



**HOWMET
AEROSPACE**

Environmental, Social and
Governance Report
2019

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On April 1, 2020, Arconic Inc. completed the separation of its business into two independent, publicly-traded companies: Howmet Aerospace Inc. (the new name for Arconic Inc.) (“Howmet Aerospace”) and Arconic Corporation (“Arconic Corp”). Howmet Aerospace includes the Engineered Products and Forgings businesses, including Engine Products, Fastening Systems, Engineered Structures and Forged Wheels. Arconic Corp includes Global Rolled Products, Aluminum Extrusions, and Building and Construction Systems. Where practical, and unless otherwise noted, this 2019 report focuses on the Engineered Products and Forgings businesses remaining with Howmet Aerospace as of April 1, 2020, and covers activities from Jan. 1, 2019 to Dec. 31, 2019.

Forward-Looking Statements: This report contains, in addition to historical information, statements concerning Howmet Aerospace’s expectations, goals, targets, strategies or future performance. These “forward-looking statements” include such words as “anticipates,” “estimates,” “should,” “will,” or other words of similar meaning and are subject to a number of known and unknown risks and uncertainties. Some of the factors that may cause Howmet Aerospace’s actual results to differ materially from those expressed or implied in the forward-looking statements include deterioration in global economic or financial market conditions generally; unfavorable changes in the markets served by Howmet Aerospace; factors affecting Howmet Aerospace’s operations, such as equipment outages, manufacturing difficulties, natural disasters or other unexpected events; the possible impacts and our preparedness to respond to implications of COVID-19; changes in the regulatory environment; the inability to achieve the level of revenue growth, cash generation, cost savings, improvement in profitability, or strengthening of competitiveness and operations anticipated or targeted; and the other risk factors summarized in Howmet Aerospace’s Form 10-K for the year ended December 31, 2019, and other SEC reports.



CEO Statement

Our first Howmet Aerospace Environmental, Social and Governance (ESG) Report underscores our commitment to having a positive impact on our customers, shareholders, employees, and the communities and markets in which we operate.

Our ESG approach is rooted in the role we play in helping our customers, aircraft manufacturers and airlines meet growing demand in air travel while mitigating the environmental impact. Our proprietary technologies help reduce fuel consumption and cut carbon emissions, contributing to the aerospace industry's goal of a smaller carbon footprint. Our products and technologies enable similar advances in the commercial transportation and defense industries.

Transparent and consistent reporting on our ESG progress is important to us and our stakeholders, so we have aligned our reporting with the [Global Reporting Initiative \(GRI\) Standards](#). We also have taken initial steps to provide additional relevant and targeted context from the Sustainability Accounting Standards Board (SASB) standard for the aerospace and defense sector.

Highlights from our 2019 ESG performance include:

- A 5.8 percent decrease in greenhouse gas (GHG) emissions and 1.4 percent decline in energy consumption compared to 2018;
- Zero employee and contractor fatalities;
- A 29 percent decline in our days away, restricted and transfer rate and a 40 percent decrease in our lost workday rate compared to 2018;
- 83 percent of our key suppliers having sustainability programs considered leading or active; and
- A new partnership with a third-party ethics and compliance training vendor that is widely recognized for its award-winning, innovative content.

We did face challenges, with our landfilled waste and water consumption increasing over the prior year due to higher production levels. Both will be areas of focus in 2020.

In late 2019, a significant challenge began emerging – COVID-19. Throughout the pandemic, our primary focus has been protecting the health and safety of our employees and their families. We will provide details about our efforts in response to this pandemic in the 2020 ESG Report.

In 2020, we also will begin implementing the recommendations from the [Task Force on Climate-related Financial Disclosures](#) (TCFD) to assess how climate-related risks might impact our day-to-day operations and determine possible mitigating processes and opportunities.

Although we have a new name, we will pull from our strong ESG heritage and ensure that Howmet Aerospace continues to be a responsible corporate citizen.

A handwritten signature in black ink, appearing to read "John C. Plant". The signature is stylized and fluid, with a large initial "J" and "C".

John C. Plant
Executive Chairman and Co-CEO

ESG at Howmet Aerospace

ESG Approach

Wherever we operate, it's our goal to have a significant positive impact on our stakeholders and surrounding communities.

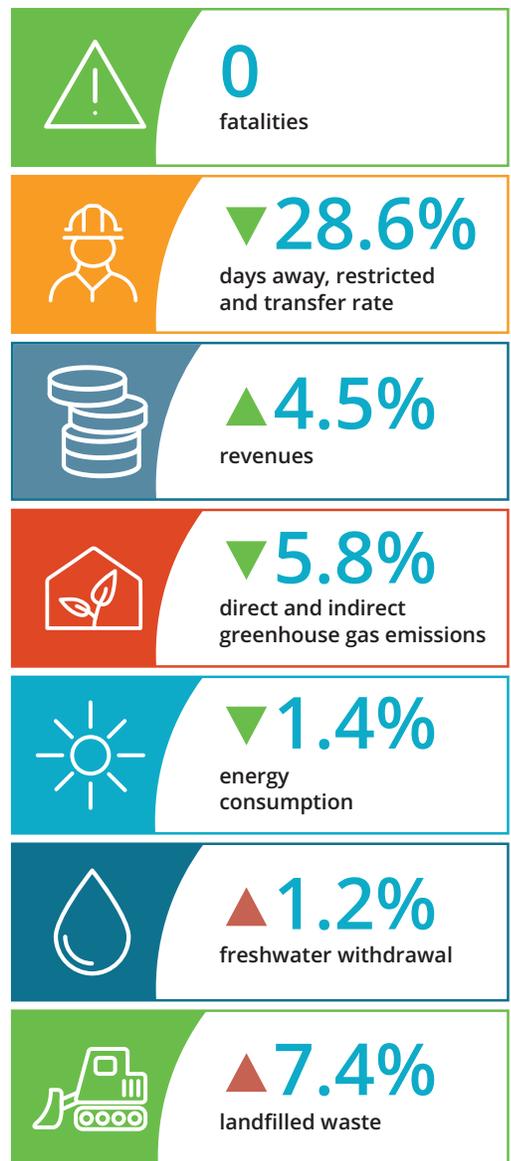
We believe that truly sustainable organizations shape the future. By fulfilling the needs of society now, we can expand opportunities for generations to come.

Our ESG approach is based on three levers that help advance our efforts:

- **Operational:** Reduce our environmental footprint, act on our social responsibility and keep our people safe, empowered and engaged.
- **Customer:** Through our products and innovations, enable our customers to achieve their sustainability goals.
- **Supply chain:** Drive sustainability into our suppliers' processes and practices and leverage their expertise to achieve our sustainability goals.

During 2020, we will refocus our ESG approach and programs to align with the opportunities and risks specific to our new company profile. Our GHG emissions, for example, will be significantly less than they were before the separation of Arconic Inc.,

2019 Highlights



going from approximately 3 million metric tons to 1 million metric tons annually. These changes require us to refresh our goals and also enhance our focus on the sustainable sourcing of titanium and nickel-based alloys in addition to aluminum.

We also understand the need to identify the opportunities and risks associated with climate change. Our actions will be focused on establishing a strong foundation to enable careful analysis of climate scenarios and the testing of our resilience to climate change for our global operations and business segments. We are committed to following, wherever practical, the recommendations from the TCFD.

Our ESG approach and reporting also will be informed by the aerospace and defense sustainability accounting standard from SASB.

To advance the management of our environment, health and safety (EHS) functions, we aligned our EHS management system to the refreshed ISO 14001 environmental management standard and the new ISO 45001 occupational health and safety standard. Each of our operating locations meets these internationally recognized standards, which cover nearly all of our employees.

In 2019, we also enhanced our capability to collect key performance data from all of our operating facilities to gain deeper insight into our material challenges and opportunities.

Reporting

The 2019 Howmet Aerospace ESG Report was developed in accordance with the core option of the GRI Standards and informed by SASB for a limited number of metrics.

