinct Project, supported by the Alcoa Waroona Sustainability Fund. This revitalization project aims to transform Waroona's town centre into a vibrant, thriving hub for local families, seniors, youth and visitors. When complete, it will comprise of various heritage, culture, art and recreation facilities including playgrounds, picnic areas, a garden, a skate park and RV facilities. Our latest contribution of A\$550,000 to the project in 2023 brought our total contribution up to A\$1,000,000—the largest ever made under the fund.

We also contributed A\$100,000 to help the Harvey Branch of the St. John Ambulance Service, which provides all medical emergency services for the communities adjacent to our Wagerup refinery to upgrade their training and administration facilities.

## Instituto Alcoa

Founded in Brazil in 1990, Instituto Alcoa is a non-profit institution that seeks to collectively promote education and the development of regions where Alcoa operates, to strengthen local communities and to contribute to a more just and responsible society.

In 2023, the organization invested more than US\$1.1 million in communities adjacent to our three major operations in Brazil: Alumar, Poços de Caldas and Juruti.



## Alcoa Foundation

Founded in 1952, the Alcoa Foundation collaborates with trusted charitable organizations around the world 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 2023, the Alcoa Foundation awarded US\$5.9 million in grants to 85 projects in 11 countries, including 57 new grants throughout the year.

[Read more: Alcoa Foundation](#)

## Alcoa Foundation Projects



### Teach for All

In 2023, Alcoa Foundation supported Teach for All's global programming and network partners in Brazil and the United States. In Brazil, network partner Ensina Brazil supported 55 teaching fellows to provide quality education for more than 15,000 elementary and secondary school students in under-resourced schools and marginalized communities in Maranhão state. In the United States, the grant enabled two key partnerships designed to support public school teachers and school districts in Pittsburgh, Pennsylvania, USA, where Alcoa's headquarters are located. The partnership with Teach for America and Propel Schools provided 13 teachers with training on effective writing instruction and the partnership with Teach Plus impacted 826 teachers across five school districts with support, resources and research-based strategies to help recruit, develop and retain teachers of color.

[Read more: Ensina Brazil and Teach for America](#)



### EdConnect

EdConnect is an Alcoa Foundation grant recipient that has supported primary and secondary students in Australia to achieve academic, social and emotional success for the past 25 years. By connecting older generations with younger generations, the Connecting Generations for School Success program enables youth to benefit from the knowledge and experience of older adults while helping older generations remain socially connected to their communities. Each year hundreds of volunteers serve as mentors to provide a safety net for young people and help them thrive.

[Read more: Connecting Generations for School Success program and EdConnect](#)

#### 2023 program achievements:

- EdConnect volunteers donated 6,285 hours—the equivalent of A\$338,259 in value to the local community.
- 109 volunteers supported 1,913 students.
- 22 metro and rural schools participated in the program.

**About the photo:** Jane Lawton, 2023 Recipient of Alcoa Foundation Peel Volunteer of the Year—selected from a group of volunteers who mentor students through EdConnect programs.



### University of La Coruña Research Awards

In November 2023, the University of La Coruña in Spain awarded the II Epifanio Campo Research Award to a research project entitled *Analysis of the use of industrial waste streams for the manufacture of bituminous mixtures*. This work, led by Dr. Igancio Pérez and supported by a grant from the Alcoa Foundation focused on ways to reduce the carbon footprint of cement by using different types of industrial waste as alternatives to raw materials. This valuable research promotes the development of circular economy solutions that have the potential to significantly reduce embodied carbon in infrastructure projects.

**About the photo:** Left to right: Jorge del Valle Corte (award recipient), Julio Abalde (Rector, University of La Coruña), Ana María Rodríguez Pasandín (award recipient), Rubén García (Operations Manager, San Ciprián smelter), Professor Ignacio Pérez (project lead), Miriam Vilar Alvarez (Executive Assitant, San Ciprián) and Santiago Ferro Lojo (award recipient).



### Jour de la Terre (Earth Day Canada)

At the end of 2022, Alcoa Foundation entered a three-year partnership with Jour de la Terre with the objective of reducing and recycling organic waste in the regions of Portneuf, Manicouagan, Trois-Rivières and Bécancour in Québec. The program provides personalized support to local organizations and institutions to help them to reduce waste at source.

Between November 2022 and October 2023, the program diverted 227 metric tons of organic matter from landfills through the support of 29 local businesses and institutions. In 2024, the program aims to divert 400 metric tons of organic matter by helping 100 businesses from Trois-Rivières improve their waste management practices and reduce waste at source.

The program has a special focus on schools to encourage children and youth have a greater impact in their communities.

Across the school network, Jour de la Terre worked with one university, one elementary school, two secondary schools and two daycare centers, involving 1,000 students and diverting 32 metric tons of organic waste in 2023.

The success of the program has sparked the creation of a certification program developed jointly by the Portneuf Residual Material Organization (Régie Verte) and Jour de la Terre Canada.

[Read more: Jour de la Terre](#)

**About the photo:** Earth Day Launch Event in Trois-Rivières. From left to right: Valérie Mallamo, (Executive Director, Earth Day Canada), Irina Gato Arano (Communications Advisor, Aluminerie de Bécancour) and Eve-Marie Marchand (General Manager, Société de développement commercial du centre-ville de Trois-Rivières).



# Human Rights

Alcoa is committed to respecting and protecting the human rights of all our stakeholders. This is fundamentally important to our stakeholders and it is grounded by our values. This commitment is reflected in our ongoing efforts to develop a comprehensive program that considers human rights risks and opportunities across our value chain.

## Alcoa Human Rights Program

Our Human Rights Policy acknowledges our responsibility to respect human rights, conduct due diligence to identify actual and potential risks to affected people and communities and to collaborate with relevant parties to assure harms are remediated. We are also an active member of the United Nations Global Compact.

[Read more: Human Rights Policy and United Nations Global Compact](#)

This year, Alcoa welcomed its first-ever dedicated director for human rights. The director will play a key role in coordinating the management of human rights risks across the business and driving the integration of human rights ambitions into our operations.

### New Human Rights Leadership

Underscoring the importance of human rights to Alcoa, in 2023 we hired a new director of human rights to coordinate the management of human rights risks across our operations. Working in close collaboration with all our teams and functions, the director will help guide Alcoa's Human Rights Council, focusing on mitigating human rights-related risks and impacts to and by Alcoa.

## Global Modern Slavery Statement

In 2023, we developed our first Global Modern Slavery Statement. This statement expands upon our Modern Slavery Statement for Alcoa of Australia and expresses our commitment to identify and address modern slavery risks within our operations and supply chains.

[Read more: Global Modern Slavery Statement](#)

### SDG Alignment



## Human Rights Due Diligence

Human Rights Due Diligence (HRDD) has become an important part of how we operate, and it is continuing to evolve as we learn and refine our processes. HRDD allows us to engage with communities in our areas of influence and identify, understand and address human rights risks. It also helps us meet the requirements of existing and emerging legislation around the world aimed at ensuring rights-respectful supply chains. To date, we have conducted internal human rights screens globally.

### The salient human rights risks across our global operations:

- In parallel with our due diligence efforts, we have performed Human Rights Impact Assessments (HRIA) at our Juruti, Alumar, Poços de Caldas, Lista, Mosjøen, San Ciprián and Western Australian operations with the support of third-party human rights expertise.
- The rights of Indigenous Peoples, particularly regarding free, prior and informed consent, self-determination and cultural heritage.
- The right to security of person with regard to security practices at sites.
- The right to health and a clean environment as linked to potential dam breaches.
- Labor rights, particularly with regard to contractors.
- The right to safe and favorable working conditions, particularly with regard to contractors.
- Freedom from discrimination.

In 2023, based on the lessons learned from our continued work to assess our human rights impacts we focused on strengthening our HRDD program by looking at the following areas:

- ✓ Enhancing our processes for identifying potential human rights impacts at the operational, regional and global levels.
- ✓ Strengthening our Responsible Sourcing Framework to better incorporate human rights risks.
- ✓ Commencing six HRIAs in three different countries: two sites in Norway, three sites in Brazil and one site in Spain.
- ✓ Carrying out operations-level fieldwork and looking at ways to integrate the findings into our corporate policies and procedures.
- ✓ Conducting four Supplier Site Coordination audits on goods and services providers in India, Australia and Brazil in line with our Responsible Sourcing Framework—a critical step in supply chain due diligence.

## Voluntary Principles on Security and Human Rights

In 2022, Alcoa began applying the principles within its operations in Brazil, our jurisdiction with high security risks. In 2023, contract security officers and management at our Alumar, Juruti and Poços de Caldas sites completed the Voluntary Principles Initiative (VPI) training. We also completed security assessments at each location. Alcoa's VPI commitments were also communicated to the local law enforcement.

[Read more: Voluntary Principles on Security and Human Rights](#)



# Indigenous and Land-Connected Peoples

Alcoa’s approach to stakeholder engagement with Indigenous and Land-Connected Peoples is a story of continuous improvement. In 2023, we broadened our understanding and learning across the company while developing region-specific approaches to incorporate Indigenous peoples' perspectives into our operations.

## Working with Indigenous Communities

The rights and perspectives of Indigenous and Land-Connected Peoples is an important and complex area of concern for Alcoa—and one of opportunity. Our approach is to maintain empathy by listening and operating from a place of humility to address historical contexts and integrate strong relationships into Alcoa’s social systems and performance.

We also participate in the ICMM Indigenous Peoples and Mining Working Group which is tasked with developing an updated ICMM Indigenous Peoples and Mining Position Statement. Our participation enables us to learn best practices to continuously improve Alcoa’s approach with

Indigenous and Land-Connected Peoples and to evolve our processes for entering into community benefit agreements. In 2024, we plan to continue our work to update and improve our Culture, Heritage and Indigenous Peoples standards first drafted in 2021.

Australia and Brazil—where we operate bauxite mines—were the priority areas for Alcoa’s engagement with Indigenous and Land-Connected Peoples in 2023.

SDG Alignment



## Australia

In Australia, Indigenous and Land-Connected Peoples are vital partners in our success. In 2023, we made progress on our Reconciliation Action Plan (RAP) which outlines our commitment to respecting the cultural significance of the lands on which we operate and on finding more opportunities to create shared value with Indigenous and Land-Connected Peoples.

Our continued work toward these commitments and delivering on the actions are outlined in our Reconciliation Action Plan.

[Read more: Reconciliation Action Plan Progress Report](#)

### Cultural Heritage Plans

In 2023, Alcoa commenced the co-development of Cultural Heritage Management Plans with the Gnaala Karla Booja Aboriginal Corporation which represents the Traditional Custodians of the land on which much of our Western Australian mining operations are based. These plans describe the Noongar cultural heritage values of the land we operate on, as well as management strategies to protect and minimize risks to Noongar heritage places, cultural landscapes and intangible cultural values.

To support the Cultural Heritage Management Plan process, Alcoa has increased the intensity of cultural heritage surveys over areas identified for project expansion. This, in turn, has increased the depth of engagement with the Gnaala Karla Booja Aboriginal Corporation on capacity building and other joint initiatives.

Alcoa has plans to co-develop Cultural Heritage Management Plans for our refinery and smelter operations progressively over the next few years.

## Brazil

In 2023, we began a process to improve grievance mechanisms as part of our efforts to strengthen oversight and increase recognition of human rights in Brazil.

For example, Traditional Communities near Alcoa's Juruti mine in Brazil are critical stakeholders of our operations. Our relationship with the Juruti Velho Community Association is based on a common land use agreement signed in February 2018, with the Association of Communities of the Juruti Velho Region (ACORJUVE), the National Institute of Colonization and Agrarian Reform and both federal and state prosecutors. The agreement included land ownership rights, the payment of royalties and compensation for any loss and damages to communities. A joint committee was also set up to monitor the actions of the agreement and address any controversies.

In 2023, the payment for the first five-year period (2006-2010) was fulfilled. Alcoa paid US\$5.3 million to cover the mining setup and start of operation. Sixty percent of this amount benefited local families with the rest going to ACORJUVE. Loss and damage studies for the next payment periods are currently in progress.

## Norway

In Norway, the local Jillen-Njaarke Reindeer District has been conducting ongoing discussions with the Norwegian government and project operator Øyfjellet Wind AS. Alcoa's 15-year power purchase agreement enabled its Øyfjellet development.

In 2023, another payment received by the Capiranga community in Juruti was tied to an environmental incident that occurred in 2021. A significant increase in rainwater during the wet season led to the rupture of a drainage barrier. As a result, mud and organic material spilled into a community stream. An economic valuation estimated the losses and damages suffered by the community at US\$4.6 million which was paid by Alcoa as compensation in 2023. A recent environmental assessment concluded that the social and biophysical impacts were reversible due to the corrective actions implemented.

In addition, our Poços de Caldas location has engaged with the Xucuru Kariri Indigenous Tribe located 15km from the site. While these communities are not adversely affected by our operations, this was done proactively as part of our efforts to engage with local Indigenous communities and appreciate their cultural heritage. In 2023, the engagement involved painting and revitalizing a local health center, planting vegetables and fruit trees in community gardens and providing dental care to the community. The community also received a donation of US\$2,000 to support the construction of a children's playground.

As a stakeholder in the project, Alcoa was actively engaged in discussions concerning the Øyfjellet Wind Farm with the Sami people throughout 2023, to understand how Alcoa can help the district continue to carry out traditional reindeer herding practices.



# Inclusion, Diversity and Equity

Our commitment to inclusion is a key priority for Alcoa and a fundamental aspect of our organizational culture. We understand that fostering a work culture where everyone feels welcome is essential to cultivating a productive, innovative workplace.

## Global IDE Strategy

Alcoa's mission is to build a more inclusive culture where Inclusion, Diversity and Equity (IDE) is embedded in everything we do and employees feel valued, empowered and respected.

### The Pillars That Drive Our IDE Strategy

Strengthen Foundations

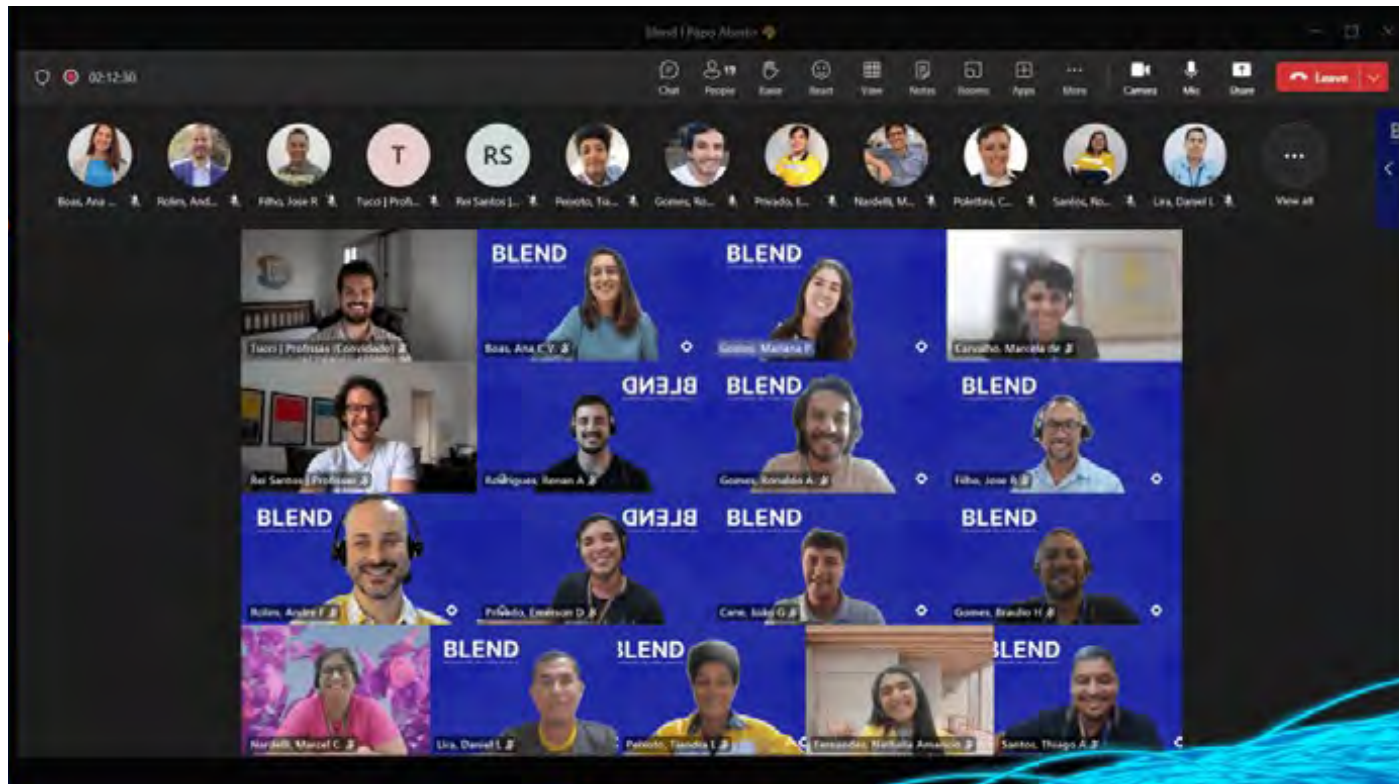
Build Awareness

Drive Accountability

SDG Alignment



As part of our membership with ICMM we contributed to the development of a collective commitment to address IDE challenges in the mining and metals industry, specifically Principle 3: “to respect human rights and the interests, cultures, customs and values of workers and communities affected by our activities.” Under ICMM’s new Social and Economic Reporting Framework we are working to expand our efforts to report on progress and create a more inclusive environment.



CASE STUDY HIGHLIGHT

## Advancing IDE Through Intentional Development

Alcoa Brazil recently launched new professional development programming targeting employees from underrepresented groups to support their career growth.

[Read the full case study](#)

Under Alcoa’s IDE Strategy, we have the following policies in place:

- **Code of Conduct**

Sets expectations of our workplaces to be free from harassment, bullying and offensive or disrespectful behavior.

[Read more: Code of Conduct](#)

- **IDE Policy**

Internal policy outlining our goal to embed IDE throughout our global operations and our business.

- **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](#)

- **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](#)

- **Homeworking Policy**

Internal policy facilitating greater work-life balance.

- **Disability Accommodations and Accessibility**

Local policies addressing employee accommodations and accessibility requirements.

Our IDE Strategy now also mandates Trusting Workplace training for all salaried employees and new hires. The training aims to foster trust, respect and inclusivity among colleagues and it promotes a strong and collaborative work culture.

## Accolades

- ✓ Recognized as one of America’s Greatest Workplaces in 2023 by Newsweek magazine, earning 4.5 stars out of a possible 5 stars.

- ✓ Awarded Great Place to Work in Brazil in 2023 for our Alumar site.

- ✓ Scored 85 on the 2023 Human Rights Campaign Foundation’s Corporate Equality Index out of a possible 100.

- ✓ One of 418 companies listed on Bloomberg’s Gender-Equality Index.

- ✓ Listed as one of Montreal’s Top Employers for 2023.

- ✓ Partnered with Mover Coalition in Brazil, leading companies to promote racial equity.

