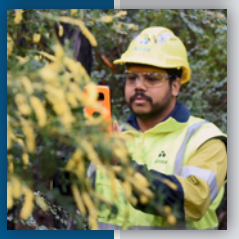
Alcoa

2020 SUSTAINABILITY REPORT







Alcoa Sustainability Performance 2020

1
contractor fatality

1.6%
decrease in carbon dioxide equivalent emissions

2020

1.1%
decrease in energy intensity

0.61
days away, restricted and transfer rate per 100 full-time workers

Approximately
78%
of electricity consumed by our smelters was from renewable sources

0.92:1
ratio for new active mining disturbance to mine rehabilitation for the 2016 to 2020 period

1.7%
reduction in bauxite residue land requirements per metric ton of alumina produced

95
score on the Corporate Equality Index 2020

2020

6.8%
decrease in freshwater use intensity

4.2%
decrease in landfilled waste

15.6%
of our global employees were women

2,020
employee volunteer hours in the community

US$8.2
billion in purchased goods and services

US$5.6
million in Alcoa Foundation community investments

2020

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Some of the photos contained in this report were taken prior to the onset of COVID-19 and do not represent Alcoa protocols for social distancing and masks.

Materiality

Throughout this report, materiality refers to the list of sustainability topics about which Alcoa communicates because they are material for our stakeholders in this context. It should not be confused with materiality for financial reporting or regulatory purposes.

Forward-looking Statements

This report contains certain statements that relate to future events and expectations and, as such, constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements include those containing such words as "anticipates," "believes," "could," "estimates," "expects," "forecasts," "goal," "intends," "may," "outlook," "plans," "projects," "seeks," "sees," "should," "targets," "will," "would" or other words of similar meaning. All statements that reflect Alcoa's expectations, assumptions or projections about the future, other than statements of historical fact, are forward-looking statements. Forward-looking statements by Alcoa are not guarantees of future performance and are subject to known and unknown risks, uncertainties and changes in circumstances that are difficult to predict. Although Alcoa believes that expectations reflected in any forward-looking statements are based on reasonable assumptions, it can give no assurance that these expectations will be attained, and it is possible that actual results may differ materially from those indicated by these forward-looking statements due to a variety of risks and uncertainties. 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, 2020, filed with the Securities and Exchange Commission on February 25, 2021. Alcoa disclaims any obligation to update publicly any forward-looking statements, whether in response to new information, future events or otherwise, except as required by applicable law.

From the CEO

Against the backdrop of one of the most challenging periods in our company's history, we leveraged our deep experience in sustainability to help our employees, their families and our host communities navigate through the global coronavirus pandemic while ensuring the continuity of our operations.

It was because of our long-standing commitment to sustainability that we could quickly deploy the programs and processes needed to protect and support our employees and address rapidly emerging community needs.

Although the pandemic diverted significant resources in 2020, we still progressed against the three key value drivers under our Advance Sustainably strategic priority—create sustainable value for the communities where we operate, minimize our environmental impacts and enhance the value of our products through differentiation.

Create Sustainable Value for the Communities Where We Operate

To ensure that we create sustainable value for our communities and maintain our license to operate, we began developing a more comprehensive approach to social performance management, engaging external support to review our practices and establish corporate procedures to properly understand and control social risk. We will deploy the system throughout 2021 and 2022.

We placed particular emphasis on improving our engagement with Indigenous and Land-Connected Peoples in 2020. We have long-standing relationships in Australia and Brazil, but we wanted to formalize our approach through a stronger corporate policy and formal commitments. In Australia, we launched our inaugural Reconciliation Action Plan (RAP) in February 2020 to guide our evolving approach to Aboriginal and Torres Strait Islander engagement in that country.

Within our own operations, we reinforced our commitment to inclusion and diversity during 2020. A key achievement was forming the Alcoa Global Inclusion & Diversity Council to support our efforts to create trusting workplaces that are safe, respectful and inclusive of all individuals and that reflect the diversity of the communities in which we operate.

Around the world, we continued to identify opportunities to support our communities through social investment and partnerships. Alcoa Foundation played an important role during the pandemic, focusing investment to support communities with medical equipment, food, mental health services and other pandemic-related needs.

Minimize Our Environmental Impacts

We continued looking for opportunities to reduce our environmental footprint, improve our health and safety performance to protect environmental and employee well-being, and reduce our long-term risk exposure during the year.

We published a strong Climate Change Policy to further our commitment to understanding and managing climate- and carbon-related risks and opportunities within our operations. We also

implemented a new long-term goal to align our direct and indirect greenhouse gas (GHG) emissions reduction targets with the below 2º C decarbonization path defined in the Paris Climate Accord.

We published new policies on water stewardship and biodiversity, which direct our future activities to preserving precious resources in our communities and allowing future generations to enjoy those resources. We also implemented a mandated Global Impoundment Policy to ensure our impoundments comply with internal and external standards and the laws and regulations of the countries in which they are located.

Through Alcoa Foundation, we continued to support initiatives to preserve biodiversity and prevent climate change. In Australia, for example, the Foundation is funding a multi-year initiative to restore the Peel-Harvey Estuary and three connected rivers in Western Australia. These waterways are the environmental, economic and social lifeblood of the area.

In late 2020, we became a member of a four-year project that will work to transform bauxite residue into a reactive material suitable for new, low-carbon cement products. In parallel, we continued working with the International Aluminium Institute to identify potential pathways for the adoption of bauxite residue in cement production and use.

Enhance the Value of Our Products through Differentiation

Demand for sustainable products is increasing, and we are positioning Alcoa as the preferred leader in sustainable aluminum products.

In 2020, we introduced the industry's first low-carbon, smelter-grade alumina brand as part of our Sustana line of environmentally friendly aluminum products. EcoSource™ alumina is produced with no more than 0.6 metric tons of carbon dioxide equivalents (CO_{2e}) per metric ton of alumina, which is two times better than the industry average of 1.2 metric tons of CO_{2e}.

By the end of 2020, the Aluminium Stewardship Initiative (ASI) had certified 13 of our operating locations to its Performance Standard and 12 operating locations to its Chain of Custody Standard. This enabled us to start selling ASI-certified bauxite, alumina and metal to any customer around the world.

Despite the challenges from a tumultuous year, our employees held true to our values and our commitment to advance sustainably. I am thankful for their dedication, hard work and respect for the health and safety of their colleagues and communities. I encourage you to read this 2020 Sustainability Report to better understand the magnitude of their achievements.

Roy C. Harvey
President and Chief Executive Officer
Alcoa Corporation

Coronavirus Pandemic Response

The coronavirus (COVID-19) pandemic required a rapid and coordinated response across our global operations to protect our employees and contractors, their families and the communities in which we operate while ensuring the continuity of our operations, which were deemed essential.

The biggest risk to our employees was community outbreak and infection rather than exposure in the workplace.

Our very first action was on January 27, 2020, when we restricted business travel to Hubei, China. At the time, the city was the only known geographic area where a new human virus had emerged. Four days later, we restricted all business travel to China. On February 28, we quickly moved to suspend all non-essential business travel.

Our Global Crisis Response Team coordinated our response to the pandemic. This cross-functional team pulled on its experience with prior emerging infectious disease outbreaks, such as SARS, MERS-CoV, Zika and Ebola. It was supported by crisis response teams at the regional and location levels.

On March 5, 2020—nearly a week before the World Health Organization declared a pandemic—we directed all locations to rapidly implement our comprehensive Pandemic Preparedness and Response Plan. The plan provided a clear roadmap for the company and locations to manage travel, security, health and safety, human resources, operations and more.

By the end of March, we deployed a Trigger Action and Response Plan (TARP) at each location and a dashboard to track the plan's implementation as well as active, recovered, quarantine and isolation cases. We made the dashboard transparent to all Alcoans via our company intranet. The Safety, Sustainability and Public Issues Committee of our Board of Directors was also briefed on the cases and our response.

"The equipment and structure provided by Alcoa during the pandemic made a world of difference in the treatment of patients. In the hardest moments, I realized the company's capacity to support us and its sensitivity toward the crisis. Concerned about its employees and the community, Alcoa began organizing itself to deal with the situation even before the disease arrived in Brazil. The company consulted its health professionals on the best way to assist and what was needed in the municipalities in which we worked. Alcoa has made a huge impact in Juruti."

Dr. Alan Torres
Director, Juruti Municipal Hospital Francisco Rodrigues
Occupational Physician, Alcoa Corporation

The following are key actions that we took during 2020.

COVID-19 Response

Health and Safety

- Face covering guidance
- Physical (social) distancing protocols, including modifying the physical environment, when possible, to allow for at least 6 feet (2 meters) of space between personnel
- Enhanced cleaning and disinfection protocols
- Employee education, self-assessment and screening
- Contact tracing and testing
- Quarantine for certain travelers or direct contacts, and isolation for active or suspected cases
- Modified occupational health and industrial hygiene protocols to reduce exposure risk
- Management of personal protective equipment supply

Human Resources

- Ban on non-essential business travel
- Acceleration of our global work-from-home policy for employees who could perform their work remotely
- Mental health awareness and education
- Virtual ergonomic consults for employees working from home
- Childcare tips and assistance
- Promotion of online training tools
- Company-provided transportation for seriously ill employees to medical facilities with higher levels of care or available beds in intensive care units

Business Continuity

- Advocacy with governments to ensure operations were deemed essential
- Deployment of trigger action response plans at each location
- Close coordination with suppliers to ensure a sufficient supply of key materials and to source new products and services specific to the pandemic, such as respirators
- Altered shift patterns and work schedules and shared resources among production centers to meet staffing needs
- Additional protective measures for individual employees who are considered essential to daily operations, such as highly qualified operators
- Postponement of major maintenance and overhaul projects, with preventative measures put in place to keep assets in working condition
- Ongoing communication with customers to meet their needs
- Continuous engagement with regulatory authorities to confirm the implementation of preventative measures

Community Outreach

At the onset of the pandemic, Alcoa Foundation and Instituto Alcoa began diverting a significant portion of their annual corporate giving to assist communities where we have operations with pandemic relief. More than US$2.1 million in grants supported securement of equipment and services for hospitals and healthcare providers, food security, mental health and financial counseling, suicide prevention, victims of domestic violence and other pandemic-related needs that arose during the year.

Examples of the wide array of grants include:

- Australia: US$212,000 to Anglicare WA for a range of products and services in low socio-economic areas, including food and essential supplies, mental health services, financial counseling and support for people experiencing domestic violence;
- Brazil: US$375,000 to various organizations for social services, medical supplies and food;
- Canada: US$82,000 to the Centraide des régions centre-ouest du Québec for food delivered to seniors as well as counseling support for isolated seniors and victims of domestic violence;

Employees at our Poços de Caldas location in Brazil promote "taking care of our people and city!"

- Hungary: US$45,000 to the town of Szekesfehervar for protective equipment and career counseling for citizens who lost their jobs;
- Spain: US$218,000 to Servizo Galego de Saúde for medical supplies and hospital equipment, including beds to meet high demand;
- Suriname: US$75,000 to the Back-Lot Foundation for medical supplies and personal protective equipment;
- United States: US$75,000 to the United Way of Indiana's COVID-19 Response Fund of the Greater Evansville Region to help families in need.

COVID-19 Impact in 2020

Employees and contractors

Confirmed Cases

965

Deaths

2

Locations with at Least One Confirmed Case

60%

Recovery Rate

97%

Data is as of December 31, 2020.

Our locations in Iceland and Norway—two countries with strong healthcare systems that were not impacted as severely as other countries during the pandemic—donated their combined US$100,000 in Alcoa Foundation allocations to our Brazil locations for use in those hard-hit communities.

The foundations will continue to support communities as needed in 2021.

Outcomes

Our first confirmed COVID-19 case was on March 8, 2020, at one of our European locations. By the end of 2020, we had two deaths and 965 confirmed cases among our employees and contractors globally.

Our operating locations in Brazil represented two-thirds of all confirmed Alcoa cases globally during 2020, with our Alumar and Juruti locations each experiencing one contractor death. These locations were particularly impacted due, in part, to

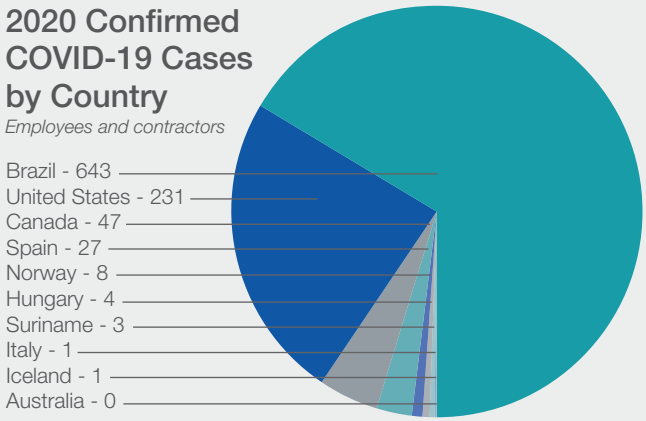
- A simultaneous influenza outbreak at Alumar;
- Inaccessibility of testing that required us to acquire and deploy that capability;
- Hospital oversaturation; and
- Challenges in the public health system in the early phase of the pandemic.

Our Warrick location represented 20 percent of all confirmed Alcoa cases globally, largely reflecting a parallel experience within the community at large.

In the face of unprecedented challenges, our employees around the world worked tirelessly and selflessly to keep our operations running and each other safe. None of our operating locations had to fully or partially close, and we had zero missed or delayed customer shipments due to the pandemic.

2020 Confirmed COVID-19 Cases by Country

Employees and contractors



Data is as of December 31, 2020. Case data for the Netherlands is unavailable due to privacy laws.

2020 SUSTAINABILITY REPORT

Corporate Overview

Alcoa is a global industry leader in bauxite, alumina and aluminum products. Our company is built on a foundation of strong Values and operating excellence dating back more than 135 years to the world-changing discovery that made aluminum an affordable and vital part of modern life.

Founded:
November 1, 2016, when Alcoa Inc. separated into Alcoa Corporation and Arconic Inc.

Global headquarters:
Pittsburgh, Pennsylvania, USA

Values:
Act with Integrity. Operate with Excellence. Care for People.

2020 revenue:
US$9.3 billion

2020 employees:
12,900

Business Segments

Bauxite:

We have ownership in seven active bauxite mines globally and operate four of them in Australia and Brazil. 2020 bauxite production: 48 million dry metric tons.

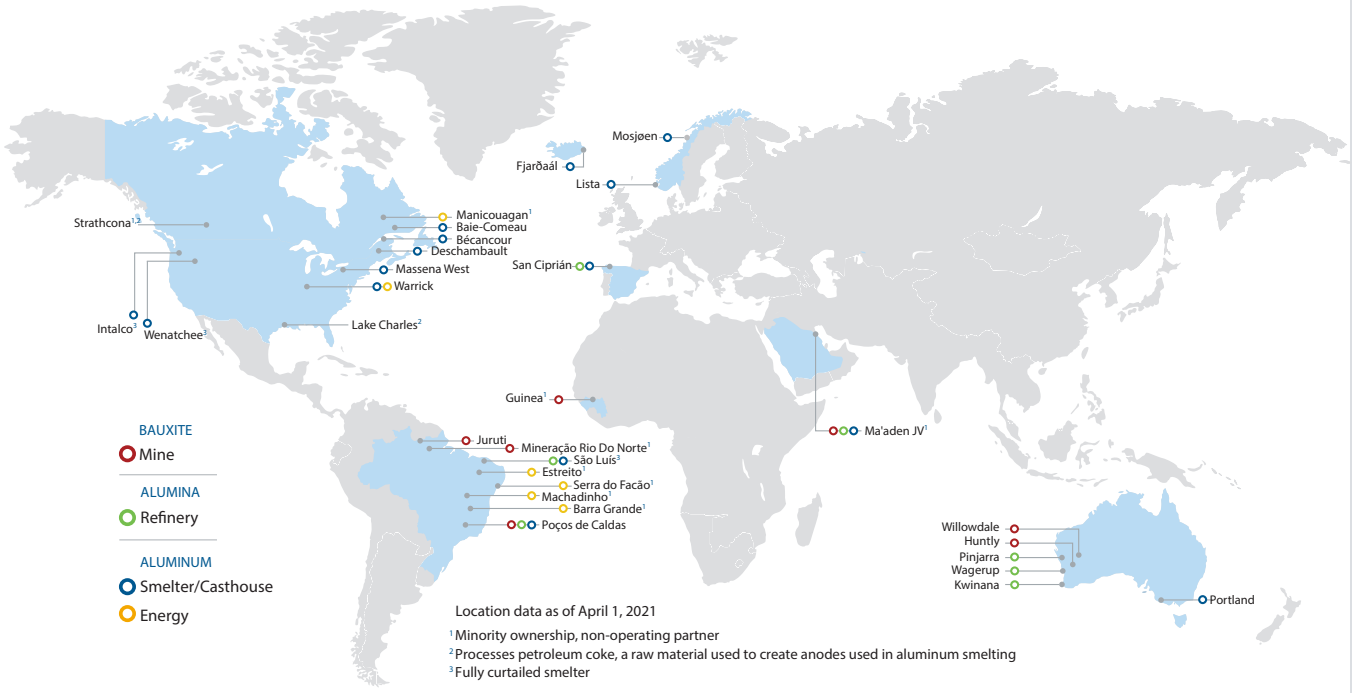
Alumina:

We are a world leader in the production of alumina, with ownership in seven refineries. We operate six of them in Australia, Brazil and Spain. 2020 alumina production: 13.5 million metric tons.

Aluminum:

This segment includes aluminum smelting, casting and rolling, along with the majority of our energy assets. We have ownership in 14 smelters, operating 10 of them and having three fully curtailed. We also have ownership in six energy assets. 2020 primary aluminum production: 2.3 million metric tons.

Alcoa Locations



Location data as of April 1, 2021

[1] Minority ownership, non-operating partner
[2] Processes petroleum coke, a raw material used to create anodes used in aluminum smelting
[3] Fully curtailed smelter

Governance, Ethics and Compliance

At Alcoa, our corporate Values have always been a foundation of our company. They govern the way we act, operate and how we interact with our customers, communities and each other.

Act with integrity is a cornerstone of our Values. We expect all Alcoa employees to be open, honest and accountable and to adhere to the company codes and policies that guide their behavior.

Governance

Our 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. Information about our Board of Directors can be found on our website.

Ethics and Compliance

Communicating

In 2020, our Ethics and Compliance (E&C) organization reviewed and updated the process for creating and maintaining corporate policies and procedures and improved the governance, format and content of the existing ones.

We enhanced a section of our employee intranet, making it easier for employees to find corporate procedures and policies. Our intranet can be assessed from shared workstations, desktop computers and mobile devices.

We also publish a quarterly internal newsletter to communicate important information to employees, such as updates or reminders about codes or policies, messages from leaders reinforcing ethics, and details of upcoming initiatives or training. When we implement a new policy or make significant changes to an existing one, we use the newsletter and other targeted communication to inform employees.

Our global network of Integrity Champions is another means to communicate and reinforce ethical behavior at each of our locations. These employees ensure that ethics and compliance are an integral part of business, promote a culture of integrity, raise awareness of the role of ethics, and serve as trusted advisors and resources.

Training

Annually, we require every employee to complete Code of Conduct training. Delivered online for salaried employees or in a classroom environment for frontline employees, the training references key policies and procedures and also covers specific topics of importance. These topics include conducting business with integrity, prohibiting retaliation, maintaining a drug- and alcohol-free workplace, treating others with respect, using Alcoa's property and resources responsibly, and respecting and valuing human rights.

Due to the COVID-19 pandemic, we did not require frontline employees to attend in-person training. Instead, we used a combination of online training methods and information packets regarding the importance of the Code of Conduct to reinforce the messages.

In 2020, all salaried employees were required to complete anti-bribery training and the annual Business Conduct Survey. Our E&C team also continued to deploy instructor-led training using virtual channels. This included two courses—anti-corruption training for those employees whose specific roles put them at a higher risk, and a course that emphasizes respect in the workplace.

Respect in the workplace training educates supervisors and other salaried employees on our expectations for leaders. It reinforces the need to address inappropriate behavior, provides a reminder of the potential consequences for failing to address such matters and provides a help chain for employees and leaders. The training includes examples to demonstrate how prior incidents at Alcoa were handled.

Reporting and Investigating

Employees and external stakeholders who have ethics-related questions or concerns or want to report suspected breaches of laws, policies or our Values can do so through our confidential Integrity Line. Accessible 24 hours a day, seven days a week, the line is available in multiple languages. Reports can be submitted anonymously.

We publicize the Integrity Line and directions for accessing it both internally and externally through our external website, internal intranet, Code of Conduct, E&C quarterly newsletters, corporate policies and procedures, posters that are visible in all locations and training.

An independent company receives all issues and concerns reported through the Integrity Line and promptly directs them to our E&C organization for follow-up using the following procedures:

- The reporter is given a private code that he or she can reference for investigation status updates. The reporter may obtain updates by calling the Integrity Line, checking the web reporting site or contacting the investigator directly.
- Our E&C organization conducts an initial review of the matter to determine the most appropriate method of investigation. Where appropriate, the E&C organization sends the matter directly to the relevant Alcoa location for investigation. Investigations that are not appropriate for the location to handle are retained for investigation by the corporate E&C organization.
- Investigations are handled promptly, thoroughly and confidentially.
- If not anonymous, the identity of the reporter is kept strictly confidential throughout the process and only disclosed to authorized persons, when necessary, to carry out the investigation or as otherwise required by law.
- A final determination is made as to whether the allegation or concern was substantiated or unsubstantiated. The response to substantiated matters is determined on a case-by-case basis and may include disciplinary action, up to and including termination. It is tailored to the seriousness of the substantiated facts.

In 2020, the Integrity Line fielded 184 submissions. Of these, 21 percent resulted in disciplinary action, and 47 percent were inquiries or other matters that did not require investigation or substantial follow-up. The majority of submissions (65 percent) were employment related, with the remainder related to business integrity, health and safety, trade, human rights and general inquiries.

Tracking and Auditing

Each year, our locations worldwide use the Alcoa Self Assessment Tool (ASAT) to validate that internal controls are in place and functioning as designed to protect the company from risks, including ethics and compliance. E&C items evaluated in the ASAT include:

- Communication of Alcoa's values and E&C-related policies, procedures and requirements;
- Completion of mandatory Code of Conduct training;
- Establishment of internal controls and business processes to enable employee awareness of the anti-corruption program requirements; and
- Establishment of effective controls to mitigate the risk of corruption with charitable contributions.

Our internal audit team also evaluates E&C implementation and effectiveness as part of its standard audit protocols when conducting full audits of our locations.

Anti-corruption Program

We take a strong stance against bribery consistent with the anti-bribery laws around the world that apply to us, such as the U.S. Foreign Corrupt Practices Act. We strictly prohibit bribes – giving or receiving anything of value —where it is intended to induce the recipient to misuse their position or to obtain an improper business advantage.

Our anti-corruption program is tailored to our risk profile to meet or exceed applicable law and demonstrate the hallmarks of an effective compliance program as articulated by the U.S. Department of Justice. We do not operate any facilities in countries with the lowest rankings on Transparency International's Corruption Perception Index. (See our countries of operation.)

Our Anti-Corruption Policy and related procedures (Due Diligence and Contracting Procedure for Intermediaries; Charitable Contributions Procedure; and Gifts, Hospitalities

and Travel Procedure) are designed to address corruption risk. All employees are expected to understand the requirements and comply with them.

Our Anti-Corruption Policy prohibits bribery of both government officials and private parties and bans facilitation payments.

The Due Diligence and Contracting Procedure for Intermediaries requires:

- A risk-based review of the intermediary and the proposed commercial relationship;
- Approval before commencing business with the Intermediary; and
- Assurances that anti-corruption compliance issues are adequately addressed in contracts and through ongoing monitoring of intermediary relationships.

The Charitable Contributions Procedure ensures that charitable contributions are used for the appropriate and intended purpose and are not used in any way that would conflict with our Values or applicable laws. This procedure applies to all charitable contributions made with company funds or resources, regardless of value.

The Gifts, Hospitalities and Travel (GHT) Procedure is intended to help employees determine when giving or receiving GHT in connection with company business is acceptable under company policies and any applicable laws and to outline the steps required to receive approval. Special rules apply for GHT relating to government officials.

Our procurement organization maintains a third-party supplier due diligence program to manage supply chain risk for anti-bribery and corruption, trade compliance, child labor, criminal history, human trafficking and conflict minerals. (See the Supply Chain section.) Our E&C organization supports the program by reviewing red flags, monitoring the effectiveness of the overall program and advising on program enhancements.

Our Issue Reporting Policy and Financial Fraud Reporting Procedure provide guidance on the types of issues, including any allegation of corruption, that must be reported to the E&C organization.

All issues or instances of actual or suspected fraud must be reported within 24 hours or as soon as reasonably possible to the chief ethics, compliance, and privacy officer either directly or through the Integrity Line.

Political Contributions

Our Political Contributions Policy prohibits the use of company funds, property, services or other items of value for political purposes. Rare exceptions may be made, such as favoring or opposing a ballot or referendum vote that can impact our company.

Alcoa Corporation did not make any direct donations to the election campaigns of politicians in 2020. As permitted by U.S. and state law, qualified Alcoa employees voluntarily donated approximately US$45,400 to U.S. candidates for political office in 2020 through the Alcoa Corporation Employees' Political Action Committee.

Global Privacy Program

We are committed to protecting data privacy. Our privacy strategy is to safeguard the interests of all of our employees, customers and third-party vendors through the appropriate collection, use and storage of personal and sensitive information in accordance with legal requirements, regulations and contractual obligations.

To address increased risk associated with the implementation of the European General Data Protection Regulation (GDPR) and similar laws around the world, we undertook a significant project to review, update, and enhance our privacy program. We sought the assistance of external consultants who are globally recognized for expertise in data privacy compliance programs and supporting technology. The result was a global program that ensures compliance with GDPR requirements and the privacy laws of other regions where Alcoa does business.

The Privacy Program Office (PPO) within the E&C organization manages the global privacy program. The PPO consists of the chief ethics, compliance and privacy officer and a privacy program manager, who manages the day-to-day business of data privacy compliance.

The PPO manages a core Data Privacy Team, which provides additional expertise, leadership and input on strategy, as well as a network of data protection liaison officers. These officers are appointed representatives from the countries where Alcoa has a significant presence and in functions where significant data processing activities take place.

The goal of the PPO is to create a culture of care and awareness to protect the personal data of Alcoa employees

through a risk-based strategy that includes change management, communication, policies, procedures, technology and training. The goal of protecting personal data also applies to those who work for our business partners. Due to the nature of our business, we do not store or manage a notable amount of data related to our customers and suppliers.

In early 2020, we launched our Data Privacy Standard to establish our approach to complying with global data privacy laws and regulations and to define the procedures that underpin our privacy program. To support the standard, we offered personal data privacy training to identified employees via live virtual sessions in their local languages or through our learning management system.

We also deployed the Privacy by Design Framework, which provides controls to ensure that privacy is considered before we purchase, develop, support or implement new services, systems or applications. The goal of the framework is to anticipate, manage and prevent privacy risks in our system development, enhancement and procurement processes.

Related Information

Corporate Governance Guidelines
Code of Conduct
Anti-Corruption Policy
Human Rights Policy
International Trade Compliance Policy

Legal Compliance

Under the leadership of our general counsel, our Legal Department is responsible for legal compliance and management of our legal risks. As part of these duties, the Legal Department oversees ongoing legal matters, governmental proceedings and regulatory developments that may affect Alcoa and our subsidiaries and controlled affiliates.

Because of the geographic diversity and complexity of our operations, and in support of these efforts, the general counsel relies upon a global team of in-house lawyers and outside counsel to achieve our legal compliance objectives.

The Legal Department, with the assistance of outside counsel, monitors legal and regulatory compliance and manages legal risks, including legal and regulatory developments and areas of evolving risk. Our in-house lawyers are qualified and experienced in the primary jurisdictions where we have operations, specifically Australia, Brazil, Europe and North America. These lawyers are responsible for ensuring compliance with applicable laws and regulations in their respective jurisdictions, and they advise on reporting obligations and manage ongoing legal matters and proceedings. When needed, external counsel is engaged to address specific areas of expertise or jurisdictions.

The general counsel has designated an in-house lawyer to serve as the primary legal counsel for each operating location and resource function within the company. This lawyer coordinates the legal affairs for the operating location or resource function, including:

- Ensuring compliance with laws;
- Exchanging information on legal matters with the operating location or resource function leadership; and
- Providing legal counseling and preventive law training on issues and topics relevant to the operating location or resource function.

Our Legal Department works closely with other resource functional areas that are tasked with monitoring and ensuring compliance. This includes identifying and maintaining relevant information in specific areas, such as our Environmental, Health and Safety Department (EHS laws and regulations), Human Resources Department (labor and employment laws and regulations) and Ethics and Compliance Department (bribery and anti-corruption and Code of Conduct).

The Legal Department maintains relationships with external legal counsel in various jurisdictions that possess expertise in subject matters relevant to our businesses. As a matter of policy, all external counsel working on our behalf are engaged and managed by Legal Department lawyers to ensure that our lawyers maintain knowledge of, and control over, our legal compliance efforts and any legal matters impacting the company.

Value Creation Process

By transforming natural resources into aluminum, we create value for our stockholders, customers, suppliers and the communities where we operate. It is critical to balance the inputs and outputs to maximize the benefits and minimize the negative impacts of our processes.

The following simplified analysis of our value creation process identifies our key inputs, outputs and effects on stakeholders. We used this information to help determine our material topics.

	Key Inputs	Key Outputs	Key Effects	
General Aspects Applicable to All Processes	• Financial resources • Labor • Governance systems • Infrastructure	• Salaries • Taxes • Skilled employees	• Employment stability • Professional development • Local economic development • Environmental impact • Value for stockholders	
Bauxite Mining *87% internal consumption* *13% third-party shipments*	• Bauxite reserves • Land surface • Water	• Bauxite • Royalties • Wastewater • Air emissions • Noise • Rehabilitated land	• Potential community relocation • Biodiversity disturbance • Changes to landscape	
Alumina Refining *31% internal consumption* *69% third-party shipments*	• Bauxite • Water • Caustic soda • Energy	• Alumina • Bauxite residue • Greenhouse gas emissions • Other air emissions • Noise	• Changes to landscape • Potential reduction of water reserves	
Aluminum Production *100% third-party shipments*	• Alumina • Energy • Aluminum fluoride • Coke and pitch • Aluminum scrap • Water	• Aluminum • Greenhouse gas, fluoride, sulfur dioxide and other emissions • Spent pot lining • Aluminum dross	• Potential effects on local vegetation • Contribution to climate change • Product development (alloys)	
Electricity Generation	• Water • Coal • Land surface • Distribution infrastructure	• Electricity • Rehabilitated land • Fly ash • Greenhouse gas emissions • Combustion emissions	• Effects on the landscape • Contribution to climate change • Biodiversity impacts • Potential community relocation	

Data is approximate.

2020 SUSTAINABILITY REPORT

Sustainability Approach

Our commitment to sustainability drives us to minimize negative impacts and maximize value across our global operations to contribute to a better society.

Advance sustainably is a strategic priority for our company. We believe we can accelerate value creation by answering society's increasing demand for sustainable solutions, which will benefit both our company, our stakeholders and communities around the world.

Our sustainability strategy supports our strategic priorities through three pillars:

- Sustain our operations, preserve our license to operate and grow our assets, creating sustainable value for the communities where we operate.
- Enhance the value of our products through differentiation to improve our profitability.
- Reduce risk, minimize negative environmental impacts, and improve our health and safety performance.

Our sustainability performance has earned us the credibility and trust to mine bauxite in two of the most sensitive areas on the planet—the Brazilian Amazon forest and the Jarrah Forest in Western Australia. It guides us as we operate in countries with less demanding performance requirements.

It keeps us in good standing with governments and communities to ensure access to bauxite reserves and enhance our long-term license to operate.

Helping guide our actions are our long-term sustainability goals, which address key material issues for our company and stakeholders. These issues cover the environment, our employees and the communities in which we operate. (See the Strategic Long-term Goals section.)

Creating Sustainable Value

We actively participate in the communities where we operate, and we want those communities to succeed. We view our presence as an opportunity to help develop and enable economic activity, environmental practices and social programs that are sustainable, remaining well after our role ends. At the same time, being a good neighbor enables our operations to grow and create additional value.

Alcoa Foundation focuses globally on the countries and locations where we operate. It targets its investments on promoting the prevention of, and resilience to, climate change from human activity, as well as the restoration and preservation of biodiversity. In 2020, Alcoa

Strategic Priorities

- **Reduce complexity**
  A portfolio and operating model that is **low cost**, competitive and resilient in a low price environment
- **Drive returns**
  Improve commercial capabilities, invest in targeted growth opportunities, increase **margin focus** across the value chain
- **Advance sustainably**
  Continue to strengthen the balance sheet, transform portfolio and leverage our industry-leading environmental and social standards for a **sustainable** future

Drive results and **deliver returns** to stockholders over the long term

Given the Tools, They Found Their Paths

Nildilene Lindoso

An entrepreneurial program aimed at generating employment, income and independence for socially and economically disadvantaged women living near our Alumar facility in São Luís, Brazil, was a thing of beauty.

Funded by Instituto Alcoa, the Tools and Paths program provided two months of free cosmetology training and five weeks of supervision and mentorship to 143 women dealing with poverty, unemployment, domestic violence or other socio-economic issues. Approximately 35 percent of participants had no source of income, and some were homeless.

The program, which was an initiative of the Instituto de Cidadania Empresarial do Maranhão (Maranhão Business Citizenship Institute), provided theoretical and practical training covering hair blowouts, eyebrow design, waxing, manicures and pedicures. Upon completion, participants received a certification and entrepreneurial kit that included a hairdryer, flat iron and other tools to establish a business. Our Alumar facility also provided remote workshops on business management and entrepreneurship for the graduates.

"I always liked the beauty field, but I didn't have the money to take a professional course," said Nildilene Lindoso, a program graduate. "When I heard about the Tools and Paths program, I was unemployed and clinging to any opportunity."

After finishing the training and receiving her kit, Nildilene began seeing clients at the home she shares with her family. In late 2020, she became a partner in a salon owned by a friend while still maintaining her own client base.

"In addition to contributing to my family's household expenses, I feel happier and more satisfied because I have my profession and I'm building my business little by little," said Nildilene.

Foundation's focus expanded to include education and workforce development.

Because of the socio-economic crisis caused by the pandemic, Alcoa Foundation channeled most of its 2020 resources on supporting the pandemic response in communities where Alcoa operates. Actions included funding food banks that serve the most vulnerable populations and providing equipment to hospitals and healthcare professionals. More information can be found in the Alcoa Foundation Annual Report.

In addition to the work of Alcoa Foundation, our locations use the Alcoa Stakeholder Engagement Framework to work with stakeholders to identify local opportunities to contribute to the community. (See the Stakeholder and Community Engagement section.)

While our employees faced numerous unexpected challenges in 2020, many found creative ways to continue volunteering where possible. We cleaned up beaches in Western Australia, collected and distributed tons of food in Brazil, participated in virtual volunteer activities and facilitated a community walk in Norway.