In developing the report's content and identifying our material topics, we evaluated both direct and indirect input and guidance from sources that included:

- Stakeholders and providers of capital;
- Customers;
- Industry associations;
- Sector standards, such as the SASB aerospace and defense sustainability accounting standard;
- Sustainability surveys from ratings organizations;
- Our leadership;
- Our employees and their representatives; and
- Media coverage of Howmet Aerospace.

We currently do not seek third-party assurance of our ESG report. The accuracy and completeness of the information is verified by our internal experts and processes, which include our EHS and Ethics & Compliance audit and assessment processes.

Material Topics

Topic	Boundaries
Energy	Global operations
Water	Global operations
Emissions	Global operations
Waste	Global operations
Environmental Compliance	Global operations
Health and Safety	Global operations
Diversity and Equal Opportunity	Global operations
Data Security	Global operations
Business Ethics	Global operations

Environmental

Products

Working in close partnership with our customers, we solve complex engineering challenges to transform the way we fly and drive.

The global markets in which we compete are increasingly driven by significant challenges – climate change, resource scarcity and more. By developing the next generation of innovations, we're enabling our customers to address challenges and capture opportunities.

Products made from our advanced materials and technologies are strong, efficient and durable. They help our customers achieve significant fuel economies, reduced emissions and maintenance efficiencies.

Through our innovations, we're advancing the sustainability of our customers and the markets that we serve.

Aerospace

Airlines and aircraft manufacturers have a clear need – more efficient engines and lighter aircraft that deliver fuel efficiency and reduce emissions. Both will be essential for the industry to meet its goal of stabilizing emissions at 2020 levels, which was set in the historic Carbon Offsetting and Reduction



Titanium engine case

Scheme for International Aviation (CORSA).

Through our product and process innovations, we're supporting the efforts of our aerospace customers.

Materials and cooling techniques that we developed enable aero engines to run hotter and under higher pressures, increasing fuel efficiency. In fact, our aero engine components can withstand operating temperatures that exceed the melting point of base metals.

Our ARCONIC-THOR™ advanced titanium alloy is designed for higher temperature applications in next-generation aero engines and adjacent structures. The alloy is 50

percent lighter than incumbent nickel-based superalloys, which drives increased cost savings and fuel efficiency for our customers. It also operates at service temperatures higher than other conventional titanium alloys available on the market.

Other Howmet Aerospace solutions that can withstand high temperatures include:

- A technique for growing single crystal turbine airfoils, which is a grain structure that aligns better to centrifugal force inside the engine, prevents deformation, and increases blade temperature capability and product life;
- Complex ceramic shapes that form internal passages in the turbine airfoils to increase the flow of cool air across the metal surfaces;
- Advanced coatings that protect metal engine parts from extreme temperatures; and
- The first-ever aluminum-lithium front fan blade forging developed with Pratt & Whitney that improves fuel efficiency. We also manufacture aluminum and titanium variations.

Lighter aircraft use less fuel and emit fewer greenhouse gases, and our solutions are helping the industry lighten up. For example, we developed lightweight titanium seat rails for the Boeing 787 airframe. The airframe is up to 20 percent more fuel efficient than its predecessor.

Titanium seat rail



Our Flite-Tite® fasteners help enable large-scale, lightweight composite airframes by controlling the flow of energy in both the structure and fasteners, thereby protecting against lightning strike damage.

[Learn more >](#)

Commercial Transportation

Regulations on fuel efficiency and emissions for commercial vehicles continue to tighten around the world.

Technology to make trucks more fuel efficient tends to add weight, which impacts the amount of payload the truck can carry. Aluminum wheels help the industry offset the added weight, increase fuel efficiency and reduce emissions:

- Aluminum components, which include wheels, have the potential to save up to 1,497 kilograms (3,300 pounds) in vehicle weight for a Class 8 truck, which account for about 38% of all trucks sold in North America. (Source: U.S. Environmental Protection Agency)
- For every 10 percent of vehicle weight reduction in a Class 8 truck, drivers can gain up to a 5.5 percent improvement in fuel economy if they don't increase payload. (Source: Ricardo Engineering)
- Lightweighting with aluminum saves up to 17.9 metric tons of carbon dioxide (CO₂) emissions annually per vehicle. This equates to approximately 10 million metric tons of CO₂ per year for the current U.S. fleet. (Source: SAE International)

Our recent innovations to capture these benefits include the lightest truck wheels on the market. Switching out conventional steel wheels and tires for our wheels, which are branded as Alcoa® Wheels, can save more

than 635 kilograms (1,400 pounds) depending on the application.

Our latest Ultra ONE® heavy-duty truck wheel is 44 percent lighter than a steel wheel of the same size. Wheels with our Dura-Bright® option are also easier to clean, reducing the use of hazardous chemicals.

Our [Calculighter™](#) online tool calculates the return on investment a trucking fleet will gain due to higher payload capabilities across the entire fleet with a conversion to our aluminum Alcoa® Wheels.

Combined with other benefits, such as fuel savings and reduced maintenance costs, Alcoa® Wheels can provide fleets and individual owner operators with improved operating profits.

[Learn more >](#)



Ultra ONE® heavy-duty truck wheel

Defense and Space

Security and defense providers are experiencing broader requirements in response to continued and new threats. Defense aircraft must fly farther and carry more payload. Land vehicles must carry multiple communication and weapon systems. These needs are challenging the industrial base to respond with material solutions that provide higher performance while using less fuel.

We've been listening and innovating. Our solution systems are lighter, stronger, faster and sustainable across the air, land, sea and space defense domains.

Our monolithic forged aluminum bulkheads on the F-35 Joint Strike Fighter reduce total material volume, saving 135 to 180 kilograms (300 to 400 pounds) per jet. This allows the jets to use less fuel to stay on station longer,



F-35 Joint Strike Fighter

carry more critical payload and offer flexibility to counter any number of threats from a single platform.

The F-35 also features our Eddie-Bolt® 2 fasteners, which enable assembly of the aircraft's lightweight composite structure.

[Learn more >](#)

Energy

In the wind power market, our fastening systems for wind turbines provide superior joining and fatigue strength in even the most extreme environments. This reduces maintenance requirements and costs and minimizes the safety risks associated with our customer's employees accessing these structures.

Our fasteners are also used to assemble the structures in solar panel fields to improve structure reliability and reduce assembly costs. In 2019, our fastener helped build 4 gigawatts of tracking solar fields, which will prevent the emission of 100,000 metric tons of carbon dioxide over the 25-year lifetime of those fields.

Emissions

Our manufacturing operations produce different types of air emissions depending upon the manufacturing process.

Climate Protection

We specialize in lightweight metals engineering and the manufacture of breakthrough products that help solve some of the world's toughest climate challenges. That puts us in a unique position to reduce our own climate impact and help our customers do the same through the use of our products.

Our GHG strategy in 2019 focused on three main elements – energy management, product sustainability and supply chain management.

We've developed strategic energy-reduction initiatives to minimize our energy use and, in turn, reduce our GHG emissions. (See the [Energy](#) section.)

Products that our customers manufacture from our advanced materials and technologies use less energy and emit fewer GHGs than those produced from heavier materials. As a result, the use of our products avoids substantial GHG emissions relative to the emissions generated by manufacturing these materials. (See the [Products](#) section.)

Since our most significant emissions are related to our purchases of primary metals, it's important that we use suppliers that are focused on energy efficiency, renewable energy and advanced technologies to minimize their GHG impact and, in turn, our Scope 3 emissions. (See the [Supply Chain](#) section.)

Our direct and indirect GHG emissions equaled 0.98 million metric tons in 2019 – a 5.8 percent decrease from 2018. This decline included reduced natural gas consumption at sites (2.7 percent), reduced electricity and natural gas consumption at discontinued/divested sites (0.9 percent) and other reductions (0.4 percent). We also benefited from the continued greening of the electrical grid, with the resulting reductions in indirect GHG emissions accounting for 1.8 percent of the total 5.8 percent decline.

Our Scope 3 GHG emissions equaled 1.96 million metric tons in 2019. The 0.7 percent increase from prior year was due primarily to changes in the types of metals and alloys purchased.