## Progress on IDE

Our objective is to foster a culture that promotes equal opportunity, encourages innovation and increases overall diversity. For the last two years we have steadily increased the number of underrepresented hires. While the percent of new hire diversity decreased relative to the 51.26 percent achieved in 2022, we still exceeded our internal target of 33 percent with a 44 percent addition of diverse hires to our workforce.

We also conducted an employee engagement survey which had an overall IDE dimension score of 77 out of 100, two points higher than the industry benchmark of 75 points. The survey revealed that flexible working arrangements are valued by women and underrepresented groups, scoring 89 points. Alcoa has continuously supported these working arrangements with our Flexibility First program. For more details on the Engagement Survey see the [Talent Attraction, Retention and Development](#) section.

Our score on the Human Rights Campaign Foundation's Corporate Equality Index (CEI) declined from 90 to 85 from 2022 to 2023. This five-point reduction was the result of new CEI standards for 2023, raising the bar for what it means to be a corporate ally for LGBTQ+ inclusion. Despite this decline, Alcoa remains in the top of 20 percent of the 1,380 companies assessed.

## Gender Balance

We are committed to improving the gender diversity of our workforce at every level of the organization and increasing female representation continues to be a key priority for Alcoa. In 2023, women represented 19.1 percent of total employees compared to 18.5 percent in 2022.

### Female Representation of Total Employees

	2023	2022
Percentage of Women in Total Workforce	19.1	18.5
Percentage of Women in Total Management	26.4	29.2
Percentage of Women Hires of Total Hires	18.5	24.2

We also maintained pay parity in 2023, with a 2 percentage point difference in average salary across similar jobs for men and women. Overall, there is a 16 percent difference in average pay as there is lower female representation at senior leadership levels.

We are heartened to once again be honored with the Employer of Choice for Gender Equality award by the Australian Government's Workplace Gender Equality Agency. This prestigious recognition marks our 22nd consecutive year of receiving this accolade.

## Underrepresented Groups

From 2022 to 2023, Alcoa had a one percent increase in diversity groups or underrepresented individuals at the management level. However, diversity group representation among new hires declined from 51 percent to 44 percent during the same time period.

### Diversity Groups\* Representation of Total Employee

	2023	2022
Percentage of Diversity Groups in Total Workforce	32.7	30.8
Percentage of Diversity Groups in Total management	40.0	39.0
Percentage of Diversity Hires of Total Hires	44.1	50.6

\*Underrepresented

Please refer to the [2023 Alcoa Data Book](#) for detailed data on Alcoa's progress to create a more inclusive and diverse workplace.

## Inclusion Groups

Alcoa's progress in IDE across the company is in large part due to our employee-led inclusion groups (IG). These groups play an essential role in building a more inclusive workplace. Our Executive team members each sponsor one of the four IGs to help encourage cross-organizational progress, covering people with disabilities, women, members of the LGBTQ+ community and racial and ethnic equality.

[Read more: Alcoa's IGs](#)

Alcoa continues to encourage participation in key IDE events, such as International Women's Day, PRIDE celebrations, Indigenous People's Day and other diversity awareness days.

As we move forward, we will explore more and better ways to embed inclusion and diversity into the organization through policy changes and appropriate training programs.



## Alcoa's IGs



**Alcoans Moving Beyond Limited Expectations (ABLE)**



**Alcoa Women's Network (AWN)**



**Alcoans Working Actively for Racial-Ethnic Equality (AWARE)**



**Employees at Alcoa for LGBTQ+ Equality (EAGLE)**





# Talent Attraction, Retention and Development

Our people are essential to Alcoa's success. That is why we continue to invest in attracting and retaining top talent and in providing our employees with growth and opportunities so that they can advance their careers with us.

## Talent Attraction

Throughout 2023, we implemented several initiatives to attract talent in a market where the competition for skilled workers remains highly competitive. Central to this approach is our diversified talent outreach efforts including recruitment events at colleges and universities, advertising opportunities on diverse platforms and talent acquisition training for hiring managers that includes understanding conscious and unconscious bias. Our internship and apprenticeship programs have also grown in Australia and Brazil and we have increased our presence at community engagement events in all regions we operate.

## Improving Our Employee Value Proposition

Our efforts in 2023 focused on improving our employee value proposition (EVP) for potential employees. This included increased communication of what Alcoa offers as an employer and position requirements. Additionally, we created new partnerships with external vendors to increase talent attraction and broaden our ability to connect with diverse candidates. We are promoting our opportunities through direct communications tailored to the needs of each region. We also enhanced our online presence, offering an improved user experience and showcasing aspects of each of our locations. These improvements also included utilizing gender decoding tools to minimize potential biases in all job postings.

SDG Alignment



## Employee Onboarding

We built a new global orientation training solution specifically to improve new hires' experience and to help them feel more connected to Alcoa by better understanding our business, our tools and their place within it. This new onboarding process has had a 95 percent adoption rate showing a positive response across the company.

Please refer to the [2023 Alcoa Data Book](#) for data on new employee hires and turnover.



## Talent Retention

Across Alcoa, in 2023, we focused on improving employee experience and engagement through various initiatives:

- Continued evolution of the 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](#)

- Revamped our Monthly Learning Recommendations to focus on providing enhanced recommendations aligned to our strategic priorities and values.
- Commenced work on our EVP including conducting talent talks/ stay interviews, increasing upskilling, encouraging adoption of our performance management approach and providing mentoring and coaching opportunities.
- Improved our Performance and Development Process (PDP) for salaried employees by creating the structure and tools to enable a high performance culture. 82 percent of salaried employees had a Year-End Performance Check-in in 2023. Other refinements to PDP will continue in 2024, including manager upskilling.

## Employee Engagement Surveys

Over the past three years, Alcoa has implemented a comprehensive company-wide Employee Engagement Survey strategy aimed at soliciting feedback from all employees and identifying areas for enhancing the employee experience. The survey, launched every 18 months, comprises various dimensions such as communication, collaboration, managerial support, sense of belonging, decision-making and purpose.

In 2023, our overall employee engagement score was 74 out of a possible 100 points, closely aligned with the external benchmark of 75 and only one point below the previous year's engagement results.

Following the survey's closure, managers were encouraged to convene team "ACT" conversations: to acknowledge the results, collaborate on defining key actions and propel us forward collectively.

### Engagement Survey Results

**74**  
engagement score

**72%**  
engagement favorability

**4,338**  
comments

**49%**  
response rate

## Total Rewards

In support of our EVP we have fine-tuned our Total Rewards Philosophy to better meet the expectations of our employees. Alcoa's Total Rewards approach offers both financial and non-financial rewards for full and part-time employees. Additionally, we linked 30 percent of our annual incentive compensation plans for certain eligible salaried employees to non-financial metrics that are focused on safety as well as inclusion and diversity. Pay equity is reviewed globally each year in support of our efforts to attract and retain diverse talent.

For additional compensation information and data see the Compensation Discussion and Analysis in our 2024 Proxy Statement.

[Read more: 2024 Proxy Statement](#)

## Labor Relations

We support the rights of workers and employees to freedom of association and collective bargaining across our global operations. In 2023, we had 27 active labor agreements covering approximately 70 percent of our workforce.

## Learning and Development

In 2023, Alcoa continued to strengthen our learning and development programming focusing on providing solutions that foster a growth mindset and support continuous learning. This includes standardizing our approach to professional coaching and a 360-assessment strategy.

**We re-energized our global leadership offerings:**

- Advancing Supervisory Excellence**  
 Focused 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**  
 Sends a cohort of individuals to a 6-day residential program facilitated by the Australian Institute of Management WA and University of Western Australia Business School Executive Education.

We also provide additional development programming to all employees regardless of their role. These include, but are not limited to non-classroom development opportunities such as gigs, mentoring and curriculum on leadership skills promoted through our Global Learning Labs.

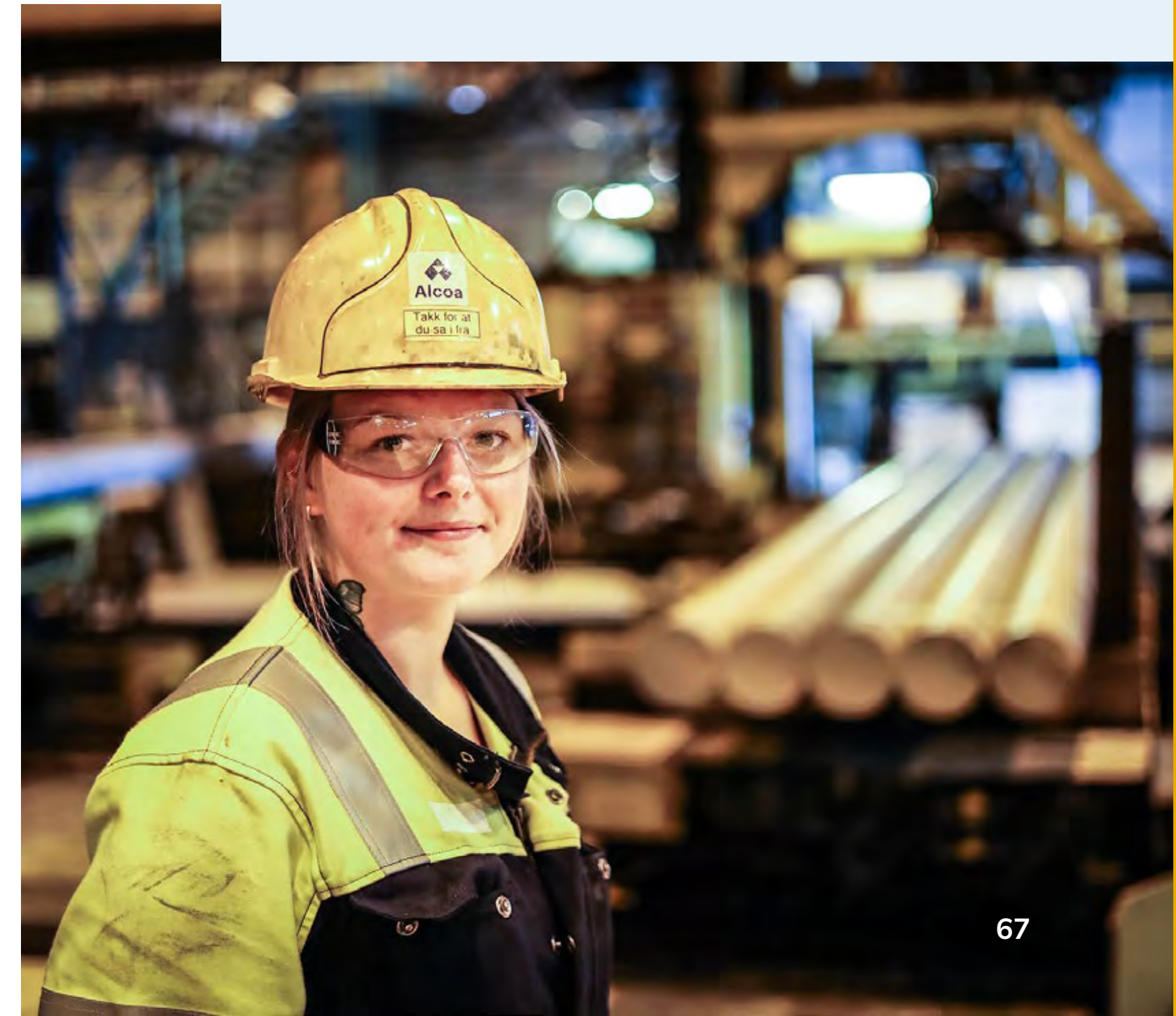
# US\$6.3 Million

spent globally on learning and development in 2023

# 8 hours

spent in training on average per employee in 2023

Includes Ethics and Comp, Onboarding, Leadership and Professional Development and excludes Health and Safety training at locations.





Environment

# Our Environmental Stewardship

**69** Climate Change

**77** Impoundment Management

**81** Biodiversity and Mine Rehabilitation

**85** Emissions and Waste

**89** Water Stewardship

**96** Circular Economy

# Climate Change

As stated directly in our Climate Change Policy, Alcoa is committed to supporting the outcomes of the Paris Agreement and aligning its GHG emission reduction goal with the “well below 2°C” decarbonization path. This requires working cross-functionally across our organization to address the challenges and capture the opportunities. In addition, we continue to work in collaboration with our local communities and the global aluminum industry to achieve this common goal.

## Climate Strategy

Alcoa has set an ambition to achieve net zero GHG emissions across our global smelting and refining operations by 2050 for direct (Scope 1) and indirect (Scope 2) emissions with interim targets to achieve a 30 percent reduction by 2025 and a 50 percent reduction by 2030 compared to our 2015 baseline (intensity basis). We also continue to investigate opportunities and evaluate the feasibility of Scope 3 reductions within our value chain.

In 2023, we grew closer to achieving our 2025 target by reaching a 27.2 percent reduction in refining and smelting emission intensity from our 2015 baseline.



CASE STUDY HIGHLIGHT

### Reducing Alcoa’s Carbon Footprint in Poços de Caldas

Our Poços de Caldas refinery has made significant investments to reduce its GHG emissions. In 2023, these efforts included upgrading its gas-powered boilers used for smelting to new electric-powered ones.

[Read full case study](#)

SDG Alignment



Our current path to achieve our stated ambition includes continuing to increase the use of renewable energy in our operations, identifying potential opportunities within our portfolio of operating assets which cannot economically transition to renewable energy sources, continuing to identify and implement energy efficiency projects and developing new technologies that have the potential to unlock decarbonization on a larger scale.<sup>1,2</sup>

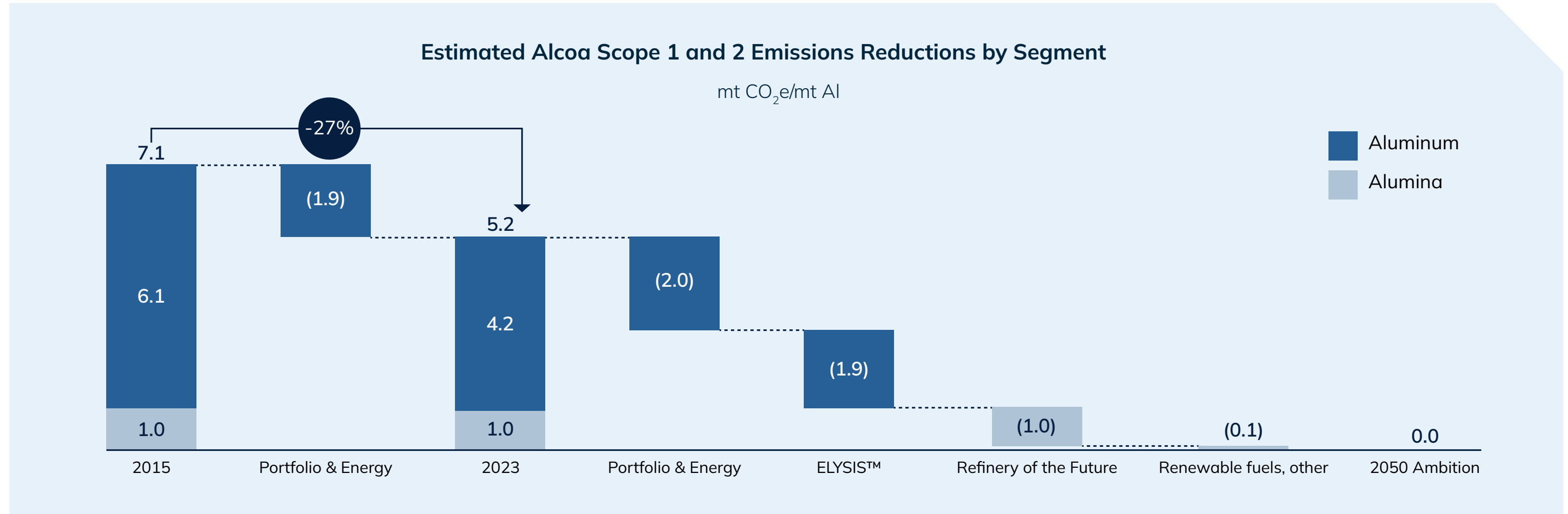
### Scope 1 and 2 CO<sub>2</sub>e Emissions Intensity

Metrics tons of CO<sub>2</sub>e per metric ton of production

Year	Refining	Smelting	Total
2015 Baseline	0.55	6.06	7.10
2019	0.52	5.98	6.96
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

## Renewable Energy and Fuels

Embracing renewable energy is critical to powering a more sustainable global economy and reduce GHG emissions. Looking ahead to this future means continually expanding Alcoa's use of renewable electricity and fuels throughout our operations. For example, in late 2019, we targeted increasing the amount of renewable energy consumed by our smelters to 85 percent by 2025, a benchmark that is also linked to our executives' long-term incentive program. In 2023, 87 percent of our global smelting portfolio was powered by renewable energy.



In 2024, we will initiate a refresh of our global decarbonization roadmap along with integrating the roadmaps developed within each region that we operate. Through that process we will continue to assess additional opportunities to further increase our use of renewable energy.

## Portfolio Review

We are nearing the completion of a five-year portfolio review announced in October 2019. This review includes assessing opportunities for improvement, potential curtailments, closures and divestitures. Through the review process we also achieved reductions in our carbon emission intensity. For example, we curtailed the Intalco aluminum smelter in 2020 and after evaluating several options for the asset, announced full closure in 2023. This was our highest direct emission smelter and through closure, removed more than 1.9M metric tons of direct and indirect CO<sub>2</sub>e from Alcoa's GHG inventory.

## Carbon Reduction Technologies

Through advanced research and development projects under development like ELYSIS™ and the Refinery of the Future™, we are focusing on innovations to reduce the GHG emissions associated with our smelting and refining processes. (See the [Innovation, Technology and Products](#) section.)

## Lower Carbon Products

Our Sustana™ family of products helps our customers reduce their carbon footprints and use more recycled content. Through our EcoLum™, EcoSource™ and EcoDura™ products, we supply lower carbon aluminum, lower carbon alumina and recycled aluminum made of pre-consumer scrap to customers around the world. (See the [Innovation, Technology and Products](#) section.)

<sup>1</sup> Reductions in CO<sub>2</sub>e/tons depend on various factors, including access to cost-effective renewable energy, successful deployment of R&D projects under development with acceptable returns and ability to complete portfolio review. See also the risk factors discussed in Part I Item 1A of Alcoa Corporation's Annual Report on Form 10-K for the fiscal year ended December 31, 2023.

<sup>2</sup> 27 percent reduction against a 2015 baseline. See more details in this section or in the [Climate Change](#) section.

## Scope 3 Emissions

We have used the GHG Protocol's globally accepted emission factors to calculate and report our Scope 3 emissions. Alcoa has been calculating, disclosing and receiving third-party verification of our Scope 3 emissions under this Protocol since 2016.

Given the complexities of the supply chain within the aluminum sector and limited ability to control reductions from suppliers and customers, we continue to evaluate Scope 3 emissions and the feasibility of achieving reductions. Due to our continuing commitment to better understand our potential emission reduction opportunities, we completed a four-phase Scope 3 analysis project. This project included a review of Alcoa's Scope 3 inventory; research on Alcoa's partnerships, suppliers, and customers; and a deep review of our purchased goods and services and processing of sold products. In the final phase, this analysis and research was consolidated to identify potential reduction opportunities that we continue to evaluate.

Our metrics and targets related to climate change are **limited third-party assured**. For discussion about 2023 emissions reductions and programs see the [Energy](#) section.