Enhancing Product Value

The global markets in which we compete are increasingly affected by significant challenges, including population growth, urbanization, climate change and resource scarcity. Inherently sustainable, aluminum helps our customers address these challenges and capture the opportunities they present.

Aluminum enables safer and more energy-efficient buildings; more fuel-efficient cars, trucks and airplanes; and sustainable food and beverage packaging. It is also infinitely recyclable, reducing energy and resource consumption.

We expanded our Sustana™ line of products in 2020 with the introduction of EcoSource™ alumina, which is the world's only low-carbon, smelter-grade alumina. The Sustana product family is now the aluminum industry's most comprehensive, and it allows us to further position and differentiate from our competitors. (See the Products section.)

We continued to pursue Aluminium Stewardship Initiative (ASI) certification to both the Performance and Chain

Food donation in Brazil

of Custody standards. At the end of 2020, we had 13 operating locations certified to the Performance Standard and 12 operating locations certified to the Chain of Custody Standard. This allows us to market and sell ASI-certificated products in all three of our segments.

ASI certification covers a wide range of indicators across the entire value chain in the areas of governance, environmental management and social responsibility. We endorse ASI for its holistic perspective and its leading role as the most comprehensive third-party system to verify responsible production in the aluminum industry.

We believe that our differentiated products with sustainable attributes create additional value for our customers, helping them achieve their own sustainability targets and those of their customers.

Improving Our Footprint

Despite technological and process advancements, primary aluminum production remains energy- and resource-intensive and also impacts the natural and workplace environments.

Guiding our efforts are our ambitious 2025 and 2030 targets for greenhouse gas emissions, waste, water, mine rehabilitation, diversity and inclusion, safety and health, and social management. Our approach and performance for each can be found in the individual sections within this report.

We also serve as stewards of the land, operating in a manner that focuses on minimizing our negative impacts and maximizing ongoing sustainable use. Biodiversity management plans, industry-leading mining and mine rehabilitation processes, and asset management that covers a facility's entire life cycle help us optimize our land and facility management and support our license to operate. (See the Biodiversity and Mine Rehabilitation and Facility Stewardship and Transformation sections.)

Our focus on reducing our environmental footprint enables us to reduce our operational costs and future liabilities, such as landfill remediation.

Reporting and Materiality

We are committed to transparent and thorough reporting on our sustainability performance.

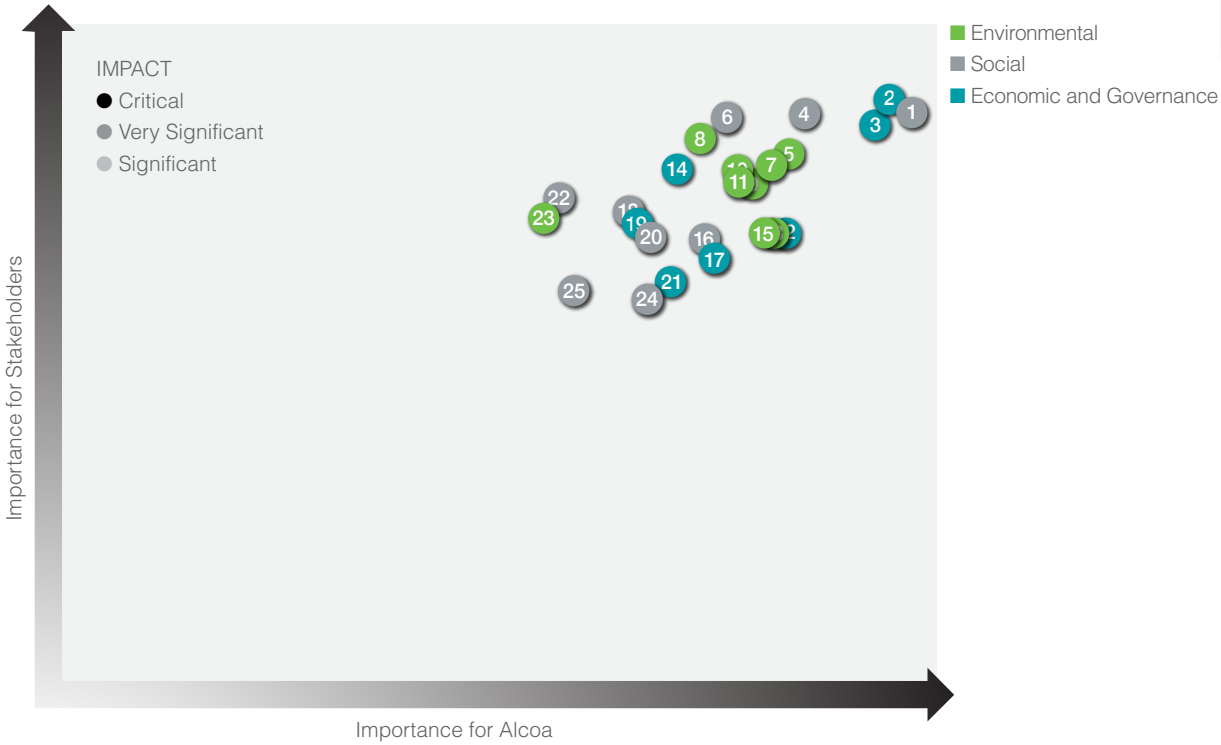
We base the content of our sustainability reporting primarily on our materiality analysis, feedback from our stakeholders, and the requirements of the Global Reporting Initiative's GRI Standards, the International Council on Mining & Metals' (ICMM) 10 Principles and eight Position Statements. The information in this report covers all operations where we have operational control, unless otherwise noted.

In 2019, we engaged a third-party expert to conduct a sustainability materiality analysis to identify our environmental, social and governance risks and opportunities. We use this information to inform our business and sustainability strategies, more effectively engage with stakeholders and ensure the relevance of our external reporting.

We decided to revisit the materiality analysis in 2020 due to the significant disruptions caused by the COVID-19 pandemic. Our goal was to determine if our stakeholders had a different view of our business priorities considering the pandemic. There were changes in both issues and prioritization.

The 2020 analysis, which used the 2019 results as a baseline, consisted of the following key components:

- Analysis of existing internal documentation on stakeholder input, such as location-specific materiality and stakeholder analyses;
- Survey of key employees to capture what they believed are the most significant issues for stakeholders (internal vision);
- Survey of external stakeholders, including those representing customers, communities in which we operate, government, non-governmental organizations and industry associations; and
- Prioritization of the material issues using the following matrix.



We considered our material issues to be those that our internal and external stakeholders ranked as four or higher on a scale of one (not important) to five (critical). The top 15 issues form the basis of our 2020 sustainability reporting.

Material Issues

Rank	Topic	Boundary	Report Section
1	Occupational health and safety	All locations	Safety and Health
2	Ethics, transparency and good governance	All locations	Governance, Ethics and Compliance
3	Regulatory compliance	All locations	Legal Compliance Environmental Compliance
4	Human rights	All locations, particularly those in high-risk areas	Human Rights
5	Waste management	All locations	Waste and Spills
6	Local commitment with communities	All locations	Shared Value Creation
7	Biodiversity and land rehabilitation	All locations, particularly our mines	Biodiversity and Mine Rehabilitation
8	Climate change	All locations, particularly our refineries, smelters and casthouses	Climate Protection
9	Water stewardship	All locations, particularly those in water-stressed areas.	Water
10	Air quality	All locations	Emissions
11	Energy use and efficiency	All locations	Energy
12	Economic performance	All locations	2020 Annual Report
13	Indigenous and land connected people	All locations, especially Australia, Brazil and Suriname	Human Rights
14	Socio-economic contribution and taxes	All locations	Shared Value Creation
15	Impoundment management	Our mines and refineries	Impoundment Management

Assurance

We engaged a third party firm—ERM Certification and Verification Services Inc. (ERM CVS)—to provide limited assurance of selected information in this sustainability report. ERM CVS conducted assurance using recognized assurance standards (ISAE 3000 and ISO14064:3). The scope of ERM CVS' engagement addressed selected environment, health and safety key performance indicators, including greenhouse gases, energy, water, and days away, restricted or transfers, and our adherence to ICMM membership requirements.

The following items received limited ERM CVS assurance:

- Scope 1 and Scope 2 greenhouse gas emissions data; ERM CVS also assured the accuracy of the energy consumption data used as a basis for the calculation of these emissions.
- Scope 3 emissions data for seven categories:
  - o Purchased goods and services;
  - o Fuels and energy-related activities;
  - o Transportation and distribution (upstream);
  - o Waste generated in operations (landfill only);
  - o Business air travel;
  - o Product transportation and distribution (downstream); and
  - o Processing of intermediate products sold to customers (excluding emissions from further downstream processing of alumina from bauxite and aluminum from smelter-grade alumina).
- Occupational health and safety data, including fatalities; events resulting in fatal or serious injury/illness; incidents resulting in days away, restricted or transfers; and lost workdays.
- Water inputs from operations and locations in Alcoa-defined water-scarce areas.
- Landfilled waste.
- Mine rehabilitation data at operating sites.

ERM CVS also provided assurance conclusions on the following ICMM Subject Matters (SM):

- SM1: The alignment of our sustainability policies, management standards and procedures to the ICMM Principles and relevant Performance Expectations, as well as mandatory requirements set out in ICMM Position Statements.
- SM2: Our material sustainability risks and opportunities based on our own review of the business and the views and expectations of our stakeholders.
- SM3: The existence and status of implementation of management systems and approach that we are using to manage each (or a selection) of the identified material sustainability risks and opportunities.
- SM4: Reported performance during the given reporting period for each (or a selection) of our identified material sustainability risks and opportunities.

The limited assurance statement is available in the Appendix.

As of the end of 2020, 13 of our operating facilities were certified to the Aluminium Stewardship Initiative's Performance Standard. We also had 12 operating locations certified to the Chain of Custody Standard, allowing us to market bauxite, alumina and aluminum with ASI certification. (View the certifications.)

We have developed an environmental product declaration (EPD) covering the EcoLum™ family of aluminum cast products. The information has been certified by UL Environment, a third-party assessor.

In addition, 84 percent of our operating plants are certified against the ISO 14001:2015 Environmental Management Systems standard, and 21 percent are certified against the OHSAS 18001:2007 or ISO 45001 Occupational Health and Safety Management System standards.

For the remaining information in this report, we relied on our stringent internal controls and management systems to ensure what we report is accurate and representative of our operations.

United Nations Sustainable Development Goals

We are committed to contributing to the United Nations Sustainable Development Goals (SDGs).

The SDGs where we can have the biggest impact are aligned with the European Aluminium initiative to link the industry's strategic sustainability ambitions closer to the SDGs.

Our progress against specific SDGs can be found in sections of this report that are marked with the following goal icons.

International Council for Mining and Metals Principles and Position Statements

We are a member of ICMM, which is focused on enhancing the industry's contribution to society with safe, fair and sustainable practices.

As a member, we must meet the commitments of the ICMM 10 Principles, eight Position Statements and all associated performance expectations. Requirements for this reporting and verification of Performance Expectations is for reporting years starting after January 1, 2021.

Our 2020 performance against these commitments is indicated throughout the report using the following icons.

Principle 1: Apply ethical business practices and sound systems of corporate governance and transparency to support sustainable development.

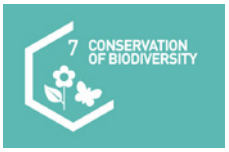
Principle 2: Integrate sustainable development in corporate strategy and decision-making processes.

Principle 3: Respect human rights and the interests, cultures, customs and values of employees and communities affected by our activities.

Principle 4: Implement effective risk-management strategies and systems based on sound science and which account for stakeholder perceptions of risks.

Principle 5: Pursue continual improvement in health and safety performance with the ultimate goal of zero harm.

Principle 6: Pursue continual improvement in environmental performance issues, such as water stewardship, energy use and climate change.



Principle 7: Contribute to the conservation of biodiversity and integrated approaches to land-use planning.

Principle 8: Facilitate and support the knowledge-base and systems for responsible design, use, re-use, recycling and disposal of products containing metals and minerals.

Principle 9: Pursue continual improvement in social performance and contribute to the social, economic and institutional development of host countries and communities.

Principle 10: Proactively engage key stakeholders on sustainable development challenges and opportunities in an open and transparent manner. Effectively report and independently verify progress and performance.

Strategic Long-term Goals

Our sustainability approach is driven by—and measured against—our strategic long-term goals, which further integrate sustainable practices into our business to minimize environmental impacts and maximize value for our stakeholders.

We review and update these goals on a periodic basis to ensure we are focused on items relevant to our company's strategic priorities and current operations. We also seek input from stakeholders.

In 2020, we began implementing new goals for water conservation, waste management and social management. We also expanded our existing GHG goal to encompass our alumina refining segment in addition to our aluminum smelting operations.

Strategic Long-term Goals

Goal	Progress
Align our GHG (direct + indirect) emissions reduction targets with the below 2° C decarbonization path by reducing GHG emission intensity by 30 percent by 2025 and 50 percent by 2030 from a 2015 baseline. More 	**14.6 percent** reduction from 2015
From a 2015 baseline, reduce the intensity of our total water use from water-scarce locations by 5 percent by 2025 and 10 percent by 2030. More 	**3.0 percent** reduction from 2015

Goal	Progress
From a 2015 baseline, reduce landfilled waste by 15 percent by 2025 and 25 percent by 2030. More 	**14.4 percent** reduction from 2015
From a 2015 baseline, reduce bauxite residue land requirements per metric ton of alumina produced by 15 percent by 2030. More 	**12.8 percent** reduction from 2015
Maintain a corporate-wide running five-year average ratio of 1:1 or better for active mining disturbance (excluding long-term infrastructure) to mine rehabilitation. More 	**0.92:1 ratio** for the 2016 to 2020 period
Zero fatalities and serious injuries (life-threatening or life-altering injuries and illnesses). More 	**One fatality** and **zero serious injuries** in 2020
Attain an inclusive everyone culture that reflects the diversity of the communities in which we operate. More 	• Formed the Alcoa Global Inclusion & Diversity Council to support the execution of our inclusion and diversity strategy. • Deployed the Catalyst for Change program globally to our leaders to support our inclusion and diversity priorities. • Held our first Global Pride Week with events and actions in all regions that celebrated LGBT+ equality. • Launched the Alcoans Working Actively for Racial-Ethnic Equality (AWARE) inclusion group. • Conducted our second gender pay equity analysis.

Goal	Progress
By 2022, implement a social management system at all locations, including the definition of performance metrics and long-term goals to be accomplished by 2025 and 2030 More 	• Engaged external consultants with expertise in social management systems and Indigenous Peoples to help us benchmark the industry. • Conducted a gap analysis of our existing practices to the best-in-class social management systems and have defined a program to close identified gaps by the end of 2022. • Performed human rights due diligence at two additional sites in Brazil—Juruti and Poços de Caldas—and human rights risks assessments in Iceland, Norway and Spain.

Risk Management

Our risk management process is structured around the Integrated Framework for Enterprise Risk Management from the Committee of Sponsoring Organizations of the Treadway Commission and uses the International Organization for Standardization's ISO 31000 (risk management) as a guideline.

We use a comprehensive process to identify and evaluate a broad spectrum of risks, ensuring all aspects of our business are covered. The process incorporates organizational goals, including excellence in stewardship of the environment, health and safety, a consistently fair representation of financial information and organic growth. It also includes business drivers, such as reputation, brand, earnings and operating margins.

Risks are grouped into categories and presented to management for prioritization. Our process is multi-dimensional and focuses on several aspects, each of which is considered in assessing, monitoring and prioritizing risk. In our process, particular emphasis is placed on the likelihood of occurrence, level of impact and mitigating factors, such as vulnerability and velocity.

In 2020, we linked our sustainability materiality assessment to our corporate risk management process and used the assessment's results as additional input to inform the corporate process. This step assures that sustainability-related matters follow the right assessment process to determine their potential impact and to establish the appropriate management measures.

We also initiated catastrophic risk management and operations risk management projects in 2020. Both are being designed and deployed to support our corporate risk management process through uniform methods of risk assessment, risk analysis, control treatment plans and control verification activities

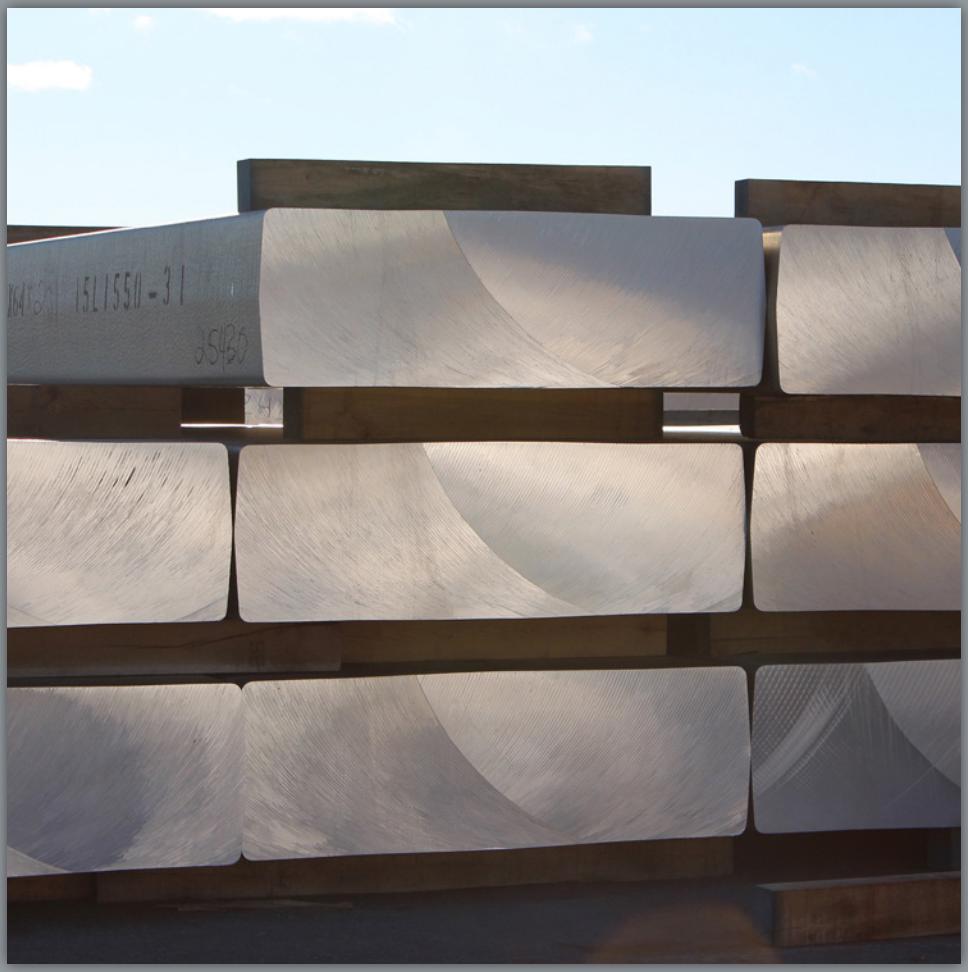
The collaborative process by which risks are identified, evaluated and managed ensures that senior management remains aware and vigilant in managing key risks that could impact the company. The Alcoa Board of Directors maintains oversight of our risk management, and our management reports on specific risks on a periodic basis.

We have several additional risk management systems that are specific to particular business activities. These include:

- New facilities or expansion projects: For any new facilities or proposed expansion of existing assets, we conduct an environmental and social impact assessment (ESIA) to identify the project's potential risks and opportunities. This process involves significant stakeholder engagement, and the results of the assessment are available to the public. Our most recent examples of ESIAs conducted for greenfield projects are our Alcoa Fjarðaál smelter in Iceland (view report) and our bauxite mine in Juruti, Brazil (view report). At the Baie Comeau smelter in Canada, we conducted an ESIA prior to a retrofit to more advanced technology.
- Human rights: We perform human rights risk assessments and due diligence on a periodic basis at our locations. (See the Human Rights section.)
- Environment, health and safety (EHS): We have a systematic approach to EHS risk assessment and management at all locations. (See the Safety and Health section). All locations are also required to create an emergency response plan that is tested and shared with communities that potentially could be impacted.

- Cybersecurity: We use numerous cybersecurity risk management processes that encompass everything from third-party vendors to vulnerability management. We are also working to align our global security program with the ISO-27001 Information Security Management standard, which is a globally recognized best practice security framework with the principles of information technology risk management at its core. This will enhance our management capabilities for information technology and cyber risk.

A discussion of our significant risks can be found in our Annual Report on Form 10-K for the year ended December 31, 2020. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may materially adversely affect us in future periods.



2020 SUSTAINABILITY REPORT

Products

Aluminum is the element of possibility.

It is lightweight, durable and infinitely recyclable. It is used to make airplanes, cars, trucks, buses, trains and buildings more energy-efficient, helping reduce greenhouse gas emissions over the life cycles of these products. It enables lighter, fully recyclable food and beverage packaging, thereby reducing waste.

In partnership with our customers, we continue to enhance the sustainability of our products. Our Centers of Excellence advance our knowledge and ensure continuous improvement through technology and engineering, best practice sharing and core operation standards.

In early 2020, we began selling bauxite, alumina and aluminum that is certified by the Aluminium Stewardship Initiative. We anticipate expanding our offerings of sustainable products in 2021, certifying additional locations to ASI standards and developing additional value for our customers.

Bauxite

Bauxite

We are one of the world's largest producers of bauxite ore, and we operate the world's second largest bauxite mine—the Huntly mine in Australia. Because our high-quality and reliable bauxite is mined responsibly and reliably, it helps reduce supply chain risk for downstream users. In addition, our vertical integration enables us to ensure we operate under the same values and environmental and social standards at every step of our production process.

As part of our sustainability approach, we first engage with relevant stake-holders to develop a rehabilitation plan before mining operations commence. We minimize opera-tional impacts and use innovative techniques to restore biodiversity or prepare former mine lands for future beneficial use. See the Mine Rehabilitation section for more information.

"Gränges is committed to reducing our climate impact from a life-cycle perspective, and thereby enhancing our sustainability performance. One of the key priorities in our climate strategy is to collaborate along the value chain and increase the sourcing and use of recycled aluminum and low-carbon primary aluminum since such materials significantly reduce our products' carbon footprint. That is why the collaboration with Alcoa creates value."

Sofia Hedevåg
Senior Vice President, Sustainability
Gränges

Alumina

Alumina is refined from bauxite ore. We are the world's leading producer of alumina outside of China and the world's largest third-party supplier of alumina, which we produce from a portfolio of refineries that together have the lowest average intensity of carbon emissions in the industry.

In 2020, we introduced the industry's first low-carbon, smelter-grade alumina brand as part of our Sustana line of environmentally friendly aluminum products. EcoSource alumina is produced with no more than 0.6 metric tons of carbon dioxide equivalents (CO2e) per metric ton of alumina, which is half the industry average of 1.2 metric tons of CO2e. The product is available with ASI certification.

EcoSource alumina

The refineries that produce EcoSource alumina have an average carbon emissions profile that is better than 90 percent of the other alumina refineries operating today. This performance is due to a combination of fuel type, fuel efficiency and continuous decarbonization efforts led by Alcoa's Refining Center of Excellence.

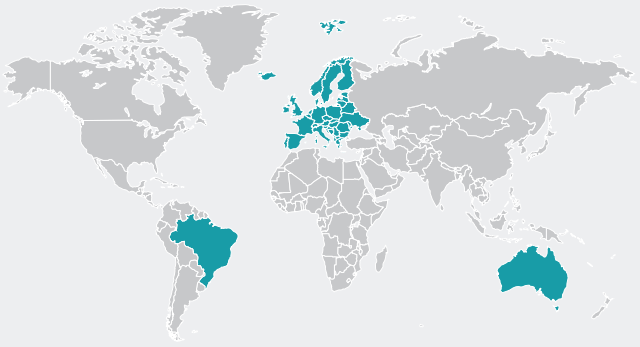
Our sustainability challenges in refining are water usage, particularly in our three Western Australia refineries where water is scarcer, and bauxite residue management. Information on how we are addressing each can be found in the Water and Waste sections.

Global Alumina Refining Emissions

Average CO_{2e} emissions per metric ton of alumina produced

Source: Average data per CRU Bauxite and Alumina Cost Model 2020

Region of production (refining)



Aluminum

Smelting alumina to produce molten aluminum is an energy-intensive process that emits greenhouse gases, even when using current best-available technology. We have had significant success in reducing our absolute energy usage and GHG emissions, achieving 43 percent and 65 reductions, respectively, since 2005 when we were operating as Alcoa Inc.

We are an industry leader in developing technology and implementing process controls to further reduce impacts from smelting. An example is ELYSIS™, which is a joint venture between Alcoa and Rio Tinto. The unprecedented ELYSIS technology, invented by Alcoa at our Alcoa Technical Center near Pittsburgh, eliminates all direct GHG emissions from the aluminum smelting process. It is the first industrial process that emits pure oxygen as its by-product. Apple purchased the company's first commercial batch of

aluminum without any direct carbon dioxide emissions in 2019. ELYSIS' goal is to offer commercial licenses in 2024.

Our global casthouse network produces a complete portfolio of primary aluminum products, including billet, foundry ingot, rolling slab, rod, powder, and high purity and P1020 ingot.

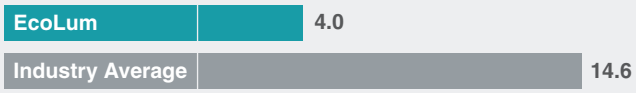
Sustana Product Line

EcoLum low-carbon aluminum, which is part of our Sustana product line, is produced with less than 4.0 metric tons of CO2e for every metric ton of metal produced, including both direct and indirect emissions for bauxite mining, alumina refining, smelting and casting. This performance is approximately 3.5 times better than the industry average. Each EcoLum product is issued a certificate that verifies its carbon emissions, and all are available with ASI certification.

EcoLum low-carbon aluminum

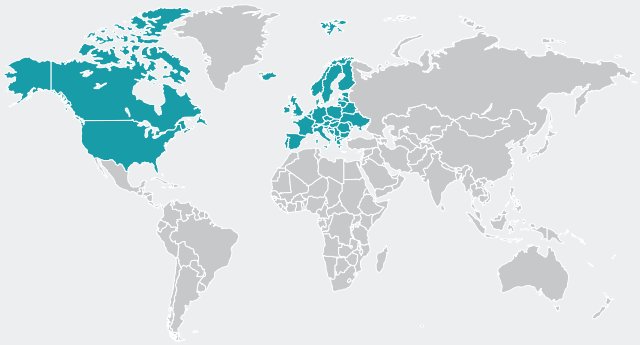
Global Alumina Smelting Emissions

Average CO_{2e} emissions per metric ton of aluminum produced



Source: Average data per CRU Aluminium Cost Model 2020 and CRU Bauxite and Alumina Cost Model 2020

Region of production (smelting)



Using low-carbon aluminum allows our customers to address their Scope 3 emissions, which often account for the majority of the GHG footprint in metal-intensive industries.

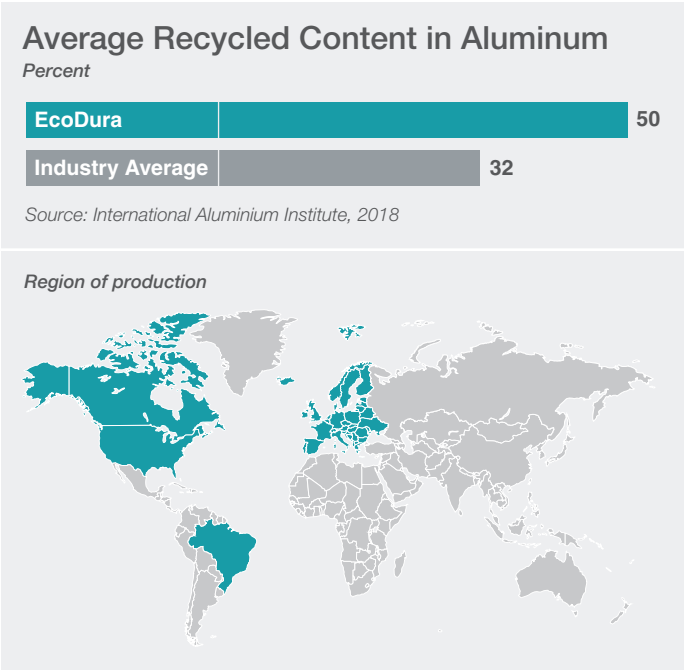
The environmental product declaration (EPD) covering the EcoLum family of cast products, which is registered with UL, provides further information and validation of the products' total environmental footprint. Customers can use EcoLum EPD data for life cycle assessments of their own products to demonstrate a reduced carbon footprint compared to industry averages.

In building and construction, for example, LEED® and BREEAM® green building certification frameworks recognize better environmental performance of construction products with additional points. Public procurement projects, especially in Europe, are also increasingly looking at the environmental parameters of products and materials.

Another offering in the Sustana line is EcoDura™ high-quality aluminum, which is produced with at least 50 percent recycled metal. The product conserves significant amounts of energy and reduces the environmental impacts associated with producing virgin aluminum. It is also available with ASI certification.

EcoDura aluminum is an important enabler of the circular economy and contributor to sustainable building initiatives, including contributing points toward LEED certifications.

EcoDura aluminum



Alcoa Specialty Alloys

Another product family—Alcoa Specialty Alloys—provides environmental benefits while offering advanced mechanical or thermal properties for new lightweighting solutions. This is especially crucial for the transition to cleaner electrified vehicles.

Battery electric vehicles currently hold a 3 to 4 percent share of vehicle production in Europe and North America, but the segment is expected to grow rapidly due to government incentives and increasing consumer interest. By 2022, battery electric vehicles are expected to account for 10 percent of output in Europe and 7 percent in North America.

The impact is expected to be even stronger over the long term. Several major European and non-European countries will begin banning the sale of new cars with internal combustion engines between 2030 to 2040, depending on the country. California also has announced plans to ban the sale of new gasoline powered cars starting in 2035.

Electric vehicles need to use more aluminum to compensate for heavy batteries. A 2019 Ducker study indicates that an electric car contains around 100 to 150 kilograms (220 to 331 pounds) more aluminum over a comparable model with an internal combustion engine. More of the lightweight metal is being used in the battery box as well as crush management systems and structural parts. Alcoa Specialty Alloys were designed for these and other automotive applications.

For example, complex structural components made with our EZCast™ C611 alloy often do not require additional heat treatment, as the target mechanical properties will be achieved after the car undergoes the normal painting process (known as paint bake). Suitable for shock towers and battery trays, our EZCast-NHT™ alloy demonstrates higher mechanical properties in an “as cast” state without any additional heat treatment. Avoiding separate heat treatment of cast parts reduces costs, simplifies operations, uses less energy and reduces GHG emissions.

Other Alcoa Specialty Alloys include SupraCast™, VersaCast® and EverCast™.

Recycling

Aluminum can be recycled infinitely without losing its properties, making it the sustainable choice in many of the markets we serve.

According to the International Aluminium Institute's analysis, approximately 75 percent of all primary aluminum ever produced is still in productive use due to its strength, product life and recyclability. Producing primary aluminum from recycled content consumes about 5 percent of the energy required to make virgin aluminum and avoids up to 95 percent of the energy-related emissions.

Our casting operations recycle externally purchased scrap. Our EcoDura aluminum, which has at least 50 percent recycled content, includes clean scrap metal from verified sources to ensure uncompromised quality.

In 2020, we consumed approximately 123,000 metric tons of aluminum scrap in our global operations. The curtailment of our Intalco smelter partially offset an increase in recycled content at our Warrick Operations, both of which are located in the U.S.

Our ongoing focus on increasing the recycled content in the flat-rolled aluminum produced at Warrick resulted in 38.3 percent recycled content in 2020 compared to 34.5 percent in 2019. We sold the site's rolling business in the first quarter of 2021.

At our Poços de Caldas location, we have increased the amount of recycled scrap used in billet production by 200 percent since 2015. This has reduced the plant's GHG emissions by approximately 30 percent.

In addition to recycling aluminum scrap, we actively seek to recycle or reuse our secondary materials, such as carbon, electrolytic bath, fly ash and secondary aluminas. See the Waste section for additional information.

Loading scrap into a furnace at the Poços de Caldas location

Our recycling efforts extend beyond our own operations to include partnerships with established recycling initiatives. In the United States, Alcoa Foundation continued to engage with The Recycling Partnership in 2020 through financial support and representation on the organization's board of directors. The organization uses public-private partnerships to improve residents' access to recycling at the local level.

Alcoa Foundation's three-year commitment to The Recycling Partnership's All In On Recycling Challenge helped support numerous projects and positively affected more than 12 million families during its first two years. A before and after study to measure the capture of recyclables within 38,000 of these households showed a 111 percent increase in aluminum and a 22 percent increase in PET bottles.

With support from both Alcoa Foundation and Alcoa Corporation, The Recycling Partnership has expanded its reach to 511 additional communities across the United States, bringing its cumulative total to 2,029 communities. Its work in 2020 eliminated an estimated 121,175 metric tons of carbon dioxide, saved 106,000 cubic meters (28 million gallons) of water and collected more than 48,590 metric tons of recyclables.

Photo credit: The Recycling Partnership

2020 SUSTAINABILITY REPORT

Shared Value Creation

Creating sustainable value for the communities where we operate is one of the three pillars of our sustainability strategy.

A key component of this pillar is stimulating economic activity at the local and regional levels to enable improved quality of life for our employees and neighbors. We do this by providing stable, fair-paying jobs, procuring goods and services from local suppliers when possible, paying income and other taxes, and investing in community infrastructure and initiatives. The value we create helps communities thrive and earns us our license to operate in these communities.

Guiding our value-creation efforts with local and regional stakeholders are our Values, Ethics and Compliance Program, Human Rights Policy and Alcoa Stakeholder Engagement Framework. These are also the foundation of our efforts to provide our employees with the opportunity for a better quality of life and well-being, professional development opportunities and a work environment that is inclusive and shaped by industry-leading health and safety programs.

Our long-term goal for sustainable value creation is to implement a social management system at all locations by 2022, including the definition of performance metrics and long-term goals to be accomplished by 2025 and 2030. We advanced this goal in 2020 through the following initiatives:

- We engaged external consultants with expertise in social management systems and Indigenous Peoples to help us benchmark the industry in these fields and support our efforts to develop our existing tools into a comprehensive system.
- We conducted a gap analysis of our existing practices to the best-in-class social management systems and have defined a program to close identified gaps by the end of 2022. The gaps are mostly related to developing a more structured approach to social risk management and formalizing existing practices into standards.
- We published an Indigenous Peoples Policy, committing to develop a formal engagement approach aligned with the ICMM Position Statement on Indigenous Peoples and Mining.
- We performed human rights due diligence at two additional sites in Brazil—Juruti and Poços de Caldas—and human rights risks assessments in Iceland, Norway and Spain. We also provided training to the members of the Alcoa Human Rights Council on the international standards related to human rights and the specific risks in the mining and metals industry. (See the Human Rights section.)

"Biodiversity and conservation of the Amazon forest depend on the development of new economic models that are ecologically sustainable, financially viable and beneficial to local communities. By working with the Sustainable Juruti Institute and Alcoa, we hope to create a positive impact and gain efficiency in our actions."

Ted Gehr
Director
USAID Brazil

The work we are doing to implement a social management system will define metrics and then measure progress in a range of socio-economic indicators relevant to our interactions with host communities.