Greenhouse Gas Emissions

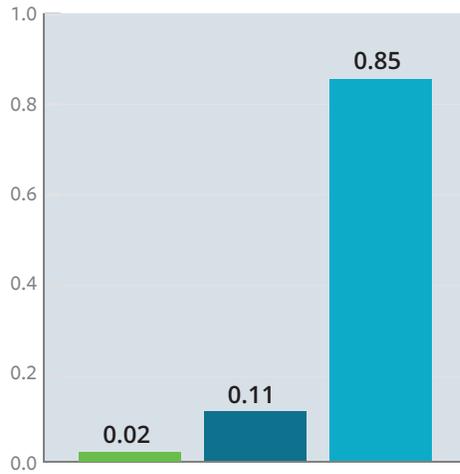
Million metric tons of carbon dioxide equivalents

	Direct (Scope 1)	Indirect (Scope 2)	Total
2016	0.42	0.60	1.02
2017	0.44	0.63	1.07
2018	0.46	0.58	1.04
2019	0.43	0.55	0.98

Gases included in the calculations are carbon dioxide, methane and nitrous oxide. We had zero biogenic emissions in 2019. The source of all GHG emissions is energy consumption. We used the WRI GHG protocol methodology based on operational control; regional or country Scope 1 and 2 emission factors; and 4th IPCC Assessment GWP factors.

2019 Scope 1 and 2 Greenhouse Gas Emissions by Region

Million Metric Tons of Carbon Dioxide Equivalents

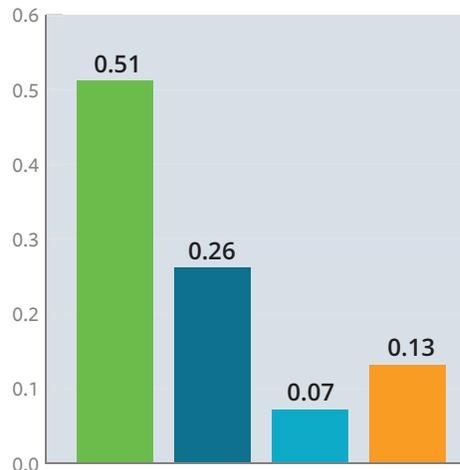


Region

- Asia Pacific
- Europe
- North America

2019 Scope 1 and 2 Greenhouse Gas Emissions by Segment

Million Metric Tons of Carbon Dioxide Equivalents



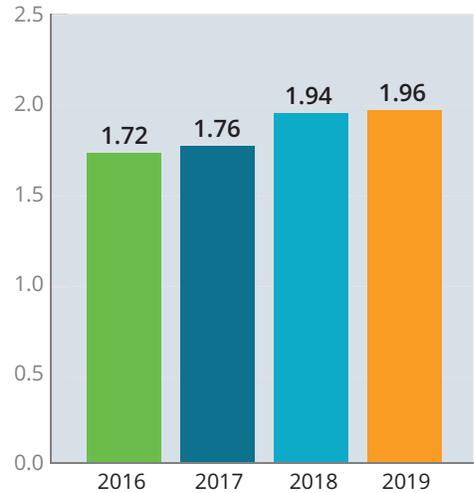
Segment

- Howmet Engine Systems
- Howmet Fastening Systems
- Howmet Structure Systems
- Howmet Wheel Systems

The total for all segments is less than the company total due to rounding and the exclusion of the small (0.0035) Scope 2 contribution from the Corporate Center.

Scope 3 Greenhouse Gas Emissions

Million Metric Tons of Carbon Dioxide Equivalents



These values are based on WRI Scope 3 methodology for purchased goods, fuel and energy-related activities, upstream and downstream transportation, and end-of-life treatment of sold products.

Air Emissions

In addition to greenhouse gases, other emissions that often are significant to specific operations or regions include nitrogen oxide, volatile organic compounds, particulate matter and toxic air pollutants, such as heavy metals and organic solvents.

Our approach to controlling and minimizing these emissions is driven by our internal air management standard and the regulatory requirements in the areas where we operate. In regions of the world where there are no regulations, we still impose controls to minimize emissions that could have an impact on human health and the environment.

Our efforts to minimize or eliminate air emissions include add-on pollution control equipment, changes in work practices, material substitutions or a combination of these strategies.

In 2019, we continued to centralize air emissions data from our sites and identify the data our locations need to collect and report against to be in alignment with external

disclosure standards, such as the GRI Standards. We will continue the effort in 2020.

Our emissions of nitrogen oxides, particulate matter, sulfur oxides and volatile organic compounds in 2016 and 2017 were impacted by a reduced number of sites tracking and reporting these emissions into the centralized

repository. The increases in these emissions from 2018 onward reflect a greater number of reporting sites.

The reductions in metallic hazardous air pollutants in 2018 and 2019 reflect the addition of pollution-control equipment and updated emission factors at sites.

Air Emissions

	2016	2017	2018	2019
Nitrogen Oxides <i>(metric tons)</i>	135.03	149.60	405.57	391.28
Particulate Matter <i>(metric tons)</i>	123.78	202.50	360.41	375.30
Sulfur Oxides <i>(metric tons)</i>	0.75	1.32	3.77	3.57
Volatile Organic Compounds <i>(metric tons)</i>	99.26	125.17	213.68	199.34
Metallic Hazardous Air Pollutants <i>(metric tons)</i>	13.41	12.24	8.64	7.46

Metallic hazardous air pollutants included chromium (total), cobalt, manganese and nickel.

Energy

The amount and type of energy that we consume have a direct impact on our GHG emissions.

To reduce our energy consumption, we're improving our efficiency and evaluating strategies to use solar, wind and other renewable and low-carbon sources. We're also working to encourage compatible energy policies in regions where we're located.

Our automated Energy Intelligence system allows us to manage energy usage in the moment through access to real-time energy data for each plant and, at most locations, individual meters within a plant. This transparency into our energy consumption provides significant opportunities to identify usage patterns and pinpoint inefficiencies at the plant and department levels. We also can aggregate the data for benchmarking, analytics and tracking of key performance indicators.

At each of our sites in the United Kingdom, we completed an energy efficiency audit in 2019 following the U.K. Energy Savings Opportunities Scheme. The audits identified a combined savings potential of approximately 37 million kilowatt hours. Each site has developed an action plan for pursuing identified efficiency opportunities, and we are monitoring progress.

Every plant globally has an annual objective to reduce its energy intensity by 2 percent. Due to significant differences in processes and products, each of our business units has developed intensity denominators that are based on revenue, purchased metal or a combination of the two. In 2020, we will develop an energy-savings approach that is commensurate with our new profile.

Our overall energy consumption was 13.2 million gigajoules in 2019. This 1.4 percent decrease over prior year was driven by a decline in natural gas consumption. Our electricity consumption was flat compared to 2018.

Global Energy Consumption

Millions of gigajoules

	Direct	Indirect	Total
2016	7.81	4.42	12.23
2017	8.23	4.64	12.87
2018	8.64	4.76	13.40
2019	8.47	4.74	13.21

Of our total 2019 energy consumption, 100 percent was supplied from the grid and 0 percent was renewable.

Energy Intensity



■ Millions of Gigajoules per Billion Dollars of Revenue
■ Hundreds of Gigajoules per Metric Ton of Purchased Metal

Data represents all energy types consumed within Howmet Aerospace. Segment revenue for 2016 is not available.

Water

Water is significantly valuable – to Howmet Aerospace and the communities where we’re located around the world. We lessen our impact on local water supplies by consuming and discharging as little water as possible and reusing the water that we do draw.

Our larger forging facilities are our largest users of water, followed by our remaining casting plants. We also have facilities that are less water-intensive located in areas that can be prone to droughts, primarily in the U.S. states of California, Nevada and Texas.

Most of our operations are located in industrialized areas, with the majority sourcing water from municipal supplies and discharging to local wastewater plants. As such, we operate within the stringent requirements set forth in our permits and consents with oversight from various stakeholders.