Please refer to the [2023 Alcoa Data Book](#) for information regarding CO<sub>2</sub>e emissions and upstream and downstream Scope 3 emissions.

### Science-based Targets Initiative

At Alcoa we understand there are evolving expectations on how companies and industries should independently verify the alignment of their decarbonization strategies and targets with the latest science. The Science-based Target initiative (SBTi) is currently in the scoping phase for development of a sector-specific decarbonization guideline for the aluminum industry and is working closely with IAI to identify a suitable approach. Alcoa has engaged with SBTi in defining decarbonization related disclosures and targets and will seek to join a SBTi's expert advisory group to provide input for development of standardized pathways that identify effective ways to reduce emissions relevant for our industry. See the [Innovation, Technology and Products](#) section for more information.



# Energy Use and Efficiency

Our refining and smelting processes are energy intensive by nature. This requires us to access to energy that is reliable, affordable and in line with our decarbonization ambition. We continuously work to lower 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.

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 2023, we increased our overall use of renewable electricity from 86 percent to 87 percent. (See [Climate Change](#) section).

Our energy intensity increased by 1.5 percent in 2023, compared to prior year and overall energy consumption decreased by 0.7 percent. Energy intensity increased year-over-year due to impacts from refinery curtailments (change in base), Sao Luis smelter restart and operating inefficiencies related to lower-grade bauxite in Western Australia. Our energy consumption decreased due to production cuts in our refining segment.

Please refer to the [2023 Alcoa Data Book](#) for information regarding energy intensity, energy by source and energy usage.

## Energy Security

As an industrial company with a global footprint, securing our energy supplies is critical to our operations. In 2023, we purchased approximately 292 terajoules of natural gas per day and supplemented our self-generated power with 3.1 gigawatts of purchased electricity. Around 48 percent of our natural gas and 80 percent of our electricity are secured with agreements exceeding 10 years.

Our energy asset portfolio includes both equity interests in consortia and joint ventures. Our share of the generation of these assets is 0.8 gigawatts, 75 percent of which comes from hydroelectric power.

## Energy Efficiency

We strive to not only increase the use of renewable energy sources but also make better use of existing energy resources which is why our energy efficiency approach includes efforts to reduce our consumption through operational and technological improvements.

## Energy Efficiency Approach

- 1 Benchmarking**  
 We identify opportunities to compare our operations with other industry leaders.
- 2 Best Practice Sharing**  
 Our CoEs share best practices and operational improvements across our organization.
- 3 University Collaborations**  
 We partner with universities worldwide to develop energy efficiency solutions.
- 4 Location-Specific Targets**  
 We create, implement and monitor energy efficiency roadmaps at each location, accounting for site-specific processes.



## Calculating Scope 2 Emissions

Alcoa calculates our Scope 2 emissions using a location-based approach because we believe this best represents the physical realities of the energy delivered to our locations.

Alcoa believes location-based reporting is preferable because market-based reporting can have deficiencies in linking renewable energy generation, connection and consumption when green attributes are unbundled. Unbundled green attributes can enable companies to lower their reported Scope 2 emissions without meaningfully decarbonizing their supply chain.

### 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, considering "green attributes" such as Guarantees of Origin, international renewable energy certificates and RECs. This method aims to support the growth of renewables, but the tradable nature of RECs means they may be purchased instead of reflecting direct investments in clean energy.

### Renewable Energy Certificates

Renewable energy certificates (RECs) are tradable certificates used to verify the amount of energy generated from renewable sources and the ownership of its associated "green attributes". These certificates can be sold so that, using market-based reporting, the purchaser can count them toward their own emission reduction targets.

### Unbundled Green Attributes

Unbundled green attributes are when the RECs are unbundled or sold separately from the physical electricity produced by the renewable energy or green attribute. Whereas bundled green attributes tie the green attributes of an energy source directly to the physical energy produced. Unbundling is what allows purchasers to apply RECs to otherwise non-renewable energy sources when they report.

## Climate Change Governance

In 2022, we appointed a climate change director to lead our climate change efforts. The focus of this role, in 2023, was to initiate a review and refresh of Alcoa's long-term climate change strategy, integrating both transitional and physical risks into the assessment and to further the understanding of how climate change is expected to impact the company and our stakeholders. To facilitate this process the Climate Change Director established a cross-functional working group to collaborate on Alcoa's climate change goals, decarbonization plan, products and risks. The Climate Change Director reports through the Global Vice President for Sustainability to the Chief External Affairs Officer and ultimately to the Safety, Sustainability and Public Issues Committee of the Board of Directors.



## 3-Year Climate Change Progress

### 2021

- ✓ Launched our Climate Change Policy.
  - ✓ Announced ambition to achieve net zero Scope 1 and Scope 2 GHG emissions across our global refining and smelting operations by 2050.
  - ✓ Unveiled a roadmap of future-oriented research and development projects that have the potential to transform refining, smelting and scrap recycling.
  - ✓ ELYSIS™ partnership began operating industrial-scale tests at the ELYSIS Industrial Research and Development Center in Saguenay (QC), Canada.
  - ✓ Aluminum produced from the ELYSIS process was blended with our EcoLum™ aluminum for the wheels on the Audi e-tron® GT, the auto manufacturer’s first fully electric sports car.
- [Read more: Audi e-tron GT ELYSIS wheels](#)
- ✓ First commercial shipments of EcoSource™ alumina.

### 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.<sup>3</sup>

<sup>3</sup> 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](#)

# Climate Change Risk Assessments

In alignment with industry best practices we continue to analyze the two types of primary risks associated with climate change.

## Physical Risks

These risks include acute and chronic changes in weather patterns that impact our operations, biodiversity management, host communities, suppliers and customers. Severe risks are generally event-driven and 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.

## 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 2023, Alcoa progressed two key initiatives to update our climate-related risk assessments initially completed in 2014 and updated in 2019: one for physical risks at portfolio and asset level and another for transition risks and opportunities over the short, medium and long-term.

## Asset Portfolio Screening on the Physical Impacts of Climate Change

Alcoa engaged a third-party consultant to execute a high-level screening of the physical impacts of climate change on our global asset portfolio as well as asset-level physical climate change risk assessments at our Brazil operations. The findings from these analyses allows us to prioritize future site-based climate risk assessments that will inform site-specific climate adaptation plans. In 2024, we will continue conducting these detailed physical impact risk assessments so we can further understand our potential site-specific risks and through proper mitigation measures, be better prepared to protect people, the environment and our assets.

## Physical Climate Change Risk Assessment for High Risk Impoundments

In accordance with the GISTM we conducted assessments for our high risk impoundments at San Ciprián, Alumar, Poços de Caldas and Kwinana to determine the potential impacts of climate change. Over the next few years we will continue to carry out physical risk assessments for all our impoundments. For additional information see the [Impoundment Management](#) section.

## Portfolio-Level Climate Change Transition Risks and Opportunities Assessment

Alcoa engaged a third-party consultant to refresh our 2019 transition risk assessment for our global portfolio. The assessment included benchmarking of our peers, updating our transition risk scenario analysis based on current scientific, industry, regulatory and stakeholder expectation contexts and identifying our material transition risks and opportunities. The outcomes of this risk assessment will guide our future strategy development and reporting. A summary of risks related to climate change aspects can be found in our Annual Report.

[Read more: Alcoa 2023 Annual Report](#)

Throughout 2024 and 2025, we will continue to assess the resiliency of our company with respect to climate related risks and opportunities by further identifying both transitional and physical climate-related risks and where possible applying proper mitigation measures, taking into consideration a transition to a low-carbon economy consistent with a “well below 2°C” scenario. Where relevant to the organization, additional scenarios consistent with increased physical and transitional climate-related risks may also be assessed.

As part of this work we aim to:

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

## Industry Initiatives

In 2023, Alcoa continued its active participation in a broad range of collaborative initiatives focused on reducing GHG emissions across the aluminum industry and its value chain. For a list of Alcoa's other memberships and collaborations, please see [Appendix F](#).

### RMI's Climate Aligned Finance Framework

This initiative aims to develop standards for the highest-emitting sectors of the global economy to establish and measure progress toward credible climate change-related targets. In 2023, we participated in the Aluminum Sector Working Group to develop the Sustainable Aluminum Finance Framework. This pioneering Framework enables banks to measure and disclose the aluminum-related CO<sub>2</sub> emissions in their lending portfolios.

### RMI's Horizon Zero Project

As part of the Aluminum Sector Working Group, we also helped develop the Aluminum GHG Emissions Reporting Guidance, which helps aluminum producers and consumers calculate their product carbon footprint. The Guidance is meant to accelerate sector decarbonization and drive demand for low-emissions aluminum by enabling the sharing of consistent CO<sub>2</sub> emissions data along the aluminum supply chain. To facilitate this data exchange, RMI is developing an open-source platform that will, in turn, support the development of sustainable product procurement practices.

### European Aluminium Report

Alcoa provided funding and support for the research and publication of European Aluminium's Net-Zero by 2050: Science-based Decarbonisation Pathways for the European Aluminium Industry Report. The report revealed that the industry can achieve emissions reductions of more than 90 percent by 2050.

### International Aluminium Institute Decarbonization Commitment

As a member of IAI, Alcoa is proud to support its new decarbonization commitment. The initiative facilitates industry target setting and transparency by inviting all member companies to demonstrate their commitment to GHG reductions through long-term target setting, including an interim milestone and a plan to achieve the target. Additionally, member companies are invited to disclose their progress annually and report absolute Scope 1 and 2 emissions, and ideally, Scope 3 emissions.



## Helping Communities Prepare for Climate Change

To support our host communities, Alcoa Foundation has supported two programs to help communities better understand and mitigate the health and socio-economic impact associated with climate change.

Alcoa Foundation partner Climate Risk Institute completed a project focused on assessing the health impacts of climate change on communities and employees. After testing and collaboration with aluminum industry associations such as IAI and with communities through workshops and visits, they developed five modules covering the fundamentals of climate change and health to help groups and individuals, regardless of location, build climate resiliency.

Alcoa Foundation provided a grant to its partner, Plan International, to conduct a study on the potential socio-environmental impacts of climate change that could affect communities in Sao Luis, Brazil. In 2023, Plan undertook a community mapping exercise to collect information on the impact of climate change and developed educational materials and workshops for the local community. The full report, which is being developed in collaboration with a local university, is expected to be delivered in 2024. Community action committees will also be organized to empower the local community to stay involved beyond the project duration.

# 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 Maintenance

Our impoundments store two primary types of material: washed bauxite mine tailings and bauxite residue, a standard byproduct of alumina refining. At some locations, we also manage fresh and alkaline water dams. Our management approach aims to minimize the impact of our impoundments and, where possible, rehabilitate the land for further use.

Our Global Impoundment Team oversees all active and inactive sites and governs the implementation of our mandated Global Impoundment Policy and Impoundment Standards. We design, operate, maintain and close our impoundments in accordance with these protocols, applicable laws and regulations, and leading international standards, including the GISTM. In joint venture locations not operated by Alcoa, we use our policy and standards to encourage best-in-class management practices. At closed sites, our impoundments are managed by our Global Transformation Team.

In alignment with ICMM requirements and with our Global Impoundment Policy, we implemented Stage 1 of the GISTM standard in 2023. It requires all impoundment dams with a consequence category rating of “very high” or “extreme” (defined by the GISTM Consequence Classification Matrix) to be in conformance by August 2023. In August, we finished certifying 12 tailings storage areas in compliance with Stage 1 of the GISTM standard. We are now working to certify the remainder of our impoundments with Stage 2 of the standard by August 2025.

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 the [Circular Economy](#) section for further details.

[Read more: Global Impoundment Policy and Global Industry Standard on Tailings Management](#)

### Terminology

#### Washed Bauxite Mine Tailings

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

#### Bauxite Residue

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.

### SDG Alignment



## Construction and Design

A primary environmental risk of storing bauxite residue is alkaline water leaking into groundwater. To prevent this, we construct residue storage or alkaline water impoundments using a composite-base high-density polyethylene (HDPE) liner or 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 significantly 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.<sup>1</sup>

[Read more: Impoundment Construction and Closure](#)

## Management Process

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

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 Tailing Safety Initiative and GISTM requirements, we also maintain an inventory of our impoundment facilities worldwide. The last update was in July 2023 and the next update is scheduled for July 2024.

[Read more: Alcoa Tailings Impoundment Database](#)

We also work to continuously 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. As illustrated on the next page, this technology 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 **bauxite residue** opportunities using CO<sub>2</sub> to wash and neutralize alkalinity in sand and selling it as a construction or road material.

Please refer to the [2023 Alcoa Data Book](#) for information regarding bauxite residue land utilization requirements.

### 2030 Strategic Long-Term Goal

**15%** reduction of bauxite residue land storage requirements per 1000 mt of alumina produced against the 2015 baseline

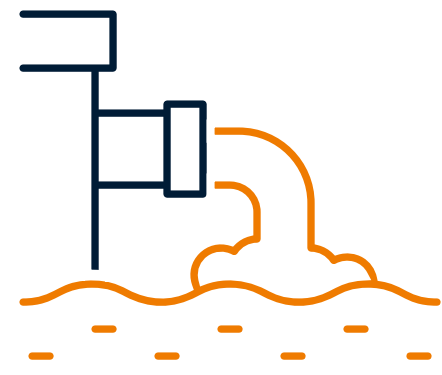
### 2023 Progress

**15.5%** reduction against the 2015 baseline

**Zero** impoundment failures across our global operations in 2023

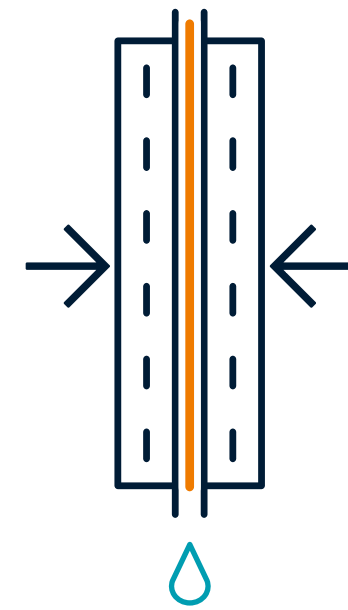
<sup>1</sup> Our Juruti mine impoundment does not require a liner because it contains washed bauxite mud only. The water is drained away in the impoundment instead.

## Impoundment Management Filtration Process



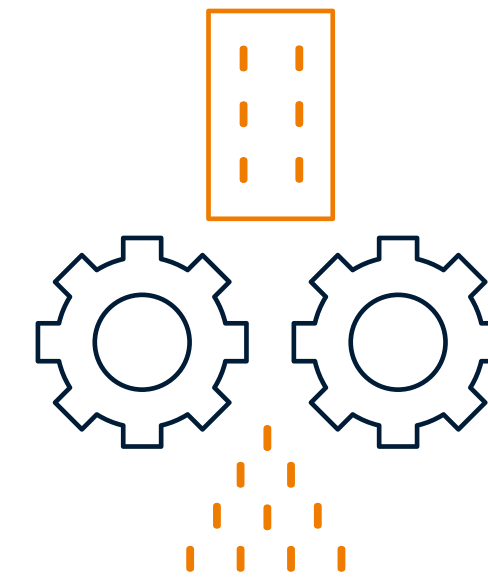
### Liquid Slurry

Mud enters the process as a liquid slurry.



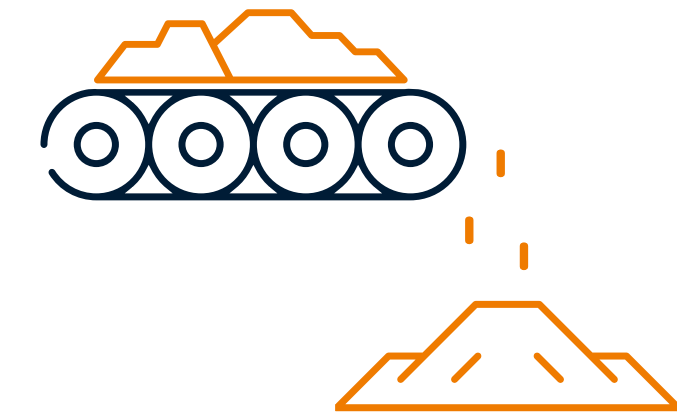
### Water Removal

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.

## Risk Assessments

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 and 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, the Global Impoundment Director, for action.

## Closure and Rehabilitation

To minimize our impact on communities and the environment, we aim to progressively close and rehabilitate tailings and residue storage areas.

[Read more: Impoundment Construction and Closure](#)





# Biodiversity and Mine Rehabilitation

Striking a balance between mining operations and conservation efforts is a complex task. Nevertheless, we are working towards achieving no net loss (NNL) of biodiversity and priority ecosystem services across all our sites relative to a designated baseline condition.

## Biodiversity and Ecosystem Services

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

In an effort to meet stakeholder expectations and address material risks associated with nature, we undertook a significant review of our Biodiversity Standard. This resulted in the development of a new Biodiversity and Ecosystem Services Management Standard, which formalizes our expectations for the consideration of priority ecosystem services and includes an enhanced scope for managing biodiversity impacts and dependencies. We aim to progressively roll out this new standard to all our locations in 2024 and 2025. We are in the process of developing our Biodiversity Strategy and updating our Biodiversity Policy, which is expected to be finalized in 2025.

Another key 2023 undertaking was the commissioning of a strategic review of Alcoa's biodiversity performance to better understand our strengths, pinpoint areas needing more attention and identify impactful opportunities. As a result of this review, we established new initiatives across our business functions. These initiatives are intended to deepen our approach to identifying and managing biodiversity risks in our supply chain, to improve the integration of biodiversity and ecosystem services management into all phases of mine life planning and to enhance transparency.

We also undertook a portfolio-level review of our biodiversity assets and their ecosystem value, with the objective of updating and standardizing biodiversity and ecosystem services risks and dependencies across our operations. We expect to complete these risk assessments by the end of 2025, which will allow us to report in line with internationally recognized frameworks, such as the Taskforce on Nature-related Financial Disclosures (TNFD).

### SDG Alignment





## Biodiversity Action Plans

We take proactive measures to mitigate biodiversity impacts through our Biodiversity Plans. These action plans identify the biodiversity that exists within areas that are under our direct management control or influence, including listed or conservation-significant species and affected populations or communities. Each plan addresses our potential impacts and impact pathways on the flora and fauna of the area and outlines actions and targets to minimize negative impacts. Provisions for monitoring progress and instituting adaptive management are also included.

Operating sites adjacent to protected areas or within areas of high biodiversity value have long implemented biodiversity action plans addressing the site-specific risks and impacts. All other operating locations either have completed plans or have plans in development.

A key part of the plan development process is engaging with and informing our stakeholders on our biodiversity actions and outcomes.



### CASE STUDY HIGHLIGHT

## Making Strides in Wildlife Conservation at Alumar

Alcoa Brazil's Alumar smelter's new wildlife management programming has achieved environmental agency approval, making Alcoa Brazil the first company to do so in the state.