2020 Alcoa Economic Value

	Australia	Europe	North America	South America	**Total**
Labor Costs *(US$ billions)*	0.5	0.2	0.7	0.1	**1.5**
Procurement Spend *(US$ billions)*	1.8	1.8	3.6	1.0	**8.2**
Income Taxes *(US$ millions)*	149.5	14.3	(6.8)	12.4	**169.4**

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

2020 Alcoa Foundation Investments

	Cash *(Millions of U.S. dollars)*	Employee Volunteer Hours
Australia	1.2	-
Europe and Africa	0.9	-
North America	2.4	320
South America	1.0	1,700
Global Outreach	0.1	-
Total	**5.6**	**2,020**

Alcoa Foundation does not make in-kind contributions. Management overhead in 2020 was US$568,738. Decline in volunteer hours was due to the pandemic.

Additional details on our 2020 financial performance can be found in the 2020 Alcoa Annual Report.

Mineral Revenues

As a signatory to the Extractive Industries Transparency Initiative (EITI), we support enhancing the transparency of mineral revenues. We believe that engaging with governments that implement EITI's principles help to ensure that mining revenues are used appropriately to address a host country's and host community's social needs.

We have four active bauxite mining areas in Australia and Brazil. Currently, Australia and Brazil are not EITI-implementing countries.

In Australia, we are a signatory to the government's Voluntary Tax Transparency Code, and we publicly disclose Alcoa of Australia's tax payments via an annual tax transparency report. Because our operations in Western Australia are governed by a single mineral lease and substantially interconnected state agreements, they are regarded as a single project.

In Brazil, mining rights are granted through mining concessions by the Federal Government, through the Agência Nacional de Mineração (National Mining Agency) or the Ministério de Minas e Energia (Ministry of Mines and Energy). Each mining area is subject to a mining concession.

Currently, we have three mining concessions granted to Alcoa World Alumina Brasil Ltda for bauxite mining in the Juruti region and 28 mining concessions granted to its subsidiary Companhia Geral de Minas for bauxite mining in the Poços de Caldas region.

We also have minority interests in bauxite mining activities in Brazil, Guinea and Saudi Arabia, but those non-controlled joint ventures are not included in this report. Learn more on the Alcoa section of the EITI website.

2020 Payments

Millions of U.S. dollars

	Income Tax	Royalties	Employer Payroll Tax *(Fringe benefit tax)*	Employee Payroll Tax
Australia				
Government of Australia	149.5	-	1.0	-
State of Western Australia	-	47.4	-	25.5
State of Victoria	-	-	-	1.0
Australia Total	149.5	47.4	1.0	26.5
Brazil	12.4	11.6	-	2.7

Corporate income tax paid during the year in Australia included 11 installments paid on 2019 profits, one final installment paid on 2018 profits and remaining taxes due in respect of the lodged 2018 income tax return. Goods and services tax and fuel tax credits paid/refunded (on a net basis) are not included in the Australia total.

Mining Partnerships for Development

Our locations and Alcoa Foundation partner with numerous non-governmental and community-based organizations on social, environmental and economic development activities in our host communities.

In 2020, we focused our efforts on helping host communities respond to the COVID-19 pandemic and improve the resilience of public health systems. In Brazil, for example, grants from Alcoa Foundation and Instituto Alcoa provided beds, equipment and medicine for local hospitals and other

Training Program Closes Skill Gaps in Guinea

Funded by Alcoa Foundation, a unique training program in Guinea is helping graduates of vocational training centers close skill gaps in English and computer science to better integrate into the job market.

For decades, Guinea has undertaken training reforms to better match the skills of the country's workforce with the needs of the labor market. Although these efforts have proved successful, graduates still struggled to secure employment because they did not possess certain skills required for public service or by private companies.

To close the gap, Alcoa Foundation has partnered with nonprofit School-to-School Guinea (STSG) to provide free refresher training in English and computer science to 300 vocational school graduates, of which 50 percent must be female. The program received the support of the country's educational authorities, as it aligns with a Guinea policy to foster training on information technology and communications.

Nearly 110 students completed the training prior to the onset of the pandemic, with the remainder expected to graduate once the program can resume safely in 2021.

"If you don't learn English and computer science today, it's not easy to get a job," said program participant Koriagbè Keïta. "Since the end of training, I have gone from the rank of trainee to contract secretary for the Donka Professional Vocational Training Center. I manage to do the work that is entrusted to me better than before."

health care providers. Additional examples can be found in the Coronavirus Pandemic Response section.

We provide additional support to our host communities through corporate funding. For example, the Alcoa Sustainable Communities Funds in Canada invests C$1 million each year for projects in the Baie-Comeau, Bécancour and Deschambault-Grondines/Portneuf regions of Québec. The unique governance structure of the Alcoa Sustainable Communities Funds fully engages the communities, and funded projects begin with ideas submitted through citizen forums. Each regional sustainable development committee prioritizes these ideas, which are implemented by citizens, municipalities and local organizations from each community. Since its creation in 2011, the fund has supported nearly 100 projects and invested approximately C$9 million.

Taxes

In addition to the economic activity we stimulate at the local and regional levels, we also contribute to the communities in which we operate through a variety of tax payments.

Approach

Our tax professionals partner with our business professionals to provide proactive, efficient tax services in line with the following commitments:

- We will satisfy all income tax reporting and filing obligations in accordance with laws and regulations;
- We will develop and implement tax strategies to support business goals and maximize after-tax cash flows;
- We will mitigate tax risk through thoughtful implementation and documentation of commercial transactions and tax strategies and proactive involvement in legislation. Where possible, we will work closely with local governments to ensure transparency, and we will participate in current audit initiatives to shorten audit cycles and reduce tax risk;
- We will assist in developing sustainable, arms-length pricing on intercompany transactions;
- We will not develop tax structures or take tax return positions that are not at least more likely than not to be sustained on a tax audit;
- We will not engage in tax planning that relies on the non-disclosure of activity or of ownership in tax havens or secrecy jurisdictions; and
- We will closely follow our financial and ethical policies and guidelines.

We are committed to complying with the spirit as well as the letter of the tax laws and regulations in the jurisdictions in which we have a tax presence. We have a number of tax procedures to ensure our senior management understands the tax consequences of all material company transactions, audit settlements and other material tax matters globally.

Our tax strategy applies to all corporate taxes, including corporate income tax, value-added tax, sales tax and property tax.

Governance, Control and Risk Management

Our Tax Policy is reviewed annually by the senior vice president of tax and all members of our Tax Group. The senior vice president of tax is responsible for ensuring compliance with this policy and reports regularly to the chief financial officer and Audit Committee.

Our tax personnel are involved in all major business restructurings and initiatives and ensure alignment with business-related sustainable development strategies. Any tax planning is reviewed by our heads of Finance, Tax, Treasury and Legal.

To manage tax risk, professionals working in our locations globally oversee our tax affairs. We provide these employees with the necessary training to ensure we meet our statutory tax obligations and have taken only sustainable positions that are consistent with our tax strategy. We also solicit the advice of external advisors when specialized technical expertise is required.

Our tax risks are updated quarterly and maintained in an enterprise risk management (ERM) software tool. We also update our tax and data software systems continuously to meet regulatory changes and increasing information requirements from government authorities.

Our Executive Team and Board of Directors have oversight of our tax risks as part of our ERM process, and we encourage members to identify and discuss tax risks and mitigation. (See the Risk Management section.)

All of our global tax offices participate in an annual self-assessment to ensure that our operations and processes are meeting the expectations of our documented standards, policies and practices and legal and other requirements. Internal and external auditors regularly audit our tax compliance, controls and documentation processes, with the audited tax disclosures published in our annual report.

Alcoa + Scitech = Improved Math Performance

In Western Australia (WA), the award-winning Alcoa Maths Enrichment Program is not only improving students' achievements in mathematics, it is also expanding their career prospects.

Delivered since 2012 in partnership with Scitech, which is WA's leading STEM engagement organization, the program aims to use the three-way learning relationship between teachers, students and parents to make the transition from basic numeracy to more complicated concepts easier.

Teachers build capability through in-class coaching, facilitated observation and group workshops. A more recent program element—the Alcoa Champions of Maths—provides intense upskilling of a smaller number of teachers who then share their knowledge with colleagues. Parents are schooled on the importance of math, what their children are doing and ways to extend their children's learning at home.

"I learnt a lot of stuff, especially new ways of seeing maths," said Chloe, a year six student. "The lessons were very interesting – some were fun, and some were challenging. It was good working in groups, because if you had trouble understanding, they can explain it in a different way. Overall, it was an amazing program."

In December 2020, the program earned the Western Australian Resources

Industry Community Partnership Award from the state's Department of Mines, Industry Regulation and Safety.

"There are strong links between attitudes toward math and performance," said Kalien Selby, Scitech CEO. "It is critical that we provide a positive and inspiring environment for learning math. Our partnership with Alcoa does this through contemporary and effective teaching methods that embrace students, teachers and parents alike, capturing all areas of influence in a child's life. This holistic approach ensures longer-lasting impact that effects real change."

By the end of 2020, the partnership had directly reached approximately 70 schools, 2,400 teachers, 1,700 parents and 17,400 primary students in the Kwinana, Peel and Upper South West areas where we operate. The program's digital platforms had reached an additional 78,000 teachers globally. Of the participating teachers, 96 percent reported improved confidence in teaching math, and 90 percent reported improved student engagement.

Stakeholder Engagement

Our tax personnel strive to build and maintain effective working relationships with tax authorities, internal and external partners, governmental authorities and auditors.

All employees and external stakeholders can report tax concerns through our Integrity Line. (See the Governance, Ethics and Compliance section.)

We recognize that the taxes we pay help build the physical, social and educational infrastructure needed to support growth and development in the regions and countries where we operate. As such, we support fair and equitable tax structures that support business growth and incentivize innovation.

We engage with industry groups, international organizations and government authorities on regulatory changes and initiatives. We believe that transparent communication is critical to understanding the short- and long-term impact that tax rules and regulations may have on our industry, company and stakeholders.

Transfer of Knowledge and Best Practices

As a leader in sustainability, we continuously seek opportunities to assess and influence the sustainability efforts of our suppliers and partners. (See the Supply Chain section.)

We review and monitor the compliance programs of significant joint ventures where we are not the controlling shareholder or operator. Under this program, a steering committee composed of senior Alcoa executives provides oversight to local teams charged with reviewing and monitoring the ethics and compliance practices of the joint venture.

These reviews are conducted in collaboration with the joint venture partners and focus on key compliance program components, including:

- Commitment from senior management;
- Oversight, autonomy and resources for compliance;
- Code of conduct, anti-corruption and other compliance policies and procedures; and
- Ethics training, confidential reporting and investigations.

Our teams work with our partners to ensure alignment around the compliance programs for the joint venture and develop plans to close any identified gaps. As part of the process, we also share our policies, procedures and best practices with our partners.

We extended our human rights risk assessment to our non-controlled joint ventures in late 2019, requesting each to complete a questionnaire covering the main topics assessed. In 2020, we began working with specific joint ventures to address any identified gaps.

In addition to compliance and human rights, we take an active role in transferring our best practices in environment, health, safety and human resources to our non-controlled joint ventures. The level of involvement varies based on the maturity of processes and systems as well as the identified risks of each operation. Our involvement ranges from sharing our best practices and standards to temporarily assigning Alcoa experts to the joint venture. We also conduct risk assessments of various aspects of a joint venture when warranted.

Stakeholder and Community Engagement

We work to maintain transparent and regular communications with our stakeholders to ensure a mutual understanding of issues, concerns and opportunities.

We define a stakeholder as any person or organization that directly impacts, or is impacted by, our activities. This includes stockholders, employees, customers, suppliers, government representatives and regulators, non-governmental organizations, local communities and the media.

Our stakeholder relationships are both formal and informal. With customers, suppliers, governments, employees and stockholders, we typically have formalized, contractual or even legally mandated channels for engagement. Our interaction with other stakeholders is typically less formalized but still requires deliberate attention on a regular basis.

Feedback from the communities where we operate is vital to our ongoing operations, so our locations use the Alcoa Stakeholder Engagement Framework to manage risks and opportunities associated with community rights and interests.

The framework provides a systematic process to ensure active interaction with our stakeholders to achieve mutual success.

As part of this framework, we gain an understanding of key community interests and priorities. Examples of these include:

- Economic: Employment opportunities, fair wages and infrastructure development;
- Environment: Access to water, local air quality and waste management; and
- Social and cultural: Education, healthcare and protection of sacred places.

To incorporate community rights and interests in our everyday activities in a systematic manner, we published the Alcoa Social Policy and updated our Indigenous Peoples Statement to an Indigenous Peoples Policy in early 2021 to enhance our commitment to this particular minority group. We will implement both in 2021 through a set of standards that will further systematize our approach to community engagement with measurements on our social performance.

"Whilst Western Australia has luckily avoided the pandemic's most devastating health effects, WA hasn't escaped all COVID-19's other consequences. Alcoa Foundation has supported Anglicare WA to deliver much-needed COVID-19 recovery support to communities in need across the southern tip of Greater Perth, Peel and South West regions. Rather than applying a broad-brush approach, what has made our partnership with Alcoa Foundation particularly impactful is the organization's deep understanding of the unique communities in which it operates. This, in turn, has enabled us to develop and deliver a bespoke service response for each region. Alcoa Foundation truly understands its communities and has trusted us to do what we do best."

Philippa Boldy
Director Services
Anglicare WA

Four Million Ways Employees Help Their Communities

With an AUS$12,800 donation to nonprofit Halo Team Inc. in 2020, our Western Australian employees celebrated a milestone of four decades and AUS$4 million in giving through the Personnel Employed at Alcoa Charity Help (PEACH) employee-funded charity.

An enthusiastic group of employees at our Pinjarra refinery inspired the launch of PEACH in 1979 to help those in need in their local community. Over the years, PEACH has expanded to encompass all of our Western Australian locations, with more than 550 employees making regular contributions in 2020.

"The PEACH philosophy is that no organization is too big or too small to receive funding," said Trish Morris, PEACH president and executive assistant at the Willowdale mine. "Our employees, whose sole motivation is to make a difference in the lives of others, deserve the credit for our sustained success and longevity."

Approximately 250 Western Australian community organizations that provide welfare, health, family, safety and social improvements have benefited directly from PEACH over the past four decades.

Our community engagement is also guided by the ASI Performance Standard, which was developed by a multi-stakeholder group with broad representation of civil society and incorporates the practices of the ICMM 10 Principles and key International Financial Corporation Performance Standards. At the end of 2020, we had 13 operating locations certified to the ASI Performance Standard. We intend to certify more of our locations as we progress.

Our locations are encouraged to form community consultation forums comprising a relevant cross-section of local stakeholders. These forums provide an opportunity for regular two-way communication between Alcoa representatives and community members on topics of mutual interest.

We also engage with stakeholders, primarily local communities and non-governmental organizations, through Alcoa Foundation globally and Instituto Alcoa in Brazil. The method of engagement varies by location. Some locations use their community consultation forum, while others consult directly with employees, local leaders, institutions or regional associations. The aim is to understand stakeholder needs and contribute to the social, economic and institutional development of our host communities.

In 2020, the pandemic impacted our host communities at varying levels. We decided to focus our efforts on supporting local organizations that were working on health care and food security. Our stakeholder engagement helped us identify the key players and their needs quickly and then react rapidly to navigate through the crisis.

Donated hay from Western Australia is loaded for shipment to eastern Australia, which was impacted by bushfires.

Concurrent with the pandemic, devastating bushfires on the east coast of Australia became another focus of our community giving in that region of the world. In addition to a US$50,000 donation from Alcoa Foundation, our Pinjarra, Kwinana and Wagerup refineries teamed with their local Lions and Rotary clubs to hold bushfire fundraisers that raised nearly US$7,000 in employee contributions. Our Western Australia farmlands operation also donated hay for farmers impacted by the fires.

In Brazil, we conduct periodic Alcoa and Community Panels to monitor the impact of community projects supported by Alcoa Foundation and Instituto Alcoa. In addition, periodic surveys in Brazil and Australia help us better understand the perceptions and expectations of host communities and key stakeholders.

In 2020, we engaged a third party to conduct a perception survey of our Alumar, Juruti and Poços de Caldas operations in Brazil. Approximately 200 stakeholders, including government officials, industry representatives, non-governmental organizations and community leaders, participated in telephone and email surveys. Results indicated the stakeholders recognize our commitment to local development, social responsibility, environmental stewardship and the care of our employees. Identified areas for improvement included improved transparency and communication with communities, the media and government.

Stakeholder engagement is also a key part of our human rights due diligence process, where individuals are given the opportunity to provide input on their relationship with the company and the functioning of established grievance mechanisms. Any stakeholder can raise issues or lodge a grievance using our confidential Integrity Line. (See the Governance, Ethics and Compliance section.)

Bridging the Generations for Students

Connecting older generations with their younger counterparts is helping students in Australia achieve their potential in both school and life.

Through its Connecting Generations for School Success Program, EdConnect Australia trains, supports and places mentoring and learning support volunteers in local schools to improve the lives of vulnerable children. Alcoa Foundation has supported the nonprofit's efforts in Western Australia since 2016, helping reach some 1,000 students each year.

The following quotes are from students who received support in 2020.

"Everybody has left me in my life. Nobody stays for me. Things have changed all the time where I live, but my mentor is there every week. I tested him at first, but he always was there, and is. I am learning to trust slowly, and that's a good thing."

"My mentor is amazing. We have a laugh and a giggle, and she listens to me. She has given me so much for my confidence and self-esteem, and without her, I would not be where I am now, going into year 11 with confidence knowing that I can succeed in anything I put my mind to. This is so different from a year ago when I could not even hold my head up and look at people. I did not have any strategies and tools that worked."

"My mentor talks to me like I am valued, and he cares about me. I am someone. He believes in me, and I am starting to also believe in me. How did this happen? I cannot remember it changing, but it's starting to feel different. I am now making better choices."

"I thought I was failing everything, and I did not know what direction I was going. I was so confused about life and school, and my mental health was getting worse. Now, I have passed this year. Coming back into year 12, I feel that I have a small sense of what I am doing, and it feels so much better than before."

The following key issues were raised by, or discussed with, stakeholders in 2020.

2020 Stakeholder Issues

Location	Issue	Action
Australia	In July 2020, the Australian Tax Office (ATO) issued Alcoa of Australia Limited (AofA) with notices of assessment for AU$214 million plus AU$707 million in compound interest following a review of certain historic third-party alumina sales. The ATO also issued its preliminary position on imposition of penalties of AU$128 million in relation to this matter.	Alcoa Corporation made several U.S. Securities and Exchange Commission disclosures in relation to this matter. In Australia, we engaged with relevant stakeholders and responded to media inquiries. In accordance with the ATO's dispute resolution practices, AofA paid 50 percent of the assessed income tax amount exclusive of interest and any penalties, or approximately AU$107 million, during the third quarter of 2020. The ATO is not expected to seek further payment prior to final resolution of the matter. If AofA is ultimately successful, any amounts paid to the ATO as part of the 50 percent payment would be refunded. AofA disagrees with the ATO on this matter and intends to pursue all options to defend its position, up to and including the filing of legal proceedings. During 2020, AofA continued to record its tax provision and tax liability without effect of the ATO assessment, since it expects to prevail.
Anglesea, Victoria	Filling a mine void with water is a key enabler for the Anglesea Mine Rehabilitation and Closure Plan. Our preferred fill strategy is a combination of surface water and groundwater. In May 2020, we applied to Southern Rural Water to amend our existing license conditions to undertake a pumping test of the Upper Eastern View Formation Aquifer. The test will provide the technical basis to establish a sustainable pumping rate to ensure no long-term environmental impacts. Our proposal is to extract up to 1.5 gigalitres per year for the mine void. We have an existing license to extract up to 4 gigalitres per year from the aquifer. We previously extracted approximately 3.5 gigalitres per year for use at the power station with no environmental impact. In October 2020, we received an amended license that permits the test. In November 2020, we sought approval from the Victorian government's Earth Resources Regulation, which is the mine regulator, to allow the water to be used in the mine void. We aim to commence the pumping test in April 2021.	Consultation with stakeholders is a priority in the development and approval process for the mine's rehabilitation and closure, and the water-filling strategy has been a key topic for several years through our community engagement activities. In early 2020, we sought feedback from the community about the groundwater pumping test, with support shown for the activity. We regularly liaised with government regulators and authorities and have continued to keep the community informed about the proposed test through monthly updates. Should the pumping test proceed, we will undertake extensive monitoring and provide monthly reports to regulatory and community stakeholders so that any concerns can be proactively addressed in a regular, transparent and open manner.

2020 Stakeholder Issues

Location	Issue	Action
Kwinana, Australia	Since the Western Australian Planning Commission (WAPC) adopted the Kwinana air-quality buffer in September 2010, there have been litigation and questions on the legitimacy of the buffer and land uses in the area. In April 2019, the Minister for Planning announced the IP47 improvement plan for the Mandogalup area near Kwinana. This process is ongoing.	We support compatible development in the Mandogalup area with adequate separation between industry and residential development. During 2020 and despite COVID-19 restrictions, we engaged via IP47 consultation forums and directly with regulators. We expect the IP47 improvement plan to be considered by the WAPC by mid-2021.
Portland, Australia	In 2017, we signed a four-year contract with energy supplier AGL that expires in July 2021. On behalf of our Portland Aluminium joint venture partners, we sought an internationally competitive energy contract to secure a sustainable future for the smelter.	Energy supplier negotiations were ongoing during 2020. During the year, we engaged with other stakeholders, including joint venture part-ners, federal, state and local governments, business partners, employees and union representatives. We also responded to media inquiries related to the future of the smelter. In March 2021, we announced new five-year agreements with three energy generators that will commence on August 1, 2021. The Australian federal government and Victorian state government also have made commitments to support smelter operations in recognition of the value contribution it makes to the economy, including grid stability.
Pinjarra and Huntly, Australia	To keep adding value to Western Australia and to meet contemporary expectations, we are seeking to modernize the environmental approvals for our Pinjarra alumina refinery and Huntly bauxite mine. We have submitted the following plans for environmental assessment: • Increase alumina production at our Pinjarra refinery by 5% from 5 million metric tons per annum (mtpa) to 5.25 mtpa. • Transition the Huntly mine into the Myara North and Holyoake regions. • Increase the mining rate to supply up to 2.5 mtpa of bauxite for export. These plans are being assessed under the State Environmental Protection Act 1986 and the Federal Environmental Protection Biodiversity Conservation Act 1999. The WA Environmental Protection Authority (EPA) has set the level of assessment at a public environmental review, which is the highest level possible and the level that we requested. The Federal Department of Agriculture, Water and the Environment's assessment will run in parallel. *(Continued on next page)*	Stakeholder engagement is a key component of the project to keep the local community and other stakeholders informed of, and engaged in, our plans and ensure that their feedback, interests and concerns are considered in decision-making. In August 2020, we held three information sessions to provide local community members from Jarrahdale, Dwellingup and Pinjarra with an opportunity to learn about the environmental assessment processes and our current and proposed future operations. We also have engaged with other stakeholders, including local governments, members of parliament, government departments, community, environmental and recreational interest groups, employees, business partners and media. These interactions occurred via face-to-face briefings, mailouts, fact sheets and the Alcoa website. For more information, visit www.alcoa.com/australia/en/sustainability/pinjarra-huntly-environmental-assessment

2020 Stakeholder Issues

Location	Issue	Action
Pinjarra and Huntly, Australia *(continued)*	Detailed studies will inform the environmental assessment. These will focus on flora and vegetation, terrestrial fauna, terrestrial environment, air quality, greenhouse gas emissions, surface and groundwater, and social surroundings. The studies will feed into our final environmental review document, which the EPA is expected to release for an eight-week public review period in the second half of 2021. The entire assessment process is expected to be completed around the end of 2022.	
Western Australia Mining Operations	As part of our ongoing work to establish connection to, and create sustainable value for, the communities around our Huntly and Willowdale bauxite mines, we continued to consult with the local community to understand and address their concerns, where practical, relative to current and future mining and to demonstrate how our operations can coexist with other land uses.	As a key stakeholder in Dwellingup Futures, a consultation group comprising local and state government, industry and community group representatives, we participated in meetings and community forums and worked with specialist consultants to develop the Dwellingup Futures Road Map. The document assesses scenarios and future opportunities for Dwellingup. The Dwellingup Trails and Visitor Centre opened in September 2020 and was made possible through the support of Alcoa, along with government and the Peel Development Commission. An interactive Alcoa display at the center highlights how our operations can coexist with other land uses, such as recreational tracks and trails that are near mining operations. As Willowdale mine prepares to move south to the new Larego area in 2021, we continued discussions with future neighbors and key stakeholders through the annual Five-Year Mine Plan consultation process, briefings, and community events and forums.
Juruti, Brazil	In November 2019, families with no title to the land in an area inside the Curumucuri Settlement blocked Alcoa exploration activities that had already been authorized by Acoglec, which is the local community association.	After several negotiation sessions involving Alcoa, Acoglec and Iterpa (the state land authority) in 2020, no formal agreement was established on the relocation of the families. The alternatives are still under evaluation.
Juruti, Brazil	Since 2018, the Federal Public Prosecution of Santarém and the Federal Court of Santarém prohibited Alcoa from carrying out any mining and community relations activities in the Lago Grande region in Santarém. We have not conducted any exploration activity in the area since 2008, and we suspended community relations activities in 2018.	In 2020, we submitted to the Federal Public Prosecution a proposal for consultation based on ILO 169 to restart engagement with the region's communities to reach an agreement with them. We did not receive approval to restart engagement in 2020 due to the pandemic. We reiterated our request in early 2021.

2020 Stakeholder Issues

Location	Issue	Action
Juruti, Brazil	Due to heavy rain and flooding, an earthen windrow at the top of a mining area at Juruti broke apart on Dec. 26, 2020, sending soil and vegetation down the plateau and into the Jauari River. No one was injured. The material caused some increased turbidity in the water, which was a temporary situation that progressively improved. The sediment was not bauxite tailing residue, and no long-term or negative effects are expected.	We worked with community representatives to conduct periodic testing of the river's water. We also strengthened the windrow and the access road to the area. We remained in active communication with our stakeholders as we worked to mitigate any temporary negative impacts from the situation. As soon as the event happened, we reached out to the 47 families to address any basic needs (water and food). A formal agreement, which includes financial compensation and provision for water and food until the affected environment recovers, is in the process of being finalized.
Juruti, Brazil	In October 2019, the Association of Communities of the Juruti Velho Region (Acorjuve) issued a letter preventing us from developing social activities in Juruti Velho and surrounding communities. This followed Acorjuve's decision to not follow an agreed-upon path to create a foundation to manage the royalties that we pay to Acorjuve to ensure transparency and good governance. INCRA (federal land authority) has taken a firm position to complete the process to create a foundation and to allow us to continue performing the environmental control activities in the area in the meantime.	We continued to engage with public attorneys, INCRA, Acorjuve and the affected communities in 2020 regarding resuming activity in the region. The Term of Commitment and Social, Environmental and Economic Sustainability signed by Alcoa, Acorjuve, INCRA and state and federal attorneys in 2018 consolidated the multiparty agreement between the company and the communities in favor of the shared use of land. The compensation and royalties to the Juruti Velho region were to be managed by a foundation (to be established in 2019) that would assure transparency and governance. The creation of this foundation is a new approach to community engagement, involving all the stakeholders in the decision-making process.
Juruti, Brazil	The Prudente community was concerned that one of its access roads would be blocked because of its location near our new authorized mining area. The community asked for support to build an alternative road.	We signed an agreement with the city regarding the road's construction. Due to the pandemic, authorization for required fauna and flora management plans were delayed. We are engaging with the community and authorities throughout the process, and construction is expected to begin in 2021.
Norway	In April 2020, the Norwegian Sámi Association contacted us regarding our power purchase agreement with Øyfjellet Wind Farm. The wind farm is being built in an area containing a traditional reindeer migration route necessary to maintain the traditional natural resource-based livelihoods of the Sámi people. It was alleged that Alcoa, through our energy supply agreement with the project developer, violated our Ethics and Compliance Framework. The local Reindeer District, Jillian-Njaarke, subsequently filed a motion to halt construction of the wind-power project on grounds that it illegally closed off reindeer trekking routes. Both the Civil Court and the Court of Appeals rejected this claim.	With the support of external experts, we conducted a thorough review of the project and the actions taken by the project developer. We concluded that the development's impacts had been thoroughly considered. The verdicts from the Civil Court and Court of Appeals support the findings of our external review in that the development's impacts had been thoroughly considered. In late 2020, the project developer and Reindeer District signed an agreement for the winter of 2020/2021. This is a step toward a permanent agreement between the parties after the plant becomes fully operational, which is expected in October 2021. We will continue to monitor the situation.

2020 Stakeholder Issues

Location	Issue	Action
San Ciprián, Spain	In October 2020, we announced the curtailment of our San Ciprián smelter and a collective dismissal that would affect approximately 530 employees.	Prior to the curtailment decision, we conducted four months of formal consultation with the facility's workers' representatives. No agreement could be reached. The workers' representatives filed a lawsuit with the High Court of Justice of Galicia, which ruled in favor of the workers on December 17, 2020. In the court's ruling, it declared the collective dismissal process "null and void." In accordance with the ruling, we halted our curtailment plans. We also appealed the ruling to the Supreme Court of Spain.
San Ciprián, Spain	Employees at our smelter and refinery in San Ciprián, Spain, declared a strike on October 4, 2020, with the objective of maintaining all jobs at the site. While the employees continued to work, they declined to produce certain value-added products and blocked deliveries to customers.	In January 2021, Alcoa and the facility's workers' representatives reached agreement to suspend the strike. As part of the agreement, we will conduct a sale process to SEPI, which is an entity of the Spanish national government. The agreement will remain in effect until April 30, 2021, and could be extended.
United States	In December of 2020, Alcoa was named in a lawsuit filed in the U.S. District Court for the Southern District of Indiana, requesting class action status for certain former Alcoa employees regarding changes to retiree health care plans. The named plaintiffs include several Alcoa retirees and the United Steelworkers Union.	In December 2019, we announced that certain retirees, beginning in January 2021, would be able to choose their healthcare coverage on a Medicare Exchange in place of the group fixed healthcare plan. We sent enrollment information, beginning in August 2020, to the affected retirees, including invitations to webinars to help the retirees make the best election available for their individual circumstances. Throughout this process, retirees were contacted with numerous outreaches, including mail and telephone calls to assist with enrollment. On December 31, 2020, our planned modification of the retiree healthcare benefits went into effect.
Ferndale, Washington, USA	In September 2020, we completed the curtailment of our Intalco Works smelter, which had become uncompetitive due to rising power costs, weakening demand, falling prices and a global surplus. Approximately 700 employees were impacted.	For affected employees and their family members, we held a virtual job fair and hosted sessions on financial planning, unemployment insurance and retraining. We also engaged with the local stakeholder group and government officials to keep them informed throughout the process.

Non-governmental Organization Engagement

Non-governmental organizations provide significant value to society. We partner with these institutions to offer support and advance their work on items that have been identified as important to our stakeholders.

We historically have focused on two areas that are material issues for our operations—preventing climate change and preserving biodiversity in the communities in which we operate. In 2020, we expanded our focus to include training and workforce development. We believe both are fundamental for developing the communities where we operate and ensuring access to future talent.

Examples of recent partnerships can be found throughout this report and on the Alcoa Foundation website.

Memberships

The following are some of the organizations in which we are a member or participant:

- Aluminium Association of Canada;
- Aluminium Stewardship Initiative;
- Australian Aluminium Council;
- Brazilian Aluminum Association;
- Brazilian Council for Sustainable Development;
- Center for Climate and Energy Solutions;
- Eurometaux;
- European Aluminium;
- International Aluminium Institute;
- International Council on Mining & Metals;
- National Association of Manufacturers; and
- The Aluminum Association.

Through these organizations, we engage with numerous stakeholders on issues important to the aluminum and mining industries.

Human Rights

Our values have always been the foundation of our company. They govern the way we act, operate and interact with our customers, suppliers, communities and each other. Respect for human rights and the interests, cultures, customs and values of employees and communities is embedded in that foundation.

Our commitment to support the United Nations Guiding Principles for Business and Human Rights and the International Labour Organization Core Conventions are incorporated into our Human Rights Policy. We strive to ensure this commitment is exemplified by our actions and those of each employee, supplier and business partner. If we become aware of any potential violations to our policy, we act quickly and decisively.

Our Human Rights Policy operates in conjunction with the following:

- The Alcoa Code of Conduct and our employee training, both of which cover human rights;
- Our Supplier Standards, which explicitly indicate respect of human rights;
- Internal and third-party supplier assessment programs for new and existing suppliers (see the Supply Chain section);
- Our Equal Employment Opportunity Policy;
- Our Harassment and Bullying Free Workplace Policy; and
- Our Integrity Line for employees, suppliers and the general public to report potential violations or concerns.

The Alcoa Human Rights Council defines and implements management systems that enable us to respect and support individual and collective human rights impacted by our operations. The 15-member council is sponsored at the executive level of Alcoa and includes representatives from each region and key resource unit.

In 2020, the council expanded its membership by adding a program manager and additional human resource and regional representation. The structure of the meetings and the work plan were improved to better address the social component of sustainability. A strong effort was also placed on providing training to council members on human rights international regulations and standards as well as risks specific to the mining and metals industry. In addition, we recognized Human Rights Day, with internal communications raising awareness of and promoting actions that support human rights internally and externally.

During the year, we completed human rights risk assessments at our San Ciprián refinery (Spain), Fjarðaál smelter (Iceland) and Lista smelter (Norway) following methodology adapted from the Danish Institute for Human Rights. The assessment results did not show any areas of very high concern but did identify a few opportunities for improvement related to contractor and key supplier onsite audits and questionnaires. We are looking into these issues to ensure that our internal systems are strong to prevent any human rights abuses in those operations.

We also completed human rights due diligence, which is a more in-depth analysis and review of stakeholder engagement, at our Juruti mine and Poços de Caldas mine, refinery and casthouse in Brazil during 2020. We decided to complete these due diligences because of the higher intrinsic risks associated with operating in Brazil. We previously completed due diligence at our Alumar refinery in that country.

The due diligence work in Brazil identified the following impacts.

Brazil Human Rights Impacts

Severity	Alumar	Juruti	Poços de Caldas
High			• Safety incident with a contractor fatality in 2020
Medium	• Insufficient or inadequate personal protective equipment • Safety incidents • Discrimination and harassment • Dust and/or odor generation	• Interference with traditional gathering, hunting and fishing activities	• Dust and odor in communities
Low	• Lack of payments and overtime to contractors	• Work incidents • Interference with the community's access road • Interference with a water source • Interference with archaeological sites	

We previously completed due diligence at our Western Australia sites due to their significant contributions to Alcoa's financial performance. Our Australian Human Rights Working Group is in the process of implementing improvement opportunities identified by that due diligence.

We have addressed the identified risks and impacts for all of our locations in an action plan that is overseen by the Alcoa Human Rights Council. Progress is reported to high-level management on a periodic basis.

Alcoa of Australia will deliver its first Modern Slavery Statement prior to June 30, 2021, in accordance with the reporting requirements of Australia's Modern Slavery Act 2018 (Cth). The act aims to combat modern slavery in global supply chains by requiring companies to explain actions taken to assess and address modern slavery risks in Australian operations and supply chains. We identified no incidents of modern slavery in 2020.