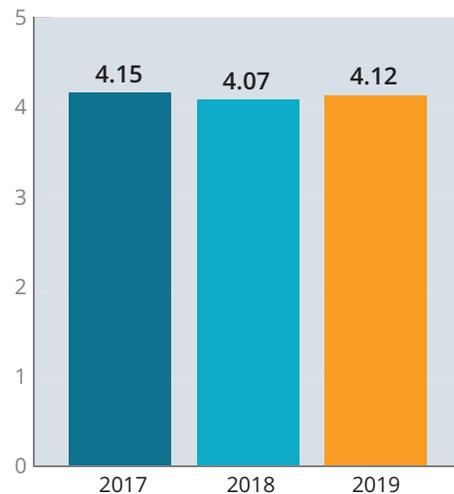
We lessen our impact on water resources by first designing our operations to minimize water consumption. Each of our locations is also required to set annual targets to reduce its water footprint in addition to maintaining an updated water-flow diagram that maps water intake, use and discharge. During the planning phase for equipment or process changes, a location uses its diagram to identify opportunities to eliminate, minimize or reuse water.

A recent example is from our location in Monterrey, Mexico. The installation of a reverse osmosis system on a new wheels manufacturing line allowed the location to reuse process water in its finishing department’s washing machines. The change reduced the plant’s overall water consumption by more than 3,800 cubic meters, or 2.5 percent, in 2019.

Our global operations withdrew 4.1 million cubic meters (1.1 billion gallons) of fresh water in 2019. The 1.2 percent increase from 2018 was mainly due to increased production.

Total Freshwater Withdrawal

Million Cubic Meters



Rainwater not included.

CASE STUDY

Stopping Leaks, Overhauling Systems

From smaller projects like fixing leaking pipes to major process overhauls, our operations in Cleveland, Ohio, reduced its municipal water consumption by more than 110,000 cubic meters (29.1 million gallons) in 2019.

A cross-functional team meets weekly to identify opportunities to reduce water usage throughout the location. The plant produces an array of aerospace and automotive products that include landing gear, propellers and wheel rims.

The team's tiered approach started with smaller improvements, such as replacing leaking faucets and water supply lines, before moving on to more complex projects involving substantial repairs or process improvements.

The largest project to date was overhauling the water-cooling system for heat treat furnaces. Physical repairs included replacing piping, pumps, solenoids and valves. Programming updates ensured the system was communicating effectively with the furnaces to supply and return water appropriately. Completed in May 2019, the initiative reduced the system's daily water consumption by 75 percent.

Waste and Spills

Our responsibility as environmental stewards is to eliminate or minimize our manufacturing waste, find alternative uses and recycling options for what we do generate, and effectively manage the safe disposal of what remains.

We give priority to higher-volume waste and waste that has the potential to significantly impact the environment. As part of our 2019 goal to eliminate landfilled waste by 2030, our locations analyze opportunities to reduce or eliminate such waste.

We recycle 100 percent of the aluminum dross from our two casthouses and send salt cake, which is slag generated during the recovery of aluminum from rotary furnaces, for recycling rather than landfilling. Some locations are also finding alternatives to landfilling polishing dust and sludge, grit blast and nickel sludge. Other types of waste that we continue to evaluate for reuse and recycling opportunities include

garnet, aluminum hydroxide sludge, caustic and limestone.

In 2019, we landfilled 29.86 metric tons of waste. This is an increase of 7.4 percent year over year due to increases in production and infrequent waste streams.

Spills

We use internal standards, safeguards and processes to prevent spills and then respond quickly and effectively to minimize the impact when one does occur.

Our locations are required to have a spill prevention control and countermeasure or similar plan in place if they meet specific volume thresholds for oil or oil products. This plan includes employee training on spill prevention and response that is provided upon hiring and annually thereafter. Every location must follow our spill-related engineering standards and audit guidelines and have a spill response plan in place.

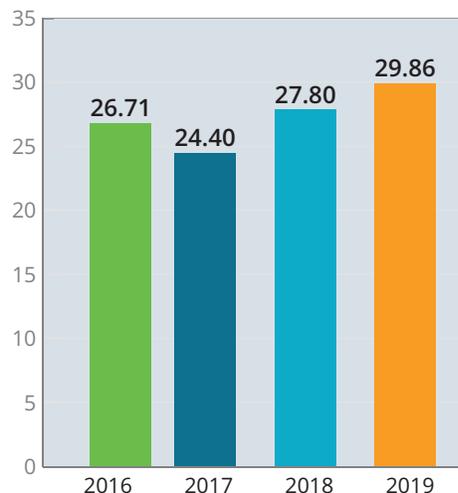
All spills above 20 liters (5.3 gallons) and outside of a designated containment area must be reported in our internal incident management system. This system drives an analysis of root cause and contributing factors, and it also ensures corrective measures are put in place to prevent a reoccurrence.

Our very stringent reporting threshold increases the visibility of spills to our leadership to facilitate information sharing across facilities and enhancing incident awareness.

We define a significant spill as one that is in excess of 1,893 liters (500 gallons) and/or meets our definition of a major environmental incident, which includes [CERCLA](#) reportable spills. As in the prior year, we had zero significant spills or major environmental incidents in 2019.

Landfilled Waste

Thousands of Metric Tons



CASE STUDY

A Reuse Opportunity with Grit

A material previously landfilled is now being reused by other companies, diverting more than 80 metric tons of waste from the landfill and saving our Fullerton, California, location \$39,000 annually.

A final step in the location's production of nuts for the aerospace industry is abrasive cleaning, where the parts are sandblasted with aluminum oxide grit in an enclosed booth. Required twice-a-day changing of the grit caused it to be the location's largest source of landfilled waste.

The location took a fresh look at the makeup of the material and worked with its grit supplier to identify reuse opportunities since it's too fine to reuse internally. The grit is now returned to the original manufacturer, who sells it to other companies that require a finer grit in their operations.



Used grit is removed from a sandblasting booth.

Environmental Compliance

Our true north is defined in our global [Code of Conduct](#) – Howmet Aerospace is committed to operating in a manner that respects and protects the environment wherever we are located.

This means we will not compromise our environmental values for profit or production. We will respond truthfully and responsibly to questions and concerns about our environmental actions and the impact of our operations on the environment.

We use an environmental compliance process and environmental management system. Both provide our management and employees, particularly our environmental professionals, with the information, tools and verification they need to ensure our compliance with environmental laws, regulations and requirements across the globe.

When an environmental incident occurs, our environmental compliance process helps ensure that we undertake an appropriate technical and legal review. We identify root causes, associated risks and corrective actions necessary to achieve sustainable compliance. We keep our senior management informed of our environmental compliance record and maintain an ongoing dialogue with them. In return, they provide the resources and ensure the open-door culture that affirms environmental compliance as a top priority for the company.

We follow a six-step process as part of our environmental compliance process and management system:

1. We identify non-compliance issues through several mechanisms, including internal EHS audits, corporate environmental compliance reviews, self-assessments and external agency reviews, using the following hierarchy:
 - Determine the facts related to the situation or incident;
 - Ascertain applicable law and regulation;
 - Apply the law or regulation to the particular facts; and
 - If the facts contravene the applicable law or regulation, identify the matter as a non-compliance in our environmental management system regardless of how the matter was discovered.
2. We log the non-compliances into our environmental management system and report the matter to internal stakeholders and, when appropriate, external regulators or government agencies.
3. We initiate a root cause analysis and develop a written action plan, which includes a schedule to remedy the incident and attain compliance.
4. The action plan is reviewed by internal and, if necessary, external environmental professionals to arrive at a consensus that we are taking appropriate corrective action.
5. We implement the action plan, and our team of environmental professionals monitors and tracks progress toward completion.
6. We close the matter once we have implemented all corrective actions, achieved compliance and verified that a system is in place to prevent reoccurrence and sustain compliance.

The likelihood or extent of any enforcement action is not a consideration when we identify non-compliances. Whether insignificant or significant, we identify and log all non-compliances into our environmental management system.

In 2019, we had 154 environmental non-compliance incidents that resulted in no significant fines, which we define as greater than US\$25,000.

Non-Compliance Performance

	2016	2017	2018	2019
Significant Fines (US\$)	0	231,878	59,000	0
Number of Significant Non-monetary Sanctions	0	0	0	0
Number of Dispute Resolutions	0	0	0	0

Non-monetary sanctions include actions that we are ordered to take to ensure our operations return to, or remain in, compliance. Significant refers to sanctions that we consider high risk based on the costs required to address the issue.