[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
<b>Huntly and Willowdale Bauxite Mines</b> Jarrah Forest, Western Australia	709,857 hectares (1,735,324 acres)	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).
<b>Pinjarra Alumina Refinery</b> 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).
<b>Wagerup Alumina Refinery</b> 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).
<b>Portland Aluminum Smelter<sup>1</sup></b> Portland, Victoria, Australia	522 hectares (1,290 acres)	Adjacent to a protected area.	Threatened species and ecological communities (IUCN and federal government listed).
<b>Juruti Bauxite Mine and Related Railroad and Port Facility</b> Juruti, Pará, Brazil	29,426 hectares (72,713 acres)	Within an area of high biodiversity value.	Amazon rainforest and river; threatened species and ecological communities (IUCN listed).
<b>Poços de Caldas Operations (Bauxite Mine and Alumina Refinery)</b> Poços de Caldas, Minas Gerais, Brazil	2,327 hectares (5,750 acres)	Within an area of biodiversity value.	Fragmented native forests; threatened species (IUCN listed).
<b>Baie-Comeau Aluminum Smelter</b> 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.
<b>Lista Aluminum Smelter</b> 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.

<sup>1</sup> Area reported is the size of the land holdings or mining concession.

# Mine Rehabilitation

We prioritize avoiding or minimizing impacts on biodiversity and ecosystem services wherever possible. When impacts are unavoidable, we turn to restoration through progressive rehabilitation, which is carefully planned and considered from the early stages of mine development. At sites where our mines operate within forest ecosystems, rehabilitation is focused on returning native vegetation to the habitat, which helps address the direct and indirect effects of deforestation.

In 2023, we had five active mines, with two bauxite mines each in Australia and Brazil, one coal mine in the United States and several inactive mines in the process of final rehabilitation and closure in the United States, Australia and Suriname.

Alcoa has established a goal to maintain a ratio of mine rehabilitation area to mine disturbance area of 1:1 or better. This means that, on average, at a corporate level, we strive to ensure we rehabilitate more land than we mine. While we used to report this ratio as a rolling 5-year average, we started reporting the ratio on an annual basis in 2023, so we could conduct a more responsive review of our performance. We also made the calculation of the metric more intuitive, such that achieving a ratio greater than one now indicates that we are rehabilitating more than we disturb.

In 2023, we achieved a 1.31 rehabilitation-to-disturbance ratio, which means more area was rehabilitated than disturbed for all of our mines. Over 95 percent of the rehabilitation was returned to native ecosystems. The remaining five percent of rehabilitation was returned to its prior uses as pasture and eucalyptus plantations in Brazil.

Please refer to the [2023 Alcoa Data Book](#) for information regarding land disturbance and rehabilitation areas.

## Goal: 1:1 for Mining Disturbance

Annual average



## 2023 Progress: 1.31:1 for All Mine Assets



Ratio of mine rehabilitation to mining disturbance.

One of the many strategies we use to optimize our rehabilitation efforts is to preserve and re-spread topsoil as soon as possible to the reshaped surface. We gauge the effectiveness of these efforts by using several criteria, such as the total number of native plant species returned. In Western Australia, we continued our research trials to investigate the precision delivery of seeds to rehabilitated areas, aiming to enhance the effectiveness of the collected seeds. The technologies being implemented also have the potential to improve vegetation establishment from the soil seed bank in the preserved and re-spread topsoil. The project is a collaboration between Alcoa, Kings Park and Botanic Gardens and the Co-operative Research Centre for Transformations in Mining Economies.

## Forest Rehabilitation in Western Australia

In our more than 60 years of operation in the region, we have rehabilitated over 75 percent of the area cleared for bauxite mining, following government-endorsed protocols. As this work is done in phases, rehabilitated areas are at different stages of development.

To reduce the amount of open area, we committed to accelerating the rate of rehabilitation at our bauxite mines in Western Australia, which includes rehabilitating a minimum of more than 3,000 hectares over the next four years to 2027. This commitment will double the current annual rate of rehabilitation in Western Australia to more than 1,000 hectares by 2027.

Where our mines operate in forest ecosystems, our objective is to return native vegetation through progressive rehabilitation to help address the direct and indirect effects of deforestation.



# 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. These efforts help to reduce our environmental footprint.

## Air Emissions

We aim to reduce air emissions and associated impacts through operational practices and add-on emissions controls. Our Air Emissions Management standard defines minimum requirements for emissions management in a way that demonstrates compliance and minimizes potentially adverse impacts on the environment and community.

We manage our non-GHG air emissions—such as sulfur dioxide, particulates, and fluoride—using strict internal standards and conforming with applicable air emission regulations in the jurisdictions where we operate.

## Air Emissions Data

Our global air emissions data is available in the 2023 Sustainability Data Book. This includes, for the first time, data for carbon monoxide and particulate matter, which were previously reported at the local level. Lead emissions, on the other hand, are not covered but may be subject to local reporting requirements. While lead is not used in our processes, it can be present in raw materials, such as calcined petroleum coke and alumina.

Please refer to the [2023 Alcoa Data Book](#) for information regarding our global air emissions.

SDG Alignment



# Waste

We continually explore new ways to reduce, reuse and repurpose waste in line with waste hierarchy principles. These efforts help to conserve natural resources, stimulate material recovery industries and mitigate the negative impacts of landfilling, such as land use, emissions and potential soil or groundwater contamination.

We govern our waste management efforts using our Waste Management Standard and our supporting standards that outline our expectations for gross and spent pot lining (SPL) management.

In 2024, we aim to refresh our Waste Management Standard with increased emphasis on circularity and location targets.

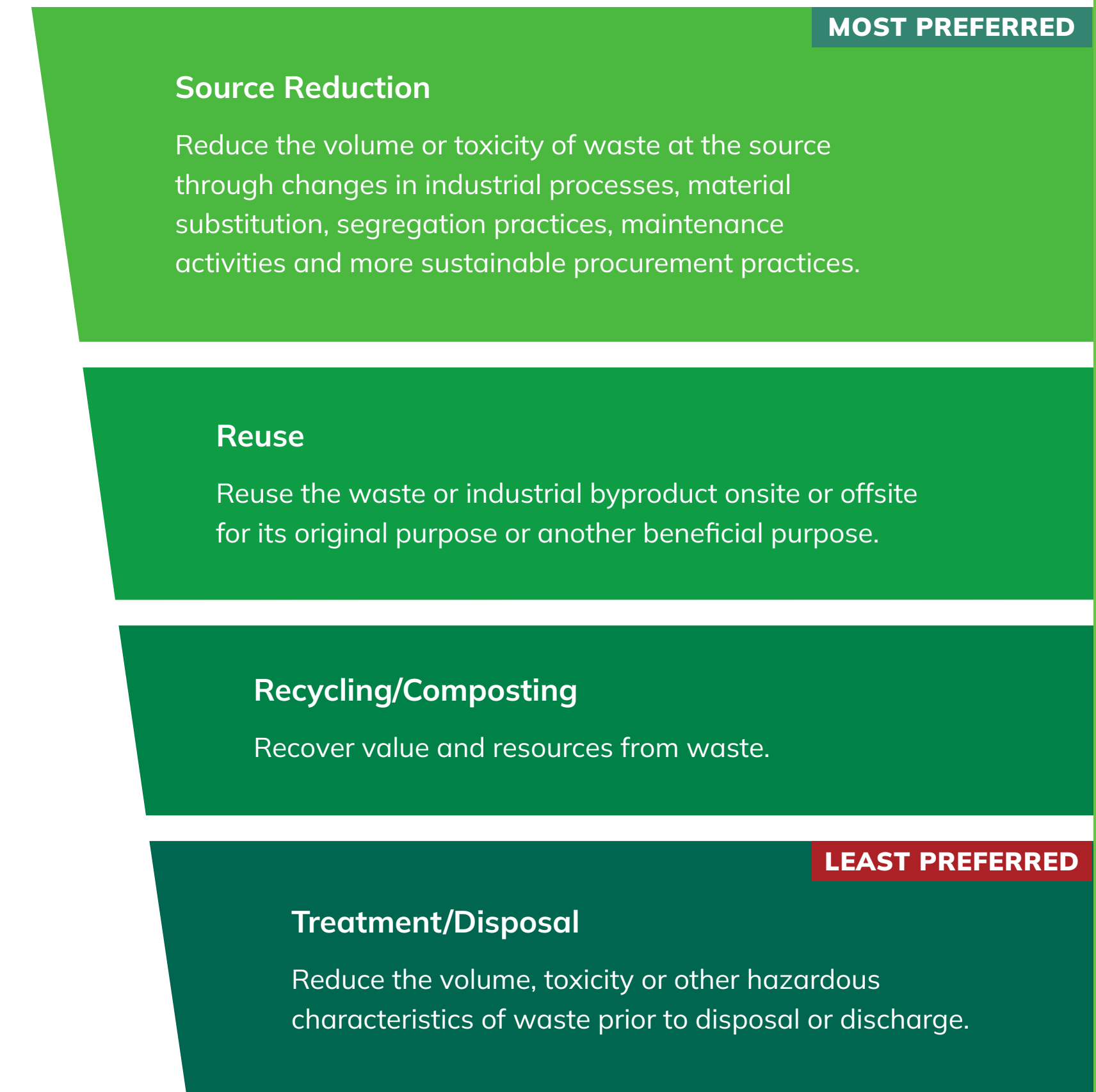
## Waste Management Standard Requirements

- Site-specific Waste Management Plan including Waste Minimization Plan
- Inventory and classification of all onsite waste streams
- Comprehensive waste training program
- Management of onsite waste storage areas that prevent releases and meet all local regulations
- Waste reporting and record keeping
- On-site landfill management

We track our global progress using our strategic waste-to-landfill goal. Each Alcoa location has a waste minimization plan outlining actions that are based on waste hierarchy principles. We develop these plans using input from various divisions, including operations, maintenance and procurement and review them at least once every three years.

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 landfills, we emphasize reducing waste at the source and supporting our transition to circular management methods such as reuse and recycling.

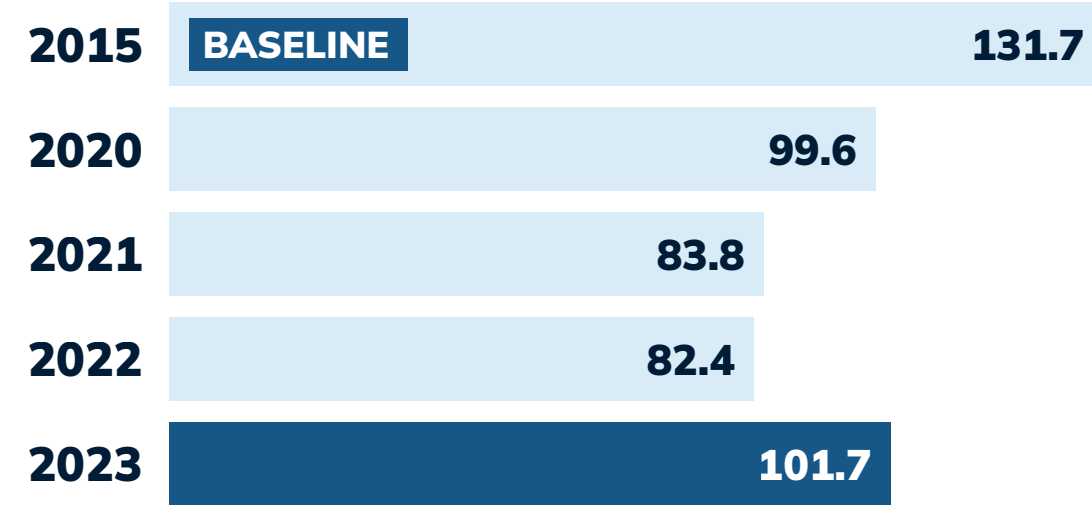
# Waste Minimization Hierarchy



In 2023, we achieved a 22.8 percent decrease in landfilled waste from our baseline. However, this is a 23.5 percent increase from 2022. The key factors behind this increase were a campaign to remove stored waste from the Alummar smelter, as well as the restart and operation of that facility.

### Landfilled Waste

Thousands of metric tons

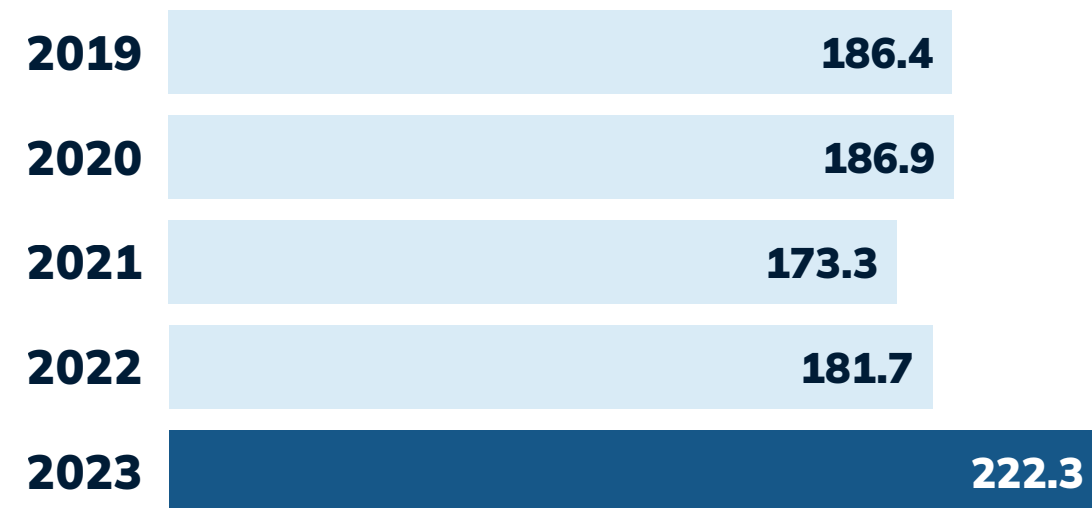


Non-mineral waste

The total waste recovered increased from 181.7 thousand metric tons in 2022 to 222.3 thousand metric tons in 2023. This result was due to an increase in recycling from the restart and operation of the Alummar Smelter.

### Total Waste Recovered

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



Non-mineral waste

Waste generation increased from 273.3 thousand metric tons in 2022 to 325.2 thousand metric tons in 2023. The restart and operation of the Alummar smelter and the management of wastewater from the Willowdale Bauxite Mine were the main contributors to this increase. Further, other disposal operations increased from 3.2 thousand metric tons to 30.4 thousand metric tons as a result of the off-site management of wastewater from the Willowdale Bauxite Mine.

### 2023 Waste Type and Management Method

Thousands of metric tons

Management Method	Hazardous Waste	Non-Hazardous Waste	Total
<b>Generated</b>	133.8	191.4	<b>325.2</b>
<b>Preparation for Reuse</b>	0.1	0.1	<b>0.2</b>
<b>Recycling</b>	66.6	148.0	<b>214.6</b>
<b>Other Recovery Operations</b>	0.7	6.8	<b>7.5</b>
<b>Incineration</b> With Energy Recovery	1.3	1.0	<b>2.2</b>
<b>Incineration</b> Without Energy Recovery	0.4	0.4	<b>0.8</b>
<b>Landfilling</b>	41.9	55.9	<b>101.7</b>
<b>Other Disposal Operations</b>	29.2	1.2	<b>30.4</b>

Non-mineral waste

It should be noted that we exclude mineral waste 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 manage these materials separately with onsite storage or impoundment areas. Overburden, rock and topsoil generated from our mining activities are also not included in this data; these materials are returned for reuse during mine landscaping and rehabilitation.

In 2023, we began expanding our reporting to include mineral waste, focusing on our mining sites. The first stage involved collecting data on the generation of mine tailings, mine overburden and rock and mine topsoil with future improvements in data capture and methodology identified through this process.

Please refer to the [2023 Alcoa Data Book](#) for information regarding Mineral Waste under Air Emissions and Waste.

## 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.

To ensure a consistent waste management approach across our value chain, we audit supplier waste generation as part of our global Supplier Sustainability Program and supplier standards. (See the [Supply Chain Management](#) section). We also have a rigorous assessment process for the transporters and facilities that receive industrial waste or by-products from our facilities.

## Transformation Waste

We also track and report waste generated by our Transformation function, which 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.

For additional information, see the [Decommissioning, Closure and Divestment](#) section.

### Transformation Waste

Thousands of metric tons

Year	Landfilled Waste	Waste Recovered*
2019	32.8	8.6
2020	71.9	28.5
2021	18.5	15.9
2022	39.9	7.6
2023	82.2	17.1

\*Recycling, preparation for reuse and 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 mitigate and control 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

We also have emergency response plans to protect people and the environment during a spill. All locations must implement and update written emergency response plans and have personnel trained in preventing and responding to emergencies. To maintain awareness and readiness, all emergency preparedness and response plans are tested at least annually.

Our internal incident and reporting standard requires us to report all spills greater than 20 liters (5.3 gallons) outside of a containment area, even if there are no external reporting requirements. We assess these events based on various factors including volume, type of material and impact area. For high-priority events, we perform an investigation and root cause analysis to identify corrective actions and prevent recurrence.

We define a major spill as having a significant and potentially lasting impact on ecosystems or communities. In 2023, we recorded zero major spills.



**Zero** major spills recorded in 2023



# Water Stewardship

Water is a precious natural resource that is critical for our operations, the communities that we are located in and the ecosystems that support us all. As the impacts of climate change exacerbate water scarcity and water-related hazards across the globe, driving for excellence in water stewardship continues to be important for both Alcoa and our stakeholders. (See the [Reporting and Materiality](#) section.)

## Water Management

Our approach to water management is outlined in our Water Stewardship Policy and guided by our Water and Wastewater Management Standard. This standard underwent a thorough review in 2023 to align more closely with our new approaches and targets. Our Policy and Standard are aligned with ICMM's Position Statement on Water Stewardship. The Standard not only includes operational water management aspects but also outlines our governance and collaboration requirements.

[Read more: Water Stewardship Policy and ICMM Position Statement on Water Stewardship](#)

### Updated 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 material changes.
- ✓ Risk-based monitoring program including trend analysis and trigger and response plan.
- ✓ Baseline surface water and groundwater assessments and change management requirements.
- ✓ 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, ensuring protection of the surrounding community and environment.
- ✓ Access to safe, high-quality potable water where supplied by Alcoa.

### SDG Alignment



Our focus remains on identifying and understanding both the water-related risks to our business and the potential water-related impacts we may have on our stakeholders and the environment, so we can develop strategies to effectively mitigate and manage these risks and impacts while meeting our disclosure and transparency requirements.

Key site-related water challenges that we are actively working to manage include water security, water supply, water discharge and contamination, stakeholder concerns, regulatory compliance and long-term water obligations.

Over the past year, Alcoa has continued to improve how we manage water resources and water-related risks. These improvements include continuing to progress Alcoa's water stewardship work program, using a catchment-based methodology to conduct water risk assessments at the majority of our sites and expanding our water reporting to align with new ICMM requirements.

## Water Stewardship Work Program

In 2023, we continued to progress our water stewardship work program, which lays out our pathway to identifying material water-related risks and our approach to addressing these challenges.



### EMPLOYEE SPOTLIGHT

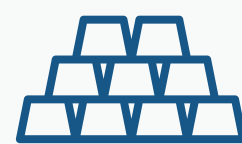
## Nicole King, Global Water and Waste Program Manager

A veteran Alcoa team member, Nicole has been with the company since 2002, when she joined us after her experience as a university student through one of our work experience programs in 1998. Since then she's grown professionally alongside our environmental team, now championing excellence in water stewardship and waste management across our operations.