Security can be one of the highest risks to human rights, as our host communities and employees may interface with private and public security providers who are in charge of local protection. We have no operations in areas of active conflict.

To ensure we respect human rights of all people in this space, we have a security standard and contracts with private providers. We initiated a gap analysis to the Voluntary Principles on Security and Human Rights in 2020 and will implement an action plan in 2021 to close identified gaps.

We will take this opportunity to further enhance our human rights practices based on ICMM 10 Principles and eight Position Statements.

Indigenous Peoples

We recognize and respect the diversity, cultures, customs and values of Indigenous and other Land-Connected Peoples where we operate, and we acknowledge their needs, concerns and aspirations regarding their heritage and traditions. We acknowledge that some of our operations are located in the homelands of Indigenous and Land-Connected Peoples and that, over the long history of our operations and through generations representing varying and increasing levels of cultural awareness, we have affected the rights and lives of those people in ways we might not fully appreciate or understand.

In 2020, we reflected on our approach to Indigenous and Land-Connected Peoples and updated our Indigenous Peoples Statement to an Indigenous Peoples Policy to demonstrate our company-wide commitment to these efforts.

In line with our Values, we have committed to honest and respectful engagement with Indigenous and Land-Connected Peoples near our operations to seek mutually advantageous outcomes. We are also committed to acting in accordance with all applicable laws and regulations, the principle of free, prior and informed consent, and other

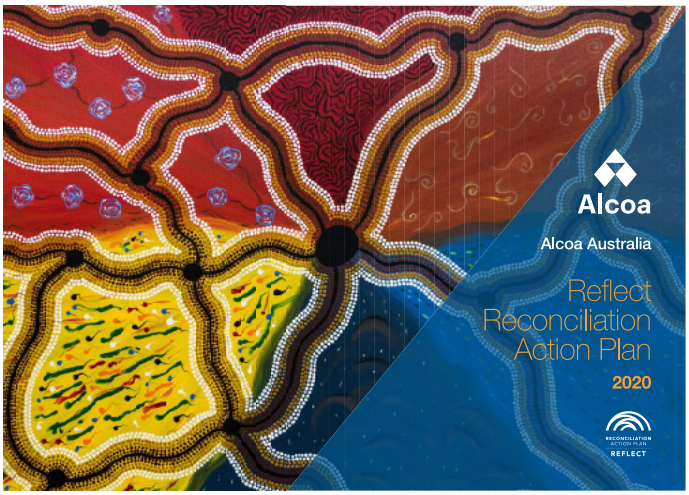
tenets of the International Labour Organisation's Indigenous and Tribal Peoples Convention and the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). Wherever possible, we will seek to establish support for new activities from affected Indigenous communities through collaborative accommodation of each other's interests and formal agreements.

As part of our strategic long-term goal to implement a social management system at all locations by 2022, we developed global standards for engaging with Indigenous and Land-Connected Peoples and managing cultural heritage. These standards will drive consistency in our approach across our operations, strengthen our practices to work more constructively with Indigenous and Land-Connected Peoples, and ensure that we align with ICMM's Indigenous Peoples and Mining Statement.

Our locations with the most direct impact on Indigenous and Land-Connected Peoples are our operations in Australia, our Juruti mine in Brazil, and our former mining and refining operations in Suriname. Alcoa-managed bauxite mines in Juruti and Western Australia are located on lands of significance to Indigenous or Traditional Communities.

Australia

For more than half a century, we have worked with Aboriginal and Torres Strait Islander peoples in the communities in which we operate in Australia. We launched our inaugural Reconciliation Action Plan (RAP) in February 2020.



Download the plan.

The RAP framework guides our evolving approach to Aboriginal and Torres Strait Islander engagement, focusing on the pillars of education, economic participation and community engagement.

Actions we took in Australia in 2020 included:

- Raising the profile of reconciliation in our business;
- Updating our internal processes and procedures to ensure we have an inclusive and respectful work environment to welcome more Aboriginal employees and businesses;
- Training our leadership teams on cultural awareness; and
- Celebrating the history and culture of Australia's Traditional Owners at NAIDOC Week events across all of our Australian sites.

We anticipate that bringing more Aboriginal and Torres Strait Islander voices to the table will help us further refine our approach and achieve tangible, positive outcomes for both our host communities and our business as we develop the next phase of our RAP in 2021.

As part of our commitment to engagement, we met with Noongar, Gunditjmara, Wadawurrung and Yolŋu Traditional Owners in 2020 while complying with health and safety measures put in place to manage COVID-19 risks.

Juruti, Brazil

We have engaged with the traditional community of Juruti Velho, located at Vila Muirapinima, since the inception of the mine, which is located in the Amazon. Juruti Velho has a population of approximately 9,900 people (21 percent of the overall population of the municipality of Juruti) and encompasses 56 settlements located near the site where we started mining bauxite ore in 2009.

Alcoa, the National Institute of Colonization and Agrarian Reform (INCRA) and the Association of Communities of the Juruti Velho Region (ACORJUVE) have an established negotiation process on land use for mining and community. ACORJUVE is the formal organization that represents the Juruti Velho community, including landowner rights. The Brazilian federal and state governments also have participated in the negotiations.

In February 2018, ACORJUVE, INCRA, federal and state prosecutors and Alcoa signed a social, environmental and economic agreement on common land use, shared value and sustainable mining in the Amazon region. This followed a comprehensive study to evaluate compensation for loss and damages that was completed in late 2014.

The agreement requires us to pay US$5.3 million in compensation for the 2006 to 2010 period. The parties agreed that this amount and the royalties paid to ACORJUVE

would be managed by a foundation to ensure transparency and good governance in accordance with recommendations issued in February 2015 by federal and state prosecutors.

In the third quarter of 2019, the representatives of ACORJUVE decided not to follow the agreed-upon path to transition proceeds to the foundation. In 2020, we again approached the association to return to the negotiation table and work toward the execution of the agreement signed in 2018, but the association declined.

Along with the other participants in the negotiations, we continue to urge the association to engage in dialogue with the expectation of completing the foundation's by-laws as soon as possible in 2021.

From mine startup in October 2009 through December 2019, Alcoa paid US$25.1 million in royalties to ACORJUVE.

Suriname

Since ceasing all mining activities in Suriname in 2015 and permanently closing the Paranam alumina refinery in 2016, we have been working on closure plans for the remaining mine sites that require rehabilitation in the Para district. In 2020, we completed 100 hectares (247 acres) of rehabilitation. (See the Facility Stewardship and Transformation section.)

We engaged with the Kaliña and Lokono Indigenous communities in 2018 regarding past mine rehabilitation efforts at Wane Hills in the Marowijne district. In 2019, the National Association of Indigenous Village Leaders in Suriname (VIDS) and the Organisation of Kaliña and Lokono in Marowijne (KLIM) sought additional input from their communities on how to further implement restoration activities for the areas disturbed during the mining period. In late 2020, we held additional discussions with these groups on how to prioritize this work.

As agreed with the communities, we will start with resolving access issues while ensuring that the newly formed government commission overseeing rehabilitation is engaged in this process. Once travel restrictions are lifted, we also will continue to work on improving the Wane Hills rehabilitation and monitoring processes.

Our People

We are on a mission to build a stronger everyone culture—where our Values drive everyday decisions, and employee development is seen as a catalyst for continuous improvement, increased engagement and breakthrough performance.

Inclusion, Diversity and Employee Experience

We seek to provide a trusting workplace that is safe, respectful and inclusive and reflects the diversity of the communities where we operate.

Whether in our operations or offices, the intent of equity, inclusion and diversity is to ensure that everyone has access to the same opportunities and fair pay and treatment within an environment that is welcoming, so employees feel like they belong and are valued and accepted. This is the foundation of an everyone culture, where employees feel empowered to build solutions through innovation, coaching and collaboration.

Our primary focus is to drive more intentional actions to advance equity, inclusion and diversity.

Our Definitions

Inclusion is how we respect and leverage our differences to achieve our goals.

Diversity means all the ways that we differ.

Equity is ensuring everyone has access to the same opportunities and fair pay and treatment.

Cognitive diversity or thinking differently impacts creativity and problem solving and is shaped by valuing unique backgrounds, experiences and perspectives.

Recognizing this will be a multi-year journey, our key focus areas are:

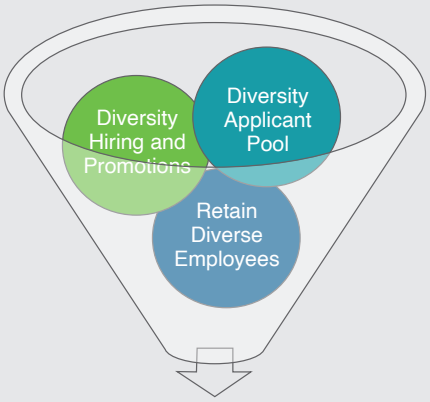
- Diversifying our applicant pool;
- Diversifying hiring and promotions;
- Improving our employee experience to retain diverse employees; and
- Managing pay equity and pay fairness across our diverse employee populations.

"Kyeema's long-running partnership with Portland Aluminium smelter has been the backbone of Kyeema's supported employment program for people with disabilities. We are incredibly grateful for the employment it provides so they can actively participate as valued members of our community. Dozens of people over the years have experienced real work at the smelter. While this builds important skills, more importantly it gives them a sense of belonging. That part is always a joy to see."

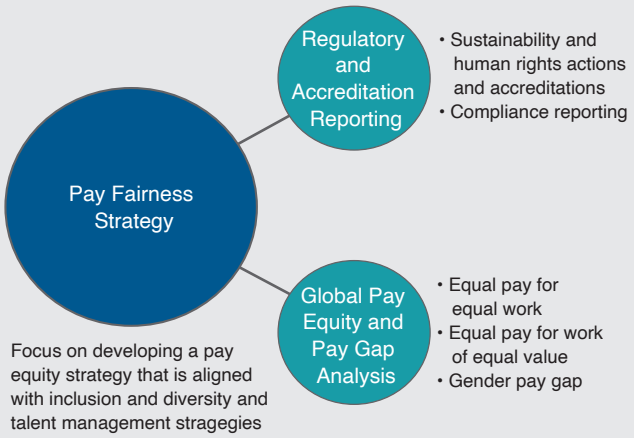
Julie Amor
Chief Executive Officer
Kyeema Support Services

We will measure our success through the percentage of diverse applicants, hires, promotions, retained employees and pay equity assessments.

Impact Measures



Diversify representation
and improve inclusion and employee experience



Despite the COVID-19 challenges in 2020, our locations initiated a variety of impactful practices.

Following the endorsement of our inclusion and diversity strategy by our Executive Team and Board of Directors, we formed the inaugural Alcoa Global Inclusion & Diversity Council. The council has a diverse representation of leaders from across our global operations. Its primary role is to support the execution of our inclusion and diversity strategy to create trusting workplaces that are safe, respectful and inclusive and that reflect the diversity of the communities in which we operate.

To support our inclusion and diversity priorities, we deployed the Catalyst for Change program in 2020. Under the program, leaders pledge to promote inclusion and diversity through actions that can include championing or leading inclusion groups, mentoring diverse employees, promoting flexible work arrangements, leading awareness training in unconscious bias and more. The program began in 2015 in our Australian operations, focusing on gender equality for all employees. It has driven a 3 percent increase in diversity at those locations.

The most impactful actions are often those that influence decisions at the regional and local level. In 2020, we held our first Global Pride Week with events and actions in all regions that celebrated LGBT+ equality. Other activities in 2020 included the following:

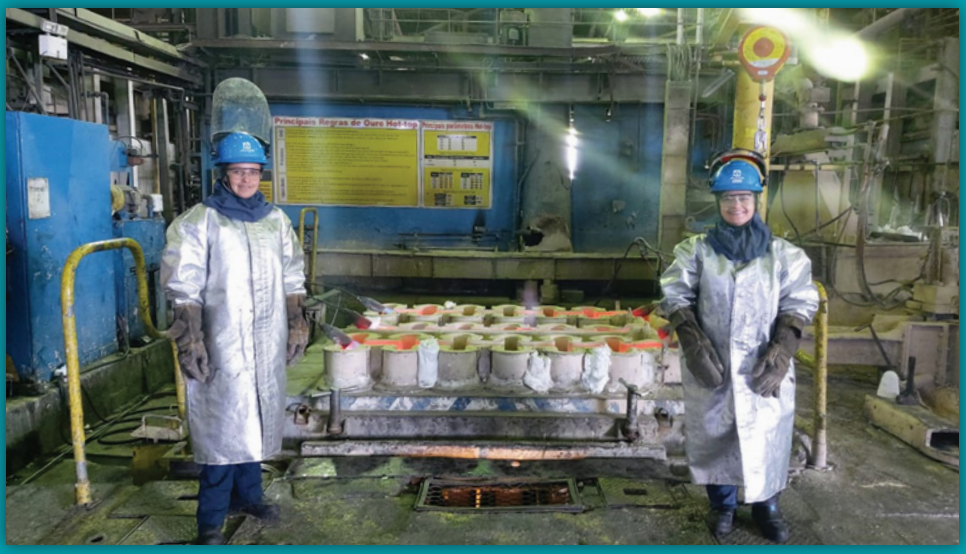
- Australia: The Pinjarra Prospects Program is an education and training initiative that targets female high school students who may be considering a career in the resource sector.
- Brazil: The 12-month Advancing Women Program accelerates the development of women to increase bench strength for critical roles.
- Brazil: A new app implemented in the lab at our Pocos de Caldas location enables deaf people or people with hearing loss to participate in all department meetings.
- Hungary: We are a strategic partner in the Loveable Workplace Awards, which honors companies where employees like to work.
- Netherlands: Our Rotterdam office launched a chapter of the Employees at Alcoa for Gay, Lesbian, Bisexual and Transgender Equality (EAGLE) employee resource group.
- United States: Our Warrick location in Indiana hosted Diversity Awareness Month.

Our locations and employees are supported by three inclusion groups (IGs) that serve as platforms for all employees to champion inclusion and diversity programs and lead allyship and learning opportunities.

Our IGs are the Alcoa Women's Network (AWN); Employees at Alcoa for Gay, Lesbian, Bisexual and Transgender Equality (EAGLE); and Alcoans Working Actively for Racial-Ethnic Equality (AWARE).

AWARE launched in November 2020 in Brazil to raise awareness, promote a culture of fairness and influence the organization to advance racial justice and equality. Through these actions, diverse thoughts and experiences are embraced. The program also aims to help in our strategy to build a workforce that reflects the communities in which we operate and to ensure all of our employees feel empowered and inspired to make a difference. We plan to launch AWARE across our operations globally in 2021.

Diversity Milestone in the Casthouse



Manuela Aparecida de Oliveira (left) and Naiara Alves do Prado

Our Poços de Caldas casthouse in Brazil achieved a diversity milestone in 2020 with the appointment of the first all-female duo to work in the hot top casting unit.

The hot top receives molten metal to produce aluminum billets. The extensive physical effort required to operate the equipment historically limited the number of female employees interested in performing the work.

In 2019, the unit made several adjustments to its equipment to improve ergonomics and attract male and female employees, improving gender diversity in connection with our strategy to create an inclusive and diverse work environment. Changes included reducing the weight of the oven-opening sledgehammer from 11 pounds to 8.8 pounds (5 kilograms to 4 kilograms) and the alloy hopper from 15.4 pounds to 11 pounds (7 kilograms to 5 kilograms).

With these changes, women started to work in the hot top but were paired with male coworkers. In 2020, Manuela Aparecida de Oliveira and Naiara Alves do Prado became the first all-female pair.

“It was challenging to take a position in an environment that until then was seen as totally masculine and where a woman would be unable to operate,” said Manuela. “But I proved the opposite, and I believe that I did not disappoint those who believed in my potential. We don’t need to be better than anyone. We just need to be better than ourselves with each passing day.”

Added Naiara, “Working in a company that values its employees and believes in its women, I always wanted an opportunity to show my potential. I learned that you should not create limits for yourself. You can get to where you want to be.”

We are not only working to improve our equity, inclusion and diversity. We are also embracing authentic and transparent communications.

In 2020, we conducted our second gender pay equity analysis. The study assessed pay equity for our salaried employees following best practice methodology with a third-party consultant. The following are key findings:

- Pay within band (equal pay for same job level): 2 percent gender pay gap, which is considered pay parity. This is consistent with 2019, when we also reported a gap of 2 percent.
- Pay gap (overall equity in earnings): 17 percent gender pay gap, which is a 1 percentage point improvement from 2019.

We are committed to achieving gender balance throughout our company and are working to further advance our pay fairness strategy to improve pay equity. This includes developing an assessment roadmap that aligns with our inclusion and diversity and talent management strategies. We will continue to focus on defining actions to improve overall equity in earnings, as well as talent management practices across the employment cycle.

A percentage of our annual incentive compensation is linked to both balancing our gender equality and diversity in leadership and increasing the hiring of global women in all levels of the organization. It is a way to drive accountability, accelerate actions and measure progress.

The 2020 gender equality target represented 10 percent of our incentive compensation formula and included three diversity metrics:

- An overall increase in global female representation;
- An increase in the proportion of female hires; and
- An increase in female representation in senior positions.

We achieved minimal increases in two of the three metrics in 2020 compared to prior year. The global female representation increased from 15.4 percent to 15.6 percent, while the female representation in senior positions increased from 25.6 percent to 25.9 percent. The proportion of female hires decreased from 24.7 percent to 22.3 percent.

In response to the global pandemic, we implemented a hiring freeze during most of 2020. Our hiring focused predominantly on operations, which impacted our overall progress on diversity.

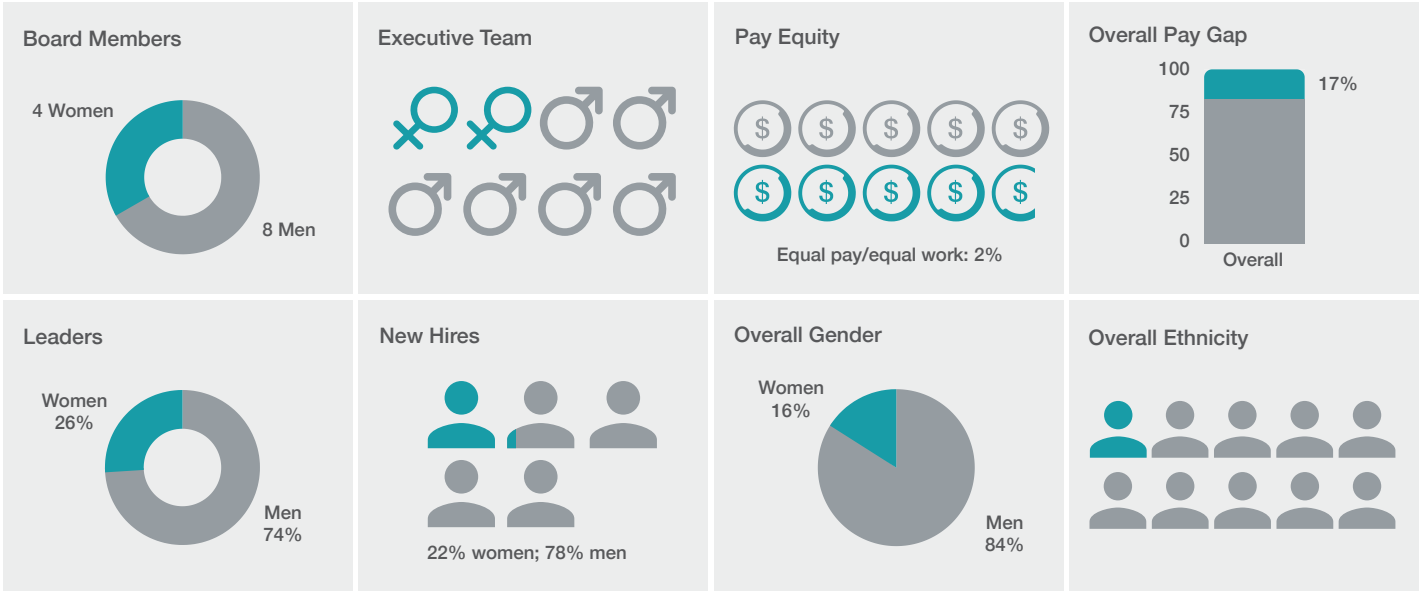
Our approach in 2021 will continue to focus on increasing gender diversity, with a broader emphasis on improving workforce diversity of underrepresented groups related to ethnicity and disability.

2020 Global Women

Diversity Indicator	Percentage
Females on the Alcoa Corporation Board of Directors	33.3
Female share of total workforce	15.6
Females in all management positions	25.7
Females in junior management positions	25.7
Females in top management positions	25.5
Females in management positions in revenue-generating functions as a % of all such managers	41.9

Our global women calculation is based on all categories of employees, including full and part-time permanent, full and part-time apprentice, and graduate employees.

2020 Global Diversity, Equity and Inclusion Scorecard



Connection Paired with Support

Recognizing that the pandemic was causing increased stress and feelings of isolation, the Brazil chapter of the Alcoa Women's Network (AWN) launched a unique program to provide connection and support.

The As Margaridas Program consisted of 40 randomly selected pairs of participating female employees from our three operating locations and corporate office in Brazil. During August and September, each pair met weekly in a virtual format to exchange ideas, offer support and share challenges, fears and anxieties. A group of AWN members provided additional support to all participants through tips, apps and biweekly group meetings that covered mental health, empowerment and other issues.

"This program was a gift to me, as it came at a very difficult time when I had completely changed my routine—starting to work at home, taking care of my children, helping with school activities, among other things," said Dorliane Silva, administrative assistant at the Juruti location. "It was through the program that I realized that I was not alone. I found the emotional support I needed."

Added Riane Oliveira, human resources business partner at the Alumar location, "Despite the distances and differences, my paired partner and I had many things in common. This helped us build a strong bond of trust from the beginning. There were moments of welcome, support, advice and great learning."

Due to its success, the As Margaridas Program is being offered again in 2021.

Our culture shapes the day-to-day environment that our employees experience and impacts talent and business outcomes. We are evolving our employee survey strategy and structure to ensure we are listening frequently to the voices of our employees to identify the most important elements that contribute to their experience at Alcoa.

We are moving toward shorter regular surveys with ad hoc pulse surveys that measure progress on our specific areas of focus. We are also leveraging key standard questions, which will enable us to compare our results against global norms.

Our first revised survey was launched in April 2021 after being delayed in 2020 due to the pandemic. It will establish baselines on new areas of focus and measure progress on prior areas of feedback. Ad hoc pulse surveys will measure progress on employee and organizational priorities. Our goal is to listen to our people and involve employees in action planning to ensure clear accountability for follow-up actions and ongoing communications in response to the feedback received.

It will be crucial to effectively measure and respond to feedback from employees to shape their experiences at Alcoa. Employees are seeking more than just financial gain from their employer, requiring us to have a holistic approach to the employee experience. This includes focusing on employee well-being, a sense of being connected, mental and emotional health, employability and sense of purpose in addition to their financial well-being.

Our inclusion, diversity and equity efforts received numerous honors in 2020. We were named to the 2021 Bloomberg Gender-Equality Index, and we received a score of 95 on the Human Rights Campaign Foundation's Corporate Equality Index 2020. Additional recognition can be found in the Awards section of this report.

2020 Employees by Employment Contract and Type

	Contract		Type	
	Permanent	Temporary	Full-time	Part-time
Male	10,784	440	10,727	498
Female	2,084	184	1,969	299
Total	**12,868**	**624**	**12,696**	**797**

Permanent employees include permanent, apprentice and graduate employees. Temporary workers are employed as casual or limited-term workers with a contract of limited duration that often terminates along with a specific event (e.g., end of a project, a permanent employee returning from leave or the completion of a stated period of time).

2020 Employees by Region and Employment Status

	Permanent	Temporary
Asia/Australia	4,118	58
Europe/Middle East/Africa	2,574	565
North America	4,700	1
South America	1,476	0

Turnover Rate

Percent

	Overall	Voluntary
Male	12.7	8.0
Female	17.7	10.4
Total	**13.5**	**8.4**

Out of the 8.4 percent voluntary turnover in 2020, 3.4 percent was due to retirement.

Talent Acquisition

In 2020, we took significant steps to consolidate and elevate our efforts in talent acquisition. These included conducting a review of all practices, policies and processes and defining a strategic direction to better align the talent acquisition function with business needs.

Our talent acquisition team keeps diversity at the forefront of its actions, ensuring that employment opportunities are advertised through channels targeting various diverse populations. We also continue to engage with our internal IGs to ensure that we are gathering inputs, opinions and perspectives that allow us to successfully engage with our talent targets. In addition, we aim to ensure that all candidates experience some level of diversity in their interviewing panel. Such diversity can range from gender and race to diversity of thought and experience.

People Development

People development is a fundamental enabler of our Care for People Value.

Throughout most of 2020, we continued to develop our employees despite the new challenges presented by the pandemic. We reinforced the need for development by reminding all employees of the importance of staying connected through regular check-ins with their supervisors. These continuous touchpoints help maintain alignment and provide opportunities to inquire about employee well-being.

We continued exploring new ways to engage and develop our global workforce in 2020, with a key focus on enabling our People Development Process (PDP). Updated educational materials emphasize how to have meaningful conversations, taking the current pandemic into consideration, as well as the importance of giving and receiving rounded feedback. We encouraged all employees to seek feedback and also provide it to peers, business partners and/or direct reports. This provided a means of sharing diverse perspectives and enabling a more inclusive work environment. In addition, we linked career check-ins to our integrated talent cycle to ensure employee career aspirations are thoughtfully considered when making talent decisions related to succession planning, recommended job moves and more.

Rather than assessing employees on a single rating, we again considered each employee's full contribution and unique performance narrative in 2020. This unique narrative consists of tangible examples of an employee's performance against our four contribution factors. All employees and their managers engage in a dialogue around these factors, which are:

- Performance against goals, including individual contributions;
- Demonstration of Alcoa behaviors;
- Impact to the business and team; and
- Use of development for success.

We held people review meetings within each operational location and function to obtain a snapshot of the talent, create succession plans for critical roles and action plans for key talent, and develop regional/local talent agendas.

These meetings are part of our ongoing talent and succession process, with the outcomes helping guide future development programs as well as check-in and feedback conversations between managers and their direct reports.

To better understand which roles are the most crucial to the success of the organization and to develop talent accordingly, we completed a study that identified 155 critical roles based on standardized criteria and information collected through surveys and conversations with senior leaders. During the people review process, we placed special emphasis on identifying successors for each of these critical roles.

In evaluating our succession health for critical roles, we use criteria that will consider a position healthy if it has three successors for each position, with at least one female/diverse successor.

Of the 155 roles identified as critical:

- 79.1% had at least one successor assessed as ready now or within 12 months;
- 52.5% had at least two successors assessed as ready now or within 12 months;
- 27.7% had three or more successors; and
- 63.6% had at least one female/diverse successor.

Specific opportunity areas to develop our pool of successors identified through the people review sessions varied by function. The most common areas included general leadership skills, communication and strategic thinking/strategy development.

In talent development, we were unable to support our typical cohort-based leadership programs in 2020 due to the pandemic. Travel was not possible, and focus was placed on maintaining operations. We also held location-based training to a minimum for much of the year due to gathering restrictions and social distancing guidelines in each country.

In response to the pandemic, we created a strategy to modernize our learning and development function. This included redesigning all of our cohort-based programs to be delivered virtually beginning in 2021. These programs focus on building business acumen and leadership skills for a post-pandemic business environment. They also offer opportunities for employees to connect with others from across the globe using collaboration technology.

All salaried employees have direct access to our learning management system, which houses online training content

created by the locations and purchased professional and leadership development content. At the end of 2020, the system housed more than 10,000 pieces of content, with more being added monthly.

In 2020, we had 46,000 enrollments in digital courses housed within the system and 7,457 enrollments for the 204 blended courses (instructor-led plus digital) offered.

We rolled out five ethics and compliance training courses to targeted employees in 2020 using the new learning management system. Two of these courses were mandatory for all salaried employees, with 95 percent of these employees accessing the system for both courses at a minimum.

The system allows employees to share their knowledge with others through the peer learning functionality, enabling them to create lessons that they can then share with the rest of the organization. The system also enables social networking, allowing others to comment on lessons created by peers or other online content in the system. This allows for a greater degree of collaboration and learning across the organization.

To support our inclusion and diversity efforts, we rolled out a training module on unconscious bias to all salaried employees via the learning management system during 2020. The training highlighted awareness of the various types of unconscious bias that nearly everyone engages in at one time or another, the impact these biases have on an organization and its people, and actions employees can take to mitigate these biases. The learning management system allowed for precise assignment, tracking and reporting of the module's completion rates, which helped to guide follow-up efforts. As of year's end, 71 percent of salaried employees had completed the training.

Where feasible, we continued supporting employee participation in professional certification, leadership development and other external training programs not tracked through our learning management system.

2020 Employee Training

	Per Full-time Equivalent
Average hours of training and development	37
Average amount spent on training and development	US$1,063

Data is for formal classroom hours and tuition reimbursement.

Total Rewards

Our goal is to provide a competitive, balanced portfolio of total rewards to attract, engage and retain employees in support of achieving business results. We look to our core values to guide our decisions, and we design our programs to target the relevant labor market for competitiveness.

We recognize an employee's full contribution through our total rewards approach, seeking to deliver a value proposition that results in satisfied, engaged and productive employees who contribute to the overall success of the company and drive results.

2020 Course Enrollments

	Blended Courses			Digital Courses		
Employee Type	Enrollments	Number of Employees Using the System	Average Enrollments per Employee	Enrollments	Number of Employees Using the System	Average Enrollments per Employee
Hourly	4,250	2,006	2.1	19,855	2,705	7.3
Salaried	3,207	1,392	2.3	26,200	4,789	5.5

2020 Course Completion Rates

	Blended Courses			Digital Courses		
Employee Type	Courses Completed	Number of Enrollments	Average Completion *(Percent)*	Courses Completed	Number of Enrollments	Average Completion *(Percent)*
Hourly	3,629	4,250	85	17,376	19,855	88
Salaried	2,798	3,207	87	23,576	26,200	90

Total rewards encompass both financial and non-financial components. Financial components include:

- Fixed pay and allowances, which are based on market competitiveness and local pay practices.
- Variable short-term incentive, which is linked to local or global priorities and typically focuses on the achievement of both financial and non-financial targets. Employee awards are meaningfully differentiated based on individual performance and contributions.
- Reward and recognition programs, which are quarterly and annual discretionary awards designed to recognize employees who exceed their usual work requirements, show exemplary demonstration of our values, or are high-contributing senior employees critical to the long-term success of our company. The awards are also used as a method of recognition when retention is desired. The programs include cash and stock.
- Core long-term incentive awards, which are designed to attract and retain senior leadership talent that is focused on the long-term performance of the organization or business. It ensures senior leaders have a significant proportion of compensation tied to stockholder interests.

In 2020, 15% of eligible employees were recognized via our rewards and recognition programs.

We again linked 30 percent of our annual incentive compensation plan to non-financial metrics that were focused on gender diversity and environment, health and safety targets in 2020. The diversity results were close to the target but did not meet the minimal payout. The payout for safety was partially met based on our fatal and serious injury performance but was capped at target due to one of our operations experiencing a contractor fatality during the year.

2020 Sustainability Incentive Compensation Targets

Percent

Category	Weight	Payout
Diversity	10.0	0
Safety	20.0	10.0

For additional compensation information and data, see the Shared Value Creation section of this report and the Compensation Discussion and Analysis in our 2021 Proxy Statement.

Labor Relations

We believe in freedom of association no matter where we operate around the globe.

Each year, we negotiate labor agreements with various unions. In 2020, we had 20 agreements in place that covered approximately 80 percent of our global workforce.

We had one strike during the year, which occurred at our San Ciprián refinery and smelter in Spain. In October 2020, we announced the curtailment of the site's smelter and a collective dismissal that would affect approximately 530 employees. The smelter and refinery employees declared a strike on October 4, 2020, with the objective of maintaining all jobs at the site. While the employees continued to work, they declined to produce certain value-added products and blocked deliveries to customers.

On January 22, 2021, Alcoa and the facility's workers' representatives reached agreement to suspend the strike. As part of the agreement, Alcoa will conduct a sale process to SEPI, which is an entity of the Spanish national government. The agreement will remain in effect until April 30, 2021, and can be extended.

Active Workforce Covered by Labor Agreements in 2020

Country	Percent Covered
Australia	65
Brazil	100
Canada	84
Hungary	100
Iceland	95
Netherlands	0
Norway	100
Spain	100
United States	78

Safety and Health

Our aspiration is to work safely at all times wherever our employees and contractors are located. We attend to health and safety before any other priorities, putting the protection of human life above all else. Underscoring this commitment is our Care for People Value.

Our work can be hazardous, difficult and complex. It is imperative that we have a pervasive health and safety culture and strong systems that equip our people with the skills, knowledge, controls and protection to avoid injuries and illnesses and, most importantly, fatalities.

We ask all employees and contractors to be proactive in identifying and reporting to their supervisor or location EHS personnel unsafe work practices or hazardous situations. We also empower employees and contractors to stop a job until it can be performed safely. As stated in our Code of Conduct, no one can act against an employee or contactor for asking a question or raising a concern in good faith.

Each day, we strive for what we believe is the ambitious yet attainable goal of zero fatalities and zero life-threatening or life-altering injuries and illnesses.

SAFETY

Our systems are designed to prevent the loss of life or serious injuries. This is our most fundamental objective.

In 2020, however, we suffered a fatality at our Poços de Caldas location in Brazil. A contracted employee was using a cutting torch that ignited a nearby material, resulting in intense heat and flames that caused fatal injuries to the contractor. We conducted a thorough investigation and root cause analysis and used those outcomes to improve critical controls, systems and tools to prevent such an incident from reoccurring.

We investigate, document and report any incident that has the potential to cause either a fatal or serious injury or illness. We assess the risk and apply the hierarchy of controls to eliminate the hazards and minimize risks for similar situations.

Our fatal and serious injury/illness potential (FSI-P) rate in 2020 was 1.40 incidents per 100 full-time workers, which was a 1.7 percent increase compared to 2019. Proactive, transparent reporting and calibration of risk perception across the company resulted in the slight increase.

We view this as a positive reflection of a healthy risk management system as well as our ability to recognize, learn from and prevent these types of incidents. The longer-term trend still indicates a positive, downward trajectory.

In 2020, we addressed more than 1,900 corrective actions for FSI incidents and proactively identified 540 fatality risks, further reducing risk to our employees.

Our Executive Team and other senior leaders review corrective actions and effectiveness of controls and also sponsor company-wide hazard-mitigation initiatives.

Our OneAlcoa: United for Safety initiative integrates temporary workers, contractors and visitors into our safety programs and data. While we have seen some year-over-year increases in our safety rates as we better identify risks with these groups, all of our rates have remained significantly below the most recent U.S. manufacturing averages.

Data recordkeeping audits, injury classification reviews and other factors have resulted in changes to our safety data from prior reporting. Comprehensive safety data is provided in the Appendix.