Chemical Management

A major focus within our company is avoiding supply chain disruptions linked to chemical management regulations, such as the European Union's Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Our global chemical compliance team ensures we maximize internal synergies and coordination and cover all relevant regulations and market/customer initiatives. Team members also work to provide the information our customers need for their own compliance programs.

While we do not manufacture chemicals, we use them in our production processes either directly or as ingredients in other products that we use. The chemical compliance team works with each of our businesses to ensure we are adhering to all requirements and actively seeking substitutions for chemicals that various regulations deem substances of very high concern. This can be challenging, as substitute substances ideally should not impact process efficiency or product quality and properties. That's why we work closely with our customers to validate a new substance before making a permanent substitution.

We have been successful in finding material substitutions for various applications, but others will require more time and effort. Until targeted chemicals are eliminated from our manufacturing processes, we will continue to enforce our stringent requirements for their safe handling and use.

In support of our aerospace customers, we are an active member of the International Aerospace Environmental Group (IAEG). Formed by the major aerospace companies, the group addresses the complexity and variability of global laws and regulations impacting health and the environment, including REACH.



By serving on the IAEG board of directors, committees and working groups, our employees are contributing to the development of tools and voluntary consensus standards to address key chemical management and environmental issues. They are also acquiring valuable insight into the needs of the aerospace industry as well as gaining access to useful tools and knowledge.

CASE STUDY

Eliminating a Chemical of Concern

A collaboration among Howmet Aerospace, customers and suppliers completely eliminated a chemical of concern in paint that we used on a number of our fastener products.

The chemical – potassium hydroxyoctaoxodizincatedichromate (CAS 11103-86-9) – was added to paint formulations for corrosion resistance. Our challenge was finding a new paint that could provide the same performance attributes but eliminate the use of a carcinogenic chemical in the production process.

We first worked with our existing supplier to source a new paint, identifying one that was already qualified by some of our customers. For competitive and supply security reasons, we also sourced a second paint from another supplier. We worked with all of our customers to qualify one or both paints against their specifications.

By early 2019, we had eliminated our use of paint containing CAS 11103-86-9 on our fastener products.



Social

People

To recruit, attract, develop and retain world-class talent, we've created a culture that embraces diversity, drives inclusion, and empowers and engages our employees.

We offer an integrated approach, which we call the People Experience, that enables our employees to own their development and create rewarding careers that draw on their aptitudes and support their ambitions. We provide learning and development opportunities and equip our managers to provide ongoing coaching and feedback so employees maximize their performance and potential, delivering success for Howmet Aerospace.

Diversity and Inclusion

Before the separation of Arconic Inc., we earned a perfect score of 100 on the Corporate Equality Index 2020, a national benchmarking survey and report on corporate policies, benefits and practices related to lesbian, gay, bisexual, transgender and queer (LGBTQ) individuals. The index is administered by the [Human Rights Campaign Foundation](#).

Our rating reflects the concrete steps we've

taken on non-discrimination policies across business entities, equitable benefits for LGBTQ workers and their families, internal education and accountability metrics to promote LGBTQ inclusion competency and public commitment to LGBTQ equality.

Our six employee resource groups (ERGs) – Howmet African Heritage Network, Howmet Hispanic Network, Howmet Next Generation Network, Howmet Pride Network, Howmet Veterans Network and Howmet Women's Network – reflect an inclusive, respectful and values-based company culture. All of our employees are encouraged to participate in these grassroots, employee-led organizations that:

- Drive employee engagement through community outreach around science, technology, engineering and mathematics (STEM) education;
- Provide learning and development opportunities for employees;
- Help position Howmet Aerospace as a global employer of choice through strategic recruiting activities;
- Inform company policies around diversity and inclusion; and
- Reinforce our brand through key external endorsements like the Human Rights Campaign and [Catalyst](#).

2019 Women and U.S. Minority Representation

Global Women	24% female executives
	30% female professionals
	26% female employees overall

U.S. Minorities	13% minority executives
	22% minority professionals
	39% minority employees overall

2019 Employees by Employment Contract and Type

	Contract		Type	
	Permanent	Temporary	Full-time	Part-time
Male	19,145	221	19,280	86
Female	6,824	70	6,736	158
Total	25,969	291	26,016	244

2019 Employees by Region and Employment Contract

	Permanent	Temporary
Asia	941	44
Australia	86	2
Europe	6,423	154
North America	18,494	91
South America	25	0

Europe includes Middle East and Africa.

2019 Employee Diversity

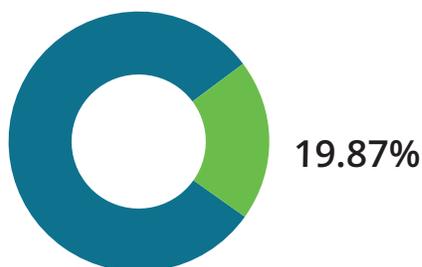
	Gender		Age		
	Male	Female	Under 30	30-50	Over 50
Board of Directors	9	1	0	1	9
Officers and Assistant Officers	9	5	0	3	11
Employees	19,366	6,894	4,028	12,467	9,765

Data for the board of directors, officers and assistant officers is for Arconic Inc. Employee data is for Howmet Aerospace.

2019 New Employee Hires by Age

	Male	Female	Total
Under 30	1,529	675	2,204
30-50	1,448	688	2,136
Over 50	464	199	663

2019 Overall Turnover Rate



2019 Employee Turnover by Age

	Male	Female	Total
Under 30	1,173	464	1,637
30-50	1,560	598	2,158
Over 50	1,060	363	1,423

Labor Relations

We believe in freedom of association. We respect an individual's choice to be represented by – or not be represented by – a union in accordance with the laws of the countries in which we operate.

Where we have a union, we will respect and engage the union in candid discussions regarding the needs of the business and its impact on employees.

2019 New Employee Hires by Region

	Male	Female	Total
Asia	107	22	129
Australia	3	2	5
Europe	641	176	817
North America	2,690	1,361	4,051
South America	0	1	1

2019 Employee Turnover by Region

	Male	Female	Total
Asia	112	29	141
Australia	5	2	7
Europe	1,172	259	1,431
North America	2,501	1,135	3,636
South America	3	0	3

2019 Union Representation

Percent of Employees

Asia	48
Australia	0
Europe	79
North America	24
South America	100
Global	39

Europe includes Middle East and Africa.

Health and Safety

Our strong health and safety culture empowers our employees and contractors to take personal responsibility for their actions and the safety of their coworkers. This culture is supported by internal policies, standards, rules and procedures that clearly articulate our stringent requirements for working safely in all of our facilities worldwide.

Our [Environment, Health and Safety Policy](#) and the values contained in our [Code of Conduct](#) set requirements for which our businesses and locations are held accountable and measured against. Our leaders, from the CEO through line management, are expected to communicate the policy to all employees and third parties, such as contractors, suppliers and visitors.

We embed annual health and safety goals and objectives into our operating plans to progress against our ultimate goal of zero incidents. The planning process addresses issues related to audit findings and non-compliances against internal and external standards and regulations. The plan is linked to our EHS management system and reviewed on a regular basis, including quarterly by our Executive Lead Team.

Our EHS management system is key to the successful implementation of our EHS Policy. The system aligns with the [ISO 45001](#) (occupational health and safety) and [ISO 14001-2015](#) (environmental management systems) standards. The standards'

requirements are incorporated into our site-specific EHS management systems, which cover all of our production sites and our largest office sites.

Safety

We had zero employee and contractor fatalities in 2019, which was the 16th consecutive year that our locations achieved this important milestone.

Fatality prevention remains a major focus, with each business required to review its program annually and address an EHS risk area at least once per quarter.

We have prioritized our risk management processes toward the prevention of fatality and serious injury potential to focus on the most impactful hazards that have the potential for life-altering outcomes. Mobile equipment remains the highest fatality risk within our global operations.