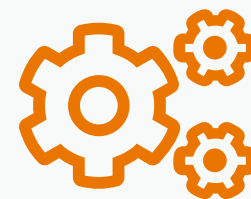
Most recently, Nicole has been responsible for making significant improvements to our water program, working with each of our operating locations to enhance our water risk assessments and to make progress on our water stewardship work program.

Nicole has also been instrumental in leading the integration of circular economy principles into our operations, from supporting innovation in waste repurposing and reuse, to developing information campaigns that build internal awareness about circularity across the company.

“I am excited about my role in supporting our business in their journey to reinvent the aluminum industry for a sustainable future through the implementation of global programs and standards that support our vision.”



Policy and Strategy



Understanding Water Context, Risk and Opportunities



Management Plan



Collaboration and Disclosure



Targets and Goals



Operational Management

## Water Risk Assessments

In line with our water stewardship work program, we carried out water risk assessments at the majority of our operating sites over the last year, with the remaining due for completion in 2024. These assessments will form the foundation of our location Water Management Plans moving forward, enabling increased collaboration and disclosure to meet rising expectations. Recognizing that water risks are different for each of our locations, we used a multi-faceted process to conduct our risk assessments, taking into account the following contexts:

- Identification of physical, regulatory and reputational risks at the catchment level using the World Wildlife Fund Water Risk Filter and Waterplan® sustainability platform, including climate scenario assessments.

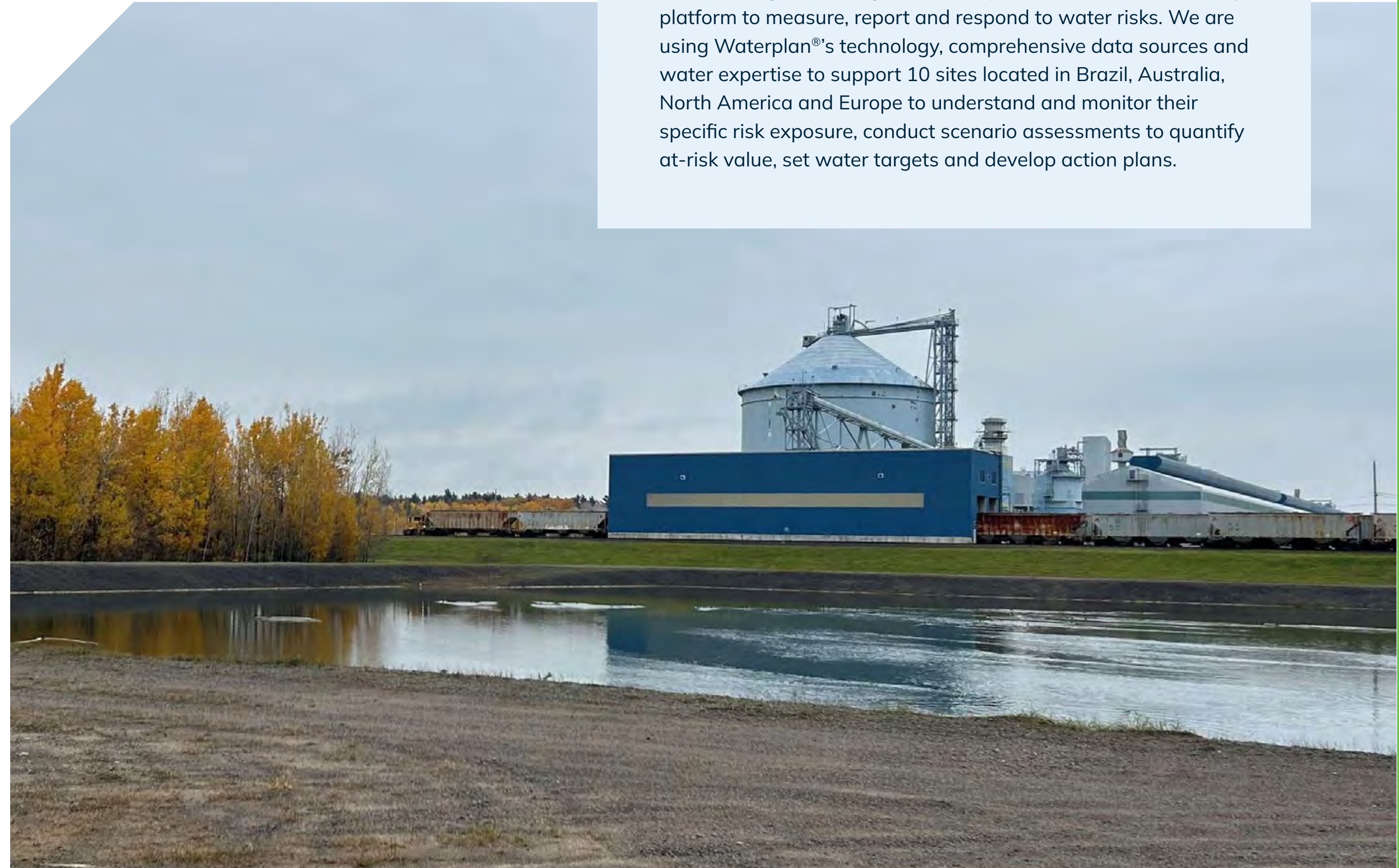
➤ [Read more: World Wildlife Fund Water Risk Filter and Waterplan® sustainability platform](#)

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

By the end of 2024, we aim to have completed water risk assessments for all of our operating sites and commenced collaboration with affected populations and organizations on material risks. The results of these risk assessments will be used to develop regionally-specific or location-specific targets linked to our most material risks, marking a significant shift away from our current water goals, which are global and applicable only to water-scarce sites. The risk assessment process will be iterative and continuously updated in response to evolving contexts.

### Waterplan®

To better understand and mitigate water risks at our higher-risk sites, we began working with Waterplan®, a water sustainability platform to measure, report and respond to water risks. We are using Waterplan®'s technology, comprehensive data sources and water expertise to support 10 sites located in Brazil, Australia, North America and Europe to understand and monitor their specific risk exposure, conduct scenario assessments to quantify at-risk value, set water targets and develop action plans.



# Water Use

Water is a key raw material within 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 science-based approaches and stakeholder engagement. Water management strategies vary for each site, taking into account the availability of water sources, the water demands of other users in the catchment, water scarcity and environmental sensitivities.

Where we have operations in regions where water can be scarce, we aim to reuse and recycle water as many times as possible, thus minimizing freshwater withdrawals and water discharge. At other facilities where water is more abundant, our focus is on returning treated or non-contact water back to its original source to minimize impacts on local ecosystems. At all our locations, we continuously look for 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.

We also engage with government agencies and non-governmental organizations within host communities who are focused on water stewardship and conservation, for example, Le Comité ZIP de la rive nord de l'estuaire (Coastal protection and conservation) and L'Organisme de bassins versants Manicouagan (OBVM, inland watershed system) in Baie-Comeau. The Alcoa Foundation also provides financial support for various water-based community opportunities.

[Read more: Shellfish Super-Spies to Improve Aquatic Ecosystems](#)

As part of our Global Supplier Sustainability Program and Supplier Standards, we assess all our suppliers against water management criteria.

[Read more: Supply Chain Management Standard](#)

Water discharges from all our sites are managed in accordance with the relevant regulatory requirements and local standards. In 2023, we received two formal enforcement actions that did not result in financial penalties related to water management at our Willowdale Bauxite Mine. For more information about our management of this issue, see the [Stakeholder Issues](#) section.



### CASE STUDY HIGHLIGHT

## Balancing Water Demands with Circularity

Taking a leading role in water management, our smelter in Deschambault has adopted a zero-water discharge system by recycling the water used in its processes and relying only on collected rainwater and snowmelt for the remainder of its water needs.

[Read the full case study](#)



# Water Reporting

In 2022, we reported our operational water withdrawal, discharge and consumption in accordance with the ICMM Water Reporting Good Practice Guide, 2nd Edition. In 2023, in alignment with the transitional allowance, we expanded our reporting beyond operational water to also include “other managed water.” Other managed water includes water that is actively managed (e.g. pumped, treated) without intent to supply the operational water demand. On Alcoa sites, this 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.

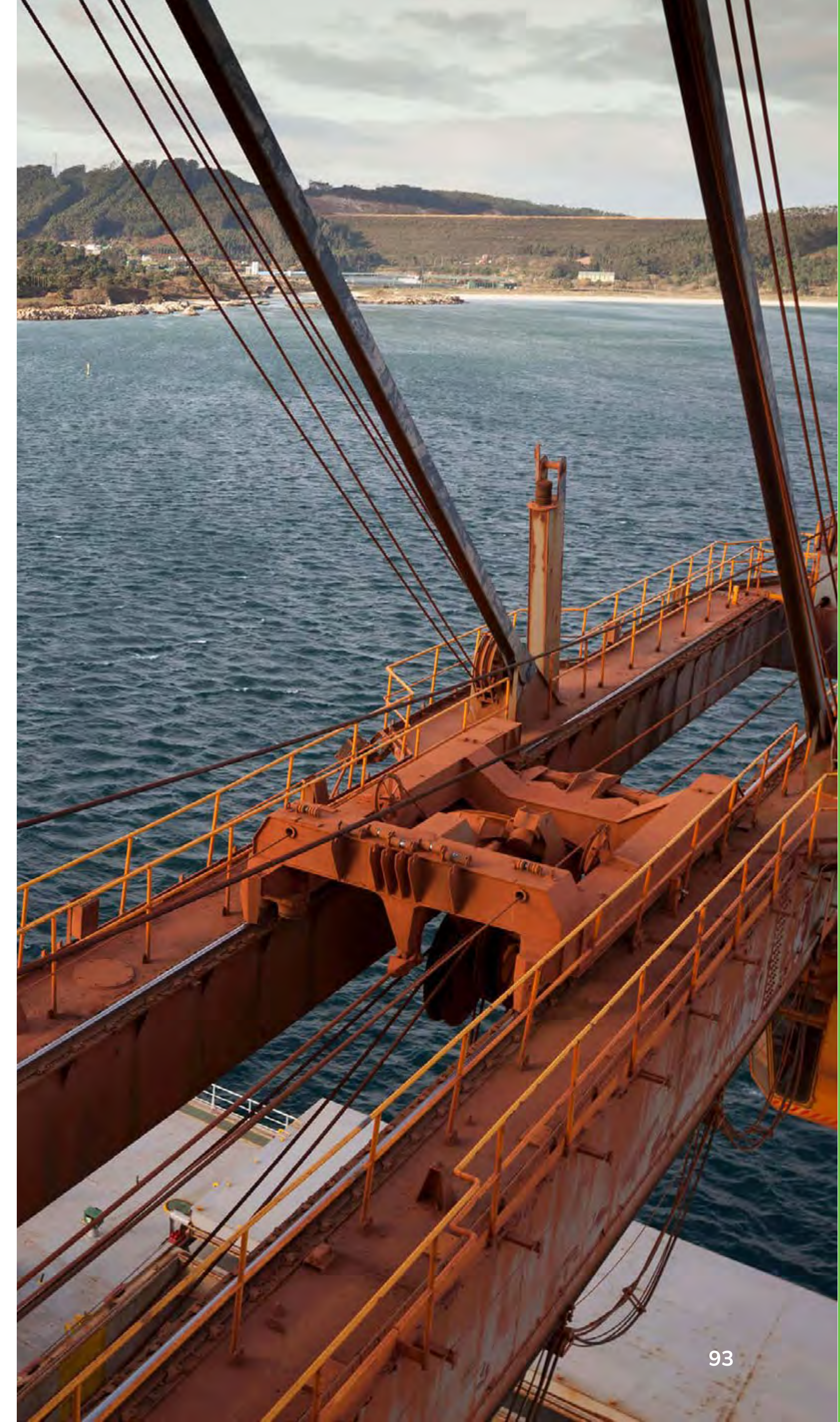
In 2023, we withdrew 8.6 million cubic meters of other managed water and discharged and consumed 8.5 and 0.1 million cubic meters respectively. Each year we calculate and review our company-wide water account to measure and monitor our rates of water withdrawal, discharge and consumption.

Please refer to the [2023 Alcoa Data Book](#) for our water balance tables (All Sites and Alcoa-Defined Water-Scarce Locations) and Freshwater Use Intensity for operational sites.

The largest users of water within our operations are our power stations, refineries and casthouses. At 87.7 percent of total water withdrawn in 2023, surface water is our highest-volume withdrawal. It is also our highest-volume discharge at 86.0 percent of total water discharged. Our main forms of water consumption are evaporation from tanks, vents and storage, entrainment in bauxite mine tailings and uses within our casting locations.

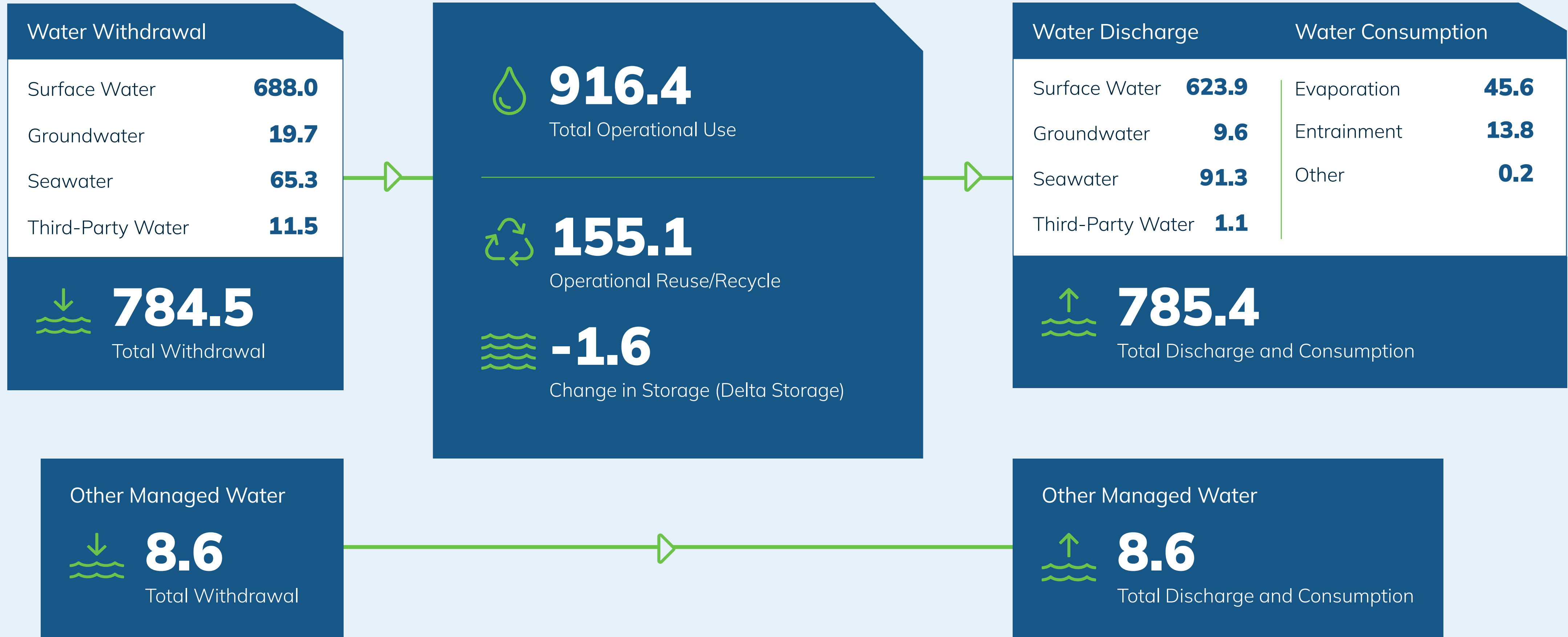
We used a total of 786.1 million cubic meters of water in 2023, which was a 5.9 percent decrease compared to 2022. Our water withdrawal decreased 6.0 percent over the prior year to 784.5 million cubic meters and we recycled or reused 155.1 million cubic meters of water. Our total outputs (discharge and consumption) decreased by 6.1 percent. Water discharges decreased by 5.9 percent to 725.9 million cubic meters and water consumption decreased by 8.3 percent to 59.5 million cubic meters.

Water withdrawal and discharge reductions were primarily driven by a 5.4 percent decrease in water use at our Warrick facility. The quantity of once-through cooling water used at this facility was reduced in 2023. This was due to one of the two larger circulating water pumps being out of service the entirety of the year. Cooling water throughput at Warrick is calculated using the per-minute operating status of each pump and the original equipment manufacturer specified flow capacity. Reduced water use at our Lista smelter linked to lower production and reduced rainfall, and runoff at our Juruti mine linked to historic dry conditions in the region also contributed to the decrease in water use and subsequent discharge and consumption reductions.



## 2023 Water Balance

Million cubic meters



## Alcoa-defined Water-scarce Locations

There are five Alcoa facilities representing 22 percent of our global water reporting locations that meet our definition of an Alcoa-defined water-scarce location. These facilities are located in Western Australia and include the Huntly and Willowdale bauxite mines, as well as the Kwinana, Pinjarra and Wagerup alumina refineries. Based on a 2018 internal assessment using the World Resource Institute Aqueduct tool, our remaining sites have been classified as experiencing low-to-medium or low-baseline water stress. Our assessment of baseline water stress and water scarcity forms part of our 2024 work plan and is aligned with our water risk assessment program initiated in 2023.

Read our Water Stewardship Policy to learn how we define our locations in water-scarce areas.

[Read more: Water Stewardship Policy](#)

To address operational risks and challenges, we aim to reduce water use intensity in Alcoa-defined water-scarce locations by 5 percent by 2025 and 10 percent by 2030, compared to 2015 baseline levels. In 2023, we reported a 2.1 percent increase against the baseline and a 7.8 percent increase from the previous year. While total water usage dropped slightly from 32.6 to 32.3 million cubic meters, the increase in water use intensity is linked to lower production primarily at the Pinjarra and Kwinana refineries. Factors such as bauxite quality influence the amount of water required to produce alumina, with lower grades of bauxite requiring more water for processing.

In 2023, our Alcoa-defined water-scarce locations used 32.3 million cubic meters of water, a 1.1% decrease from 2022, representing 4.1% of our total water consumption. These locations recycled or reused 116.7 million cubic meters of water during the year. Their high-quality water withdrawal as a percentage of total high-quality water withdrawn was 2.5 percent, with high-quality water consumption as a percentage of total high-quality water consumption at 29 percent.

Please refer to the [2023 Alcoa Data Book](#) for more information regarding our water use in Alcoa-defined water-scarce locations.



# Circular Economy

We are working to identify and integrate circular economy principles into our operations, processes and products. These dedicated efforts are to help us make better use of natural resources and reduce carbon emissions across our value chain.

## Working Principles

With climate change and biodiversity loss impacting all areas of the world, embracing circular economy principles has become an expectation among our employees, customers and stakeholders. For information on how these principles are applied to other work areas, see the [Local Commitment with Communities](#), [Supply Chain Management](#) and [Biodiversity and Mine Rehabilitation](#) sections.

Our materials circularity efforts are a natural extension of our existing waste hierarchy principles, through which we aim to deliver measurable long-term benefits. For example, our EcoDura™ aluminum is made with at least 50 percent pre-consumer recycled content. It conserves significant amounts of energy from production and decreases the environmental impacts of producing virgin aluminum.