Fatalities

Employees/all contractors

	Global	Australia	Europe	North America	South America
2016	**0/1**	0	0	0	0/1
2017	**0/3**	0	0/1	0	0/2
2018	**0**	0	0	0	0
2019	**0**	0	0	0	0
2020	**0/1**	0	0	0	0/1

Fatal and Serious Injuries/Illnesses

Employees and all contractors

	FSI Actuals *(Events resulting in a fatal or serious injury/illness)*	FSI Potentials *(Near-miss events)*	Total FSI Events	Total FSI Rate
2016	5	300	305	1.08
2017	5	433	438	1.86
2018	3	427	430	1.84
2019	3	339	342	1.38
2020	1	387	388	1.41

A serious injury/illness is any incident that is life-threatening or life-altering. FSI rate is FSI actuals and potentials per 100 full-time workers.

Days Away, Restricted and Transfer Rate

Employees and all contractors

	Global	U.S. Manufacturing Average	Australia	Europe	North America	South America
2016	**0.29**	2.1	0.49	0.16	0.26	0.21
2017	**0.62**	2.0	0.85	0.63	0.82	0.22
2018	**0.71**	2.0	0.96	0.64	1.03	0.27
2019	**0.87**	2.0	1.21	0.82	1.26	0.35
2020	**0.61**	–	1.21	0.58	0.65	0.24

The 2020 Bureau of Labor Statistics U.S. manufacturing industry average was not available at the time this report was published. Days away, restricted and transfer rate includes lost workday cases plus cases that involve days of restricted duty and job transfer per 100 full-time workers.

Lost Workday Rate

Employees and all contractors

	Global	U.S. Manufacturing Average	Australia	Europe	North America	South America
2016	**0.15**	0.9	0.31	0.08	0.11	0.11
2017	**0.25**	0.9	0.49	0.12	0.20	0.16
2018	**0.22**	0.9	0.41	0.09	0.24	0.11
2019	**0.25**	0.9	0.52	0.26	0.11	0.18
2020	**0.22**	–	0.53	0.11	0.11	0.16

The 2020 Bureau of Labor Statistics U.S. manufacturing industry average was not available at the time this report was published. Lost workday rate represents the number of injuries and illnesses resulting in one or more days away from work per 100 full-time workers.

Total Recordable Incident Rate

Employees and all contractors

	Global	U.S. Manufacturing Average	Australia	Europe	North America	South America
2016	**1.10**	3.6	1.43	0.81	1.38	0.46
2017	**1.57**	3.5	1.96	1.36	2.37	0.45
2018	**1.66**	3.4	2.38	1.45	2.41	0.55
2019	**1.77**	3.3	2.27	1.48	3.00	0.54
2020	**1.37**	–	2.27	1.28	1.90	0.42

The 2020 Bureau of Labor Statistics U.S. manufacturing industry average was not available at the time this report was published. Total recordable incident rate includes days away, restricted and transfer cases plus cases that involve days of medical treatment or other recordables per 100 full-time workers.

Our safety strategy is aligned to two pillars—systems and culture.

Systems

Environment, Health and Safety Management System

Our ISO-certified corporate EHS management system provides a universally recognized management framework for our EHS risk evaluation, planning, objective setting and operational control activities at all locations. The system covers both employees and contractors and is available online to them, providing access to relevant EHS information.

In 2020, three of our locations were also certified to the OHSAS 18001:2007 Occupational Health and Safety Management Systems standard. One location was certified to its replacement—ISO 45001:2018 Occupational Health and Safety Management Systems standard.

We accelerated the digitalization of our EHS systems, workflows and technology in 2020 to better enable information self-service, effective information sharing and predictive analytics.

Critical Risk Management

Each location is responsible for developing a registry of all safety hazards and either eliminating the hazards or implementing controls to prevent or mitigate the risks associated with those hazards. Our corporate safety group provides global oversight and verification with assistance from our three regional vice presidents of operations.

Our six most critical risk categories that could cause a fatal or serious injury are mobile equipment, crane safety, confined space, fall control, lock/tag/verify and electrical.

A Drive for Safety

Hauling bauxite ore through mountainous terrain is a critical safety risk for our Poços de Caldas mine in Brazil. In September 2020, the location launched its Elite Drivers Program to enhance the skills of all contracted drivers who transport the mine's bauxite.

Each driver undergoes a confidential assessment conducted by a licensed psychologist to evaluate his or her behavioral, psychological, technical and social skills within the work environment. Of particular focus are key characteristics of the desired driver profile—patience, good concentration, ability to work on a routine-based activity and a good energy level to maintain focus during a shift. Based on assessment results, a driver may receive training or other follow-up actions.

For the driving skills portion of the program, an external expert developed standard driving practices to be used throughout the mine. The expert also evaluates the skills of each driver and provides training on best practices, with a strong focus on avoiding vehicle collisions and rollovers.

The Elite Drivers Program is one of three pillars our Poços de Caldas location is using to address its transportation risk. The others are equipment (type and maintenance) and environment (road conditions, design, incline and more).

We also have a critical risk that is specific to each production process—earth-moving equipment (mining), chemical burns (refining) and molten metal (smelting/casting).

We have identified the critical controls for each of the critical risks, and our supervisors and managers undertake field verifications to assess the effectiveness of these critical controls. When a critical control is assessed as not effective, improvement actions must be implemented.

Our critical control management system is used to track critical control field verifications. This digital technology includes GPS functionality and allows us to track when and where verifications are conducted and where control failures are located, providing significant data for analysis and action.

The tool is used globally by each location's leadership, employees and some contractors, with each location creating a schedule of how many verifications are required for each critical-risk task. In addition, we require one field verification per week for operations managers, one per day for supervisors and one per shift for group leaders.

Our locations completed more than 190,000 critical control field verifications in 2020. Based on the data collected, we added new risks and controls to ensure these risks are managed and their controls are verified.

Safety Standards

After an extensive update of our safety standards in 2018, each location conducted a gap analysis against the new standards in 2019 and developed a three-year action plan to close identified gaps.

In 2020—the first year of the plans—each location prioritized its actions based on operational risk profiles. We track action to completion, and the actions are progressing well against the annual goals.

Risk-based Audit

Our periodic risk-based audits emphasize observing people and processes at the location where the work is performed to accurately assess the risks.

An audit team that consists of internal EHS professionals, our operational subject matter experts and external consultants collaborates with location personnel to identify a site's critical risks. While team members normally spend up to 80 percent of their time on the shop floor, we developed a remote process in 2020 to accommodate travel restrictions due to COVID-19.

Team members worked with location personnel to assess systems, processes, risk and compliance via conference calls and web meetings. In addition, site personnel conducted verifications and shared information via pictures and video. We also piloted and had some success with mixed reality smart glasses. Worn by site personnel, the smart glasses enabled the remote auditors to conduct virtual observations of field activities.

An employee at our Alumar location in Brazil uses smart glasses to assist with a site audit.

Our training program on professional EHS auditing continued to help improve the quality of our audit process in 2020. Our goal is to have every employee complete the training before participating in an audit. In 2020, we had 120 employees undergo the training virtually.

Root-cause Analysis

We use a formal and standardized process for investigating FSI actuals and a small subset of FSI-Ps to help improve our safety culture. Our analysis tool allows us to evaluate, prioritize and address the critical causes and drivers behind an incident, as well as report the findings to all locations using the same methodology.

In 2020, we conducted additional training in effective root-cause analysis for employees and contractors around the world. More than 190 people completed the two-day class by the end of the year, further integrating the process into our operations.

Human performance

Our locations are continuing to integrate human performance (HP) into the path of work. HP teaches employees how to anticipate and recognize situations where errors are likely to occur. This tool helps to predict, reduce, manage and prevent fatalities and injuries.

In 2020, we launched an updated assessment process that integrates concepts from HP, critical risk management and safety leadership. We are further integrating our critical risk management with human performance in toolbox meetings, which are conducted at the beginning of each shift, and through training for employees and contractors.

As part of human performance, all of our employees and contractors are empowered to stop their work or that of a colleague or contractor if they believe the situation is unsafe or if they are unsure of the potential outcome.

Culture

Each day, we demonstrate that safety comes first—before production, before cost, before everything. We strive for a culture of transparency, where we put the well-being of every employee, temporary worker, contractor and visitor before any departmental or operational consideration; where we show with our actions that safety is more important than other business imperatives; and where we openly and actively share both our good ideas and our setbacks.

In 2020, we launched our EHS Leadership Training Program, which focuses on expectations and behaviors for leaders in our workplaces. Aligned with our Values, the training is designed to enhance and nurture our EHS culture and ensure that our leaders have the tools, competence and confidence to effectively manage EHS at their locations. They will learn to set expectations through their visible actions and behaviors.

The training is intended to build strong and consistent leadership that demonstrates—every day—a continuous commitment to safe and fatality free production that will drive us to zero fatalities.

Safety Goal

In 2020, we again required all salaried employees to include a safety objective in their annual performance objectives, regardless of where they worked or what job they performed. Having an individual safety objective empowers our employees to reinforce a strong safety culture. Goals commonly related to critical risk management and human performance.

Culture Assessment

After piloting culture assessments at our Willowdale mine in Australia and San Ciprían refinery in Spain during 2019, we had to delay starting the initiative's global rollout until 2021 due to the pandemic.

A cultural assessment gives us a better understanding of our current safety culture and identifies opportunities to strengthen employee commitment to an FSI-free workplace.

Training

Employees at operating locations are required to take regular environment, health and safety training that is determined by their specific roles, areas where they work, job functions and responsibilities. The location's EHS and human resources personnel determine what training is required for each employee.

Communication and Engagement

We believe if workers participate more in EHS initiatives, our EHS performance will improve. We regularly communicate with employees and contractors about workplace EHS matters and provide ways for them to become involved in hazard identification, assessment and prioritization, training, program evaluation and improvement activities. We strive to provide prompt responses to reports and improvement recommendations.

Many of our locations also have formal joint management-worker EHS committees, where employee representatives are involved in strategic and tactical EHS reviews and decision-making.

Our corporate EHS Lead Team and EHS Council meet frequently to provide direction, strategy, oversight and analysis of activities and performance. Meeting agendas are a comprehensive mix of strategic and tactical content with operational, cross-functional and global representation to obtain genuine ownership, accountability and sponsorship.

HEALTH

Our health vision is to prevent occupational disease through our exposure controls; support personal health and well-being through our workplaces and culture; and operate in a manner that does not negatively impact the health of our communities.

A four-pillar health framework, with overlapping and synergistic elements, guides our strategies and tactics toward achieving this vision:

- Health hazard controls to prevent occupational disease;
- Health status and fitness for work to ensure an employee's health status is compatible with assigned work;
- Community and public health, which facilitates our social license to operate; and
- Personal health and well-being.

Further guiding our efforts are our internal global health standards that often are more stringent than those specified by applicable law. We also proactively identify and respond to emerging health-related trends in our industry, and we have a long-standing relationship with the Health Committee of the International Aluminium Institute.

Health Hazard Controls

The health hazards inherent in our operations may include chemical, physical (noise, ergonomic, radiation, heat and vibration), biological and other types of hazards. Our locations have spent decades implementing processes, procedures, equipment and technologies to mitigate these risks and have made significant progress.

With support and direction from our internal Health Center of Excellence (CoE), our locations continuously strive to further eliminate or reduce hazardous exposures in adherence to the hierarchy of control principles.

Despite resources and focus being diverted to address the COVID-19 pandemic, we achieved the following progress on key initiatives during 2020:

- An updated global Heat Stress Management Standard that establishes a quantitative exposure assessment approach to more rigorously characterize risk, a physiological monitoring requirement for the highest identified risk scenarios, revised acclimatization protocols and enhanced potroom practices;
- The further substitution of ramming paste containing coal tar pitch in potroom applications, which is consistent with European REACH regulation imperatives and our internal strategy to reduce or eliminate carcinogens, where possible;
- A completed inventory of welding risks across all global locations, with location-defined targets for control;
- A complete review of our global hazardous materials management processes and controls, which culminated in a significantly updated global standard that addresses Alcoa and contractor issues; and
- Ongoing incremental progress in identifying and controlling noise and chemical exposures.

We will continue our work in these areas throughout 2021 and reinvigorate our strategies around ergonomics and work design.

Communication on health hazards is a centerpiece of our health management strategy, which aligns with our company values and compels us to inform our employees and contractors of the hazards and risks that they may encounter in the performance of their daily work.

Where appropriate, industrial hygiene exposure data that we collect is readily shared with our contractor companies, giving them the information needed to implement controls for their personnel. This is often a collaborative exercise, with Alcoa providing guidance as warranted and specified by local regulations.

The quality of our industrial hygiene program, which underpins the health hazard control area, is assured by our comprehensive Industrial Hygiene Standard. Among other things, this standard specifies that every operating location has a qualified industrial hygiene professional or consultant who has explicit education and certification credentials. This person is responsible for the supervision and technical support of the location's industrial hygiene activities. Corporate and regional industrial hygiene managers further support and guide these activities.

Health Status and Fitness for Work

Our focus within this pillar is on addressing the ability of employees to safely perform their assigned work activities. This is enabled by our occupational medicine services, fatigue and shiftwork practices, substance use and abuse programs, worker's compensation management, rehabilitation and return-to-work approach, and emergency medical response capabilities.

Talking Safety…Peer to Peer

Our Deschambault smelter in Canada is reinforcing its robust safety culture with a peer-to-peer program that is based on friendly interventions if an unsafe situation or behavior is observed.

All the plant's employees receive training that encourages intervention with their peers if they see unsafe behavior or a lack of safety controls. The training also emphasizes positive reinforcement for good safety behavior.

At the heart of the program is a courteous approach to providing and receiving feedback. These timeouts are an opportunity for reflection, and they allow for the creation of new pre-task briefs to restart the job safely. The interventions also improve the connection between experienced and newer employees.

To track feedback, the employee who initiates the interaction fills out a pocket card indicating if the recipient accepted the feedback with a positive attitude and a smile—distinctive values at the plant. There were more than 2,000 interventions in 2019 and 2020, with 90 percent of the recipients strongly agreeing that the intervention was helpful and the remaining 10 percent agreeing.

Yvan Cantin, casthouse operator, was on the receiving end of an intervention.

"I was in a casting unit and had forgotten to put on my balaclava (a hood to protect against molten metal)," said Mr. Cantin. "I thanked my colleague for taking care of me. The program is very good, because it allows you to get reminders directly on the shop floor from your colleagues. It's also a good way to do some coaching among peers."

All employees have access to occupational medicine services, most of which are delivered through on-site medical departments due to the relatively large size and risk profile of our locations. These services include:

- Regulatory or Alcoa-driven risk-based chemical surveillance evaluation;
- Fitness-for-duty (inclusive of return-to-work) assessment with associated rehabilitation consultation and job placement support, as appropriate;
- Hearing evaluation;
- Lung-function testing;
- Work-related injury and illness evaluation and treatment;
- Substance use and abuse testing; and
- Job-related immunizations.

Two of our global occupational health standards govern the quality, competency and confidentiality/privacy of these programs. Our Occupational Healthcare Services Standard outlines requirements for on-site and community occupational health facilities, the professionals delivering these services, medical laboratories and spirometry testing. Our Management of Employee Medical and Exposure Records Standard defines the custody, control, access and retention of private health information.

We also conform to applicable country-specific and local data privacy regulations, such as the Health Insurance Portability and Accountability Act (U.S.) and the Global Data Protection Regulation (European Union).

Throughout 2020, we continued our measured implementation of our process-based medical evaluation model according to location readiness. These efforts were hampered by the COVID-19 pandemic, partly because we were compelled to temporarily suspend certain medical activities to not add unnecessary risk of virus transmission and to align with the guidance of relevant authorities.

Fatigue risk management gained further traction in 2020, as our locations continued to identify and close gaps against our new Fatigue Risk Management Standard. We established a multi-module library of fatigue risk management education materials within our learning management system to satisfy training requirements embedded within the new standard. The system also enabled us to leverage the content to enhance the personal health and well-being of our employees, their families and our contractors. These library materials will be a focal point throughout 2021.

Community and Public Health

Our community and public health initiatives require us to be attuned to the interests and needs of the communities in which we operate against the backdrop of local or national regulatory obligations.

We continuously monitor the occurrence of disease outbreaks and emerging infectious diseases in proximity to our operating locations to offer support and guidance in risk avoidance to our local medical and health professionals, as well as expatriates and business travelers.

Motivated by the COVID-19 pandemic, we completed a comprehensive risk assessment to identify key control points for managing emerging infectious diseases in general. The assessment provides a rigorous outline of causative factors and outcomes along with their associated preventive and mitigating controls.

Other focus areas within this pillar of our health framework include product stewardship, the European Union's REACH regulation, our safety data sheet authorship and management system, and response to customer and consumer concerns related to our products and public health. Our locations also invest in programs and initiatives aimed at improving individual health and wellness in the communities in which they operate.

Personal Health and Well-being

Voluntary programs focused on personal health and well-being and health promotion among our employees originate at the regional and location level. These can include biometric screenings, nutrition programs, wellness competitions and more.

In the U.S., for example, the incentivized Healthy Rewards Program includes biometric screenings, online prevention options, preventive cancer screenings, health coaching, telemedicine and more. Coordinated by a third-party administrator, the program motivates our employees toward improved personal health.

The well-being of our employees is enhanced by many of our existing health initiatives. Examples include location-based employee assistance programs, traveler and expatriate health, safety and security, return-to-work programs and fatigue risk management. The holistic nature of the latter highlights the intersection of occupational health and personal well-being.

Mental health was a strong and recurrent focus area in 2020 due to the uncertainty and dynamic nature of the COVID-19 pandemic, our necessary work-from-home policy for appropriate personnel, travel and gathering restrictions, and the “pandemic fatigue” that was experienced individually and collectively.

In October, we participated in the World Health Organization’s World Mental Health Day. We also provided additional mental health resources, communications, self-help materials and more to our workforce.

We facilitate access to non-occupational medical and healthcare services for our employees. This is aligned with governmental regulations, the availability and quality of local healthcare infrastructure systems, provider availability, negotiated labor contract provisions, customs, contractor agreement specifications, demographics and other considerations.

Some of our locations are situated in countries or regions where the local healthcare system is high quality. Other locations and personnel have unique needs requiring creative, even visionary, solutions.

For example, the non-occupational healthcare needs of expatriate employees and their family members are established locally through a careful and thorough due diligence process. At our mining operation in Juruti, Brazil, we were instrumental in establishing a new community hospital in the early days of the operation. This hospital served a vital role in the COVID-19 pandemic.

We require all locations globally to establish emergency medical response capability and services for both occupational and non-occupational needs. These services are provided through on-site or community resources with the ability to respond promptly.

A Focus on Mental Health

When the Alcoa email offering an emotional checkup during the pandemic reached the inbox of a mechanical engineer at our Juruti mine in Brazil, he hesitated.

"I opened and closed the email three times," he said. "Like many people, I thought that psychologists and psychiatrists were for people with severe mental illness. It was always a barrier that made it difficult for me to ask for help."

Lingering personal issues added to this employee's feelings of loneliness during pandemic-imposed isolation, and he said his mental health started to decline.

Recognizing that many people could be struggling, our Brazilian operations emailed a short voluntary questionnaire to its employees in October 2020 to self-assess their mental health. The online tool focused on identifying loneliness, anxiety, depression and stress, and it also provided options for seeking help. If answers identified significant changes or issues, location-based healthcare professionals contacted employees directly to offer assistance.

"As soon as I completed the questionnaire, I got a response from the Alcoa medical team," said the mechanical engineer. "I was attended to by excellent, very ethical professionals, and at no time did I feel exposed or embarrassed. After some consultations, I started to feel better. Today, I see that we need to take care of our mental health like we do any part of our body. I also learned that with the help of good professionals, it's easier to deal with and solve our problems. I thank Alcoa for providing such a great program."

He added, "I realized that telling my story could help other people get out of the deep end and take the initiative to seek help. I decided to turn what I was experiencing into music. Just as I received help, I want to help other people as well."

(The following was written by the mechanical engineer.)

I Need Your Love

It's so hard to bear,
But I know you won't leave me.
I've been meaningless,
and almost gave up on life.
I just feel like crying.
It's so hard to continue,
But I know that it will all pass.
This pain suffocated me
and left me with no way out.
I feel powerless to fight.
But God you are my father,
Please come and help me.
Carry me on your lap, make me rest.
I can't stand this chest pain anymore,
Please come and support me.
I need your love, come and hug me.

It's so hard to continue,
But I know that it will all pass.
This pain suffocated me and left me with no way out.
I feel powerless to fight.

Supply Chain

Our sustainability approach covers the entire life cycle of a product, making it critically important for our suppliers and those who serve them to conduct business in a responsible, ethical and sustainable manner.

Our Supplier Standards clarify our expectations. We updated these standards in 2020 to better incorporate, communicate and improve the visibility of our commitment to human rights and the certification requirements of the ASI Performance Standard and ICMM Performance Expectations. As part of the update, we sought feedback from global non-governmental organizations and stakeholders to help us identify gaps.

Global Supplier Sustainability Program

Our Global Supplier Sustainability Program works to ensure our Values are incorporated into our supply chain. It also provides due diligence of, and insight into, the environmental, social and governance (ESG) performance of key suppliers and a framework to work with them to advance sustainability.

The program, which we conduct in partnership with EcoVadis, uses the following framework:

- Assess: We assess our supply chain and supply chain source materials against 21 criteria covering environment, labor and human rights (including modern slavery),

Supplier Assessment Criteria

Environment
- Energy consumption and greenhouse gases
- Water
- Biodiversity
- Local and accidental pollution
- Materials, chemicals and waste
- Product use
- Product end-of-life
- Customer health and safety
- Environmental services and advocacy

Labor and Human Rights
- Employee health and safety
- Working conditions
- Social dialogue
- Career management and training
- Child labor, forced labor and human trafficking
- Diversity, discrimination and harassment
- External stakeholder human rights

Ethics
- Corruption
- Anticompetitive practices
- Responsible information management

Sustainable Procurement
- Supplier environmental practices
- Supplier social practices

ethics and sustainable procurement. After assessment, suppliers are given a scorecard that reflects their corporate social responsibility (CSR) performance. Suppliers are also monitored based on publicly available data; country risk; commodity risk; denied parties, watchlist and sanction databases; politically exposed persons screening; and supplier-specific questionnaires. Any supplier on the U.S. Denied Parties List is denied from working with Alcoa.

- Audit: Supplier audits and in-field verifications enable us to confirm ESG implementation, provide due diligence and increase transparency to ensure our suppliers are delivering on their commitments and conduct. Due to COVID-19 precautionary measures, we delayed the development and implementation of our in-field verification program.
- Advance: We work to advance the ESG performance of our suppliers through the EcoVadis assessment platform. Along with their CSR scorecard, suppliers are provided feedback on improvement areas. This feedback and guidance are used for creating improvement plans, setting key performance objectives and developing strategic partnerships to manage risk and create long-term value.

Each participating supplier completes a comprehensive questionnaire that is tailored to its industry, sector, size and countries of operation. EcoVadis audits the information and scores the supplier's overall performance as well as performance against the four categories and 21 criteria on a scale of one to 100. Because EcoVadis is a third-party solution, suppliers are able to share their results with not only Alcoa but also their other customers.

Advanced analytics allow us to compare each supplier's scores against our supply base, our industry, all suppliers in the EcoVadis network and more. We also can benchmark aggregate scores against industry peers. This in-depth visibility into our supply base allows us to quickly identify and manage risks and seek improvement in supplier performance.

2020 Global Supplier Sustainability Program Results

Companies Assessed

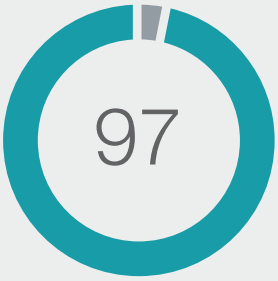
(7.7 percent of global supply chain)

Alcoa Spend with Companies Assessed

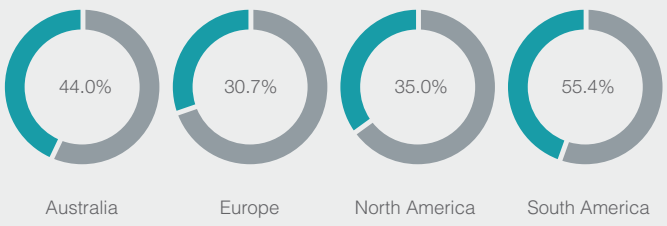
US$3.6
billion

(43.9 percent of global procurement spend)

Percent Meeting Minimum Requirements



Regional Supply Chain Spend Assessed



Based on a 2020 global supply chain spend of US$8.2 billion.

Average Scores

Suppliers are ranked on a scale of one to 100 for each category.

We ask suppliers that do not meet our minimum requirements to create a corrective action plan using guidance provided in the actionable scorecard, with focus given to high-priority items. We track progress to ensure improvement over time. We also encourage suppliers that meet our minimum requirements to develop an action plan to close any gaps and demonstrate continuous improvement in sustainability.

In 2020, more than 395 corporate groups covering nearly 650 suppliers (43 percent of our global supply base spend) participated in the program in three groups based on our procurement spend with them:

- First: Higher than US$5 million.
- Second: More than US$100,000 for high-risk commodities.
- Third: Above US$1 million.

Of the suppliers completing the assessment in 2020, 97 percent met our minimum requirements. The average overall score was 46.1, which is 3 percent above the EcoVadis benchmark.

We were awarded Gold supplier classification from EcoVadis for the 2019/2020 reporting period. Gold status indicates that Alcoa is among the top 5 percent of companies in our industry and a leader in the sustainability categories of environment, labor practices, fair business practices and sustainable procurement.

We engage with Trace International to support our due-diligence program and further manage risk in our supply chain related to anti-bribery and corruption, trade compliance, child and slave labor, criminal history, human trafficking and conflict minerals. This program assesses suppliers with an Alcoa spend higher than US$50,000 per year that are based in a high-risk country, as well as those with an Alcoa spend above US$1 million per year but are not based in a high-risk country. At the end of 2020, 1,326 corporate groups were participating in the program.

Our Global Supplier Sustainability Program and approach to anti-bribery due diligence provide the foundation of our responsible sourcing requirements that are essential to operating and maintaining our certifications from ASI.

Supply Chain Spend

In 2020, we purchased US$8.2 billion in goods and services from thousands of suppliers around the world.

2020 Spend by Region

Region	Supply Chain Spend *(Billions of U.S. dollars)*	Supply Base Composition *(Percent of total supply base)*
Australia	1.8	22.0
Europe	1.8	21.9
North America	3.6	43.9
South America	1.0	12.2

To help increase our spend with suppliers near our facilities, we developed a procurement tool that allows us to track local spend not only by amount but also by the proximity of suppliers to the Alcoa shipping address. The latter data is categorized by number of shipments to the same city, same state (United States only), same country and non-local (outside of the country in which the Alcoa facility is located).

This localized data allows us to identify opportunities to increase our spend with local suppliers and also helps us analyze the environmental impact of transporting products from suppliers to our facilities.

2020 Shipments

Supplier Location	Percent
Same Country	81
Same State	11
Same City	7
Non-local	1

2020 Spend

Supplier Location	Percent	Percentage Point Change from 2019
Same Country	51	+1
Same State	7	-1
Same City	5	0
Non-local	38	0

To support local spend, we developed our Local and Indigenous Procurement Policy for the Australian region. This policy provides guidance on who our local suppliers are and our acknowledgement and commitment to the Traditional Owners of the land on which our operations are located in accordance with our Reconciliation Action Plan.

In the Brazilian state of Maranhão, where our Alumar refinery is located, we are a member of the Federation of Industries of the State of Maranhão (FIEMA). As part of its economic development activities, the organization facilitates member access to local suppliers and works to develop the local supplier base.

To further increase our spend with local suppliers in Brazil, we have an online marketplace called Alcoa Buy for maintenance, repair and operations non-inventory products. The marketplace hosts the product catalogs of local suppliers, increasing their visibility and facilitating purchases with them. Onboarding to Alcoa Buy is supported by workshops, conferences and individual meetings with local suppliers.

Our Juruti mine and Alumar refinery made 71 percent of their non-inventoried goods purchases through Alcoa Buy in 2020.

Related Information

Supplier Standards
Ethics and Compliance
Human Rights Policy

Facility Stewardship and Transformation

We recognized long ago that remediation/restoration and real estate stewardship upon a facility closure are fundamental aspects of a holistic sustainability program and critical to the welfare of our stakeholders.

To create clear accountability and a consistent approach, our centralized Transformation Group oversees all real estate and manages all closed or curtailed operations. The group also has responsibility for managing any environmental liabilities at our operating and non-operating locations and ensuring that appropriate accounting reserves are established and updated, as necessary.

Our comprehensive approach covers the entire life cycle of a facility and includes established plans for ongoing stewardship during operation and the end-of-life stage for a facility. Throughout each stage, we engage with stakeholders to ensure their input is considered.

Our Transformation Group maintains an estimate of closure scope and costs for each operating location under various scenarios. These estimates consider input from known stakeholders who are periodically engaged as part of routine outreach programs. Our Transformation Group is also a key participant in asset portfolio reviews to ensure that this input is included in any assessment of closure or curtailment scenarios.

We spent US$95 million on stewardship and transformation projects at 43 locations around the world in 2020. Many were at non-operating locations that were once operated by us or a predecessor. The remaining projects were at operating locations or divested facilities with retained environmental responsibility.

While COVID-19 restrictions impacted fieldwork in 2020, our employees and contractors were still able to progress against our milestones.

2020 Transformation Spend

Millions of U.S. dollars

Activity	Spend
Mine Reclamation	44
Demolition at Closed Locations	15
Environmental Remediation	19
Closure of Bauxite Residue Areas at Closed Locations	13
Landfill Closure	4
Total	**95**

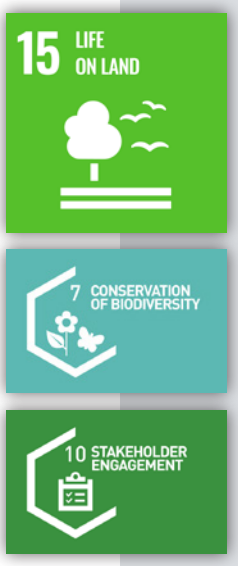
Includes reserve and expense spend.

To further our influence and learning in facility management, we are a founding member of the Surplus Property Roundtable. This group of senior leaders from Fortune 100 and leading non-profit organizations establishes best practices for responsibly managing surplus properties. The goals are to return these properties to productive use, eliminate blight, create new tax revenues and jobs, use existing infrastructure and sustainably preserve natural resources.

Alcoa Foundation also plays an important role in helping communities transition where former operating sites have closed by providing funding to local non-governmental organizations. In 2020, the Foundation provided US$150,000 in support for education and community enhancement in Point Comfort, Texas (USA) and more than US$200,000 for COVID-19 support and community development in Suriname. We have closed facilities in both locations.

Remediation Approach

As science and technology advance, we adapt our production practices to minimize environmental impact. However, some of our historical operating practices, which were historically legal and acceptable, require attention today. We are committed to remediating



those sites so they can be repurposed to benefit the local community.

The primary objective of any remediation project is the protection of human health and the environment. We first use scientific methods to assess the environmental conditions. We then identify remedial solutions that are protective, feasible and compatible with current or likely future uses of the facility. This requires balancing multiple internal and external needs, desires and expectations while keeping good science and constructability as key drivers in selecting a remedial approach.

Closed Facilities

Should we make the difficult decision to close a facility, we work closely with relevant stakeholders to develop a post-operation strategy. The goal is to optimize the land and assets that can be reused or redeveloped to enable the facility to be repurposed, generating jobs and a tax base for the community.

Some facilities can be repurposed with few changes. Others may require remediation, major modification or demolition.

At our former smelter in Rockdale, Texas (USA), we completed the removal of the aluminum smelting equipment in 2019 and developed plans for the demolition of various ancillary facilities that is expected to be completed in 2021.

We currently lease several former potroom buildings at the Rockdale site to a technology company that has installed blockchain infrastructure. Another blockchain computing company that leases land at the site constructed new buildings and began installing equipment during 2020. Both companies are taking advantage of the extensive electrical infrastructure at the 13,354-hectare (33,000-acre) location. Collectively, they are employing approximately 100 direct hires, almost all of which were locally sourced.

One of the companies was recognized in the application of the Rockdale Municipal Development District (RMDD) when RMDD received the 2020 Community Economic Development Award from The Texas Economic Development Council for benefitting the local community.

In 2020, we entered into a lease agreement with a company that will use extensive railroad infrastructure at the Rockdale site for railcar storage beginning in 2021. As an obligation under this lease, the tenant will make rail improvements that will benefit the location in the future.

In Victoria, Australia, we continued to decommission and remediate the 575-hectare (1,421-acre) Point Henry complex, which closed in 2014. More than 95 percent of the physical structures had been removed and recycled by the end of 2020. We worked in accordance with the auditor appointed by the Environment Protection Authority Victoria to progressively develop and implement approved remediation action plans for the site.

We also continued to work with the Victorian and local governments on the long-term land use of the site. The Point Henry 575 Concept Master Plan envisions a mixed-use redevelopment with numerous types of residential, commercial and recreational subdivisions.

Point Henry complex before (2016) and after (2021) removal of structures

Anglesea power station and mine site

At our former 150-megawatt coal-fired power station in Anglesea, Australia, which closed in 2015, we substantially completed the grading and reclamation of the open pit coal mine. The major earthworks program encompassed the cut and fill of more than 3 million cubic meters (nearly 4 million cubic yards) of topsoil and overburden and included the relocation and reconstruction of a public road. We also completed the hydroseeding of 53 hectares (131acres) of native grasslands on the mine slopes, and we initiated a maintenance and monitoring program to ensure the landform is safe, stable and sustainable. (View a video on the rehabilitation process.)

For the fifth consecutive year, the Victorian Department of Environment, Land, Water and Planning (DELWP) harvested winter water flows from the Anglesea River and stored the water in one of the Anglesea site's former ash ponds. DELWP distributed this water as needed over the summer to maintain the river's flow to mitigate impacts from naturally occurring acid soil within the adjacent national park.

In Suriname, we continued our work in the country after we transferred the Afobaka hydro facility to the government of Suriname at the end of 2019. We continued working under the agreed-upon scope and standards to remediate legacy environmental issues, close mines and decommission the former alumina refinery.

In 2020, we completed the following significant milestones in Suriname:

- Completed the closure of bauxite residue storage area 1 and initiated closure of area 2;
- Completed phase one of above-grade demolition of structures and initiated phase 2; and
- Rehabilitated 100 hectares (247 acres) of mine lands.

Bauxite residue storage area in Suriname undergoing closure

In July 2020, the country's newly elected government commissioned a team to review ongoing and planned work, consistent with the terms of the negotiated agreements reached in 2019. We also discussed with the new government a proposal that would create a potential industrial park that would use the infrastructure, port and utilities from the former refinery. Many of the initial potential tenants would process Suriname's resources, such as timber, into higher-value products, helping create jobs and a tax base in the area

At our closed Massena East smelter in New York (USA), we continued to work with the St. Lawrence Regional Development Authority and the New York Power Authority (NYPA) to help market the site to potential businesses. A data management firm leases our former smelter buildings to operate a blockchain computing center at the site. This reuse employed approximately 60 full-time people in 2020 and still has capacity to grow.