Fatality Risks



Under our fatality prevention program, a multidisciplinary team at each site that is chaired by the location manager identifies risk, looks for root cause, ensures competent support and addresses gaps to reduce the risk.

We support a speak-up culture in which employees feel comfortable raising questions and concerns and are encouraged to express their views and opinions so we can proactively identify and mitigate actual and potential risks. Our Anti-Retaliation Policy prohibits retaliation against employees who report a concern in good faith.

In 2019, all of our key safety rates remained significantly below the most recent U.S. industry averages. At 0.25, our days away, restricted and transfer (DART) rate was 28.6 percent lower than prior year. We saw a 40.0 percent decline in our lost workday rate, and our total recordable incident rate declined 16.7 percent.

At the end of 2019, 73.8 percent of our locations globally had worked 12 consecutive months without a DART incident, 79.4 percent without a lost workday and 49.5 percent without a total recordable incident.

Incident Rates

Employees and Supervised Workers

	Fatalities	Days Away, Restricted and Transfer	Lost Workday	Total Recordable Incident
2016	0	0.42	0.11	1.13
2017	0	0.49	0.18	1.23
2018	0	0.35	0.20	1.08
2019	0	0.25	0.12	0.90

Lost workday rate represents the number of injuries and illnesses resulting in one or more days away from work per 100 full-time workers. 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. Total recordable incident rate represents the number of injuries and illnesses resulting in days away from work, job transfer or restriction, medical treatment or other recordables per 100 full-time workers.

Incident Rates

Contractors and Contracted Services

	Fatalities	Days Away, Restricted and Transfer	Lost Workday	Total Recordable Incident
2016	0	0.38	0.16	1.14
2017	0	0.69	0.41	1.24
2018	0	0.36	0.31	1.04
2019	0	0.36	0.24	0.84

Incident Investigation

We have incident reporting and investigation requirements embedded in our policies and standards. When an incident occurs, the location must follow a pre-defined process to ensure root causes are identified and subsequently eliminated. Depending on the severity of an incident, management involvement is escalated.

Our incident performance is reviewed by our Executive Lead Team each quarter and once per year by the Howmet Aerospace Board of Directors.

Audits

Depending on a location's inherent and controlled risks, we conduct an internal corporate audit every one to five years to assess the location's implementation of the EHS management system and conformance with regulatory and Howmet Aerospace requirements.

STOP Coin

Our employees have the authority to refuse or stop unsafe work. We expect them to exercise this authority, and we reward them when they do through our STOP for Safety Coin Campaign. Our aim is to motivate employees to be vigilant in their work and always stop and seek help when presented with a potential safety hazard.

Employees who refuse or stop unsafe work for themselves or their colleagues are awarded an aluminum STOP coin and receive local and, in some cases, global recognition. We have distributed thousands of STOP coins to these safety advocates since the program's launch in 2016.

Training

It's important to inform and educate our employees, contractors and visitors about workplace health and safety. Our training programs are based on a needs assessment that includes input on an individual's exposure, workplace, and legal and other requirements.

In 2019, more than 100 new Howmet leaders attended a two-day intensive course focused on EHS, including fatality prevention. The goal was to better inform and equip our leaders, who are key enablers for successful health and safety management.

Each of our EHS professionals spent more than 30 hours on professional development in 2019 through global EHS conferences covering various topics.

Health

Regardless of the size of their location, all of our employees have access to occupational medicine services to optimize their health and well-being. These services include regulatory or Howmet Aerospace risk-based chemical surveillance evaluations, fitness-for-duty assessments, hearing evaluations, lung-function testing, work-related injury and illness evaluation and treatment, substance abuse testing and job-related immunizations.

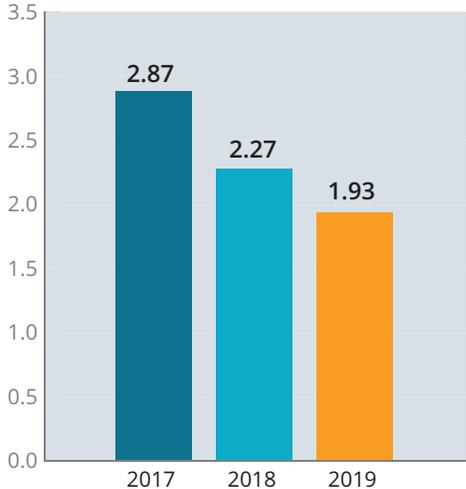
The key health risks within our operations are hearing conservation, working with chemical substances and ergonomic injuries.

Our goal is a hearing shift rate among employees of 1 percent or lower by 2020. To achieve this, all manufacturing locations have implemented a robust hearing conservation program that builds on detailed noise exposure assessment and provides the correct hearing protection with the right noise-level reduction. Our hearing shift rate in 2019 was 1.9 percent.

All manufacturing locations also will be required to either conduct hearing fit tests on individual employees to ensure hearing protection is effective or provide custom-molded ear plugs for a higher level of protection. Our 2019 goal was to have 75 percent of our locations globally meet the requirement. We achieved 61.4 percent, which was a 2.6 percent improvement over 2018.

Hearing Shift Rate

Percent



Data for 2016 is not included due to a lack of representative data.

Our businesses and locations also continued efforts to reduce employee exposure to chemicals in 2019. Actions included eliminating specific chemicals, moving employees away from areas where chemicals are used and ensuring stringent adherence to requirements for personal protective equipment.

We are identifying and eliminating ergonomic risks through job analyses, workplace surveys and other proactive methods. We eliminated an additional 111 risks in 2019.

CASE STUDY

Success Exposed

A five-year effort to reduce inhalation and noise exposures in our Howmet Engine Systems (HES) business has reduced chemical usage, eliminated health risks and saved time and money.

In the first phase of the initiative, which began in 2014, each location documented exposures that were over the occupational exposure limits and thus required respiratory or hearing protection to perform a task safely. Subsequent work focused on eliminating or reducing these exposures, with the expectation that each location would reduce one unacceptable noise or chemical exposure annually.

Once a location believed it had eliminated or reduced an exposure, the business used sampling to confirm the results. Successes were shared with other HES locations that perform similar work.

At the end of 2019, the business had reduced 53 noise and chemical exposures. These included reducing the exposure of numerous chemicals, such as hexavalent and trivalent chromium, cobalt, manganese and nickel compounds, below the occupational exposure limit at some or all of the locations.

Stakeholder and Community Engagement

We earn our social license to operate through open dialogue with a broad range of stakeholders in an atmosphere of respect and trust and with the highest regard for human rights, economic opportunity and the natural environment.

Our stakeholders include shareholders and lenders who provide our financial capital; our customers, suppliers and employees; the people who live in the communities where we operate; the public agencies that regulate our businesses; government representatives; and the non-governmental organizations (NGOs) that are interested in what we are doing.

Each of our locations defines the stakeholder groups with which to engage and – taking into account the nature of our facilities – identifies tools and approaches to ensure that collaborations with these stakeholders are robust, effective and transparent.

[Howmet Aerospace Foundation](#), which is an independently endowed foundation and the charitable arm of Howmet Aerospace, has assets of approximately \$165 million. The foundation directs a significant portion of its grantmaking each year to the worldwide operating locations of Howmet Aerospace so that they may partner with nonprofit organizations and develop relevant strategies that address specific community needs and interests.



Through collaboration with our nonprofit partners, our initiatives make quality science, technology, engineering and mathematics (STEM) education opportunities available to students; support engineering and technical skills training through community colleges, technical schools and universities around the world; and help create access for underrepresented individuals to the STEM fields.

In addition, our employees volunteer their time, energy and skills to community programs and projects to help local nonprofit organizations.

Governance

Ethics, Compliance and Human Rights

As a global company with operations in diverse cultural, political and economic environments, we are committed to conducting business ethically and in compliance with all applicable laws.

Guiding our actions are our values, [Code of Conduct](#) and key corporate policies, including our [Anti-Corruption](#), [Human Rights](#), [Anti-Harassment](#), [Anti-Retaliation](#), and [Environment, Health and Safety](#) policies.