We are also working on R&D projects, such as ASTRAEA™, which can purify lower-value, post-consumer scrap to separate aluminum and purify it to levels that exceed what is produced at most primary or secondary aluminum smelters. (See the [Innovation, Technology and Products](#) section.)

Our global circularity efforts are supported by our Waste Management Standard. It requires each of our locations to have a waste minimization plan aligned to the waste hierarchy and supporting the achievement of our strategic waste-to-landfill goal. (See the [Emissions and Waste](#) section.)

We also advanced two important projects under our global circular economy program, which started in 2022:

### Educational Videos

We initiated development of a video series aimed at promoting the adoption and use of circularity practices across our operations.

### Supplier Packaging Guidance

After a material flow analysis conducted in 2022 unveiled opportunities to reduce packaging-related waste and emissions, we began to develop a sustainable packaging guide for our suppliers.

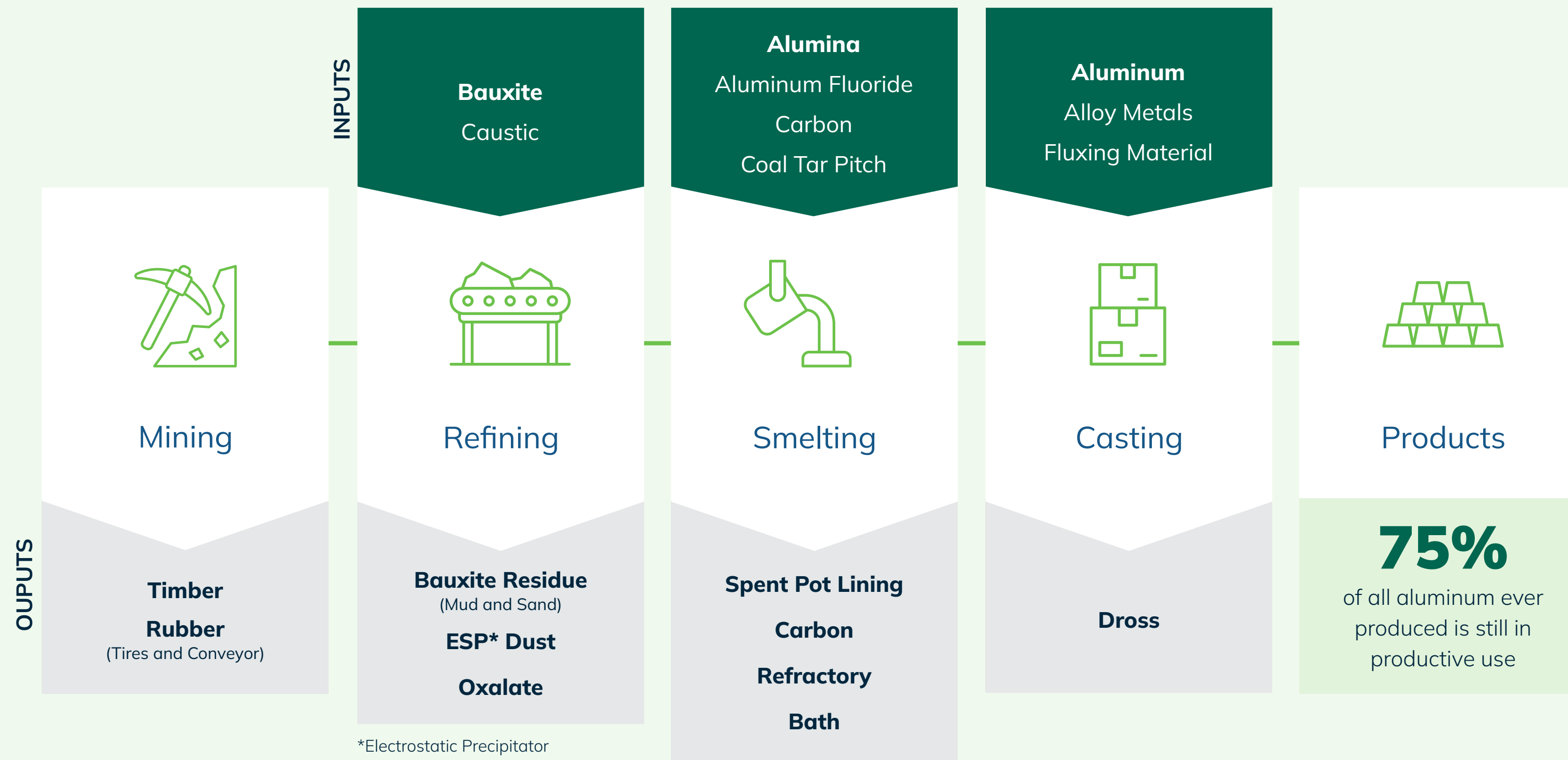
### SDG Alignment





# Waste Optimization Program

Throughout 2023, we continued to work on key waste stream initiatives as part of our Waste Optimization Program. The program uses the principles of circularity and the waste hierarchy to align and optimize our efforts. We continuously share innovations and best practices across our global operations, which individual locations can learn from and translate into site-level initiatives.



## Spent Pot Lining

Our Portland facility continued to remove material from storage for recovery, and our Alumar facility resumed recovery operations, supplying SPL to industrial partners as a feedstock for cement production. For additional information about our SPL management activities, see the [SPL](#) section.

## Bauxite Residue

In 2023, we completed a trial using bauxite residue as a raw feedstock in cement kilns to produce Portland cement clinker. For additional information about our initiatives, see the [bauxite residue](#) section.

## Mining Tire and Conveyor Recycling Program

In Western Australia, collaboration continued with a local company to develop a rubber recycling facility for end-of-life tires and conveyor belts. We signed a memorandum of understanding and committed financial and technical support for the project's engineering design and feasibility study.

## Dross-to-Pot

We continue to make strong progress in deploying our Dross-to-Pots initiative, which enables recycling of the dross by-product, rich with aluminum oxide and other valuable elements, into the aluminum smelting process. In 2023, we were able to reach stable alloyed dross recycling at Baie-Comeau and fully deploy pure dross recycling at Alumar. With this process Alcoa is now able to avoid sending recycled dross to landfill from Baie-Comeau, Alumar, Deschambault, Portland and a small portion in Fjardaal. Trial work has begun for the next potential deployment at Bécancour.

## Spent Pot Lining

A common waste material of the smelting process is 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 number and age of smelting pots we have in operation.

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

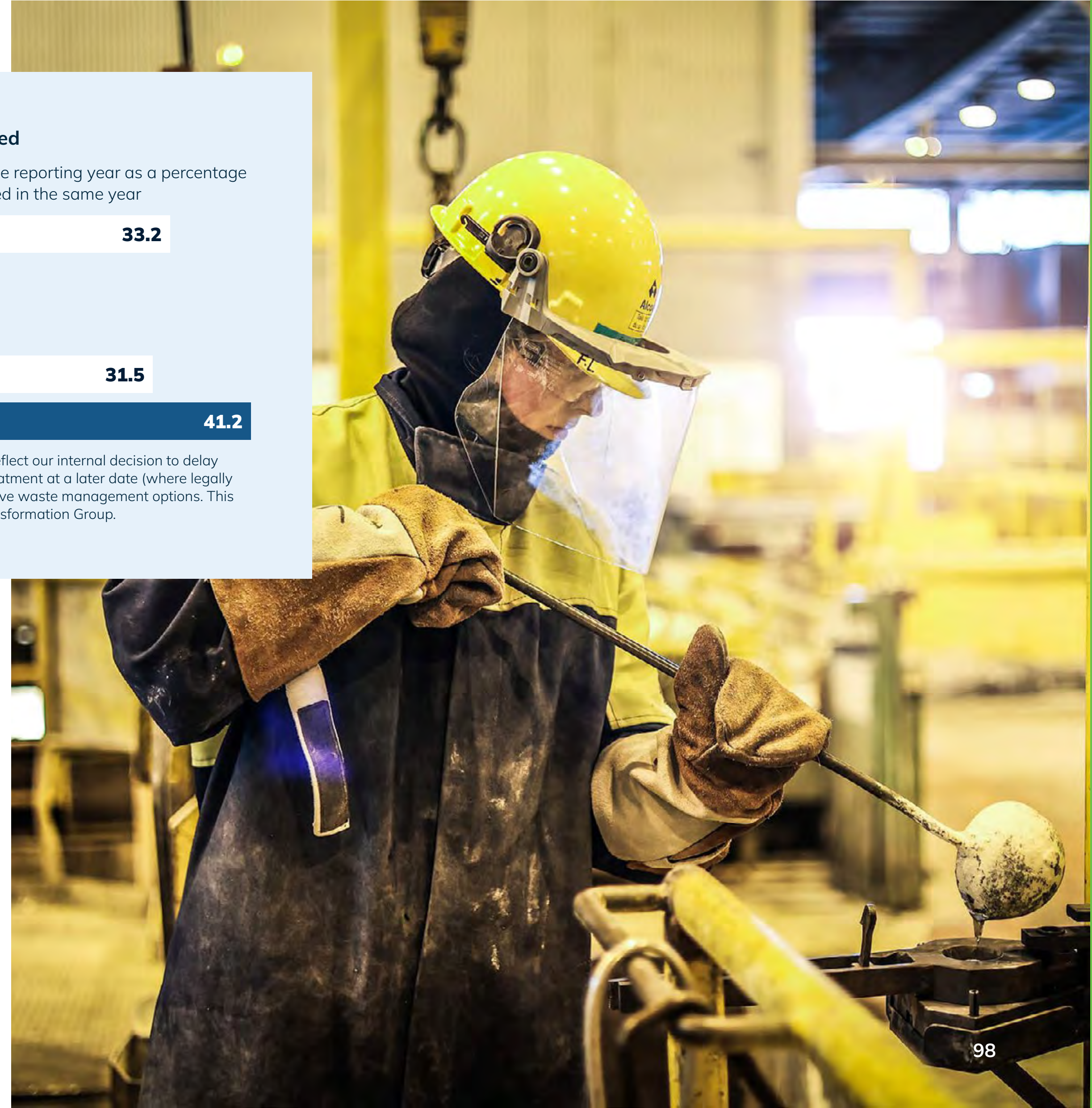
In 2023, we began developing new SPL recycling initiatives aligned with our circular economy aspirations. For example, we resumed shipping SPL from our Alumar facility in Brazil to industrial partners as a feedstock for cement production. We also started investigating new avenues for SPL recycling in North America and Europe, which we aim to begin in the next 3 – 6 years.

### 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

<b>2019</b>		<b>33.2</b>
<b>2020</b>	<b>9.5</b>	
<b>2021</b>	<b>10.8</b>	
<b>2022</b>		<b>31.5</b>
<b>2023</b>		<b>41.2</b>

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.



## Bauxite Residue

Bauxite residue is a standard by-product of the alumina refining process. In 2023, we generated 22.3 million metric tons of the material. The amount of residue per metric ton of alumina produced increased from 1.61 metric tons in 2022 to 1.79 metric tons in 2023 due to reduced bauxite grade.

As part of our circularity efforts, we have ongoing collaborations with partner organizations and universities to develop new ways of reusing bauxite residue. One of these reuses has been explored in cement production.

In 2023, we worked with an industrial partner in Brazil to complete a trial using bauxite residue as a raw feedstock in cement kilns to produce Portland cement clinker, a binder used in cement products. The four-month project processed around 9,000 metric tons of bauxite residue from our Poços de Caldas refinery. Using this material significantly decreases our land storage requirements and can assist with controlling emissions from cement manufacturing.



### Ongoing Initiatives

- The EU-funded ReActiv project aims to transform bauxite residue into a reactive material suitable for lower-carbon cement products. This project is now progressing to pilot-phase for the various technologies developed. The project is due to be completed in April 2025.
- We are collaborating with industrial partners to identify new ways of using bauxite residue in cement production, specifically the use of bauxite residue as a raw meal feed in clinker production.
- We are collaborating with the University of São Paulo to unlock the large-scale use of untreated bauxite residue in cement and concrete production. This is currently focused on developing concrete-based products that incorporate bauxite residue for use at Alcoa's Poços de Caldas refinery.
- A project focused on rapidly transforming in-situ bauxite residue into a soil-like medium.

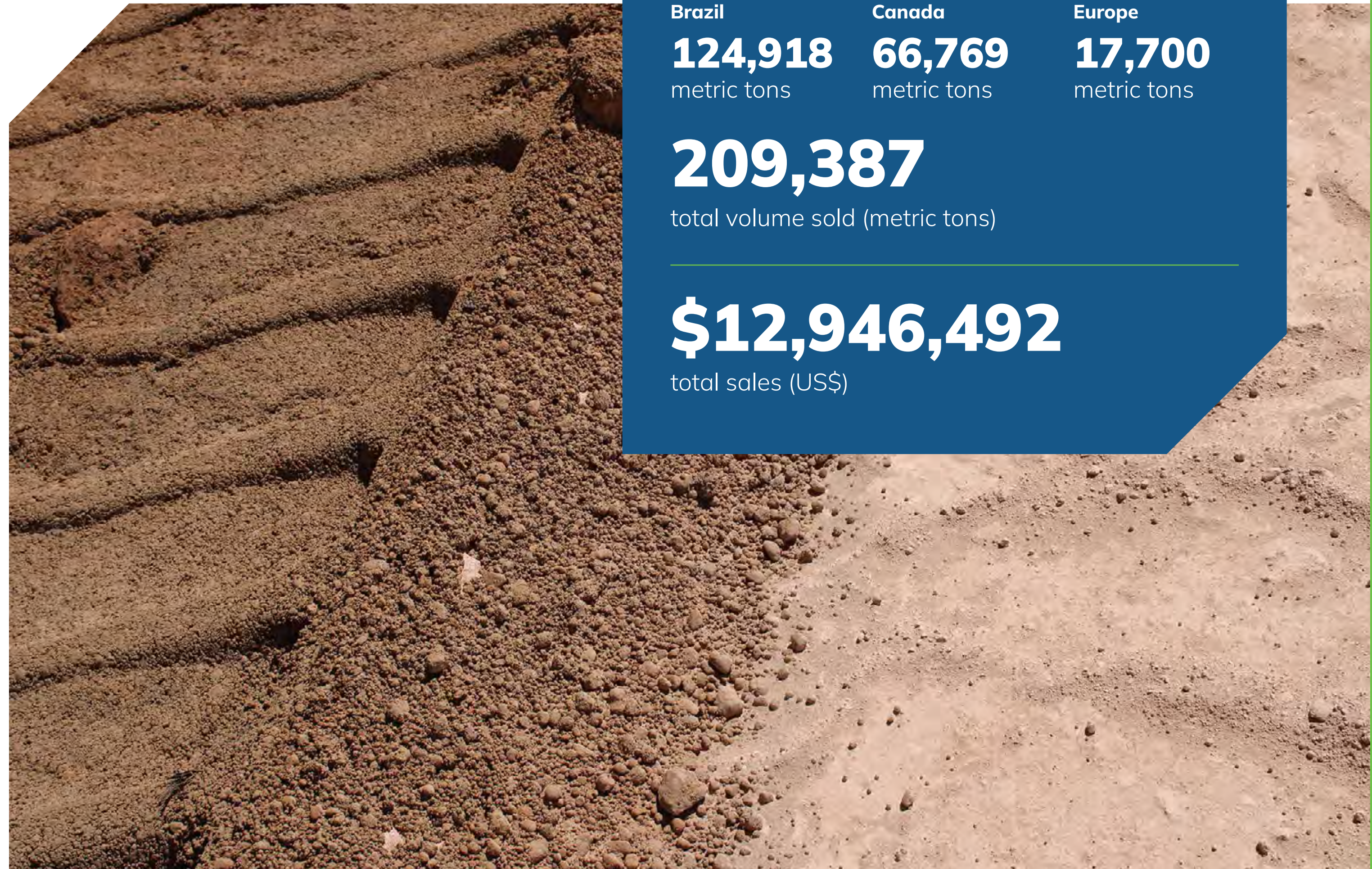
We also continue to explore opportunities to reuse coarse sand and clay components of bauxite residue in construction, agriculture and new decarbonization products.

Please refer to the [2023 Alcoa Data Book](#) for information regarding our bauxite residue intensity.

## Secondary Minerals and Materials

Our Secondary Minerals team works to find alternative markets and uses for our secondary minerals and materials. Secondary materials are typically landfilled but can be sold as a commercial product or used to generate additional financial value. Selling these minerals and materials reduces the waste we landfill, lowers the demand for natural resources and can reduce our operating costs by creating new revenue streams.

The secondary minerals and materials we currently sell include carbon, electrolytic bath, fly ash, scales, used refractories and secondary aluminas, in addition to SPL and bauxite residue. These materials are commonly reused in industrial manufacturing to produce products such as steel, cement and refractory ceramics.



### Secondary Minerals Sold in 2023

Brazil	Canada	Europe
<b>124,918</b> metric tons	<b>66,769</b> metric tons	<b>17,700</b> metric tons

**209,387**  
total volume sold (metric tons)

**\$12,946,492**  
total sales (US\$)



Appendices

# Disclosures and References

**102** Acronyms

**103** Materiality Assessment Process

**104** Content Index

**114** Limited Assurance Statement

**118** Key Stakeholder Issues

**120** Associations and Memberships

**122** 2023 Awards and Recognitions

[Appendix A](#)

# Acronyms

<p><b>ACORJUVE</b> Association of Communities of the Juruti Velho Region</p>	<p><b>DART</b> Days Away, Restricted or Transferred</p>	<p><b>ESG</b> Environment, Social and Governance</p>	<p><b>HRIA</b> Human Rights Impact Assessment</p>	<p><b>M&amp;A</b> Mergers and Acquisition</p>	<p><b>SPL</b> Spent Pot Lining</p>
<p><b>ASI</b> Aluminium Stewardship Initiative</p>	<p><b>DOJ</b> US Department of Justice</p>	<p><b>ESIA</b> Environmental and Social Impact Assessment</p>	<p><b>IAI</b> International Aluminium Institute</p>	<p><b>NNL</b> No Net Loss</p>	<p><b>TCFD</b> Taskforce on Climate-Related Financial Disclosures</p>
<p><b>CAPEX</b> Capital Expenditure</p>	<p><b>DJSI</b> Dow Jones Sustainability Indices</p>	<p><b>EVP</b> Employee Value Proposition</p>	<p><b>ICMM</b> International Council on Mining and Metals</p>	<p><b>ORM</b> Operational Risk Management</p>	<p><b>TFND</b> Taskforce on Nature-Related Financial Disclosures</p>
<p><b>CCFV</b> Critical Control Field Verification</p>	<p><b>DWER</b> Western Australia Department of Water and Environmental Regulation</p>	<p><b>FSI-P</b> Fatality or Serious Injury Potential</p>	<p><b>IDE</b> Inclusion, Diversity and Equity</p>	<p><b>PEHSR</b> Project EHS Review</p>	<p><b>US EPA</b> United States Environmental Protection Agency</p>
<p><b>CEI</b> Human Rights Campaign Foundation's Corporate Equality Index</p>	<p><b>E&amp;C</b> Ethics and Compliance</p>	<p><b>GHG</b> Greenhouse Gas Emissions</p>	<p><b>IFRS</b> International Financial Reporting Standards Foundation</p>	<p><b>PDP</b> Performance and Development Process</p>	<p><b>VPI</b> Voluntary Principles Initiative</p>
<p><b>CFO</b> Chief Financial Officer</p>	<p><b>EHS</b> Environment, Health and Safety</p>	<p><b>GISTM</b> Global Industry Standard on Tailings Management</p>	<p><b>IG</b> Inclusion Group</p>	<p><b>PE</b> ICMM Performance Expectations</p>	<p><b>WA EPA</b> Environmental Protection Authority of Western Australia</p>
<p><b>CoE</b> Center of Excellence</p>	<p><b>EITI</b> Extractive Industries Transparency Initiative</p>	<p><b>GRI</b> Global Reporting Initiative</p>	<p><b>IUCN</b> International Union for Conservation of Nature</p>	<p><b>REC</b> Renewable Energy Certificate</p>	
<p><b>COSO</b> Committee of Sponsoring Organizations of the Treadway Commission</p>	<p><b>ERM</b> Enterprise Risk Management</p>	<p><b>GWD</b> Good Work Design</p>	<p><b>ISO</b> International Standards Organization</p>	<p><b>SASB</b> Sustainability Accounting Standards Board</p>	
	<p><b>ERM CVS</b> ERM Certification and Verification Services Inc.</p>	<p><b>HDPE</b> High-Density Polyethylene</p>	<p><b>LME</b> London Metal Exchange</p>	<p><b>SSC</b> Supplier Site Collaboration</p>	
		<p><b>HRDD</b> Human Rights Due Diligence</p>		<p><b>SDGs</b> United Nations Sustainable Development Goals</p>	

## Appendix B

# Materiality Assessment Process

Our methodology is described below and aligns with the GRI framework.