In Italy, the company that purchased our former Portovesme smelter site continued to plan for the facility's potential restart during 2020. We expect to complete our soil remediation

Facility Transformation Saves Jobs, Tax Revenues

Our concerted effort to expand the capabilities of our former Gum Springs waste treatment facility in the United States improved the location and kept it viable through its sale to a new owner, ensuring it continues contributing to the rural Arkansas region's tax base.

The Gum Springs facility was specially built to treat spent pot lining, which is the carbon and refractory lining left from retired smelting pots. With the reduction in aluminum smelting in the U.S during the past decade, the plant was becoming financially challenged.

In 2018, we conducted an internal study to determine the best path forward for the site. The study's outcome led to an expansion of the facility's capabilities to accept a broader range of materials for recycling, treatment or disposal.

We invested US$10 million in new equipment and secured appropriate approvals and permits to allow the facility to process additional material. We sold this non-core asset to Veolia ES Technical Solutions in February 2020, preserving tax revenues and approximately 110 jobs (70 full-time employees and 40 full-time contractors).

work at the site in 2021. We also expect to complete soil remediation work at our Fusina, Italy, location in 2022. In Poços de Caldas, Brazil, we completed the demolition of the smelter buildings in 2020.

Demolition at the Fusina site

In the fourth quarter of 2019, we announced the permanent closure of our fully curtailed refinery in Point Comfort. As part of the closure, we developed specifications and plans to decommission the facility. We competitively bid the project and intend to begin the work in 2021 to make space for new industry and investment at the location. Plans are being developed to close the four bauxite residue disposal areas in accordance with Texas Commission on Environmental Quality requirements. We continue to operate a groundwater collection system adjacent to one of the areas to control impacted subsurface groundwater.

Operating Facilities

In Lake Charles, Louisiana (USA), we had planned to begin remediating subsurface soils impacted by prior site operations during 2020. The global pandemic delayed implementation, which may not begin until 2021. We did complete the environmental assessment of a closed landfill at our smelter operation in Mosjøen, Norway, during the year.

In January 2020, we completed the sale of our waste processing facility in Gum Springs, Arkansas (USA), to Veolia, which is working to expand and integrate the facility into its network of services. *(See the case study.)*

In Baie-Comeau, Quebec, Canada, we substantially completed the decommissioning of the three original Soderberg potlines and ancillary support facilities that closed in 2013. These lines were high carbon emitters and inefficient to operate. We reused the majority of the process materials in the operating lines and recycled more than 17,000 metric tons of scrap steel, nearly 420 metric tons of aluminum and more than 330 metric tons of copper.

Environmental Responsibilities

During 2020, we continued to remove residual contaminated soil, treat groundwater, maintain closed landfill covers, and monitor surface water and groundwater systems at facilities we no longer own but have retained remediation obligations.

At closed bauxite residue storage areas in the U.S. in Arkansas, Alabama, Illinois and Texas, we maintained stormwater conveyance channels, monitored and maintained the vegetative cover, and repaired access roads and other erosion-impacted features to ensure compliance with requirements.

The U.S. Environmental Protection Agency issued a Record of Decision for the remedial design/remedial action of industrial and residential properties surrounding our closed bauxite residue disposal area in East St. Louis, Illinois, during 2020. Design work will begin in 2021, with subsequent remedial action continuing to be protective of human health and the environment.

We continued to conduct operations at the Copano bauxite residue storage facility near Corpus Christi, Texas, in compliance with our negotiated agreement with the Texas Commission on Environmental Quality. The Copano facility comprises 4,480 hectares (11,070 acres) of land, including 1,355 hectares (3,349 acres) of residue storage areas.

In partnership with the local cotton industry, we implemented a mutually beneficial and sustainable plan where we use that industry's ginning waste to support conditions for vegetative cover at the Copano site. The waste, which is combined with woody mulch, will hasten the permanent closure of the residue storage area while eliminating landfilled waste.

At several other locations around the world, we continued to monitor groundwater systems to assess natural attenuation of contaminant plumes. We provided periodic reports to governmental agencies on our progress toward eventual closeout.

Sustainable Land Use

For our large land holdings, some of which provide a buffer for our operations and others that contain mineral reserves that can be extracted over time, we seek and support sustainable uses.

Farming

We lease 6,032 hectares (14,905 acres) of our land at eight locations for farming. At our closed location in Frederick, Maryland (USA), for example, we have leased 434 hectares (1,072 acres) of land to the same family for more than 15 years for farming corn and other crops. Other farming operations produce apples, cherries, corn, hay and soybeans.

In Addy, Washington (USA), we grow alfalfa that the Washington Department of Fish and Wildlife harvests for the winter feeding of 7,000 elk and 200 bighorn sheep. We have grown and donated more than 900 metric tons of alfalfa annually since 2008.

Livestock

At our Warrick Operations in Indiana and the closed operations in Rockdale, independent farmers maintain herds of hundreds of cattle. At the Copano property, we own and maintain approximately 380 head of cattle. A small herd of cattle is also kept at our property in Blount County, Tennessee. At our Wagerup and Pinjarra refinery operations in Western Australia, our buffer lands are used to graze more than 8,500 head of cattle.

Mineral Mining

At some locations, we have other mineral resources in addition to the coal or smelter-quality bauxite for which the lands were obtained. We work with third-party consultants and miners to evaluate and sustainably mine these resources.

In Bauxite, Arkansas (USA), we have active mining leases for both hard rock and bauxite on our retained lands. The materials are sold primarily into the construction and cement industries.

Water

At a number of locations, we hold significant water rights that benefit not only our operations but also the community. Where we have dams, we proactively work to manage water and reservoir levels to enable recreation and fishing.

At our closed facility in Rockdale, for example, we hold active permits and authorizations to pump approximately 75 percent of the property's total permittable groundwater. Around 10 percent of this groundwater has been placed under a long-term contract with a local water supply corporation. The site's remaining groundwater and surface water resources are recognized as important and valuable assets to prospective purchasers of the property and to the communities near this closed location.

2020 SUSTAINABILITY REPORT

Biodiversity and Mine Rehabilitation

We operate in a manner that aims to minimize our environmental impact and promote sustainable land use. We are also working toward no net loss of biodiversity for new sites and major expansion projects.

BIODIVERSITY

We endorse biodiversity conservation, and we are committed to the mitigation hierarchy of avoidance, minimization, restoration and offsets during the lifecycle stages of our operations.

We respect legally designated protected areas, such as national parks and nature reserves, where strict nature conservation is the management objective. We also have committed to not explore, mine or operate in World Heritage sites and to avoid developing new operations within protected areas under International Union for Conservation of Nature (IUCN) categories I, II or III.

Prior to commencing new construction projects or significantly expanding existing facilities, we conduct an environmental assessment to identify any potential impacts to biodiversity. This assessment uses techniques, procedures and information generally accepted by the international scientific community as leading practices.

Our comprehensive approach allows operations and biodiversity conservation to coexist. We have successfully operated bauxite mines, alumina refineries and aluminum smelters in areas of high biodiversity value. When areas are disturbed by bauxite mining, we progressively rehabilitate the land to mitigate impacts and return it to an agreed post-mining land use. In areas of significant biodiversity values, we aim to rehabilitate the land to a future use that reinstates those biodiversity values.

Our Baie-Comeau smelter, for example, is in the heart of Canada's Manicouagan-Uapishka Reserve. The location was featured in the Striking Balance documentary series that aired on TVO, a public broadcaster in Ontario, during 2020. The series explores 18 UNESCO-designated biosphere reserves in Canada and covers how the inhabitants of these territories try to find a balance between economic prosperity and environmental protection.

In 2020, we published our Biodiversity Policy, which encapsulates the requirements set out in

"For nearly two decades, Alcoa Foundation has provided essential support to the Conservancy's work to protect and restore nature around the world. In this critical decade for the planet, its support could not be more important. The Foundation has been a partner on efforts across three continents: from restoration of the Peel-Harvey Estuary in Australia; to projects to increase the capacity of our Indigenous partners to steward millions of acres of land in Australia, Brazil and Canada; to the restoration of 900,000 trees in Brazil's threatened Atlantic Rainforest."

Jeffrey Parrish
Global Managing Director for Protect Oceans, Lands and Water
The Nature Conservancy

our corporate Biodiversity Standard. The standard requires each site to conduct an assessment, identify material risks to biodiversity and implement a biodiversity action plan to manage these risks. For new sites and major expansions of existing sites, the standard sets an ambition of achieving no net loss of biodiversity.

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

Operational Site	Site Location & Size	Position	Biodiversity Value
Huntly and Willowdale bauxite mines	Jarrah Forest, Western Australia 712,900 hectares (1,761,614 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 and federal government listed)
Anglesea power station and related coal mine (closed in August 2015)	Anglesea, Victoria, Australia 787 hectares (1,945 acres)	Within and adjacent to a protected area	Protected area; threatened species and ecological communities (International Union for Conservation of Nature and federal government listed)
Wagerup alumina refinery	Wagerup, Western Australia 6,000 hectares (14,826 acres)	Adjacent to areas of high biodiversity value	Ramsar listed wetlands adjacent; threatened species and ecological communities (International Union for Conservation of Nature and federal government listed)
Portland Aluminium smelter	Portland, Victoria, Australia 522 hectares (1,290 acres)	Adjacent to a protected area	Threatened species and ecological communities (International Union for Conservation of Nature and federal government listed)
Juruti bauxite mine and related railroad and port facility	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 (International Union for Conservation of Nature listed)
Poços de Caldas operations (bauxite mine, alumina refinery and aluminum smelter—the smelter closed in June 2015)	Poços de Caldas, Minas Gerais, Brazil 2,327 hectares (5,750 acres)	Within an area of biodiversity value	Fragmented native forests; threatened species (International Union for Conservation of Nature listed)
Baie-Comeau aluminum smelter	Baie-Comeau, Quebec, Canada 729 hectares (1,801 acres)	Within the Manicouagan – Uapishka Biosphere Reserve	Salt marshes and marine environments of the Saint Lawrence River; boreal forests
Lista aluminum smelter	Lista, Norway 248 hectares (613 acres)	Within the Lista Wetlands System, which is a network of Ramsar-listed reserves	Varied habitat types, including dunes, lakes and wetlands; rich bird diversity, including migratory species; conservation-significant plant species
Coermotibo bauxite mine operations (ceased operation in October 2015)	Marowijne District, Suriname 32,800 hectares (81,051 acres)	Adjacent to and within a protected area	Adjacent to and within International Union for Conservation of Nature protected area; threatened species (International Union for Conservation of Nature listed)
Point Comfort alumina refinery (closed in 2019)	Point Comfort, Texas, USA 1,417 hectares (3,501 acres)	Adjacent to an area of biodiversity value	Native grassland and intertidal emergent marsh (protected under the Clean Water Act); important breeding habitat for wading birds.

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

Putting ‘Mussel’ into Reef Restoration

Theo Kearing displays a mussel basket.

They might not be typical gardeners, but residents, groups and schoolchildren are volunteering to tend to about 80 shellfish gardens in the Peel-Harvey Estuary in Western Australia.

Headed by The Nature Conservancy (TNC) and funded by Alcoa Foundation, the mussel gardening program is part of a multi-year initiative to restore the estuary and three connected rivers, which are the environmental, economic and social lifeblood of the area.

Important partners in the mussel gardening program are the area’s Traditional Owners, with TNC and Alcoa Foundation working to ensure that Bindjareb Noongar culture is embedded into the project. Theo Kearing, a Bindjareb Noongar man, is involved in the project’s community engagement.

“I take great pride in sharing my peoples’ knowledge and stories of the estuary, including how they successfully managed it for centuries before European settlement,” said Mr. Kearing. “We need to rekindle and pass on our peoples’ knowledge to everyone so our children, our grandchildren and generations to come can continue to enjoy this beautiful estuary and the connected waterways.”

Each trained volunteer will raise a batch of juvenile mussels, monitoring their growth and regularly cleaning the specially designed basket that holds them below water. Once the mussels reach adulthood, they will be relocated to a new 500-square-meter (5,400-square-foot) reef substrate in the estuary.

Decades of commercial dredging, pollution and overfishing have decimated the region’s shellfish reefs. Restoring the reefs will help prevent coastal erosion and improve water quality, as shellfish provide natural and highly efficient water filtering.

Biodiversity Action Plans

We have developed and implemented biodiversity action plans at the following locations:

- Huntly and Willowdale bauxite mines in Western Australia;
- Kwinana, Pinjarra and Wagerup refineries in Western Australia;
- Portland Aluminium smelter in Australia;
- Alumar refinery in Brazil;
- Juruti bauxite mine in Brazil;
- Baie-Comeau smelter in Canada;
- Fjarðaál smelter in Iceland;
- Mosjøen and Lista smelters in Norway; and
- San Ciprían refinery in Spain.

At each of these sites, the biodiversity action plan:

- Identifies the biodiversity within the area of direct management control or significant influence, including the presence of listed threatened species and communities, in context with surrounding land;
- Assesses potential impacts, both positive and negative;
- Develops a range of strategies aimed at minimizing or mitigating biodiversity impacts;
- Informs our employees and communities in which we operate about the importance of biodiversity protection, and encourages their participation in biodiversity initiatives; and
- Sets and reports performance against site-specific targets.

Our six operating locations that do not have a biodiversity plan had completed a biodiversity risk gap analysis by the end of 2020. For sites where material biodiversity risks were identified, we plan to complete or update risk assessments and action plans in 2021.

Ecosystem Services

Ecosystem services are benefits obtained from natural ecosystems. These may be goods or raw materials, such as food, timber or fresh water. They also may be services carried out by ecosystems, including climate mitigation, erosion control and disease control. A company can both benefit from ecosystem services as well as impact them.

There are many situations where ecosystem services benefit our business. These include:

- The provision of essential water supplies for our operations;
- Soil conservation and sediment control in our hydropower watersheds;
- Rehabilitation of mined land by providing seeds of native plants, naturally re-colonizing microorganisms, flora and fauna; and
- Restoration of ecosystem processes, such as nutrient, carbon and water cycles, that ensure long-term success.

Ecosystem services receive explicit consideration in our operations. For example, we deliberately incorporate the Brazil nut tree, which is economically important for the local community, into our rehabilitation efforts at our Juruti mine to support future community livelihoods. Our mines in Western Australia closely monitor potential stream salinity impacts from our operations on freshwater supplies.

MINE REHABILITATION

Rehabilitation is a post-mining activity, but we begin planning for it in the very early stages of a mine's development. When we inherit legacy obligations at former mine sites, we begin rehabilitation planning as soon as we recognize such an obligation.

We engage with stakeholders to develop a rehabilitation plan to ensure that the site can be returned to sustainable use. In many cases, we strive to return the land to its natural state, such as forests, wetlands and grasslands. Where appropriate, and in concert with government or local communities, our rehabilitation supports other productive land uses, including farming and residential, recreational, commercial or industrial developments.

A silvicultural-treated stand of restored Jarrah Forest that was established after bauxite mining and designed to support a range of sustainable forest uses and values.

We strive to lessen the impact of our mining operations by minimizing the environmental footprint for each mine. This includes minimizing the land disturbed for mining and progressively rehabilitating disturbed areas that are no longer required for operations.

Our rehabilitation approaches vary in response to local biophysical conditions and rehabilitation objectives.

In certain locations, for example, naturally occurring sulfide minerals contained in overburden have the potential to release low pH (acidic) water when exposed to air, resulting in dissolved metal concentrations in surface water and groundwater (acid rock drainage, or ARD). Some clay overburden materials also exhibit these characteristics. To prevent the potential release of acid and metals, we have managed this material through selective handling that involves encapsulation or sub-aqueous (underwater) placement.

Where a sustainable native ecosystem is the rehabilitation objective, we conserve and reuse topsoil. This topsoil contains seeds, nutrients and microbes that are essential for successfully establishing diverse and sustainable vegetation cover after mining.

In addition to preserving topsoil, we apply many strategies to optimize the number of plant species in rehabilitated areas. These include spreading collected and specially treated seeds and planting nursery-grown seedlings. We may use cuttings and tissue culture propagation techniques for species that generally do not produce viable seeds.

In early 2020, an independent third-party audited our bauxite mine rehabilitation processes and outcomes in the Jarrah Forest of Western Australia against the Australian Standard for Sustainable Forest Management (AS 4708). The national standard is endorsed by the international Program for Endorsement of Forests Certification (PEFC), and it provides a framework of clearly defined environmental, economic, social and cultural performance requirements that support the sustainable management of forests.

The comprehensive assessment found that the requirements of the standard were being met, paving the path for reintegrating the rehabilitated forests into the productive capacity of the surrounding Jarrah Forest. The outcomes of the assessment were a strong endorsement of our restoration efforts and another step toward achieving full forest restoration. (View the assessment.)

Alcoa is a founding member of the Co-operative Research Centre for Transformations in Mining Economies (CRC-TiME), which is an Australian national research and development initiative that was established in 2020 to help drive transformational change in mine closure processes. The 10-year initiative will draw on the combined inputs of the Australian commonwealth government and a consortium of more than 40 members from industry, the mining services sectors, Australian state governments, research providers and community associations. The aim is to improve the success of mine closure and relinquishment and enable regions and communities to transition to a more sustainable post-mining future.

Part of successful closure is high-quality rehabilitation. We are leading a project proposal being considered by CRC-TiME that is aimed at developing improved equipment and techniques for the treatment of native seed and delivery of seed to the soil surface. These new approaches are anticipated to increase the success and efficiency of the critical establishment phase of rehabilitation.

The closure of Alcoa's former Jarrahdale bauxite mine in the Jarrah Forest of Western Australia (pictured during decommissioning and after final rehabilitation) was recognized by the state government as an example of a leading practice and excellence in environmental outcomes.

Mining and Rehabilitation Activity

During 2020, we had four active bauxite mining areas in Australia and Brazil. A number of inactive mines that are in the process of final rehabilitation and closure also contributed to the year's total open mine area. We also have a minority equity interest in a bauxite mine in each of three countries—Brazil, Guinea and Saudi Arabia—but data from these mines is not included in this sustainability report.

Our goal is to maintain a corporate-wide running five-year average ratio of 1:1 or better (meaning less than one) for active mining disturbance (excluding long-term infrastructure) to mine rehabilitation. This will manage net expansion in the area of land disturbed.

The ratio for the 2016 to 2020 period was 0.92:1, which indicates we had more areas rehabilitated or transferred to other land users compared to new disturbance. We expect the ratio to decrease as more areas of our closed mines in Suriname are returned to the Suriname government after rehabilitation.

We engaged ERM CVS to provide limited third-party assurance on our 2020 mine rehabilitation data at operating sites. The company's limited assurance statement is available in the Appendix.

Mining Land Disturbed/Land Rehabilitated

Hectares

	Open Mine Area *(Cumulative as of year-end)*	Area Disturbed *(Annual)*	Area Rehabilitated *(Annual)*
2016	15,283	1,028	646
2017	15,448	1,173	1,008
2018	15,769	1,243	923
2019	15,805	1,368	1,140
2020	15,636	1,354	1,523

One hectare equals approximately 2.5 acres. Open mine area is the cumulative area of land that has not been rehabilitated (including active mines and land used for mining infrastructure). Area disturbed means land used in each reported year for mining or for mining infrastructure (e.g., roads, shops, crushing equipment, conveyors). Area rehabilitated means land returned to natural conditions or to productive use (such as farming) after mining or decommissioning of mine infrastructure in each reported year. Generally, the open mine area in each reported year should be the open mine area from the preceding year plus any area disturbed and minus any area rehabilitated.

Open Mine Area

Hectares

	Australia	Europe/ Africa	North America	South America	**Total**
2016	5,351	0	1,128	8,804	**15,283**
2017	5,614	0	1,068	8,766	**15,448**
2018	5,739	0	1,003	9,027	**15,769**
2019	6,029	0	736	9,040	**15,805**
2020	6,176	0	656	8,804	**15,636**

One hectare equals approximately 2.5 acres. Open mine area is the cumulative area of land that has not been rehabilitated, which includes active mines and land used for mining infrastructure. In Australia, the open mine area increased in 2020 due in part to lower-than-planned rehabilitation associated with COVID-19 contingency responses. Increased rates of rehabilitation at the Huntly and Willowdale mines are planned to reduce open area in 2021. Open area in both North America and South America decreased as closed mines continued to be rehabilitated or returned to the government of Suriname.

Area Disturbed

Hectares

	Australia	Europe/ Africa	North America	South America	**Total**
2016	631	0	51	346	**1,028**
2017	675	0	50	448	**1,173**
2018	675	0	48	520	**1,243**
2019	954	0	9	406	**1,368**
2020	822	0	0	532	**1,354**

One hectare equals approximately 2.5 acres. Area disturbed means land used in each reported year for mining or for mining infrastructure (e.g., roads, shops, crushing equipment and conveyors). In South America, the increase in 2020 was mostly due to additional clearing for long-term infrastructure for washery tailings storage at the Juruti mine.

Area Rehabilitated

Hectares

	Australia	Europe/ Africa	North America	South America	**Total**
2016	290	0	114	242	**646**
2017	412	0	110	486	**1,008**
2018	550	0	113	260	**923**
2019	665	0	83	392	**1,140**
2020	675	0	80	768	**1,523**

One hectare equals approximately 2.5 acres. Area rehabilitated means land returned to natural conditions or to productive use (such as farming) after mining or decommissioning of mine infrastructure in each reported year. The increase in area rehabilitated in 2020 was mainly due to an increase in areas rehabilitated and returned to the government of Suriname compared to 2019.

Water

Water is a precious shared resource. It is also a material issue for Alcoa and our stakeholders and a critical raw material in our operations, particularly for ore processing, cooling, casting, rolling, dust suppression and potable uses.

Our power stations, refineries and casthouses are our largest users of water. Surface water is our main water input at 88 percent of total water withdrawal, and it is also our highest-volume output at 75 percent of total water discharge. Within our operations, the main consumptive water uses are evaporation from tanks, vents and storage, entrainment in bauxite mine tailings and uses within our casting locations.

In some countries, such as Canada, Iceland, Norway and parts of the United States, water is plentiful and even powers some of our smelters via hydroelectric dams. The situation is markedly different for our operations in Western Australia, where the drying climate is a challenge. In Brazil, we manage our water use to account for high seasonal variation in rainfall.

Our locations where water is scarce recycle and reuse water multiple times until it is lost to evaporation or entrainment as part of the process. Minimal discharges occur at these sites.

Other facilities, including our Warrick power station in the United States and smelters in Norway, discharge most of the water they withdraw for non-contact cooling purposes. In these cases, the water returns to the same source from which it was withdrawn.

We manage all water discharges in accordance with location standards and regulatory requirements. In 2020, we had zero non-compliances associated with water-quality permits, standards and regulations that resulted in a formal enforcement action.

Many of our facilities also discharge rainwater that is captured on the sites but not used in operational processes. These diversions are not included in our operational water balance, which aligns with the Minerals Council of Australia's Water Accounting Framework that we have adopted.

Our 2020 net water use was 867.2 million cubic meters, which was a 6.7 percent increase compared to 2019. The key factor behind the increased consumption was an increase in cooling water required during a compressor outage at our Warrick Operations in the United States.

Our locations in water-stressed areas had a net use of 44.4 million cubic meters, which was a 4.5 percent decrease compared to the prior year.

Water use considers all water that is received and intended for use by the operational facility. This includes rainfall capture and runoff, which can vary year to year. In 2020, our Alumar location in Brazil captured less rainfall. Western Australia saw a return from the dry year in 2019, resulting in less evaporation at some of our sites during 2020.

Our long-term goal is to reduce the intensity of our total water use from Alcoa-defined water-scarce locations by 5 percent by 2025 and 10 percent by 2030 from a 2015 baseline. We achieved a 3.0 percent reduction against the baseline through 2020.

Locations meeting our definition of water-scarce locations are the Alumar refinery in São Luís, Brazil, the Huntly and Willowdale mines in Western Australia, and the Kwinana, Pinjarra and Wagerup refineries that are also in Western Australia. These represent 27 percent of our reportable locations. We classified all other facilities as having low-to-medium or low baseline water stress.

We applied the World Resource Institute's Aqueduct tools to inform our identification of water-scarce locations and further refined our classification through a qualitative risk assessment that considered items such as local applicable requirements and local supply/demand needs.

We published our Water Stewardship Policy in 2020 to outline our vision and priorities for water, and we completed the rollout of our updated Water and Wastewater Management Standard. These activities continue to align our performance against the ICMM Position Statement on Water Stewardship.

In 2020, each location began developing its water management plan, which is the key requirement of the standard. The plans will extend our understanding of our water risks and impacts by considering the following:

- Current and alternative water sources;
- Security of water supplies;
- Water reduction, substitution, reuse and recycling programs;
- Risks of contamination of water resources and mitigating actions, considering local context and receiving waterbodies; and
- Other water impacts, such as erosion, acidification and salination.

Each location must develop an action plan for higher-risk aspects, with the plan reviewed and updated at least every five years.

Our Water and Wastewater Management Standard also requires a documented water balance for each location that is reviewed and updated at least every five years; a risk-based monitoring program; access to safe, high-quality potable water; and wastewater treatment facilities that are operated and maintained in accordance with permit conditions and standard industry practices. In greenfield expansions where no local discharge requirements exist, the standard requires that limits and thresholds consistent with international standards be adopted and approved by senior leadership to ensure protection of the surrounding community and environment.

We encourage all locations, even those in water-rich areas, to look for ways to reduce consumption and discharge, use fit-for-purpose sources of water, and increase recycling and other opportunities through advanced technologies and process improvements.

Our Kwinana and Pinjarra refineries in Western Australia, for example, have the capability to reduce their freshwater use by a collective 2.2 gigaliters (581 million gallons) annually through an innovative technology called residue filtration. This is equivalent to the amount of water needed to fill 880 Olympic-sized swimming pools. (See the Impoundment Management section.)

In addition to our internal water initiatives, our locations actively engage with government agencies and non-governmental organizations focused on water quality and conservation. Some of our employees serve on local water boards and committees, while others volunteer their time for specific projects. We also provide financial support for water-based community initiatives primarily through Alcoa Foundation.

Freshwater Use Intensity

Cubic meters of water per metric ton of primary aluminum produced

Freshwater use reflects only fresh water used to directly manufacture products. It excludes rainwater to encourage reuse of alternative sources and large volume, once-through water usage from our energy facilities. The intensity data represents the combined impact of refining, smelting, casting and rolling operations indexed to metric tons of primary aluminum production (refining is included at a ratio of 1.9 metric tons of alumina to 1.0 metric tons of smelted aluminum).

Total Water-use Intensity—Locations in Alcoa-defined Water-stressed Areas

Cubic meters of water per metric ton of alumina produced

The intensity data represents the combined impact of mining and refining operations in water-stressed areas indexed to metric tons of alumina production (mining is included at a ratio of 2.85 metric tons of bauxite to 1.0 metric tons of alumina). Total water use includes the change in storage to accurately reflect years when water is used within our process. The baseline adjustment from prior reporting was due to improved data accuracy.

2020 Water Balance—All Locations

Million cubic meters

	Water Inputs				Water Outputs			
	Category 1	Category 2	Category 3	**Total**	Category 1	Category 2	Category 3	**Total**
Surface Water	34.6	707.2	20.3	**762.0**	1.0	648.4	0.7	**650.2**
Groundwater	1.9	16.4	3.9	**22.1**	0.0	1.1	1.1	**2.2**
Seawater	0.0	0.0	69.6	**69.6**	0.0	0.4	95.5	**95.9**
Third-party Water	3.2	8.0	1.2	**12.4**	0.1	0.0	0.3	**0.5**
Consumption								
Evaporation	-	-	-	-	5.6	66.3	35.1	**107.0**
Entrainment	-	-	-	-	0.0	0.0	11.7	**11.7**
Total	**39.7**	**731.6**	**94.9**	**866.2**	**6.7**	**716.3**	**144.4**	**867.4**

Category 1 water is of a high quality and suitable for most purposes with little or no treatment. Category 2 water is of a medium quality and suitable for some purposes, such as irrigation. Category 3 water is of a low quality and suitable for limited purposes without significant treatment. Categories 1 and 2 are equivalent to the ICMM High Quality definition, and Category 3 is equivalent to the ICMM Low Quality definition. Groundwater includes produced water, which is water entrained in ore. The 2020 change in storage volume was -1.0 million cubic meters, and 169 million cubic meters were recycled/reused in the process. The sum of categories may vary from the totals due to rounding.

2020 Water Balance—Locations in Alcoa-defined Water-stressed Areas

Million cubic meters

	Water Inputs				Water Outputs			
	Category 1	Category 2	Category 3	**Total**	Category 1	Category 2	Category 3	**Total**
Surface Water	4.1	1.4	14.5	**20.0**	0.0	0.1	0.0	**0.1**
Groundwater	0.2	12.3	3.3	**15.8**	0.0	1.1	1.1	**2.2**
Seawater	0.0	0.0	0.0	**0.0**	0.0	0.3	0.0	**0.3**
Third-party Water	1.2	4.9	1.2	**7.4**	0.0	0.0	0.0	**0.0**
Consumption								
Evaporation	-	-	-	-	4.6	4.2	22.0	**30.8**
Entrainment	-	-	-	-	0.0	0.0	11.0	**11.0**
Total	**5.6**	**18.6**	**19.0**	**43.2**	**4.6**	**5.7**	**34.0**	**44.4**

Categories 1 and 2 are equivalent to the ICMM High Quality definition, and Category 3 is equivalent to the ICMM Low Quality definition. In 2020, high-quality water inputs were 56 percent of total water inputs for Alcoa-defined water-stressed locations. The 2020 change in storage volume was -1.1 million cubic meters, and 146 million cubic meters were recycled/reused in the process. The sum of categories may vary from the totals due to rounding.

Waste and Spills

In line with the circular economy, we work to reduce or eliminate waste in our operations and keep resources in use for as long as possible.

We first focus on reducing waste generation at the source. We then work to identify and implement reuse and recycling opportunities and manage materials in an environmentally protective manner following the principles of the circular economy. This effort has created adjacent revenue streams for our company.

Our waste management hierarchy consists of the following:

1. **Source reduction:** Reduce the volume or toxicity of waste at the source through changes in industrial processes, material substitution, segregation practices, maintenance activities and more sustainable procurement practices.
2. **Reuse:** Reuse the waste or industrial byproduct onsite or offsite for its original purpose or for another beneficial purpose.
3. **Recycling/composting:** Recover value and resources from wastes.
4. **Energy recovery:** Recover heat value from wastes.
5. **Treatment/disposal:** Reduce the volume, toxicity or other hazardous characteristics of wastes prior to disposal or discharge. Disposal is the least preferred option for waste management.

Our waste management standard requires all sites to have a site waste management plan; an inventory of all waste streams generated onsite; onsite waste storage areas that meet all local regulatory requirements; a comprehensive waste training program; and tracking of non-hazardous and hazardous waste metrics.

Landfilled Waste

Our landfilled waste decreased 4.2 percent in 2020 compared to the prior year. This was primarily due to the curtailment of the Intalco smelter in the United States and the completion of several significant housekeeping- and maintenance-related activities.

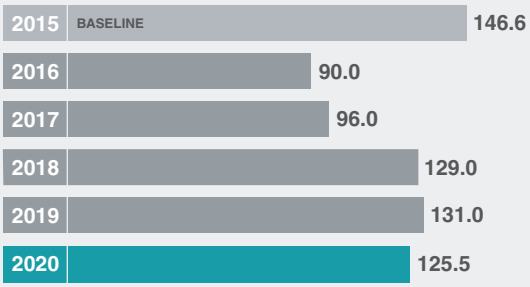
Certain waste streams, such as bauxite residue, refining process waste and fly ash, are excluded from our landfilled waste data. We manage these materials separately with onsite storage or impoundment areas and do not send these materials to landfills. Overburden and rock generated from our mining activities, which are also not included in the data, are not considered waste because the materials are used for mine rehabilitation.

Our long-term waste goal focuses on landfilled waste rather than by-product materials to emphasize waste reduction at the source and move from disposal to other options, including reduction, reuse and recycling, using the waste management hierarchy.

Our goal is a 15 percent reduction in landfilled waste by 2025 and 25 percent by 2030 from a 2015 baseline. We achieved a 14.4 percent reduction through 2020.

Landfilled Waste

Thousands of metric tons



Due to the sale of our Gum Springs waste management facility in the United States during 2020, we revised our 2015 baseline and all subsequent years to remove that facility and reassign the Alcoa waste volumes disposed there to our sites that generated the wastes. As the result, our 2015 waste-to-landfill baseline number changed from 146,568 to 233,725 metric tons.

Total Wastes Recycled/Reused

Thousands of metric tons

Data changes from prior reporting were due to an in-depth data analysis.

Bauxite Residue Intensity

Metric tons of residue per metric ton of alumina produced

Transformation Waste

As we continue to transform and optimize our operating portfolio, we decided to separately track and report wastes generated from our Transformation Group, which manages all closed or curtailed operations.

Solutions for waste-management reduction may differ for routinely generated wastes that are typical of operating locations compared to periodically generated wastes, which typically originate in closure and decommissioning activities. The differentiation between the two enables us to prioritize solutions for both.

Our waste-reduction goal focuses on operating locations, but we will reevaluate it in the next two years to verify that the goal's scope and intent remain relevant. (See the Facility Stewardship and Transformation section.)

Transformation Waste

Thousands of metric tons

	Landfilled Waste	Total Wastes Recycled/Reused
2019	32.8	8.6
2020	71.9	28.5

Bauxite Residue

In 2020, we generated 23.9 million metric tons of bauxite residue (see the Impoundment Management section) and recycled zero metric tons. The amount of residue per metric ton of alumina produced continued to remain steady compared to prior years.

Our collaboration with external organizations and universities on residue reuse opportunities continued in 2020.

We are a founding member of the four-year ReActiv project, which launched in late 2020 to transform bauxite residue into a reactive material that is suitable for new cement products that have a low CO2 footprint. The project consortium comprises major cement company LafargeHolcim, seven alumina refineries, two aluminum associations, six universities and research institutes, and five engineering companies from 12 European countries. The European Union has provided US$10.6 million (8.8 million) in funding.

Through the Alcoa Foundation, we continue to support research at the University of São Paulo in Brazil that is also focused on using bauxite residue in manufacturing cement. The research has demonstrated that it is technically feasible to replace a portion of the cement with bauxite residue for diverse types of cementitious products.

In parallel, we are working with the International Aluminium Institute (IAI) to identify potential pathways for the adoption of bauxite residue in cement production and use. IAI released its technology roadmap in November 2020 to address concerns, prejudices, and technical and legislative barriers to maximizing the use of bauxite residue in the cement industry.

We are also supporting an IAI project that could rapidly transform in-situ bauxite residue into a soil-like medium, depending on specific criteria. This work is investigating the interactions between chemical, physical and biological drivers of remediation during initial stages of soil formation in bauxite residue. The study has progressed from microbially based remediation strategies that were tested in greenhouse trials to now being tested at field scale, with trial plots established at our Kwinana refinery in Western Australia.

In addition to these initiatives, we continue to explore potential opportunities to use the coarse sand contained in

bauxite residue as a construction material or general fill for land development and the red mud for other purposes.