Our [Integrity Line](#) is available 24/7 to all employees and external stakeholders who wish to seek advice or raise a concern. In 2019, we received 553 new concerns, questions and comments through this hotline and ensured that each was addressed. As a result of issues raised, we implemented 129 corrective actions during the year. These included discipline, training, coaching and process improvements.

We had zero monetary losses or penalties associated with incidents of corruption, bribery or illicit international trade in 2019.

Our ethics and compliance program is designed to effectively:

- Foster an organizational culture of integrity, ethical decision-making and compliance with our Values;
- Assure that our directors, officers and employees conduct business with the highest standards of ethics and integrity and in compliance with all applicable laws and regulations; and
- Prevent and detect unlawful or unethical conduct through risk assessments and due diligence.

Consistent with our commitment to the highest ethical standards, the program is designed to be global, sustainable and continuously improving to identify and address our existing and emerging ethical, legal and regulatory risks. Our Board of Directors and senior management support and oversee the program.

Howmet Aerospace Integrity Champions provide a local voice and serve as a resource to employees who may have ethical or business questions. They also help ensure integrity and compliance are operationalized at all levels and locations. Employees are nominated for this important role by business leaders based on their integrity, accomplishments and leadership.

We devoted much of 2019 to creating a strong ethics and compliance program for the new Howmet Aerospace. Other new and ongoing initiatives during the year included:

- Forming a new partnership with a third-party ethics and compliance training vendor that is widely recognized for its award-winning, innovative content;
- Launching an enhanced New Hire Onboarding Training Program that includes additional training on key policies;
- Contracting with experienced private investigators to conduct foreign language investigations and significant U.S. investigations;
- Developing mandatory investigations training for employees who assist with internal investigations;
- Deploying an annual Conflicts of Interest Survey, which we distributed to salaried employees globally with a 100 percent completion rate;
- Identifying a more modern third-party vendor with which to partner on the oversight of third-party intermediary relationships, including risk-based reviews, due diligence, mandatory anti-corruption training and certification, and ongoing monitoring; and
- Training employees on topics that included the Code of Conduct, inclusion, anti-harassment, speaking up, email do's and don'ts, and anti-corruption. All training is tracked with the goal of 100 percent completion.

Additional information on our ethics and compliance program can be found on [howmet.com](https://www.howmet.com).

Supply Chain

Sustainability in our supply chain is a reciprocal relationship. Our suppliers help us achieve our sustainability goals, and we help them drive sustainability into their processes and practices.

As a global company, we conduct business with more than 17,000 suppliers around the world who are expected to demonstrate responsible and sustainable conduct and follow our [Supplier Standards](#).

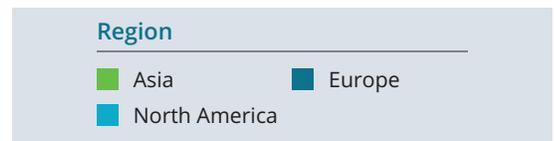
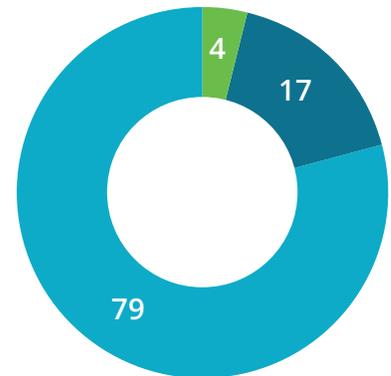
Our interactions with suppliers are based on the highest standards of integrity and compliance with all relevant laws and regulations. (See the [Ethics and Compliance section](#) of our website for additional information.)

Before considering any potential new supplier, we perform due diligence to ensure the supplier is not in the consolidated database of denied and restricted parties. We do not partner with any suppliers who appear on the list.

We are committed to the responsible sourcing of materials and components necessary for the production and functionality of the products we manufacture.

Additional information is available in our most current Specialized Disclosure Report and Conflict Minerals Report, which can be downloaded from howmet.com.

2019 Spend by Region
Percent



2019 Suppliers by Major Category

Category	Number
Operational/Capital Expenditures	3,172
Information Technology and Services	4,361
Metals	559
Production Materials	9,533
Total	17,625

Global Supplier Sustainability Program

We measured the sustainability of our key suppliers in 2019 through our Global Supplier Sustainability Program. These suppliers are companies that impact our carbon footprint, possess preferred status, are sole sources of supply, may be located in emerging or high-risk countries, or provide regulated commodities.

The program consists of four components:

- **Communicate expectations:** Our [Supplier Standards](#) outline our expectations regarding supplier sustainability.
- **Assess suppliers:** We conduct assessments of the key suppliers to evaluate the maturity of their sustainability programs and determine where improvement may be advisable. In 2019, we significantly expanded the assessment process and brought the breadth and depth of the survey in line with ESG expectations that are material to our supplier base.

- **Develop and educate:** We may share our perspective of a supplier's sustainability questionnaire results with the supplier and discuss opportunities for improvement.
- **Monitor:** We periodically reassess our suppliers to evaluate if any changes have occurred that would influence a supplier's maturity level rating. It is our expectation that supplier sustainability should improve over time.

The 2019 assessment found that 83 percent of our key suppliers had sustainability programs considered leading or active.

2019 Key Supplier Assessment Results

Sustainability Maturity Rating	Percent of Key Suppliers
Leading	3
Active	80
Emerging	9
Lagging	9

Numbers do not add up to 100 percent due to rounding.

Global Reporting Initiative Index

This index helps readers compare the information from our ESG report, annual report and website with the [GRI Standards](#).

This report has been prepared in accordance with the GRI Standards: Core option.

References to Form 10-K are for Arconic Inc. operations, of which the Engineered Products and Forgings businesses pertain to Howmet Aerospace. References to Form 8-K and the Proxy Statement are for Howmet Aerospace operations.

GRI 102 General Disclosures 2016

Disclosure	Description	Location
Organizational Profile		
102-1	Name of the organization	Howmet Aerospace Inc.
102-2	Activities, brands, products, and services	Markets and Product Lines
102-3	Location of headquarters	Pittsburgh, Pennsylvania
102-4	Location of operations	Locations
102-5	Ownership and legal form	Howmet Aerospace is a publicly traded company listed on the New York Stock Exchange (NYSE: HWM).
102-6	Markets served	Markets and Product Lines
102-7	Scale of the organization	Form 10-K (pages 1 to 10)
102-8	Information on employees and other workers	People
102-9	Supply chain	Supply Chain
102-10	Significant changes to the organization and its supply chain	Form 10-K (pages 1 to 15) Supply Chain

Disclosure	Description	Location
102-11	Precautionary Principle or approach	Environmental Management at Howmet Aerospace
102-12	External initiatives	Stakeholder and Community Engagement
102-13	Membership of associations	Stakeholder and Community Engagement
Strategy		
102-14	Statement from senior decision-maker	CEO Statement
102-15	Key impacts, risks, and opportunities	Form 10-K (pages 15 to 29)
Ethics and Integrity		
102-16	Values, principles, standards, and norms of behavior	Our Fundamentals Human Rights Policy Ethics and Compliance
102-17	Mechanisms for advice and concerns about ethics	Integrity Line
Governance		
102-18	Governance structure	Corporate Governance Form 10-K (page 107) Proxy Statement (pages 21 to 27)
102-19	Delegating authority	Corporate Governance Guidelines (Corporate Citizenship section)
102-20	Executive-level responsibility for economic, environmental, and social topics	Corporate Governance Guidelines (Corporate Citizenship section)
102-21	Consulting stakeholders on economic, environmental, and social topics	Proxy Statement (page 28)
102-22	Composition of the highest governance body and its committees	Board of Directors Board Committees
102-23	Chair of the highest governance body	Form 10-K (pages 107) Proxy Statement (page 22)