## 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, 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 organisation and the stakeholders they represent.
- Impact to the business prioritisation: 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 prioritization matrix highlighting key priorities.
- Summarize key findings for each topic.

## Internal Validation

- The outcomes were presented to over 30 internal SMEs for validation, this enabled SMEs to test and review outcomes in their final form and contest any gaps.
- Once the outcomes were finalised and validated by experts they were presented to senior management.
- As part of the final validation, implications for Alcoa's strategy and reporting were discussed and next steps determined.

[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 ICM 10 Principles. This report has been prepared in accordance with the GRI Standards 2023.

## General Disclosures

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
<b>GRI 2: General Disclosures 2021</b>							
2-1	Organizational details	<a href="#">Corporate Overview</a>	EM-MM-510a.2				
2-2	Entities included in the organization's sustainability reporting	<a href="#">About this Report</a> , <a href="#">Corporate Overview</a> , <a href="#">Annual Report</a>					
2-3	Reporting period, frequency and contact point	<a href="#">About this Report</a>					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	<a href="#">About this Report</a> , <a href="#">ESG Transparency and Disclosure</a> , <a href="#">ERM CVS Limited Assurance Statement</a>			Assurance and validation		
2-6	Activities, value chain and other business relationships	<a href="#">Corporate Overview</a> , <a href="#">Innovation, Technology and Products</a> , <a href="#">Supply Chain Management</a> , <a href="#">Annual Report</a> , <a href="#">Quarterly Earnings</a> , <a href="#">News Releases</a>	EM-MM-000.A EM-MM-000.B		10		
2-7	Employees	<a href="#">Talent Attraction, Retention and Development</a> , <a href="#">Data Book</a>	EM-MM-000.B				
2-8	Workers who are not employees	<a href="#">Ethics and Good Governance</a> , <a href="#">Supply Chain Management</a> , <a href="#">Health and Safety</a> , <a href="#">Inclusion, Diversity and Equity</a> , <a href="#">Ethics and Compliance</a> , <a href="#">Environment, Health and Safety</a>	EM-MM-000.B				
2-9	Governance structure and composition	<a href="#">Governance</a> , <a href="#">2024 Proxy Statement</a> , <a href="#">Board of Directors</a> , <a href="#">Board Committees</a>	EM-MM-510a.1		1		



GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
2-10	Nomination and selection of the highest governance body	<a href="#">2024 Proxy Statement, Governance and Nominating Committee</a>					
2-11	Chair of the highest governance body	<a href="#">2024 Proxy Statement, Governance Documents</a>					The Chairman of the Board at the end of 2023 was Steven W. Williams.
2-12	Role of the highest governance body in overseeing the management of impacts	<a href="#">Governance, Board of Directors, Officers, Safety, Sustainability and Public Issues Committee, Audit Committee</a>					
2-13	Delegation of responsibility for managing impacts	<a href="#">Ethics and Good Governance, Safety, Sustainability and Public Issues Committee</a>		12	2		Alcoa's CEO, who reports to and is a member of the Board of Directors, holds the 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	<a href="#">Ethics and Good Governance, Annual Report, 2024 Proxy Statement, Governance and Nominating Committee</a>	EM-MM-510a.1		1		
2-16	Communication of critical concerns	<a href="#">Ethics and Good Governance, Stakeholder Engagement, Ethics and Compliance, Integrity Line, Contact Overview</a>			1, 3		
2-17	Collective knowledge of the highest governance body	<a href="#">Board of Directors</a>			2		
2-18	Evaluation of the performance of the highest governance body	<a href="#">2024 Proxy Statement</a>					The BOD annually assesses the effectiveness of the full board, the operation of its committees and the contributions of directors.
2-19	Remuneration policies	<a href="#">2024 Proxy Statement</a>					
2-20	Process to determine remuneration	<a href="#">2024 Proxy Statement</a>					
2-21	Annual total compensation ratio	<a href="#">2024 Proxy Statement</a>					We report the global ratio only.
2-22	Statement on sustainable development strategy	<a href="#">Letter to Our Stakeholders</a>					
2-23	Policy commitments	2023 Sustainability Report – All material topics, <a href="#">Ethics and Compliance, Sustainability, Environment, Health and Safety, Human Rights</a>	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
2-24	Embedding policy commitments	2023 Sustainability Report – All material topics	EM-MM-510a.1	3, 5, 8, 10, 12, 16	1, 3, 4	2.1f; 2.4b, 9.1	
2-25	Processes to remediate negative impacts	2023 Sustainability Report – All material topics, <a href="#">Integrity Line</a> , <a href="#">Stakeholder Engagement</a>		16	3		
2-26	Mechanisms for seeking advice and raising concerns	<a href="#">Ethics and Good Governance</a> , <a href="#">Stakeholder Engagement</a> , <a href="#">Ethics and Compliance</a> , <a href="#">Integrity Line</a> , <a href="#">Contact Overview</a>		16	1	3.4f	
2-27	Compliance with laws and regulations	<a href="#">Ethics and Good Governance</a> , <a href="#">Annual Report</a> , <a href="#">Ethics and Compliance</a>		16			
2-28	Membership associations	<a href="#">ESG Transparency and Disclosure</a>			10		
2-29	Approach to stakeholder engagement	<a href="#">Stakeholder Engagement</a>	EM-MM-210b.1 EM-MM-310a.2		9, 10		
2-30	Collective bargaining agreements	<a href="#">Talent Attraction, Retention and Development</a> , <a href="#">Annual Report</a>	EM-MM-310a.1	8	3		
	Environmental and Social Impact Assessments	<a href="#">Risk Management</a> , <a href="#">Due Diligence on CAPEX and M&amp;A</a> , <a href="#">Stakeholder Engagement</a>				2.5g	
<b>GRI 3: Material Topics 2021</b>							
3-1	Process to determine material topics	<a href="#">Reporting and Materiality</a>					
3-2	List of material topics	<a href="#">Reporting and Materiality</a>				3.1b	
3-3	Management of material topics	<a href="#">Sustainability Approach</a> , 2023 Sustainability Report – All material topics, <a href="#">Annual Report</a>				3.1a	The management of material impacts is described throughout the sustainability report.
<b>GRI 201: Economic Performance</b>							
3-3	Management of material topics	<a href="#">Shared Value Creation</a> , <a href="#">Data Book</a> , <a href="#">Annual Report</a> , <a href="#">Quarterly Earnings</a>					
201-1	Direct economic value generated and distributed	<a href="#">Shared Value Creation</a> , <a href="#">Data Book</a> , <a href="#">Annual Report</a> , <a href="#">Quarterly Earnings</a>	EM-MM-210b.1	8, 16	9	3.3b	
201-2	Financial implications and other risks and opportunities due to climate change	<a href="#">Climate Change</a>		13	4, 6		
201-3	Defined benefit plan obligations and other retirement plans	<a href="#">Annual Report</a>					

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
<b>GRI 204: Procurement Practices</b>							
3-3	Management of material topics	<a href="#">Supply Chain Management, Suppliers</a>			9		
204-1	Proportion of spending on local suppliers	<a href="#">Shared Value Creation, Data Book</a>		8, 10, 11	9		
<b>GRI 205: Anti-corruption 2016</b>							
3-3	Management of material topics	<a href="#">Ethics and Good Governance, Ethics and Compliance</a>			Assurance and Validation		
205-1	Operations assessed for risks related to corruption	<a href="#">Risk Management</a>		16			
205-2	Communication and training about anti-corruption policies and procedures	<a href="#">Ethics and Good Governance, Ethics and Compliance</a>		16		1.3c, 3.4f	
<b>GRI 302: Energy 2016</b>							
3-3	Management of material topics	<a href="#">Energy Use and Efficiency</a>					
302-1	Energy consumption within the organization	<a href="#">Energy Use and Efficiency, Data Book</a>	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	<a href="#">Climate Change</a>		7, 9, 12, 13	6	5.1a	
302-3	Energy intensity	<a href="#">Energy Use and Efficiency, Data Book</a>		7, 9, 12, 13	6	5.1a	
302-4	Reduction of energy consumption	<a href="#">Energy Use and Efficiency, Data Book</a>		7, 9, 12, 13	6	5.1a	
302-5	Reductions in energy requirements of products and services	<a href="#">Innovation, Technology and Products, Climate Change</a>		7, 9, 12, 13	6	5.1a	
<b>GRI 303: Water and Effluents 2018</b>							
3-3	Management of material topics	<a href="#">Water Stewardship</a>				6.2g, 7.2e	
303-1	Interactions with water as a shared resource	<a href="#">Water Stewardship, Data Book</a>		6, 12, 14	6	6.2a	
303-2	Management of water discharge-related impacts	<a href="#">Water Stewardship</a>	EM-MM-140a.2	6, 12, 14	6	7.1b	
303-3	Water withdrawal	<a href="#">Water Stewardship, Data Book</a>	EM-MM-140a.1	6, 9, 12, 14	6	7.1a	
303-4	Water discharge	<a href="#">Water Stewardship, Data Book</a>	EM-MM-140a.1	6, 9, 12, 14	6	6.2a	
303-5	Water consumption	<a href="#">Water Stewardship, Data Book</a>	EM-MM-140a.1	6, 12, 14	6		

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
<b>GRI 304: Biodiversity 2016</b>							
3-3	Management of material topics	<a href="#">Biodiversity and Mine Rehabilitation</a> , <a href="#">Biodiversity</a>					
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	<a href="#">Biodiversity and Mine Rehabilitation</a>	EM-MM-160a.3	15	7		
304-2	Significant impacts of activities, products and services on biodiversity	<a href="#">Biodiversity and Mine Rehabilitation</a> , <a href="#">Data Book</a>	EM-MM-160a.1	14, 15	6, 7		
304-3	Habitats protected or restored	<a href="#">Biodiversity and Mine Rehabilitation</a> , <a href="#">Data Book</a>		14, 15	7		
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	<a href="#">Biodiversity and Mine Rehabilitation</a>	EM-MM-160a.3	14, 15	7		
<b>GRI 305: Emissions 2016</b>							
3-3	Management of material topics	<a href="#">Climate Change</a>				5.3e	
305-1	Direct (Scope 1) GHG emissions	<a href="#">Climate Change</a> , <a href="#">Data Book</a>	EM-MM-110a.1, EM-MM-110a.2	9, 12, 13	6	5.1a	
305-2	Energy indirect (Scope 2) GHG emissions	<a href="#">Climate Change</a> , <a href="#">Data Book</a>		9, 12, 13	6	5.1a	
305-3	Other indirect (Scope 3) GHG emissions	<a href="#">Climate Change</a> , <a href="#">Data Book</a>		9, 12, 13	6	5.1a	
305-4	GHG emissions intensity	<a href="#">Climate Change</a> , <a href="#">Data Book</a>		9, 12, 13	6	5.1a	
305-5	Reduction of GHG emissions	<a href="#">Innovation, Technology and Products</a> , <a href="#">Climate Change</a>		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 (NO <sub>x</sub> ), sulfur oxides (SO <sub>x</sub> ) and other significant air emissions	<a href="#">Air Emissions</a> , <a href="#">Data Book</a>	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	<a href="#">Strategic Long-Term Goals</a> , <a href="#">Climate Change</a>			6	5.3b iii, 5.3e	
	Air Emissions Reduction Plans	<a href="#">Air Emissions</a>			6	6.1f	
<b>GRI 306: Waste 2020</b>							

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
3-3	Management of material topics	<a href="#">Emissions and Waste</a>					
306-1	Waste generation and significant waste-related impacts	<a href="#">Emissions and Waste</a>	EM-MM-150a.4	3, 12, 15	6, 8		
306-2	Management of significant waste-related impacts	<a href="#">Emissions and Waste, Data Book</a>	EM-MM-150a.10	3, 12, 15	6, 8	6.5a	
306-3	Waste generated	<a href="#">Emissions and Waste, Data Book</a>	EM-MM-150a.4	3, 12, 15	6, 8	6.5a	
306-4	Waste diverted from disposal	<a href="#">Emissions and Waste, Circular Economy, Data Book</a>		3, 12, 15	6, 9	6.5a	
306-5	Waste directed to disposal	<a href="#">Emissions and Waste, Data Book</a>		3, 12, 15	6, 10	6.5a	
	Total weight of hazardous waste generated	<a href="#">Emissions and Waste</a>	EM-MM-150a.7		6, 11	6.5a	
	Total weight of hazardous waste generated	<a href="#">Emissions and Waste</a>	EM-MM-150a.8		6, 12	6.5a	
	Spills	<a href="#">Emissions and Waste</a>			6, 13	6.4b	
<b>GRI 308: Supplier Environmental Assessment 2016</b>							
3-3	Management of material topics	<a href="#">Supply Chain Management, Suppliers</a>					
308-1	New suppliers that were screened using environmental criteria	<a href="#">Supply Chain Management, Data Book</a>		12	3, 9,10		We continuously screen all suppliers, but do not disaggregate counts. That is, we do not track new suppliers separately.
308-2	Negative environmental impacts in the supply chain and actions taken	<a href="#">Supply Chain Management</a>		12	3, 9,10		
<b>GRI 402: Labor/Management Relations 2016</b>							
3-3	Management of material topics	<a href="#">Talent Attraction, Retention and Development</a>					
402-1	Minimum notice periods regarding operational changes			8			
<b>GRI 403: Occupational Health and Safety 2018</b>							
3-3	Management of material topics	<a href="#">Health and Safety, Environment, Health and Safety</a>				11.1e	
403-1	Occupational health and safety management system	<a href="#">Health and Safety</a>		3, 8	5	11.1e	
403-2	Hazard identification, risk assessment and incident investigation	<a href="#">Health and Safety, Environment, Health and Safety</a>		3, 8	5	11.1e	
403-3	Occupational health services	<a href="#">Health and Safety</a>		3, 8	5		

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
403-4	Worker participation, consultation and communication on occupational health and safety	<a href="#">Health and Safety</a>		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	<a href="#">Annual Report</a>	EM-MM-320a.1	3, 8	5		
403-6	Promotion of worker health	<a href="#">Health and Safety, Environment, Health and Safety</a>		3, 8	5		
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	<a href="#">Supply Chain Management, EHS Policy</a>		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	<a href="#">Health and Safety, EHS Policy</a>		3, 8	5		
403-9	Work-related injuries	<a href="#">Health and Safety, Data Book</a>	EM-MM-320a.1	3, 8	5		
403-10	Work-related ill health	<a href="#">Health and Safety, Data Book</a>		3, 8	5		
<b>GRI 404: Training and Education 2016</b>							
3-3	Management of material topics	<a href="#">Talent Attraction, Retention and Development</a>					
404-1	Average hours of training per year per employee	<a href="#">Talent Attraction, Retention and Development</a>		4, 8			
404-2	Programs for upgrading employee skills and transition assistance programs	<a href="#">Talent Attraction, Retention and Development, Data Book</a>		4, 8			
404-3	Percentage of employees receiving regular performance and career development reviews	<a href="#">Talent Attraction, Retention and Development</a>		8			
<b>GRI 405: Diversity and Equal Opportunity 2016</b>							
3-3	Management of material topics	<a href="#">Inclusion, Diversity and Equity, Inclusion and Diversity</a>			3	9.2e	
405-1	Diversity of governance bodies and employees	<a href="#">Inclusion, Diversity and Equity, Data Book, Inclusion and Diversity</a>		5, 8, 10	3	3	
405-2	Ratio of basic salary and remuneration of women to men	<a href="#">Inclusion, Diversity and Equity</a>		5, 8, 10	3	3	

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
<b>GRI 406: Non-Discrimination 2016</b>							
3-3	Management of material topics	<a href="#">Inclusion, Diversity and Equity, Equal Employment Opportunity Policy</a>			3	9.2e	
406-1	Incidents of discrimination and corrective actions taken	<a href="#">Ethics and Good Governance, Inclusion, Diversity and Equity, Equal Employment Opportunity Policy</a>		8, 10	3		All concerns raised by employees are treated seriously and confidentially. Corrective action is administered when appropriate.
<b>GRI 407: Freedom of Association and Collective Bargaining 2016</b>							
3-3	Management of material topics	<a href="#">Supply Chain Management, Talent Attraction, Retention and Development, Data Book, Human Rights</a>					
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	<a href="#">Supply Chain Management, Talent Attraction, Retention and Development, Data Book, Human Rights, Global Modern Slavery Statement</a>		8, 12	3		This risk is audited via EcoVadis Ratings and reflected in our EcoVadis IQ results.
<b>GRI 408: Child Labor 2016</b>							
3-3	Management of material topics	<a href="#">Supply Chain Management, Human Rights, Human Rights, Global Modern Slavery Statement</a>					
408-1	Operations and suppliers at significant risk for incidents of child labor	<a href="#">Supply Chain Management, Human Rights, Human Rights, Global Modern Slavery Statement</a>		12	3		
<b>GRI 409: Forced or Compulsory Labor 2016</b>							
3-3	Management of material topics	<a href="#">Supply Chain Management, Human Rights, Human Rights, Global Modern Slavery Statement</a>				10.3c	
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	<a href="#">Supply Chain Management, Human Rights, Data Book, Human Rights, Global Modern Slavery Statement</a>		8, 12	3	10.3c	This risk is mitigated through our supplier risk management protocols and audited via EcoVadis Ratings.
<b>GRI 411: Rights of Indigenous Peoples 2016</b>							
3-3	Management of material topics	<a href="#">Indigenous and Land-Connected People, Indigenous and Land-Connected People, Reconciliation Action Plan</a>				9.3g	
411-1	Incidents of violations involving rights of indigenous peoples	<a href="#">Indigenous and Land-Connected People</a>	EM-MM-210a.3	16	3		
<b>GRI 413: Local Communities 2016</b>							

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle	ASI Requirement	Note
3-3	Management of material topics	<a href="#">Local Commitment with Communities</a>					
413-1	Operations with local community engagement, impact assessments and development programs	<a href="#">Local Commitment with Communities, Due Diligence on CAPEX and M&amp;A</a>	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	<a href="#">Local Commitment with Communities, Key 2023 Stakeholder Issues</a>		10, 16	3, 9	9.7g	
<b>GRI 414: Supplier Social Assessment 2016</b>							
3-3	Management of material topics	<a href="#">Supply Chain Management</a>					
414-1	New suppliers that were screened using social criteria	<a href="#">Supply Chain Management, Data Book</a>		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	<a href="#">Supply Chain Management</a>		12	3, 9		
<b>GRI 415: Public Policy 2016</b>							
3-3	Management of material topics	<a href="#">Ethics and Good Governance, Political, Regulatory and Economic Uncertainty</a>					
415-1	Political contributions	<a href="#">Ethics and Good Governance</a>		16		3.3c	
	Payments to governments	<a href="#">Shared Value Creation</a>				3.3b	
<b>GRI Mining and Metals Sector Disclosures</b>							
G4-MM1	Amount of land (owned or leased, and managed for production activities or extractive use) disturbed or rehabilitated	<a href="#">Biodiversity and Mine Rehabilitation, Data Book</a>		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	<a href="#">Biodiversity and Mine Rehabilitation</a>		6, 14, 16	7	8.2	
G4-MM3	Total amounts of overburden, rock, tailings and sludges and their associated risks	<a href="#">Impoundment Management, Emissions and Waste, Data Book</a>		6, 12, 14, 15			
G4-MM4	Number of strikes and lock-outs exceeding one week's duration, by country	N/A		8			No strikes occurred in 2023.