Bauxite Residue Reuse Opportunities

Region	Opportunity
Western Australia	• Red sand for top dressing, industrial land development and road construction • Red mud for nutrient management, soil amendment
United States	• Acid mine drainage • Wastewater treatment (artificial wetlands) • Levee construction
Brazil	• Clinker/cement manufacture • Back to mine • Brick manufacture
Spain	• Road construction • Clinker/cement manufacture

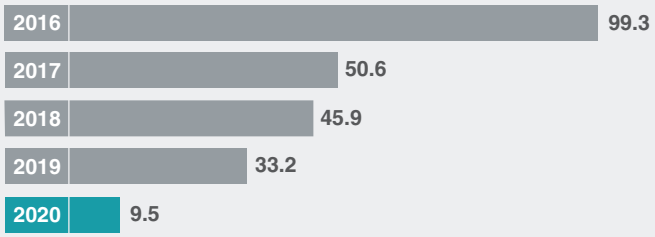
Spent Pot Lining

Spent pot lining (SPL) is the carbon and refractory lining left from retired smelting pots.

We focus on reducing the volume of SPL by consistently working to increase the lifespan of our smelting pots. This reduces the amount of required re-linings and replacements and therefore the volume of SPL we generate.

Spent Pot Lining Recycled/Reused

Percent of spent pot lining generated



Data changes from prior reporting were due to a deep data analysis that resulted from the Gum Springs sale. Increased recycling in 2016 was the result of a focused effort to decrease the amount of spent pot lining in storage at several locations. The 2017 decrease was primarily the result of reduced recycling of stored spent pot lining inventory. The decreases in 2018, 2019 and 2020 reflect our internal decision to delay pot digging, store SPL for treatment at a later date (where legally permissible) and/or pursue alternative waste management options.

We continue to pursue ways to transform our spent pot lining into a raw material or fuel source for other industries. For example, the cement industry uses spent pot lining as both a fuel and raw material. It also can be used as a raw material in the production of steel and a fuel source in the manufacture of rockwool insulation.

We recycle and/or reuse SPL in accordance with applicable country-specific requirements.

Secondary Materials

In addition to bauxite residue and spent pot lining, we are actively seeking alternative uses for our secondary materials. This contributes to the circular economy while creating adjacent revenue streams for our company.

These products include carbon, electrolytic bath, fly ash and secondary aluminas. In 2020, we sold 100 percent of the fly ash produced at our Alumar location in Brazil for use in the cement industry. We are also selling stored fly ash at the site, with total sales reaching nearly 45,000 metric tons for the year.

We use a three-tiered classification for our secondary materials:

- Commercial: Materials sold as a commercial product;
- Transition: Materials that have some limited commercial viability or can be placed with a user to derive a better financial outcome than landfilling; and
- Disposal: Materials that are typically landfilled or otherwise disposed.

We sold approximately 178,000 metric tons of secondary materials in 2020, generating nearly US$21 million in value through both revenues and reduced disposal costs. The products included a number of transition materials from closed facilities undergoing remediation.

Spills

We deploy several operational control measures aimed at minimizing the impact of spills on the environment. These controls vary depending upon the nature of the material and the risk presented to the environment.

Control measures include secondary containment, inspection practices, work practices during loading/unloading operations and a variety of technology-based leak detection systems on critical piping and tank systems.

We require any uncontained spill or release of oils, process liquids or solids in excess of 20 liters with a potential environmental impact to be reported internally as an incident, regardless of whether reporting to external agencies is required.

We define major spills as those meeting the criteria for a major on-site or off-site environmental incident designation in the Alcoa Environmental Incident Management System, which includes spills that have the potential to cause significant harm to the environment or community. In 2020, we had zero major spills.

Major Spills

2016	0
2017	0
2018	1
2019	0
2020	0

Impoundment Management

We manage impoundment facilities at active, inactive and closed sites around the world to store primarily two types of material—bauxite mine tailings and bauxite residue. Both materials are referred to generically as tailings.

An impoundment is defined as any dam or other engineered structure intended to confine a body of water (fresh, alkaline or acidic), mine tailings, refining residue, or any other solid or liquid waste material.

Bauxite mine tailings create a mud-like residue that remains after the bauxite is washed at the mine site. Bauxite residue, which is a byproduct of the alumina refining process, consists of mud, some residual caustic soda and, in some cases, a coarse sand fraction.

We design our impoundments to our internal and international standards. We operate and maintain these facilities in accordance with the design and close them in line with location regulations. We strive to achieve a comprehensive understanding of our impoundment risks and opportunities, implement suitable and effective controls, and manage our impoundments safely and efficiently.

In 2020, we implemented a mandated Global Impoundment Policy to ensure our impoundments comply with our internal standards and guidelines, the Global Industry Standard on Tailings Management or the laws and regulations of the country in which a facility is located (whichever are higher). We also use the policy to encourage leading management and governance practices at joint ventures locations where we do not have direct control of operations. The policy excludes hydroelectric and freshwater concrete dams, which are governed by the laws of the countries in which they are located.

In addition to our internal policy and standards, we are committed to conform with the Global Industry Standard on Tailings Management.

Our strategic long-term goal for bauxite residue addresses a key challenge—reduce bauxite residue land storage requirements per metric ton of alumina produced by 15 percent by 2030 from a 2015 baseline.

Through 2020, we achieved a 12.8 percent reduction against the baseline. We expect to see continued improvement with enhanced solar drying and residue filtration technologies. Filtration is now fully operational at our Kwinana and Pinjarra refineries in Australia, improving the overall efficiency and safety associated with the stored tailings by removing water.

Bauxite Residue Land Requirements

Square meters of land required per 1,000 metric tons of alumina produced

Data is for operational sites only. Changes from prior reporting are due to the removal of non-operational sites.

Construction and Design

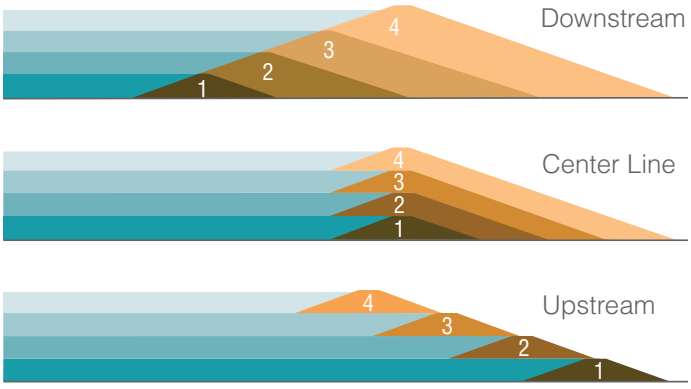
Typically, we construct earthen embankments, or dikes, to form an enclosure for the tailings. The materials are deposited into the enclosure in slurry form and dried over time.

We keep some impoundments at their original crest height (known as a starter embankment), with the perimeter embankment constructed

to full height before material is deposited. We raise others over time, with the design governed by the type of tailings being stored, its material characteristics and the method of deposition.

The methods for raising tailings storage areas usually fall into one of the following construction categories:

- Downstream: This method involves either building the embankments to full height as an initial construction or raising the impoundment height downstream from the initial dike, which is built from borrowed fill materials.
- Center line: Successive raising occurs in such a way that the axis (or embankment center line) of the dike remains in the initial position and coincides with the initial dike axis.
- Upstream: Successive levels of the containment dike are constructed on the consolidated and dried tailings previously deposited in the impoundment.



We use various combinations of these methods based on a range of factors, including climate (particularly rainfall and evaporation rates), topography and the nature of the tailings. In some countries, the type of construction is based on laws or regulations.

All of our newly constructed bauxite residue storage areas include a composite base seal and an underdrain system to increase the rate at which water drains from the bauxite residue, increasing the residue's density and strength and reducing the hydrostatic pressure on the base seal. The use of bauxite residue thickening/solar drying and dry stacking (post bauxite residue filtration) at some locations further improves this process.

Risk Assessment

We conduct risk assessments and develop an operational and maintenance plan for each location. We review and update both as appropriate throughout the facility's lifecycle.

Our risk assessments consider the following:

- Physical and chemical risks of the impoundment facility;
- Environmental risks, including earthquakes, heavy rainfall, high winds (dust), water scarcity and other issues that could impact the facility and its operation;
- Operational risks that need to be controlled; and
- Other risks external to Alcoa and the facility, including regulatory and permitting risks.

The operational plan identifies mitigation and control measures to eliminate or avoid risk to the extent practicable; reduce risk by minimizing the likelihood or potential consequence of an unwanted event or condition that poses a risk; and detect early, respond to and minimize the consequences if an unwanted event or condition occurs.

Impoundment Management

We are an industry leader in the management of tailings and residue storage, with rigorous protocols developed over decades of safe operating practices. Our technical standards have been in operation for more than 30 years.

We focus on key elements of management and governance that are necessary to maintain the overall integrity of our impoundment facilities. These include:

- Our mandated Global Impoundment Policy:
- An impoundment governance structure that provides global oversight with clearly defined location accountabilities and responsibilities;
- Compliance to location regulations and globally mandated Alcoa impoundment standards covering planning, design, construction, operations, maintenance and closure;
- Long-term (25-year) impoundment strategic plans, which are known as impoundment master plans;
- Long-term capital plans that match the impoundment master plans;
- Timely planning, development and implementation of impoundment capital projects;
- Monitoring of impoundment embankment stability, climate and operating parameters;
- Trained and qualified personnel in key roles, including geotechnical engineering oversight at each location;

- Review and assurance, such as peer reviews of impoundment design and annual independent third-party audits/inspections;
- Emergency preparedness and response plans for unforeseen or extreme events: and
- Reporting

In each region where we operate, we also apply an impoundment consequence ratings system as guided by either local regulations or our internal standards. For example, we use the Brazilian National Mining Agency (ANM) standards in Brazil and the consequence rating system developed by the Australian National Commission on Large Dams (ANCOLD) in Australia. In more recent times, we also have used the Canadian Dam Association (CDA) classification system to provide a consistent basis across global regions. This is published on alcoa.com.

We regularly review, benchmark and update our impoundment standards, master plans and governance practices to guide the safe and environmentally sustainable management of our tailings' storage. We also look to improve the technologies we use to store and monitor the tailings, and we have spearheaded improvements in the management of impoundments. Some examples include:

- Storing bauxite mine tailings within the mined footprint to reduce disturbance of land;
- Progressively moving from traditional "wet" storage of bauxite residue to solar drying (thickened, natural evaporation and mud farming with the use of amphirolls), where practical, and stacking. This significantly reduces the potential for impacts on the surrounding environment;
- Using bauxite residue storage areas that are typically engineered and compacted embankments and that have an internal composite liner system, which is usually high-density polyethylene;
- Using underdrainage systems to reduce water pressure on the embankments and allow the bauxite residue to dry and consolidate; and
- Implementing bauxite residue filtration technology, where bauxite residue is forced through very large press filters that squeeze water from the tailings to reduce the moisture content. The resulting filter cake has a moisture content low enough to allow for more conventional materials handling (conveying) and dry stacking via a spreader.

Pinjarra filtration system

Closure and Rehabilitation

We are focused on progressively closing and rehabilitating tailings storage and impoundment areas. Installation of an appropriate closure (cover) system, effective management of water post-closure and tailings consolidation over time substantially reduce the risk of instability resulting from continued water infiltration.

We undertake field trials and fundamental research on tailings rehabilitation at many of our locations. This research is conducted to better understand the interaction between retained moisture and nutrient cycling in the cover layer as a means of optimizing the rehabilitation approach and identifying potential tailings area closure strategies.

Our current closure strategy incorporates long-term planning and includes the following main objectives:

- Minimizing impacts to the surrounding environment;
- Developing aesthetics consistent with the expectations of external stakeholders, including regulators, and the surrounding land, such as farmland and light industrial areas;
- Aiming for beneficial reuse of post-closure bauxite residue or mine tailings;
- Progressively implementing closure actions during active operations so the success of the closure method is demonstrated and the entire closure burden is not shifted to the end of operations; and
- Minimizing potential leachate discharge and treatment options.

Our early bauxite residue storage areas at the Kwinana alumina refinery serve as an example of returning tailings storage areas to productive land use. Parts of the storage areas were incorporated into the Perth Motorplex in Western Australia, which opened in December 2000. There have

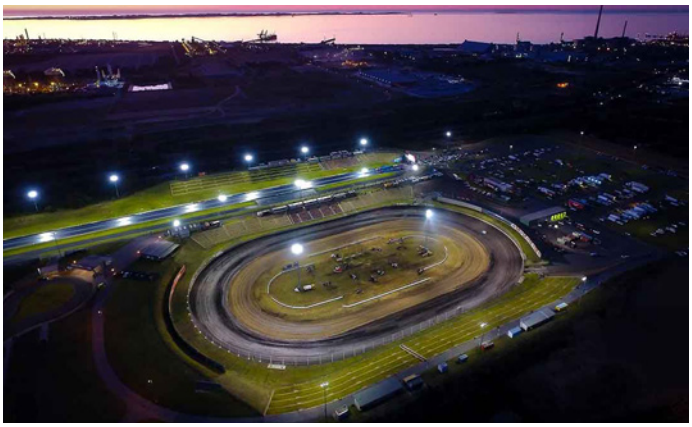


Photo credit: Perth Motorplex

been no issues related to managing the site in the context of it being a former bauxite residue storage area.

Our rehabilitation, or revegetation, rate for residue storage areas has remained steady over recent years. We expect to see continued improvement as we progressively close the residue storage areas at the closed Suralco alumina refinery in Suriname and Point Comfort alumina refinery in Texas.

Bauxite Residue Storage Area Rehabilitation Rate

Percent of total area rehabilitated

Facility Inventory

In accordance with the Mining and Tailing Safety Initiative, which is a group of investors co-headed by the Church of England and the Swedish Council of Ethics, an inventory of our bauxite mine tailings and bauxite residue storage impoundment facilities is available to the public on our website. Download.

The inventory includes impoundments that are greater than 3.0 hectares (7.4 acres) in area or have a height of at least 2.0 meters (6.6 feet) above the low point of the surrounding grade. Solid waste landfills and in-ground impoundments, such as mine pits, ponds, and drains, are not included.

The database is updated annually, with the next update set for June 2021.

Climate Protection

We have a strong history of leadership in reducing greenhouse gases in the aluminum industry.

Carbon dioxide represents most of our GHG emissions, with our smelters and refineries being the largest emitters.

In 2020, we implemented our new long-term goal to align our GHG (direct + indirect) emissions reduction targets with the below 2° C decarbonization path defined in the Paris Climate Accord. We are committed to reducing our GHG emission intensity by 30 percent by 2025 and 50 percent by 2030 from a 2015 baseline. We achieved a 14.6 percent reduction from the baseline through 2020.

Our total 2020 carbon dioxide equivalent (CO_{2e}) emissions equaled 23.9 million metric tons, of which 18.5 million metric tons were direct emissions. This represents a 1.6 percent decrease in total emissions and a 12.9 percent decline in intensity compared to 2019. The decreases were primarily driven by the curtailment of the Intalco smelter, completion of the Bécancour smelter restart and operational improvements within our global smelting and refining operations.

Our Scope 3 (supply chain) emissions in 2020 were 40.7 million metric tons of CO_{2e} for seven categories—purchased goods and services; fuels and energy-related activities; transportation and distribution (upstream); waste generated in operations (landfill only); business air travel; product transportation and distribution (downstream); and processing of intermediate products sold to customers (excluding emissions from further downstream processing of alumina from bauxite and aluminum from smelter-grade alumina). Approximately 84.0 percent of our Scope 3 emissions come from the latter category and correspond to the transformation of alumina into aluminum by our customers.

Scope 3 emissions from purchased goods and services reflect 99 percent of the volume of raw material purchased. It is assumed that all goods obtained from suppliers and sent to customers were transported via a combination of sea, rail and road transport.

We engaged ERM CVS to provide limited third-party assurance on our 2020 carbon emissions data. The company's limited assurance statement is available in the Appendix.

Carbon Dioxide Equivalent Emissions Intensity

Metric tons of CO_{2e} per metric ton of production (IPCC, 5th AR)

		Refining	Smelting	Total
2015	BASELINE	0.55	6.06	**7.10**
2016		0.53	5.07	**6.08**
2017		0.53	4.20	**5.21**
2018		0.52	5.60	**6.60**
2019		0.52	5.98	**6.96**
2020		0.52	5.08	**6.06**

Data is for Scope 1 and Scope 2 emissions. The total represents the combined impact of refining and smelting operations indexed to metric tons of primary aluminum production (refining is included at a ratio of 1.9 metric tons of alumina to 1.0 metric tons of smelted aluminum). These two processes and their associated power supply represent 86 percent of our total GHG emissions. Calculations of these emission intensities conform to the IAI Aluminium Sector Greenhouse Gas Protocol using 100-year global warming potentials provided by the Intergovernmental Panel on Climate Change (IPCC). The 2015 baseline changed from prior reporting to correct an underlying data error.

Carbon Dioxide Equivalent Emissions

Million metric tons of CO_{2e}

	Direct (Scope 1)	Indirect (Scope 2)	Total
2016	17.1	7.3	24.4
2017	16.2	5.8	22.0
2018	17.5	6.7	24.2
2019	17.7	6.6	24.3
2020	18.5	5.4	23.9

Of our 23.9 million metric tons of CO_{2e} emissions in 2020, 22.8 million metric tons were associated with carbon dioxide, 0.95 million metric tons were associated with perfluorocarbon (CF4 & C2F6), 78,000 metric tons were associated with methane, 47,000 metric tons were associated with nitrous oxide and 7,500 metric tons were associated with sulfur hexafluoride (SF6). There were no significant hydrofluorocarbon emissions. We had 8,500 metric tons of biogenic CO_{2e} emissions from the combustion of biodiesel. These emissions are not included in the total 2020 CO2e emissions. In 2020, 58 percent of our direct emissions were covered under an emissions-limiting regulation or program that is intended to directly limit or reduce emissions.

Climate-related Risks

In 2019, we conducted the first analysis of our operations following the recommendations from the Task Force on Climate-related Financial Disclosures. With the help of an external consultant, we assessed our climate-related transition and physical risks and opportunities to identify paths to improve our processes for addressing such risks and leveraging the opportunities.

Key findings included:

- Policy risk exposure is higher in Australia given the concentration of our operations in that country. This could be relevant depending on the future cost of carbon.
- We are significantly exposed to the construction and automotive markets, and both are expected to be impacted by high carbon prices. Market risk exposure measures the changes in revenue mix and sources as a result of climate risk.
- Our reputational risk exposure is low because of the strong reductions we have made in GHG emissions and the public commitments to continue reducing emissions in alignment with the Paris Climate Accord.
- Technology risk exposure, which is the risk of substituting existing products and services with lower-emissions options, has been assessed as a moderate risk for our company. Aluminum is considered part of the solution for the decarbonization of society (e.g., aluminum enables lower emissions in transportation due to light weight), even if it is an energy-intense industry.
- The physical risks from an increased severity of extreme weather events, like cyclones and floods, changes in precipitation patterns, and rising mean temperatures and sea levels, were classified as low level across our global portfolio. Some specific sites are exposed to water stress, wildfire and hurricane risk under different scenarios, such as precipitation and temperature changes.

For physical risk exposure, we completed three separate studies in 2020 to understand the climate data for each of our operating impoundment sites in Australia, South America and Spain. This included historical meteorological data (rainfall, temperature, wind, evaporation, etc.) from multiple external peer-reviewed sources that was typically over 100 years, or as far as independent location records exist.

We also developed climate change modelling scenarios for 2050 and 2100 to serve as a guide on the likely impacts to the baseline historical climate data for our operating impoundment locations. The data and modelling scenarios support the master planning at our locations and future impoundment designs and operational strategies by enabling us to consider potential physical risk impacts.

Climate Strategy

Our Climate Strategy Team, which consists of cross-functional, senior-level employees, provides governance and a focused view on our climate strategy.

In 2020, we published our Climate Change Policy to further our commitment to understanding and managing climate- and carbon-related risks and opportunities within our operations. In particular, the policy addresses the following topics:

- Governance, with our Executive Team and Board of Directors responsible for oversight of our climate- and carbon-related policies.
- Objectives and reporting practices to ensure alignment with the below 2° C decarbonization path included in the Paris Climate Accord and transparency in reporting.
- Integration of climate change considerations into decision-making processes, such as corporate development practices or capital expenditures. (See the Energy section for more information.)
- Enhancement of the resilience of our operations and communities through partnerships.
- Climate-related opportunities, including differentiated products, process efficiencies and innovative solutions.

- Advocacy to communicate our position in key areas, such as the need for a global price of carbon.

Our climate strategy in 2020 focused on the deployment of the Climate Change Policy and encompassed five pillars that reflected our challenges and opportunities. Our strategy and performance again led to Alcoa being named to the Dow Jones Sustainability Index during the year.

Carbon Accounting

At the corporate level, we maintain an auditable inventory of carbon emissions to monitor progress against targets and report transparently to our different stakeholders. We have developed carbon footprint calculations for most of our products to support the commercial opportunities for differentiation of low-carbon aluminum in the market and to help our customers reduce the carbon footprint of their own products.

Carbon Emissions Regulations

The quantity of our GHG emissions is directly related to the type and amount of energy we consume. We are working to increase our use of renewable energy sources by incorporating carbon exposure costs in our economic models and also improving the energy efficiency of our operations. A full discussion of our energy strategy can be found in the Energy section.

Countries around the world are moving at different speeds toward strengthening regulations on carbon emissions. Our experience with the carbon markets in Europe and Canada will inform our approach to future pricing mechanisms used to reduce carbon emissions.

We anticipate that Phase 4 of the European Union's Emission Trading Scheme, which covers the period 2021 to 2030, will have a direct impact on both our carbon and energy pricing. In the U.S., legislative changes under consideration in the state of Washington and the Climate Leadership and Community Protection Act in New York may have future impacts on our smelters in those states. We are also monitoring actions at the federal U.S. level closely.

In 2019, Australia updated the Safeguard Mechanism to move facilities onto emission-intensive baselines, encouraging decarbonization and allowing efficient facilities to grow. We have been a long-time advocate of these changes and have been working with the federal government on the sections relevant to our industry, which continued to be developed and published in 2020.

The Australian government also launched its Technology Investment Roadmap for Low Emissions in 2020. The roadmap provides significant co-funding incentives for industry, with a focus on the aluminium industry.

The percentage of our Scope 1 GHG emissions that are covered under a program that is intended to limit or reduce emissions, such as cap-and-trade schemes, carbon tax/fee systems and other emissions control systems, is 58 percent. We operate under such programs in Australia, Canada and the European Union.

Decarbonization Strategy

Through programs aimed at reducing specific GHG emissions, we made incremental progress in reducing our carbon footprint.

In October 2019, we announced plans to review our operating portfolio over a five-year period, considering opportunities for improvements, potential curtailments, closures and divestitures. Once the review is complete, we expect to have the lowest average intensity of carbon emissions among all global aluminum companies.

Our global alumina refinery portfolio already has the lowest carbon footprint among global producers. We intend to lower our GHG footprint in aluminum smelting through process improvements and our portfolio review, which will include boosting the percentage of our renewable energy from 78 percent in 2020 to more than 85 percent of our smelters' energy consumption by 2025.

Our refining business is working to develop a pathway to decarbonize the alumina refining process. The first step is demonstrating mechanical vapor recompression technology, which enables economic electrification of steam generation and reduced utilization of fossil-fueled boilers. We are also researching solar thermal as a means of providing process heat to displace fossil fuels.

In 2020, we refreshed our executive long-term incentive program to focus on increasing our use of renewable energy within our smelting portfolio and sustaining our position as the lowest-emitting refinery.

We continually evaluate the technological limits within our current operations, including our oldest smelters. With this information, we can evaluate new or existing technology-based solutions to help achieve our GHG reduction goals and also take us to the next level of reductions. The latest example of our efforts is the revolutionary ELYSIS joint

venture technology that eliminates all direct GHG emissions from the traditional smelting process. The process, which emits pure oxygen, was invented by Alcoa and is currently being ramped up to industrial-sized scale through additional development work, with a goal of offering commercial licenses in 2024.

In December 2020, ELYSIS announced the completion of construction on the ELYSIS Industrial Research and Development Center in Saguenay-Lac-Saint-Jean, Québec, Canada.

Through IAI and Alcoa Foundation, we partnered with the World Resources Institute to better understand the barriers associated with setting and attaining science-based targets in the aluminum sector. We also actively support and participate in IAI and sector efforts to define pathways and opportunities for industry decarbonization.

Products

We are developing greener products to help our customers deliver more sustainable products to society and also realize the value of the carbon-free energy in our value chain.

An example is our Sustana line of aluminum products, which we produce with low-carbon emissions or recycled content. In 2020, we expanded the line to include EcoSource, which is the world's first and only low-carbon, smelter-grade alumina brand. It has a carbon footprint that is no higher than 0.6 metric tons of carbon dioxide equivalents, which is better than 90 percent of the other alumina refineries operating today. (See the Products section.)

We are also active in the development of standards that incorporate carbon measures into the value of products. The Corporate Average Fuel Economy (CAFE) standards in the United States, for example, are encouraging automakers to use lightweight materials, such as aluminum, to meet more stringent fuel-efficiency requirements.

Advocacy

Through industry associations and direct contact, we engage with global stakeholders on the issue of GHGs to ensure fair and effective policies and regulations. These stakeholders include elected officials, government agencies and NGOs.

As an active member of the Standards Setting committee of the Aluminium Stewardship Initiative, we helped develop industry standards that include GHG emissions. We are also working through organizations like the Aluminium Association of Canada, Australian Aluminium Council, European Aluminium, International Aluminium Institute and The Aluminum Association to inform the industry's approach to, and engagement on, carbon regulation.

During 2020, we continued to engage with government representatives, legislators, NGOs and other stakeholders in the U.S. states of New York and Washington on carbon legislation. We interacted with stakeholders in the European Union (EU) on the revision of the Emission Trading System Directive, Clean Energy for All Europeans package and A Clean Planet for All 2050 vision. We continued discussions with the Quebec government regarding its cap-and-trade program for 2024 to 2030, and we engaged with the government in Australia on the impacts of climate policy and regulations.

Alcoa Foundation is engaging with governmental organizations and NGOs to advocate the prevention of, and resilience to, climate change. In Canada, for example, the foundation is supporting a schoolyard greening program in the city of Trois-Rivières to reduce urban heat islands while educating students on the importance of trees in the environment.

Energy

Energy is a critical resource for Alcoa due to the energy-intensive nature of our refining and smelting processes.

Securing low-cost and competitively priced energy with minimal environmental impact is a focal point of our long-term energy strategy. We also work to reduce the amount of energy we consume through operational efficiency and technological advances, which lower our costs and GHG emissions.

We have defined short- and long-term energy reduction targets for all of our operations that are integrated in our overall GHG emissions reduction target. These targets will be realized through process and energy-efficiency performance and our long-term portfolio strategy. (See the Climate Protection section for more information.)

As part of our commitment to climate protection, we incorporate criteria for energy consumption and sources of energy into any proposed new projects or major expansions. This allows us to maintain a cohesive portfolio of operations aligned with our long-term goals.

We also consider carbon-related impacts in our capital expenditure process when developing the business case for the financial model used in capital allocation decision-making. Projects that impact carbon emissions (positively or negatively) are considered throughout the project development and approval process.

Our energy intensity decreased by 1.1 percent in 2020 compared to the prior year. Our overall energy consumption increased by 18.3 million gigajoules, or 5.6 percent, in the same period. Key factors behind the performance are increased usage at the Bécancour smelter in Canada,

Energy Intensity

Gigajoules per metric ton of aluminum produced

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

2020 Energy by Source

	Direct		Purchased Electricity	
	Thousands of Gigajoules	Percent	Thousands of Megawatt Hours	Percent
Natural Gas	106,216	55.7	4,376	10.3
Hydro	0	0.0	26,177	61.6
Coal	68,392	35.8	6,332	14.9
Oil	12,084	6.3	11	0.0
Other Renewables	120	0.1	3,547	8.4
Diesel	3,867	2.0	1,160	2.7
Nuclear	0	0.0	860	2.0
Propane	105	0.1	0	0.0
Distillates	16	0.0	0	0.0
Local Grid	0	0.0	2	0.0
Total	**190,800**	**100.0**	**42,465**	**100.0**

Other renewables include geothermal, biomass, solar and wind energy. Purchased electricity percentages do not add up to 100 percent due to rounding.

additional production at our refineries and Warrick power plant, and the curtailment of the Intalco smelter in the United States.

For energy consumption, we use the Greenhouse Gas Protocol developed by the World Resources Institute and World Business Council for Sustainable Development to establish boundaries for our calculations and account for mergers, acquisitions, divestitures, startups, curtailments and closures of operating facilities. We report energy consumption based on management control and the location-based method as defined in the Greenhouse Gas Protocol. The Intergovernmental Panel on Climate Change Guidelines and country-specific databases, such as the U.S. Environmental Protection Agency's Emissions & Generation Resource Integrated Database, continue to serve as our source of data on the characteristics of electric power generation and heat content values for fuel sources.

ERM CVS provided limited assurance of our 2020 energy consumption data. (View the limited assurance statement.)

Energy Security

Our energy team is responsible for purchasing approximately 380 terajoules of natural gas per day and supplementing our self-generated power with approximately 3.6 gigawatts of purchased electricity. We secure approximately 40 percent of our natural gas and 60 percent of our electricity under arrangements that exceed 10 years.

Smelters are our largest consumers of electricity, and renewable sources comprised approximately 78 percent of their power consumption in 2020.

Our Canadian smelters (Bécancour, Deschambault and Baie-Comeau) are supplied with 99.8 percent renewable energy. Hydroelectricity accounts for 100 percent of purchased energy consumed by our Alcoa Fjarðaál smelter in Iceland and Massena smelter in the United States, which are both physically connected to the hydro facilities that supply these locations. Our Mosjøen and Lista smelters in Norway, both of which are certified to the ISO 50001 energy management standard, use 100 percent renewable electricity generated from hydro and wind resources.

Alcoa Fjarðaál smelter

Our portfolio of energy assets is composed of equity interests in consortia and wholly owned facilities. Our share of the generation capacity of these assets is 1.5 gigawatts, of which 55.3 percent is low-cost hydroelectric power capacity.

Technological Advances

Our heritage in developing new technologies for the aluminum industry dates to the development of the commercial aluminum industry in 1888.

In the decades since, our experts have created low-energy smelting cells and improved electrical connections. Our advanced process simulation capabilities create real-world technological advances in alumina refining.

We are also investing in the long-term for potential step-change outcomes. For alumina refining, our experts are examining the use of renewable energy to provide process heat to the Bayer process, displacing fossil fuels.

In aluminum smelting, we continue to invest in research and development to improve energy efficiency and reduce carbon dioxide emissions.

Operational Efficiency

We use a variety of approaches to improve operational energy efficiency, including:

- Benchmarking: We identify opportunities to compare our operations against industry leaders.
- University collaborations: We access the expertise at various universities around the world to develop solutions to our energy challenges.
- Best practice sharing: Through our internal Centers of Excellence, we share best practices and transfer operational improvements throughout the company using numerous channels, including a network of Alcoa experts who provide direction and training to plant technical staff and operators.
- Location-specific targets: We set and monitor energy-efficiency targets for each location and develop an implementation roadmap, accounting for process variations from facility to facility.

Harnessing the Sun's Power

With the flick of a switch, our Peel Regional Office in Pinjarra, Australia, got a lot greener when 242 rooftop solar panels came online in March 2020.

The 79-kilowatt solar power installation can reduce the amount of energy sourced from the electrical grid by up to 50 percent. Added benefits include lower energy costs and reduced indirect GHG emissions that are equivalent to taking 20 cars off the road each year.

Previously installed low-energy external lighting is also reducing the location's environmental footprint.

Because the 100-person office is occupied mainly during daylight hours, the renewable energy is captured and used in real time.

Our refining operations have implemented significant process improvements over the past few years that focused primarily on process controls, heat transfer efficiency and maintenance improvements.

All of our smelters have realized efficiency improvements with the use of the SMART manufacturing platform, which displays process information so that our employees can take action to conserve energy. We are also focused on identifying raw materials and design changes for our smelters that could lead to either more conductive or more efficient management of a smelting pot's heat balance.

We are implementing new technologies in our casthouses that drive energy efficiency, such as oxy-fuel burners that use pure oxygen in a furnace's combustion process to avoid the unnecessary heating of the nitrogen that is in air. We have installed magnetic stirring technologies at two of our casthouses to more efficiently mix molten metals, and we have implemented program and hardware changes on our furnace control systems to better regulate pressure and temperature.

Demand Response Initiatives

Unlike other energy sources, such as oil or gas, electricity cannot be stored economically. The electricity produced (generation) must be balanced with the electricity consumed (load) on a real-time basis to preserve the stability of the electrical grid and prevent blackouts and other system disruptions. The challenge for utilities is that the normal peaks and valleys of demand vary throughout each day, by season and by region.

As renewable and intermittent energy grow into a higher percentage of overall generation, demand response becomes an increasingly important tool in maintaining the reliability and resiliency of the electric power grid.

Demand response is a practice where certain customers, usually larger ones, adjust their electrical load in response to a signal from a utility or the electric grid. This adjustment helps maintain stability in the electrical system by balancing generation and load. The customer is paid for this service.

Our U.S. smelters participate in demand response, providing some or all the following services:

- Capacity: A portion of a customer's load is considered system capacity, allowing the utility to avoid the cost of building additional generation to meet its reserve capacity requirements.
- Emergency demand response: A customer will respond within minutes to reduce large blocks of load for short periods of time to balance spikes in demand from other parts of the electric grid. The overall system remains in balance as a result.
- Spinning reserves: This service is similar to emergency demand response but on a smaller scale and for a shorter length of time.
- Load imbalance: For grids that use solar or wind power, which are intermittent sources of energy, a customer's load is used to keep the grid in balance.
- Regulation response: A small percentage of a customer's load is controlled directly by the utility, allowing for real-time adjustments to assist with managing the grid.

In Australia, we have an electricity demand management program for our smelter and refineries. We reduce our demand for electricity at these facilities during the hottest days of the year, which generally coincide with the highest demand for electricity. This helps support efficient investment in electricity infrastructure and avoids additional costs of electricity generation to cover events that only occur a few times a year.

When higher proportions of renewable energy enter the grid, we often see an excess of available renewable power. This sometimes leads to negative power prices. During these events, we reduce our self-generation and maximize import power, reducing costs and actual net GHG emissions.

Our production facilities in Norway provide load interruptibility to their respective transmission system operator to help manage the risk of system electrical blackouts. The facilities are remunerated for providing these services.

In Canada, we provide interruption rights to our power supplier under our long-term supply contracts.

Emissions

To manage our air emissions, we define and implement internal standards that meet or exceed all applicable regulations in the jurisdictions where we operate. We also work to minimize releases of all emissions in a cost-effective manner.

Specific manufacturing processes determine the type of air emissions at our facilities. Most sulfur dioxide and fluoride emissions, for example, come from our smelting operations, while our alumina refineries account for the majority of mercury emissions. Greenhouse gases are emitted from both our smelting and refining operations. (See the Climate Protection section for a discussion on GHGs.)

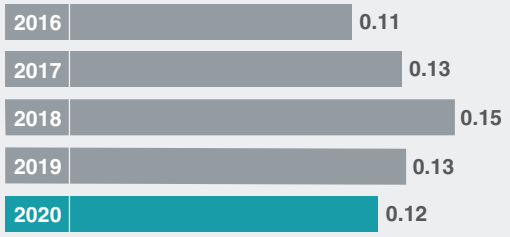
We use industry-leading technologies for controlling mercury emissions in the alumina refining process, having developed two primary mercury emission-reduction technologies in collaboration with leading academics and experts in the field.