Disclosure	Description	Location
102-24	Nominating and selecting the highest governance body	Proxy Statement (page 13) Certificate of Incorporation Bylaws Governance and Nominating Committee Charter
102-25	Conflicts of interest	Form 10-K (pages 108) Governance and Nominating Committee Charter
102-26	Role of highest governance body in setting purpose, values, and strategy	Corporate Governance Guidelines
102-27	Collective knowledge of highest governance body	Proxy Statement (pages 13 and 25)
102-28	Evaluating the highest governance body's performance	Proxy Statement (pages 14 and 25) Governance and Nominating Committee Charter
102-29	Identifying and managing economic, environmental, and social impacts	Proxy Statement (page 23) Audit Committee Charter Finance Committee Charter Corporate Governance Guidelines (Corporate Citizenship section)
102-30	Effectiveness of risk management processes	Proxy Statement (page 23) Audit Committee Charter Finance Committee Charter Corporate Governance Guidelines (Corporate Citizenship section)
102-31	Review of economic, environmental, and social topics	Corporate Governance Guidelines (Corporate Citizenship section)
102-32	Highest governance body's role in sustainability reporting	Corporate Governance Guidelines (Corporate Citizenship section)
102-33	Communicating critical concerns	Proxy Statement (pages 16 and 28)
102-35	Remuneration policies for the highest governance body and senior executives	Form 10-K (pages 107 to 108) Proxy Statement (pages 15 to 18 and 38 to 64)
102-36	Process for determining remuneration	Form 10-K (page 107) Proxy Statement (pages 15 and 43)

Disclosure	Description	Location
102-37	Stakeholders' involvement in remuneration	Form 10-K (page 107) Proxy Statement (page 38)
102-38	Annual total compensation ratio	Form 10-K (page 107) Proxy Statement (page 64)
Stakeholder Engagement		
102-40	List of stakeholder groups	Stakeholder and Community Engagement
102-41	Collective bargaining agreements	People
102-42	Identifying and selecting stakeholders	Stakeholder and Community Engagement
102-43	Approach to stakeholder engagement	Stakeholder and Community Engagement
102-44	Key topics and concerns raised	No major stakeholder issues were raised in the reporting year.
Reporting Practice		
102-45	Entities included in the consolidated financial statements	Form 10-K (pages 1-15) Only those entities included in the consolidated financial statements pertaining to the new Howmet Aerospace are included in the ESG report.
102-46	Defining report content and topic boundaries	Reporting
102-47	List of material topics	Reporting
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	2019
102-51	Date of most recent report	2018 (Arconic Inc.)
102-52	Reporting cycle	Annual
102-53	Contact point for questions regarding the report	Marcel van der Velden Director, Environment, Health and Safety and Sustainability

Disclosure	Description	Location
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	Global Reporting Initiative Index
102-56	External assurance	Reporting

Material Topics

Disclosure	Description	Location
GRI 201: Economic Performance 2016		
201-1	Direct economic value generated and distributed	2019 Annual Report
GRI 205: Anti-corruption 2016		
205-3	Confirmed incidents of corruption and actions taken	Ethics, Compliance and Human Rights
GRI 302: Energy 2016		
302-1	Energy consumption within the organization	Energy
302-2	Energy consumption outside of the organization	Energy
302-3	Energy intensity	Energy
302-4	Reduction of energy consumption	Energy
302-5	Reductions in energy requirements of products and services	Energy
GRI 303: Water and Effluents 2018		
303-3	Water withdrawal	Partially reported. Information is unavailable at the aggregate level. Steps have been taken to collect water-related data for the 2020 reporting year.

Disclosure	Description	Location
GRI 305: Emissions 2016		
305-1	Direct (Scope 1) GHG emissions	Emissions
305-2	Energy indirect (Scope 2) GHG emissions	Emissions
305-3	Other indirect (Scope 3) GHG emissions	Emissions
305-4	GHG emissions intensity	Emissions
305-5	Reduction of GHG emissions	Emissions
305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	Emissions
GRI 306: Effluents and Waste 2016		
306-2	Waste by type and disposal method	Waste and Spills
306-3	Significant spills	Waste and Spills
GRI 307: Environmental Compliance 2016		
307-1	Non-compliance with environmental laws and regulations	Environmental Compliance
GRI 403: Occupational Health and Safety 2018		
403-1	Occupational health and safety management system	Health and Safety
403-2	Hazard identification, risk assessment, and incident investigation	Health and Safety
403-3	Occupational health services	Health and Safety
403-4	Worker participation, consultation, and communication on occupational health and safety	Health and Safety
403-5	Worker training on occupational health and safety	Health and Safety
403-6	Promotion of worker health	Health and Safety
403-8	Workers covered by an occupational health and safety management system	Health and Safety

Disclosure	Description	Location
403-9	Work-related injuries	Health and Safety
403-10	Work-related ill health	Health and Safety
GRI 405: Diversity and Equal Opportunity 2016		
405-1	Diversity of governance bodies and employees	Leadership People
GRI 418: Customer Privacy 2016		
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	We had zero substantiated complaints, leaks, thefts or losses of customer data in 2019.

Sustainability Accounting Standards Board Index

Howmet Aerospace is committed to reporting against the aerospace and defense sustainability accounting standard from SASB. As ESG reporting is a journey, we will continue to more fully align our reporting with this standard in our 2020 ESG Report and beyond. This index provides a current snapshot of our reporting against this standard.

Topic	Accounting Metric	Category	Code	Report Location
Energy Management	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable	Quantitative	RT-AE-130a.1	Energy (partial)
Hazardous Waste Management	Amount of hazardous waste generated, percentage recycled	Quantitative	RT-AE-150a.1	Not reported
	Number and aggregate quantity of reportable spills, quantity recovered	Quantitative	RT-AE-150a.2	Waste and Spills
Data Security	(1) Number of data breaches, (2) percentage involving confidential information	Quantitative	RT-AE-230a.1	Not reported
	Description of approach to identifying and addressing data security risks in (1) company operations and (2) products	Discussion and Analysis	RT-AE-230a.2	Our chief information security officer, who reports to our chief information officer, oversees our data security. We protect data and users of our systems with a robust, in-depth defense strategy using industry-leading cybersecurity frameworks as implementation guides. We focus on improving both proactive and reactive technology, securing sensitive business processes and educating our users with awareness programs. We integrate data security into our enterprise risk management framework, which is regularly reviewed by our senior leaders and Board of Directors. This review includes tactical and strategic efforts, areas of focus for risk mitigation and incidents with a root cause that may direct further investment.

Topic	Accounting Metric	Category	Code	Report Location
Product Safety	Number of recalls issued, total units recalled	Quantitative	RT-AE-250a.1	Not reported
	Number of counterfeit parts detected, percentage avoided	Quantitative	RT-AE-250a.2	Not reported
	Number of Airworthiness Directives received, total units affected	Quantitative	RT-AE-250a.3	Not reported
	Total amount of monetary losses as a result of legal proceedings associated with product safety	Quantitative	RT-AE-250a.4	Not reported
Fuel Economy & Emissions in Use Phase	Revenue from alternative energy-related products	Quantitative	RT-AE-410a.1	Not reported
	Description of approach and discussion of strategy to address fuel economy and greenhouse gas (GHG) emissions of products	Discussion and Analysis	RT-AE-410a.2	Products
Materials Sourcing	Description of the management of risks associated with the use of critical materials	Discussion and Analysis	RT-AE-440a.1	Supply Chain
Business Ethics	Total amount of monetary losses as a result of legal proceedings associated with incidents of corruption, bribery, and/or illicit international trade	Quantitative	RT-AE-510a.1	Ethics, Compliance and Human Rights

Topic	Accounting Metric	Category	Code	Report Location
Business Ethics (cont.)	Revenue from countries ranked in the "E" or "F" Band of Transparency International's Government Defence Anti-Corruption Index	Quantitative	RT-AE-510a.2	Not reported
	Discussion of processes to manage business ethics risks throughout the value chain	Discussion and Analysis	RT-AE-510a.3	Ethics, Compliance and Human Rights Supply Chain



**HOWMET
AEROSPACE**

Howmet Aerospace Inc., headquartered in Pittsburgh, Pennsylvania, is a leading global provider of advanced engineered solutions for the aerospace and transportation industries. Our primary businesses focus on jet engine components, aerospace fastening systems and titanium structural parts necessary for mission-critical performance and efficiency in aerospace and defense applications, as well as forged wheels for commercial transportation.

For more information: www.howmet.com.

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