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	<a href="#">Indigenous and Land-Connected People</a>		16	3	9.3	
G4-MM6	Number and description of significant disputes relating to land use, customary rights of local communities and Indigenous Peoples	<a href="#">Indigenous and Land-Connected People, Key Stakeholder Issues 2023</a>		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	<a href="#">Stakeholder Engagement, Indigenous and Land-Connected People, Key Stakeholder Issues 2023</a>		16	1	3.4	
G4-MM8	Number (and percentage) of company operating sites where artisanal and small-scale 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 no 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 2023.
<b>G4-MM10</b>							
	Affected Populations and Organizations	<a href="#">Key 2023 Stakeholder Issues</a>			3	9.7g	

Appendix D

# Limited Assurance Statement

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

[Read more: ERM CVS Limited Assurance Statement](#)

## Independent Limited Assurance Statement 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 2023 Data Book and Sustainability Report for year ending 31 December 2023 (the “Report”).

### Engagement summary

**Scope of our assurance engagement**

Whether 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.
- **SM5:** Disclosures regarding Alcoa’s prioritisation 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 2023 – 31 December 2023

**Reporting criteria**

ICMM Assurance and Validation Procedure (March 2023), including the ICMM Principles, ICMM Position Statements and ICMM Performance Expectations

Alcoa Basis of reporting 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’ issued by the International Auditing and Assurance Standards Board and ISO 14064:3 for Greenhouse Gas data.

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 conclusions to Alcoa on the agreed scope based on our engagement terms with Alcoa, the assurance activities performed and exercising our professional judgement. We accept no responsibility, and deny any liability, to any party other than Alcoa for the conclusions we have reached.

### Our conclusion

Based on our activities, as described below, nothing has come to our attention to indicate that the 2023 data and information for the disclosures listed under ‘Scope’ above are 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 selected information 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 presented in the Report.
- 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 2023.
- Testing the processes and systems, including internal controls, used to generate, consolidate and report the selected information.
- Interviewing management representatives responsible for managing the selected issues.
- Reviewing a sample of qualitative and quantitative evidence supporting the reported information at corporate level.

- Conducting an analytical review of the year-end data submitted by all locations included in the consolidated 2023 group data for the selected disclosures which included testing the completeness and mathematical accuracy of conversions and calculations, and consolidation in line with the stated reporting boundary.
- Conducting in-person visits to the following sites to review management processes relevant to ICMM subject matter 2 and 3, source data and local reporting systems and controls:
  - Bécancour, Québec Canada
  - Fjarðal, Iceland
  - San Ciprian, Spain
- Confirming conversion and emission factors and assumptions used.
- Reviewing the presentation of information relevant to the scope of our work in the Report to ensure consistency with our findings.

### The limitations of our engagement

The reliability of the assured 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 (2023).

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 Parts A & B of the IESBA Code relating to assurance engagements.

The team that has undertaken this assurance engagement 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.

#### HEATHER MOORE

Partner, Corporate Assurance Services  
Malvern, PA

July 30, 2024

ERM Certification & Verification Services Incorporated  
[www.ermcvs.com](http://www.ermcvs.com) | [post@ermcvs.com](mailto:post@ermcvs.com)



Table 1. Selected indicators for the 2023 reporting period in our limited assurance scope and disclosed by Alcoa in the Report.

Indicator	Unit
<b>Environment</b>	
<b>Direct (Scope 1) GHG emissions</b>	Million metric tons of CO <sub>2</sub> e
<b>Indirect (Scope 2 location based) GHG emissions</b>	
<b>GHG Intensity (scope 1 + 2, refining and smelting segments)</b>	Metric tons of CO <sub>2</sub> e per metric ton of aluminum
<b>Scope 3 GHG Emissions</b>	Million metric tons of CO <sub>2</sub> e: Total, Category 1, Category 3, Category 4, Category 9, Category 10
<b>Perfluorocarbon Emissions</b>	Million metric tons of CO <sub>2</sub> e: Total (smelters only)
<b>Electricity from renewable sources</b>	Percent (smelters only)
<b>Energy consumption – Direct</b>	Thousands of gigajoules: Total
<b>Energy consumption – Purchased Electricity</b>	Thousands of megawatt hours: Total
<b>Operational Water Withdrawal (Inputs) (All WAF Categories)</b>	
<b>Operational Water Consumption (Outputs) (All WAF Categories)</b>	Million cubic meters: Total (all sites), Total (Locations in Alcoa-defined Water-scarce areas)
<b>Operational Water Discharges (Outputs) (All WAF Categories)</b>	
<b>Water Use</b>	Percent: Locations in Alcoa-defined Water-scarce Areas
<b>Waste to Landfill</b>	Thousands of metric tons: Total
<b>Non-mineral waste generated</b>	
<b>Non-mineral waste recovered</b>	Thousands of metric tons: Total (Hazardous and non-hazardous)
<b>Non-mineral waste disposed</b>	
<b>Bauxite residue generated</b>	Million metric tons
<b>Active mining disturbance to mine rehabilitation ratio</b>	Number

Indicator	Unit
<b>Social</b>	
<b>Community complaints raised through local complaint and grievance mechanism</b>	Number: Total, per region
<b>Beneficiaries, supported programs, and amount of investment related to skills development programs completed</b>	Number: Total, per region
<b>Health and Safety</b>	
<b>Fatality Incidents</b>	Number: Total
<b>FSI-Actual incidents (FSI-A)</b>	Number: Total
<b>Days Away, Restricted or Transfer (DART) incidents: Employees and supervised contractors; Non-supervised contractors</b>	Number: Total
<b>Lost Work Day (LWD) incidents Employees and supervised contractors; Non-supervised contractors</b>	Number: Total

[Appendix E](#)

# Key 2023 Stakeholder Issues

## Operational Sites

Location	Issue	Action
<b>Huntly and Willowdale, Australia</b>	Alcoa's mining operations and approvals framework were subject to extensive stakeholder and public interest during 2023. Of particular focus were mine site rehabilitation practices and the potential impact of our mining operations on Perth's drinking water supply.	<p>Throughout 2023, Alcoa worked cooperatively with stakeholders, including government departments and agencies and the media to share our approach to environmental management and responsible mining.</p> <p>The Company committed to enhance the way it operates in order to comply with stricter environmental requirements, including enhanced protection for drinking water and biodiversity, reduced forest clearing and accelerated forest rehabilitation.</p> <p>Alcoa 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).</p> <p>These commitments were in addition to decisions taken earlier in 2023 to forego mining around the forest towns of Dwellingup and Jarrahdale to enhance protections for lifestyle and recreation values.</p> <p><a href="#">Read more: Approvals Fact Sheet</a></p>
<b>Willowdale, Australia</b>	<p>A pipeline built to move water contaminated with chemicals found in fire suppressant was decommissioned in 2023. The affected water was subsequently trucked offsite at the direction of the Western Australia Department of Water and Environmental Regulation (DWER).</p> <p>Alcoa informed stakeholders of these remedial actions through briefings, site and neighbor visits, community engagement meetings and events, letters to key stakeholders and various publications.</p>	In 2023, Alcoa sought DWER approval to construct and operate a water treatment unit to process affected water in accordance with Australian Drinking Water Guidelines and the Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Approval was obtained in March 2024 and construction of the facility is expected to be complete in July 2024.
<b>Juruti, Brazil</b>	After several discussions in 2022, the matter of community compensation due to the damage resulting from the failure of a rainwater filter windrow that occurred in 2020 and 2021 was revisited. The windrow's failure caused soil erosion and subsequent turbidity in an area of the river that serves as both a source of drinking water and fishing spot for the community of Jauari.	An economic valuation estimated the losses and damages suffered by the community at US\$4.6 million, which was paid by Alcoa as compensation in 2023.
<b>São Luís, Brazil</b>	After the Mangue Seco community expressed concern over increased turbidity in the water of the Pedrinhas River, an environmental investigation was completed in 2023. The investigation did not confirm a causal relationship between the turbidity and Alumar's operations.	The Alcoa team will continue to monitor water quality during the rainy period of 2024, with the assistance of a specialized consultancy. The results will be shared with stakeholders.
<b>Juruti, Brazil</b>	In 2023, the Amazon River reached its lowest water level on record. This impacted our Juruti operations by requiring the extraction of large ships from the harbor. To achieve this, it was necessary to close the harbor to allow for dredging. The closure and dredging process affected waterway users.	Alcoa initiated a consultation process with the communities residing in and utilizing the canal for fishing purposes. This involved extensive engagement, adhering to a structured process culminating in a mutually agreed-upon compensation arrangement for the duration of dredging activities.

<b>Alumar, Brazil</b>	A minor incident involving the spill of coke into a harbor occurred near Alcoa's Alumar site. The spill raised concerns about potential impacts on fishing areas.	Alcoa promptly addressed the issue, initiating communication with affected communities and coordinating cleanup efforts. Following the cleanup, a comprehensive analysis of both water and land was conducted with results indicating no discernible impact on ecosystems or water quality.
<b>San Ciprián, Spain</b>	<p>The San Ciprián smelter was curtailed in January 2022 in accordance with an agreement reached with local workers' representatives in December 2021. The aim of this agreement was to address ongoing challenges stemming from exorbitant energy prices.</p> <p>In February 2023, a majority of the workers agreed to an updated plan, via an amended Viability Agreement, for the restart of the aluminum smelter in 2024. Nevertheless, the economics for both the San Ciprián smelter and the refinery continued to worsen throughout 2023. In December 2023, Alcoa met with representatives of the national and regional authorities in Spain, as well the San Ciprian Works Council, to discuss the losses and identify relief options.</p>	Despite the challenging business conditions, Alcoa invested US\$65 million towards its obligations under the Viability Agreement in 2023. Alcoa continues to work with regional and national governments on a long-term solution.
<b>Warrick, Indiana</b>	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."	Warrick Newco is working with the Indiana Department of Environmental Management (IDEM) to address these issues effectively. Alcoa has been in continuous discussions with the regulator and we currently have a compliance plan with IDEM. The petition was filed in January 2024.
<b>Mosjøen, Norway</b>	The settlement case between Øyfjellet Wind Farm and the local Jillen-Njaarke Reindeer District was scheduled to begin in May 2023, with Jillen-Njaarke challenging the legal standing of the construction of a wind farm on a trekking route that reindeer herds have traditionally used to access a winter grazing area. Alcoa was indirectly involved through its energy supply agreement with the project developer.	In March 2023, a two-day meeting took place between Alcoa, Jillen-Njaarke representatives and advisors from Protect Sapmi. Protect Sapmi presented an impact assessment from Øyfjellet. Alcoa attempted to negotiate a solution with Eolus on the district's behalf in line with ASI recommendations. An agreement could not be reached.

### Curtailed and Non-Operational Sites

Location	Issue	Action
<b>Badin, North Carolina, USA</b>	The site is anticipating receipt of a draft NPDES (National Pollutant Discharge Elimination System) permit from the North Carolina Department of Environmental Quality. The impending draft has sparked interest among non-governmental organizations who are concerned the site may have undiscovered environmental challenges. The site's sole permit exceedance is fluoride, which averages 1.9 ppm. North Carolina's fluoride limit is 1.8 ppm and the US EPA maximum drinking water standard is 4.0 ppm.	<p>We host and participate in community meetings throughout the year to gain additional perspective and understanding of the opinions and concerns of residents representing diverse backgrounds.</p> <p>A test treatment program was initiated in September 2023 to pilot the reduction of fluoride concentrations discharged from one of the site's discharge points. Although no discernable trend has been detected to date, the program is still ongoing and the site has been compliant with the discharge limits since November 2023.</p>
<b>Point Comfort, Texas, USA</b>	The US 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 Witco coal tar processing plant.	A public meeting was held by the EPA in October to update a broad range of local stakeholders on the continued progress of site cleanup measures. Alcoa representatives were available to answer questions. Meetings and discussions between Alcoa and the US 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.
<b>Paranam, Surinam</b>	Surinamese pensioners who elected to receive their pension in local currency (SRD), which included medical care upon retirement, are seeking adjustment to their pension due to the declining value of local currency. Some of these pensioners have filed litigation in the court for adjustments.	Alcoa has offered all pensioners receiving their pension in SRD the option to change their original election to a USD-based pension. While this pension is not subject to SRD devaluation, it does not include medical benefits as per the pre-established benefits plan.
<b>Anglesea, Victoria, Australia</b>	Concerns were raised by the group 'Friends of the Anglesea River' regarding possible adverse impacts to the Anglesea River due to historic operations and the potential for future groundwater extraction.	Results of an ongoing technical investigation at the site, which began in 2020, have not found any evidence of site-based historic or projected impacts to the Anglesea River. Alcoa has met with 'Friends of the Anglesea River' on multiple occasions and participates in 'Anglesea River Advisory Group' meetings to further understand concerns and share the findings of the investigations. Regular updates have also been shared with key stakeholders including traditional landowners, the community at large and regulators.

## Appendix F

# Associations and Memberships

Note: This list is self-reported by the respective regions in which we operate and may not be exhaustive.

## Global (Industry-specific)

Aluminium Stewardship Initiative (ASI)  
International Aluminium Institute (IAI)  
International Council on Mining and Metals (ICMM)

## Global (Other)

Center for Climate and Energy Solutions (C2ES)  
Public Affairs Council (PAC)

## Australia

Australian Aluminium Council (AAC)  
Australian Industry Greenhouse Network (AIGN)  
DomGas Alliance  
Energy Users Association of Australia (EUAA)  
Kwinana Industries Council (KIC)  
Western Australia Chamber of Minerals & Energy (CME)

## Europe

Arctic Cluster Team (ACT)  
European Aluminium Association (EAA)  
EuroMetaux – Association Européenne des Métaux

## Iceland

Álklasinn – Icelandic Aluminium Cluster  
Aluminum Industries Miljøsekretariat (AMS)  
Eigna og viðhaldsstjórnunarfélag Iceland Property and Maintenance Management Association  
Festa – Association for Companies Social Responsibilities  
graenvangur.is – Green by Iceland  
Mannauðsfólk, félag mannauðsfólks á Íslandi – HR Association of Iceland  
Samál – Icelandic Aluminium Association  
Samorka: Federation of Energy and Utility Companies in Iceland  
Samtök atvinnulífsins – Confederation of Icelandic Employers  
Samtök Iðnaðarins – Icelandic Federation of Industries  
Stjórnvísí – Excellence Iceland

## Norway

Aluminum Industries Miljøsekretariat (AMS)  
Forum for Miljøteknologi – Forum for Environmental Technology  
EYDE Cluster – Norwegian Centre of Expertise (NCE) for Sustainable Process Industry  
Næringslivets Hovedorganisasjon (NHO) – Confederation of Norwegian Enterprise

## Spain

AmCham Spain  
Asociación Española del Aluminio (AEA)  
Asociación de Empresas con Gran Consumo de Energía (AEGE)  
Asociación para el Progreso de la Dirección (APD)  
Asociación Técnica Española de Metales Ligeros (ATESMEL)  
Círculo de Confianza y Fórum Nueva Economía  
El Club Español de la Energía (Enerclub)  
Confederación Española de Organizaciones Empresariales (CEOE)  
Confederación Española de Organizaciones Empresariales del Metal (Confemetal)



## Brazil

Associação Brasileira do Alumínio (ABAL)

Associação Brasileira dos Investidores em Autoprodução de Energia (ABIAPE)

Associação Brasileira de Grandes Consumidores Industriais de Energia e de Consumidores Livres (ABRACE)

AmCham Brazil

Conselho Empresarial Brasileiro para o Desenvolvimento Sustentável (CEBDS)

Instituto Brasileiro de Mineração (IBRAM)

Instituto Ethos de Empresas e Responsabilidade Social

## Canada

Aluminum Association of Canada (AAC)

Alu-Québec

Canadian American Business Council (CABC)

Canadian Manufacturers and Exporters (CME)

Le Centre québécois de recherche et de développement de l'aluminium (Cqrda)

Comité sectoriel de main-d'oeuvre de la métallurgie du Québec (CSMO-M)

Federation of Chambers of Commerce of Québec (FCCQ)

Conseil Patronal de l'Environnement du Québec (CPEQ)

Québec Association of Industrial Electricity Consumers (AQCIE)

## United States

The Aluminum Association

Brazil-US Business Council

Industrial Energy Consumers of America (IECA)

NABPAC – National Association of Business PACs

National Association of Manufacturers (NAM)

US Chamber of Commerce: US-Gulf Cooperation Council (GCC) Business Initiative

US-China Business Council (USCBC)

Washington International Business Council (WIBC) – Red Flag USA

Washington International Trade Association (WITA)

[Appendix G](#)

# 2023 Awards and Recognition

## Global

EcoVadis Gold Rating

Listed on Bloomberg's Gender-Equality Index for 2023

Listed on 2023 Corporate Sustainability Assessment (CSA) Yearbook

S&P Dow Jones Sustainability Indices

## North America

America's Greatest Workplaces in 2023 by Newsweek magazine

Jury's special award – Culture – Québec Quality Movement (Mouvement québécois de la Qualité)

Listed as one of Montreal's Top Employers (2023)

Top recognition for excellence in structural die casting by North American Die Casting Association

## Australia

Employer of Choice for Gender Equality by Workplace Gender Equality Agency

Australian Workplace Equality Index – Silver Tier Employer by Pride in Diversity

## Brazil

Awarded Great Place to Work in Brazil in 2023 for our Alumar site

## Spain

First Research Prize of the Epifanio Campo Chair of University of La Coruña Awarded to San Ciprián, Spain, Alcoa Foundation