The first technology condenses elemental mercury from gas streams, allowing controlled separation and safe disposal. The second technology, which we have patented, uses a chemical additive to stabilize the mercury through the parts of the process during which it could otherwise be emitted. We apply our knowledge and these technologies at all of our locations to reduce the emissions of mercury into the environment.

In this report, we provide data on specific emissions based on their materiality across our global operations. These emissions include mercury, fluoride, nitrogen oxide, sulfur dioxide and volatile organic compound (VOC) emissions. Other emissions, such as 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 emissions are not material for our operations.

Mercury Emissions Intensity

Grams per thousand metric tons of alumina produced



The increases in 2017 and 2018 were the result of higher levels of naturally occurring mercury within the bauxite we consume and process upsets at one refinery.

Mercury Emissions

Thousands of kilograms

The increase in 2018 was the result of higher levels of naturally occurring mercury within the bauxite we consume and one location updating its data.

Fluoride Emissions Intensity

Kilograms per metric ton of primary aluminum produced

Data is for electrolysis operation only. The increases in 2019 and 2020 were due to process instabilities at several locations.

Nitrogen Oxide Emissions

Thousands of metric tons

The increase in 2018 was due to increased generation at the Warrick power plant, while the increases in 2019 and 2020 were due to increased production and better emissions data at a few locations.

Sulphur Dioxide Emissions

Thousands of metric tons

The increase in 2020 was due to increased production at several locations.

Volatile Organic Compounds Emissions (Rolling Operations Only)

Metric tons

Data is for our rolling business, which we divested in early 2021.

Fugitive Emissions

Fugitive emissions, such as dust, are emissions that cannot reasonably be emitted or released through a chimney, stack or vent and which may leave the site boundary.

Controls to manage or minimize fugitive emissions from our mining and process operations include:

- Watering haul roads and bauxite residue areas, using binders on storage piles and incorporating vegetative covers where possible to minimize windblown dust;
- Using weather forecasts to help guide decisions regarding the use of additional controls during periods of unfavorable weather conditions; and
- Implementing capture and control systems for loading/unloading, material handling, smelting and other process operations.

We frequently employ visual-emission observation and ambient-air monitoring tools to verify the effectiveness of these controls.

Environmental Compliance

Wherever we operate in the world, we adhere to all applicable environmental laws and regulations. In certain cases, our internal standards are more stringent than what may be required in specific jurisdictions.

Our Environment, Health and Safety (EHS) Compliance Committee comprises leaders from Internal Audit, Ethics and Compliance, Legal, and EHS. It monitors EHS compliance-related matters to ensure that the appropriate level of oversight is in place depending on risk level. We also conduct a quarterly compliance review that includes our Chief Executive Officer, Chief Financial Officer and General Counsel.

Our robust environmental compliance tracking system ensures that we rapidly correct actual and potential incidents. We also use a review process to confirm that environmental permit applications, draft permits and final permits are effectively reviewed and submitted in accordance with regulatory requirements.

We encourage reporting of all deviations within our operations, no matter how small, so we can continuously improve our compliance management system.

Environmental compliance assessments are integrated into our risk-based EHS assessment process. We conduct these assessments based on operational risks, and each is customized to address a location's current needs and challenges. The assessment team, which is composed of internal and/or external subject matter experts, collaborates with locations to review and address challenges.

Despite travel challenges and restrictions presented by the global COVID-19 pandemic, we were able to continue our compliance assessment process using remote methods in 2020.

We also actively engage in regulatory and rulemaking processes at all levels of government. We accomplish this through advocacy via regional aluminum associations and industry partnerships on shared issues at various regulatory levels, including national, regional and local, and through direct communication with community stakeholders. Our objective is to work collaboratively so that the outcome of major rulemaking is effective and will meet the needs of society.

As part of our regulatory development process, we monitor risks and potential impacts to our business. This process includes assessing the timeframe available to contribute to a regulatory development so we can appropriately engage with those stakeholders associated with the rulemaking process.

In 2020, we had four non-compliance issues related to our environmental practices that resulted in fines or penalties. These included a fugitive air emission concern in Spain (US$23,600) and compliance concerns associated with the operation of a veterinary clinic and fauna-related impacts in Brazil (US$25,600).

Environmental Non-Compliances

	Total	Significant	Fines and Penalties *(U.S. dollars)*
2016	**3**	0	19,125
2017	**5**	0	81,860
2018	**3**	0	141,207
2019	**5**	0	70,500
2020	**4**	0	70,200

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

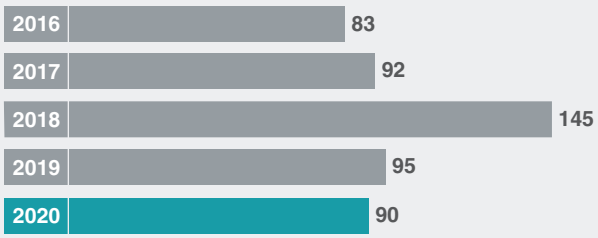
Environmental Capital Expenditures

Our annual environmental capital expenditures vary based on the number and type of projects implemented. In 2020, we spent approximately US$90 million in projects that primarily focused on improving bauxite residue management.

For any capital expenditure request exceeding US$2 million, including those not focused on environmental projects, members of our corporate EHS staff conduct a review to ensure that the work incorporates best practices and the final project will minimize additional environmental impact.

Environmental Capital Expenditures

Millions of U.S. dollars



Increase in 2018 was due to the implementation of a residue filtration project in Australia.

2020 SUSTAINABILITY REPORT

Appendix

2020 Awards and Recognition

Global

Dow Jones Sustainability North American Index

Top 100 World's Most Admired Companies—Fortune Magazine

Bloomberg Gender-Equality Index

S&P Global Top Performing Company—The Sustainability Yearbook 2020

Australia

Employer of Choice for Gender Equality (18th consecutive year)—Workplace Gender Equality Agency
Alcoa of Australia

Silver Tier Employer (seventh consecutive year for either silver or bronze tier)—Pride in Diversity, Australian Workplace Equality Index
Alcoa of Australia

Resources Sector Community Partnership Award (for the Alcoa Maths Enrichment Program)—Department of Mines, Industry Regulation and Safety
Alcoa of Australia and Scitech Western Australia

2020 Apprentice of the Year Student of the Year Award—South Metropolitan Technical and Further Education (TAFE)
Stacey Boothman, Apprentice Mechanical Fitter, Kwinana Refinery

Gold Waterwise Business—Water Corporation
Pinjarra Refinery

Engineering Apprentice of the Year, Campus Trades and Paraprofessionals Student of Year, South Regional TAFE Apprentice of the Year and South West Apprentice of the Year—South Regional TAFE
Brody Stallard, Fabricator and Welder, Wagerup Refinery

Brazil

Best Company in Diversity (steel and mining sector)—Exame Diversity Guide
Alcoa Brazil

Best Company to Work for (steel industry, employer brand and start a career categories)—Você S/A
Alcoa Brazil

22nd Brazilian Mining-Metallurgical Industry Excellence Award—Minérios & Minerales Magazine
Juruti Mine

Content Index

This index helps readers compare the information from our sustainability report, annual report and website with the Global Reporting Initiative GRI Standards, Sustainability Accounting Standards Board Standards (SASB), United Nations Sustainable Development Goals (SDGs) and the International Council for Mining and Metals (ICMM) 10 Principles.

This report has been prepared in accordance with the GRI Standards: Core option.

GRI 102 General Disclosures 2016

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle
Organizational Profile					
102-1	Name of the organization	Alcoa Corporation			
102-2	Activities, brands, products, and services	What We Do Value Creation Process Products Recycling			
102-3	Location of headquarters	Pittsburgh, Pennsylvania, USA			
102-4	Location of operations	Locations Corporate Overview	EM-MM-510a.2		
102-5	Ownership and legal form	Formed in 2016 under the laws of the State of Delaware, Alcoa Corporation is a publicly traded company listed on the New York Stock Exchange (NYSE: AA)			
102-6	Markets served	What We Do			
102-7	Scale of the organization	Annual Report Corporate Overview	EM-MM-510a.2		
102-8	Information on employees and other workers	Our People		5	
102-9	Supply chain	Supply Chain		8, 11	10
102-10	Significant changes to the organization and its supply chain	Annual Report Quarterly Reports Periodic Reports News Releases Supply Chain			

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle
Organizational Profile					
102-11	Precautionary Principle or approach	Alcoa supports the precautionary principle. Consistent with that principle, we advocate a risk-based approach to our operations through our extensive management systems.			1, 4
102-12	External initiatives	Reporting and Materiality			
102-13	Membership of associations	Stakeholder and Community Engagement		17	10
Strategy					
102-14	Statement from senior decision-maker	From the CEO			
Ethics and Integrity					
102-16	Values, principles, standards, and norms of behavior	Alcoa Values Human Rights Policy Code of Conduct Ethics and Compliance		5, 8, 12	1, 3
102-17	Mechanisms for advice and concerns about ethics	Ethics and Compliance Integrity Line			1
Governance					
102-18	Governance structure	Board of Directors Board Committees Governance, Ethics and Compliance	EM-MM-510a.1		1
102-19	Delegating authority	Safety, Sustainability and Public Issues Committee Audit Committee			2
102-20	Executive-level responsibility for economic, environmental, and social topics	Alcoa's CEO, who reports to and is a member of the Board of Directors, has ultimate responsibility for economic, environmental and social topics. The chief financial officer is responsible for economic topics, and the vice presidents for environment, health and safety, sustainability and human resources have responsibility for environmental and social topics.		5, 8, 12	2
102-21	Consulting stakeholders on economic, environmental, and social topics	Safety, Sustainability and Public Issues Committee Stakeholder and Community Engagement	EM-MM-210b.1	17	9, 10
102-22	Composition of the highest governance body and its committees	Board of Directors Board Committees			
102-23	Chair of the highest governance body	2021 Proxy Statement (page 34) The chairman of the board at the end of 2020 was Michael G. Morris.			

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle
Governance					
102-24	Nominating and selecting the highest governance body	Governance and Nominating Committee 2021 Proxy Statement (pages 28-30)			
102-25	Conflicts of interest	Governance and Nominating Committee Corporate Governance Ethics and Compliance Annual Report (page 118) 2021 Proxy Statement (pages 33-34 and 39-40)	EM-MM-510a.1		1
102-26	Role of highest governance body in setting purpose, values, and strategy	Board of Directors Officers			2
102-27	Collective knowledge of highest governance body	Board of Directors			2
102-28	Evaluating the highest governance body's performance	2021 Proxy Statement (pages 35-36) The Board of Directors annually assesses the effectiveness of the full board, the operations of its committees and the contributions of directors.			
102-29	Identifying and managing economic, environmental, and social impacts	Safety, Sustainability and Public Issues Committee Audit Committee Reporting and Materiality Risk Management	EM-MM-210b.1	3, 8, 12, 17	3, 4, 5, 6, 8, 9
102-30	Effectiveness of risk management processes	Risk Management 2021 Proxy Statement (page 38) Safety, Sustainability and Public Issues Committee Audit Committee		3, 8, 12, 17	3, 4, 5, 6, 8, 9
102-31	Review of economic, environmental, and social topics	Alcoa Corporation's Board of Directors and its committees review impacts, risks and opportunities at regularly scheduled board/committee meetings.			9
102-32	Highest governance body's role in sustainability reporting	Alcoa Corporation's Board of Directors does not have an active role in the report's development. Senior leaders are responsible for the report's content.			

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle
Governance					
102-33	Communicating critical concerns	Stockholders and employees can communicate any concerns to Alcoa's Board of Directors through: • Regular mail, addressed to Chairman of the Board, c/o Alcoa Corporation, 201 Isabella Street, Suite 500, Pittsburgh, PA 15212-5858, USA; • Regular mail, addressed to Audit Committee, c/o Alcoa Corporation, 201 Isabella Street, Suite 500, Pittsburgh, PA 15212-5858, USA; • Integrity Line; • Stockholder resolutions; • Stockholder recommendations for director nominees; and • Union representation or work councils.			1, 3
102-34	Nature and total number of critical concerns	Stakeholder and Community Engagement	EM-MM-210b.2		10
102-35	Remuneration policies	2021 Proxy Statement (pages 30-32 and 48-79)			
102-36	Process for determining remuneration	2021 Proxy Statement (pages 30-32 and 48-79)			
102-37	Stakeholders' involvement in remuneration	2021 Proxy Statement (page 52)			10
102-38	Annual total compensation ratio	We report the global ratio only. 2021 Proxy Statement (page 78)			
102-39	Percentage increase in annual total compensation ratio	5.4 percent increase			
Stakeholder Engagement					
102-40	List of stakeholder groups	Stakeholder and Community Engagement			10
102-41	Collective bargaining agreements	Our People Annual Report (pages 15-16)	EM-MM-310a.1 As of December 31, 2020, approximately 71% of employees were covered by a collective bargaining agreement.	8	3
102-42	Identifying and selecting stakeholders	Stakeholder and Community Engagement			10
102-43	Approach to stakeholder engagement	Stakeholder and Community Engagement		17	9, 10
102-44	Key topics and concerns raised	Stakeholder and Community Engagement Reporting and Materiality	EM-MM-210b.1		9, 10

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle
Reporting Practice					
102-45	Entities included in the consolidated financial statements	Annual Report All entities included in the consolidated financial statements are included in the sustainability report. Page 65 explains the principles of consolidation, and exhibit 21.1 includes a list of significant subsidiaries.			
102-46	Defining report content and topic boundaries	Reporting and Materiality			
102-47	List of material topics	Reporting and Materiality			
102-48	Restatements of information	Found throughout the report.			
102-49	Changes in reporting	Changes in reporting from prior year are indicated throughout the report			
102-50	Reporting period	2020			
102-51	Date of most recent report	2019			
102-52	Reporting cycle	Annual			
102-53	Contact point for questions regarding the report	Rosa Garcia Piñeiro Vice President, Sustainability www.alcoa.com/global/en/contact/default.asp			
102-54	Claims of reporting in accordance with the GRI Standards	This report has been prepared in accordance with the GRI Standards: Core option.			
102-55	GRI content index	Content Index			
102-56	External assurance	Reporting and Materiality ERM CVS Limited Assurance Statement			Assurance and Validation

Material Topics

Disclosure	Description	Location	SASB	UN SDG	ICMM Principle
GRI 201: Economic Performance 2016					
201-1	Direct economic value generated and distributed	Shared Value Creation	EM-MM-210b.1	1, 8, 10, 17	9
201-2	Financial implications and other risks and opportunities due to climate change	Climate Protection		13	4, 6
201-3	Defined benefit plan obligations and other retirement plans	Annual Report (pages 91-99)			

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle
GRI 302: Energy 2016					
302-1	Energy consumption within the organization	Energy	EM-MM-130a.1 We do not purchase credits or certify specific renewable energy sources but will evaluate the feasibility in the future.	7, 9, 12, 13	6
302-2	Energy consumption outside of the organization	Energy		7, 9, 12, 13	6
302-3	Energy intensity	Energy		7, 9, 12, 13	6
302-4	Reduction of energy consumption	Energy		7, 9, 12, 13	6
302-5	Reductions in energy requirements of products and services	Products Climate Protection Recycling		7, 9, 12, 13	6
GRI 303: Water and Effluents 2018					
303-1	Interactions with water as a shared resource	Water		6, 9, 12, 14	6
303-2	Management of water discharge-related impacts	Water	EM-MM-140a.2	6, 9, 12, 14	6
303-3	Water withdrawal	Water	EM-MM-140a.1	6, 9, 12, 14	6
303-4	Water discharge	Water	EM-MM-140a.1	6, 9, 12, 14	6
303-5	Water consumption	Water	EM-MM-140a.1	6, 9, 12, 14	6
GRI 304: Biodiversity 2016					
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Biodiversity and Mine Rehabilitation	EM-MM-160a.3	15	7
304-2	Significant impacts of activities, products, and services on biodiversity	Biodiversity and Mine Rehabilitation	EM-MM-160a.1	2, 14, 15	6, 7
304-3	Habitats protected or restored	Biodiversity and Mine Rehabilitation	EM-MM-160a.2	14, 15	7
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	Biodiversity and Mine Rehabilitation	EM-MM-160a.3	14, 15	7

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle
GRI 305: Emissions 2016					
305-1	Direct (Scope 1) GHG emissions	Climate Protection	EM-MM-110a.1 EM-MM-110a.2	9, 12, 13	6
305-2	Energy indirect (Scope 2) GHG emissions	Climate Protection		9, 12, 13	6
305-3	Other indirect (Scope 3) GHG emissions	Climate Protection		9, 12, 13	6
305-4	GHG emissions intensity	Climate Protection		9, 12, 13	6
305-5	Reduction of GHG emissions	Climate Protection Recycling		9, 12, 13	6
305-6	Emissions of ozone-depleting substances (ODS)	We use halon gas as a fire suppressant in several locations throughout the world, and we are phasing out these remaining systems as they expire or are used.		3, 9, 12, 13	6
305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	Emissions	EM-MM-120a.1 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.	9, 12	6
GRI 306: Effluents and Waste 2016					
306-2	Waste by type and disposal method	Waste and Spills Recycling	EM-MM-150a.1	3, 12, 15	6, 8
306-3	Significant spills	Waste and Spills		3, 12, 15	6, 8
GRI 307: Environmental Compliance 2016					
307-1	Non-compliance with environmental laws and regulations	Environmental Compliance		12	6
GRI 403: Occupational Health and Safety 2018					
403-1	Occupational health and safety management system	Safety and Health		3, 8	5
403-2	Hazard identification, risk assessment, and incident investigation	Safety and Health		3, 4, 8	5
403-3	Occupational health services	Safety and Health		3, 8	5
403-4	Worker participation, consultation, and communication on occupational health and safety	Safety and Health		3, 8	5

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle
GRI 403: Occupational Health and Safety 2018					
403-5	Worker training on occupational health and safety	Safety and Health	EM-MM-320a.1	3, 8	5
403-6	Promotion of worker health	Safety and Health		3, 8	5
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Safety and Health			5
403-8	Workers covered by an occupational health and safety management system	Safety and Health		3, 8	5
403-9	Work-related injuries	Safety and Health	EM-MM-320a.1	3, 8	5
403-10	Work-related ill health	Safety and Health		3, 8	5
GRI 411: Rights of Indigenous Peoples 2016					
411-1	Incidents of violations involving rights of indigenous peoples	Human Rights	EM-MM-210a.3	12, 16	3
GRI 412: Human Rights Assessment 2016					
412-1	Operations that have been subject to human rights reviews or impact assessments	Human Rights	EM-MM-210a.3	5, 8, 10, 16	3
GRI 413: Local Communities 2016					
413-1	Operations with local community engagement, impact assessments and development programs	Stakeholder and Community Engagement Alcoa Foundation Annual Report	EM-MM-210b.1 EM-MM-210b.2 We did not experience any non-technical delays related to our mining projects in 2020. We have obtained permits to access new areas in our Juruti mine in Brazil and engaged with different stakeholders in Australia to renew our environmental permits.	4, 6, 7, 8, 10, 11, 12, 13, 14, 15, 17	10

Mining and Metals Sector Supplement Disclosures

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle
MM1	Amount of land (owned or leased, and managed for production activities or extractive use) disturbed or rehabilitated	Biodiversity and Mine Rehabilitation		2, 6, 13, 14, 15	7
MM2	The number and percentage of total sites identified as requiring biodiversity management plans according to stated criteria, and the number (percentage) of those sites with plans in place	Biodiversity and Mine Rehabilitation		2, 6, 13, 14, 15	7
MM3	Total amounts of overburden, rock, tailings, and sludges and their associated risks	Impoundment Management Waste Biodiversity and Mine Rehabilitation	EM-MM-150a.1 EM-MM-150a.2 We do not collect this data on a global basis. EM-MM-150a.3 We have not broken down our impoundments by MSHAS hazard potential	6, 9, 12, 14, 15	4, 6
MM4	Number of strikes and lockouts exceeding one week's duration, by country	One strike in Spain in 2020.	EM-MM-310a.2	8	3
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	Human Rights	EM-MM-210a.1 EM-MM-210a.2	8	3
MM6	Number and description of significant disputes relating to land use, customary rights of local communities and indigenous peoples	Stakeholder and Community Engagement	EM-MM-210a.3	16	3, 10

Mining and Metals Sector Supplement Disclosures

GRI Disclosure	Description	Location	SASB	UN SDG	ICMM Principle
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.	Stakeholder and Community Engagement		16	3, 10
MM8	Number (and percentage) of company operating sites where artisanal and small-scale mining takes place on, or adjacent to, the site; the associated risks and the actions taken to manage and mitigate these risks.	Due to the minimal artisanal and small-scale mining on Alcoa sites worldwide, there is not a formal corporate policy. Action is taken on a case-by-case basis.			
MM9	Sites where resettlements took place, the number of households resettled in each, and how their livelihoods were affected in the process	No resettlements took place in 2020.		16	3, 10
MM10	Number and percentage of operations with closure plan	Facility Stewardship and Transformation		16	7, 10

Safety Performance

Data recordkeeping audits, injury classification reviews and other factors have resulted in changes to our safety data from prior reporting.

A supervised contractor is where Alcoa supervises not only the output, product or result to be accomplished by the person's work, but also the details, means, methods and processes by which the work objective is accomplished.

Fatalities

Employees/all contractors

	Global	Australia	Europe	North America	South America
2016	**0/1**	0	0	0	0/1
2017	**0/3**	0	0/1	0	0/2
2018	**0**	0	0	0	0
2019	**0**	0	0	0	0
2020	**0/1**	0	0	0	0/1

Fatalities by Gender

Employees and all contractors

	Male	Female	**Total**
2016	1	0	**1**
2017	3	0	**3**
2018	0	0	**0**
2019	0	0	**0**
2020	1	0	**1**

Fatal and Serious Injuries/Illnesses

Employees and all contractors

	FSI Actuals *(Events resulting in a fatal or serious injury/illness)*	FSI Potentials *(Near-miss events)*	Total FSI Events	Total FSI Rate
2016	5	300	305	1.08
2017	5	433	438	1.86
2018	3	427	430	1.84
2019	3	339	342	1.38
2020	1	387	388	1.41

A serious injury/illness is any incident that is life-threatening or life-altering. FSI rate is FSI actuals and potentials per 100 full-time workers.

Days Away, Restricted and Transfer Rate

Employees and all contractors

	Global	U.S. Manufacturing Average	Australia	Europe	North America	South America
2016	**0.29**	2.1	0.49	0.16	0.26	0.21
2017	**0.62**	2.0	0.85	0.63	0.82	0.22
2018	**0.71**	2.0	0.96	0.64	1.03	0.27
2019	**0.87**	2.0	1.21	0.82	1.26	0.35
2020	**0.61**	–	1.21	0.58	0.65	0.24

The 2020 Bureau of Labor Statistics U.S. manufacturing industry average was not available at the time this report was published. Days away, restricted and transfer rate includes lost workday cases plus cases that involve days of restricted duty and job transfer per 100 full-time workers.

Days Away, Restricted and Transfer Rate

Employees and supervised contractors

	Global	U.S. Manufacturing Average	Australia	Europe	North America	South America
2016	**0.34**	2.1	0.63	0.21	0.26	0.11
2017	**0.92**	2.0	1.07	0.74	1.05	0.32
2018	**1.01**	2.0	1.16	0.79	1.23	0.18
2019	**1.30**	2.0	1.37	0.92	1.59	0.64
2020	**0.90**	–	1.44	0.79	0.76	0.17

The 2020 Bureau of Labor Statistics U.S. manufacturing industry average was not available at the time this report was published. Days away, restricted and transfer rate includes lost workday cases plus cases that involve days of restricted duty and job transfer per 100 full-time workers.

Days Away, Restricted and Transfer Incidents by Gender

Employees and supervised contractors

	Male	Female	**Total**
2016	51	2	**53**
2017	121	10	**131**
2018	127	17	**144**
2019	170	12	**182**
2020	119	12	**131**

Days Away, Restricted and Transfer Rate

Non-supervised contractors

	Global	Australia	Europe	North America	South America
2016	**0.20**	0.07	0.00	0.26	0.24
2017	**0.20**	0.30	0.34	0.10	0.19
2018	**0.34**	0.51	0.29	0.35	0.30
2019	**0.39**	0.81	0.57	0.27	0.29
2020	**0.30**	0.62	0.12	0.23	0.26

Because contractors not directly supervised by Alcoa maintain their own health and safety programs and are accountable for investigating incidents involving their employees, certain details associated with their internal investigations are not fully transparent to Alcoa.

Days Away, Restricted and Transfer Incidents by Gender

Non-supervised contractors

	Male	Female	Total
2016	16	1	**17**
2017	19	1	**20**
2018	35	4	**39**
2019	44	3	**47**
2020	36	2	**38**

Lost Workday Rate

Employees and all contractors

	Global	U.S. Manufacturing Average	Australia	Europe	North America	South America
2016	**0.15**	0.9	0.31	0.08	0.11	0.11
2017	**0.25**	0.9	0.49	0.12	0.20	0.16
2018	**0.22**	0.9	0.41	0.09	0.24	0.11
2019	**0.25**	0.9	0.52	0.26	0.11	0.18
2020	**0.22**	–	0.53	0.11	0.11	0.16

The 2020 Bureau of Labor Statistics U.S. manufacturing industry average was not available at the time this report was published. Lost workday rate represents the number of injuries and illnesses resulting in one or more days away from work per 100 full-time workers.

Lost Workday Rate

Employees and supervised contractors

	Global	U.S. Manufacturing Average	Australia	Europe	North America	South America
2016	**0.19**	0.9	0.40	0.10	0.12	0.11
2017	**0.32**	0.9	0.59	0.12	0.25	0.19
2018	**0.29**	0.9	0.49	0.13	0.26	0.12
2019	**0.33**	0.9	0.63	0.18	0.11	0.47
2020	**0.28**	–	0.67	0.16	0.11	0.06

The 2020 Bureau of Labor Statistics U.S. manufacturing industry average was not available at the time this report was published. Lost workday rate represents the number of injuries and illnesses resulting in one or more days away from work per 100 full-time workers.

Lost Workday Incidents by Gender

Employees and supervised contractors

	Male	Female	Total
2016	29	1	**30**
2017	42	4	**46**
2018	40	1	**41**
2019	45	1	**46**
2020	39	2	**41**

Lost Workday Rate

Non-supervised contractors

	Global	Australia	Europe	North America	South America
2016	**0.08**	0.07	0.00	0.06	0.11
2017	**0.14**	0.24	0.11	0.05	0.15
2018	**0.13**	0.26	0.00	0.17	0.10
2019	**0.19**	0.27	0.46	0.11	0.12
2020	**0.16**	0.17	0.00	0.12	0.18

Because contractors not directly supervised by Alcoa maintain their own health and safety programs and are accountable for investigating incidents involving their employees, certain details associated with their internal investigations are not fully transparent to Alcoa.

Lost Workday Incidents by Gender

Non-supervised contractors

	Male	Female	Total
2016	6	1	**7**
2017	13	1	**14**
2018	13	2	**15**
2019	18	2	**20**
2020	20	0	**20**

Total Recordable Incident Rate

Employees and all contractors

	Global	U.S. Manufacturing Average	Australia	Europe	North America	South America
2016	**1.10**	3.6	1.43	0.81	1.38	0.46
2017	**1.57**	3.5	1.96	1.36	2.37	0.45
2018	**1.66**	3.4	2.38	1.45	2.41	0.55
2019	**1.77**	3.3	2.27	1.48	3.00	0.54
2020	**1.37**	–	2.27	1.28	1.90	0.42

The 2020 Bureau of Labor Statistics U.S. manufacturing industry average was not available at the time this report was published. Total recordable incident rate includes days away, restricted and transfer cases plus cases that involve days of medical treatment or other recordables per 100 full-time workers.

Total Recordable Incident Rate

Employees and supervised contractors

	Global	U.S. Manufacturing Average	Australia	Europe	North America	South America
2016	**1.39**	3.6	1.61	0.99	1.54	0.46
2017	**2.26**	3.5	2.23	1.57	3.01	0.64
2018	**2.33**	3.4	2.69	1.87	2.81	0.43
2019	**2.62**	3.3	2.50	1.52	3.73	0.70
2020	**2.06**	–	2.65	1.63	2.22	0.45

The 2020 Bureau of Labor Statistics U.S. manufacturing industry average was not available at the time this report was published. Total recordable incident rate includes days away, restricted and transfer cases plus cases that involve days of medical treatment or other recordables per 100 full-time workers.

Total Recordable Incidents by Gender

Employees and supervised contractors

	Male	Female	Total
2016	198	20	**218**
2017	292	30	**322**
2018	293	40	**333**
2019	339	28	**361**
2020	273	31	**304**

Total Recordable Incident Rate

Non-supervised contractors

	Global	Australia	Europe	North America	South America
2016	**0.58**	0.90	0.23	0.71	0.46
2017	**0.59**	1.30	0.79	0.45	0.39
2018	**0.83**	1.69	0.48	1.04	0.58
2019	**0.79**	1.72	1.36	0.76	0.50
2020	**0.57**	1.30	0.48	0.64	0.41

Because contractors not directly supervised by Alcoa maintain their own health and safety programs and are accountable for investigating incidents involving their employees, certain details associated with their internal investigations are not fully transparent to Alcoa.

Total Recordable Incidents by Gender

Non-supervised contractors

	Male	Female	Total
2016	47	2	**49**
2017	55	4	**59**
2018	88	7	**95**
2019	92	4	**96**
2020	69	4	**73**

ERM Certification and Verification Services Inc. Limited Assurance Statement

Independent Assurance Statement to the Board of Directors of Alcoa Corporation

ERM Certification and Verification Services Ltd. (ERM CVS) was engaged by Alcoa Corporation (Alcoa) to provide limited assurance in relation to the information set out below and presented in the 2020 Alcoa Sustainability Report (the Report).

Engagement Summary	
Assurance Scope	Whether Alcoa's assertions relating to the following ICMM subject matters in the Report are fairly presented, in all material respects, with the reporting criteria: • SM1: The alignment of Alcoa sustainability policies, management standards and procedures to the ICMM Principles and relevant Performance Expectations (PE) as well as mandatory requirements set out in ICMM Position Statements • SM2: Alcoa material sustainability risks and opportunities based on its own review of the business and the views and expectations of its stakeholders • SM3: The existence and status of implementation of management systems and approaches that Alcoa is using to manage the identified material sustainability risks and opportunities. • SM4: reported performance during the given reporting period for a selection of Alcoa's material sustainability risks and opportunities as follows: • Direct (Scope 1) GHG emissions [million metric tons CO2e] • Indirect (Scope 2 location based) GHG emissions [million metric tons CO2e] • Other indirect (Scope 3) GHG emissions (total from categories 1, 3, 4, 5, 6, 9 and 10) [million metric tons CO2e] • Perfluorocarbon Emissions (metric tonnes CO2e) (Smelters only) • Energy consumption [000s of gigajoules, and 000s of megawatt hours] • Water inputs (all operations) [million cubic meters] • Water inputs (in Alcoa-defined water stressed areas) [million cubic meters] • Landfilled waste [000s of metric tons] • Active mining disturbance to mine rehabilitation ratio • Fatality incidents [number] • FSI-Actual incidents (FSI-A) [number] • Days Away, Restricted or Transfer (DART) incidents - [number] • Lost Work Day incidents (LWD) [number]
Reporting Criteria	ICMM Mining Principles Alcoa's Basis of Reporting (as detailed in appropriate sections of the Report)
Level of Assurance	Limited Assurance
Assurance Standard(s)	ERM CVS' assurance methodology, based on the International Standard on Assurance Engagements ISAE 3000 (Revised) 'Assurance Engagements other than Audits and Reviews of Historical Financial Information' ISO 14064:3 'Specification with guidance for the verification and validation of greenhouse gas statement
Respective Responsibilities	The Board of Alcoa is responsible for preparing the Report and for the collection and presentation of the disclosures covered by the scope of our engagement. Also for designing, implementing and maintaining effective internal controls over the information and data. ERM CVS' responsibility is to provide an opinion, based on the assurance activities undertaken and exercising our professional judgement, on whether the information covered by the scope of our engagement has been prepared in accordance with the stated criteria. ERM CVS disclaims any liability for any decision a person or entity may make based on this Assurance Statement.

Our opinion

Based on our activities, as described below, nothing has come to our attention to indicate that Alcoa's assertions relating to the ICMM subject matters (SM) in the Report, included in 'Assurance Scope' above, are not fairly presented, in all material respects, with the reporting criteria

Our assurance activities

We planned and performed our work to obtain sufficient and appropriate evidence to support our opinion, and to reduce the risk of a material error or omission in the assured information. Our assurance procedures included, but were not restricted to, the following activities:

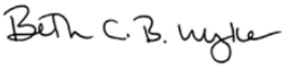
- A review of external media reports to identify relevant sustainability issues for Alcoa in the reporting period;
- A review of the suitability of the reporting criteria and related internal reporting processes, including conversion factors, estimates and assumptions used;
- An analytical review and substantive testing (on a sample basis) of the 2020 key performance indicators included in the 'Assurance Scope' submitted by all sites, and follow up and close out of our queries;
- Web-based interviews with Alcoa personnel responsible for data reporting, management systems, materiality, risk, stakeholder engagement and ICMM Mining Principles;
- Web-based visits to Alcoa operations in Norway (Mosjoen), Canada (Baie Comeau) and Australia (Pinjarra) to verify the source data underlying the2020 key performance indicators included in the 'Assurance Scope' and to review local environmental, safety and community engagement management approaches;
- Substantive procedures relating to the consolidation of the information in the 'Assurance Scope' including review of further evidence relating to underlying management and reporting systems and the effectiveness of internal controls in relation to the accuracy and completeness of the information; and
- A review of 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

Requirements for ICMM Member reporting and verification in relation to Performance Expectations (PE) is for reporting years starting after 1 Jan 2021 therefore ERM CVS had not included requirements related to PE in the scope of this engagement.
We do not express any opinion on any other information in the Report or on Alcoa's website for the current reporting period, or on the baseline values used for presenting performance against targets. We do not provide any assurance on prospective information including ambitions, plans, expectations or their achievability.
The reliability of the assured information is subject to inherent uncertainties, given the available methods for determining, calculating or estimating the underlying information so it is important to understand our assurance opinion in this context.

Ethics, independence, competence and quality control

ERM CVS is a member of the ERM Group and all employees are subject to ERM's Global Code of business conduct and ethics. ERM CVS is accredited by the United Kingdom Accreditation Service (UKAS) and our operating system is designed to comply with ISO 17021:2011
We have policies and procedures in place covering quality, independence and competency. In line with established best practice for non-financial assurance, this engagement was undertaken by a team of assurance, EHS and sustainability professionals. The work that ERM CVS conducts for clients is solely related to independent assurance activities and auditor training. Our established management processes are designed and implemented to ensure the work we undertake with clients is free from organisational and personal conflicts of interest or bias.
ERM CVS and the staff that have undertaken this assurance engagement provide no consultancy related services to Alcoa Corporation in any respect.



Beth Wyke
Partner, Head of Corporate Assurance
14 April 2021

ERM Certification and Verification Services Inc
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