



ENVIRONMENTAL, SOCIAL
AND GOVERNANCE REPORT
2021



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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," "believes," "estimates," "expects," "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 uncertainty of the duration, extent and impact of the COVID-19 pandemic on Howmet Aerospace's operations and financial condition; deterioration in global economic or financial market conditions generally or in the markets served by Howmet Aerospace, including as a result of COVID-19 and its effects; the impact of potential cyberattacks and information technology or data security breaches; factors affecting Howmet Aerospace's operations, such as manufacturing difficulties, supply chain disruptions, natural disasters or other unexpected events; the loss of significant customers or adverse changes in customers' business or financial conditions; changes in the regulatory environment; the outcome of contingencies, including legal proceedings, government or regulatory investigations, and environmental remediation; the inability to achieve the level of revenue growth, cash generation, cost reductions, 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, 2021, and other SEC reports.

CEO STATEMENT



Howmet Aerospace is committed to improving our environmental footprint, creating a work environment where all employees can thrive, investing in the communities where we operate and maintaining good governance practices. These values, which are specified in our [Code of Conduct](#), form the basis of our environmental, social and governance (ESG) plans and are reflected in our daily work.

Our technology and advanced products also help our customers reduce their environmental impacts and carbon footprints by lowering their fuel consumption and greenhouse gas (GHG) emissions.

We accept the need for sustained action to significantly reduce GHG emissions to achieve 2050 net-zero objectives set forth by the Paris Agreement. This is a significant challenge since, as of today, there are no clear technologies or solutions available to achieve this goal.

However, there are actions we can take to move us closer to the 2050 goal of net zero. We have identified and funded 100 projects that will deliver a 21.5% reduction in our GHG emissions by 2024 based on our projected business volumes.

We also have formed a team with representatives from each of our business segments that is preparing comprehensive plans to further reduce our GHG emissions by 2030 – taking us closer to what we need to do by 2050. These plans will be funded and will be the basis of our 2030 goals. We will communicate these 2030 targets as soon as we have confidence that they are achievable.

In 2021, we continued optimizing our operations to reduce waste and water use, improve energy efficiency and decrease GHG emissions. Highlights from our ESG performance include:

- ▶ We achieved a 6.2 percent decrease in GHG emissions and 3.0 percent decline in energy consumption compared to 2020;
- ▶ We had zero employee and contractor fatalities;
- ▶ Total recordable incidents remained constant, and we saw an 8.3 percent decline in our days away, restricted and transfer rate compared to 2020;
- ▶ Water use decreased by 10.8 percent;
- ▶ Landfilled waste decreased by 6.8 percent; and
- ▶ Of our key suppliers, 81 percent have sustainability programs considered leading or active.

In addition to environmental impacts, the global COVID-19 pandemic remained an important issue as we actively worked to safeguard the health and safety of our employees, their families and their communities. Among the actions we took to minimize the spread of the virus and its more contagious variants were surveillance testing at sites in high community transmission areas and increased filtering requirements for masks.

When COVID-19 vaccines became available for the general population, we strongly encouraged our employees to become vaccinated. As a result, we achieved a 79 percent vaccination rate among our employees by early 2022, with 59 global and 21 U.S. locations achieving vaccination rates above 80 percent.

Despite the ongoing operational challenges presented by COVID-19, we maintained attention on safety and quality. We saw no material incidents related to product safety or air worthiness directives. In addition, 76 percent of our locations worldwide were without a lost workday incident. This is a tremendous testament to the dedication and focus of our talented workforce.

We maintained our focus on diversity, equity and inclusion (DEI) during 2021, with the belief that we have a responsibility to make our workplace more inclusive. While there is more work that must be done, we made strides during the year, including being named one of the “Best Places to Work for LGBTQ Equality” by the Human Rights Campaign Foundation. We were also recognized by 50/50 Women on Boards for having 40 percent of our Board of Directors made up of women. Not content to focus solely on DEI in the U.S., we introduced an employee resource group in Europe to strengthen our company culture.

Howmet Aerospace Foundation continued its giving to provide quality science, technology, engineering and mathematics (STEM) educational opportunities for underrepresented individuals and support local non-profits in the communities where our employees live. The foundation approved more than \$4.7 million in STEM-focused grants in 2021. We are proud to support organizations as varied and diverse as the Carnegie Science Center, the Pittsburgh Promise, Rainbow Railroad, Latino Health Access, Minority Veterans of America and Standup for the Cure.

This progress would not be possible without the dedication and hard work of all of our employees.

A handwritten signature in white ink, appearing to read "J. C. Plant", is positioned above the printed name and title.

John C. Plant

Executive Chairman and Chief Executive Officer

ESG AT HOWMET AEROSPACE

ESG APPROACH

We further developed our ESG approach in 2021 as we responded to the challenges, impacts and opportunities that were associated with the major topics of the year – COVID-19 pandemic, diversity and inclusion, and climate change.

Our direction remained unchanged. Wherever we operate, it's our goal to have a 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.

We believe that through our fundamentals and values, we hold ourselves to the highest levels of integrity and compliance. This strengthens our three-lever ESG approach and navigates us through the challenges.

To help guide our actions, we developed several ESG goals to address key material issues for the company and our stakeholders. During 2021, we completed a comprehensive energy and GHG target-setting process to reduce emission and water-use intensities. We believe setting attainable and realistic targets supported by action plans and funding will put us in the right position to achieve the intended environmental impact.

For all of our material topics, we have established and, where already in place, expanded on performance metrics and associated tracking systems.

In addition to providing information on key ESG topics, this report also includes insight to our priorities and initiatives. Case studies highlighted in several sections exemplify our approach and culture.

ESG APPROACH

Customer



Through our sustainable product development and innovations, enable our customers to achieve their sustainability goals. It is here where we make a substantial impact with our products, which reduce fuel consumption and improve efficiencies.

Operational



Reduce our environmental footprint by enhancing efficiency, act on our social responsibility and keep our people safe, empowered and engaged.

Supply Chain



Drive sustainability into our suppliers' processes and practices and leverage their expertise to achieve our sustainability goals.

2021 ANNUAL PERFORMANCE



0

fatalities



▼ 3.0%

energy
consumption



▼ 8.3%

days away, restricted
and transfer rate



▼ 10.8%

freshwater withdrawal



▼ 6.2%

direct and indirect
greenhouse gas emissions



▼ 6.8%

landfilled waste



▼ 44.3%

emissions of metallic
hazardous air pollutants



▲ 10.9%

hazardous waste
generation

REPORTING AND MATERIALITY

The 2021 Howmet Aerospace ESG Report was developed in accordance with the core option of the 2020 GRI Standards and the SASB Aerospace and Defense Sustainability Accounting Standard.

Our reporting is also aligned with the TCFD framework.

Together with our Form 10-K and Proxy Statement, this ESG report is part of our collective ESG-related disclosures.

We believe that standardization of ESG disclosures allows for better peer-company comparison and transparency on risks and opportunities that we face.

We periodically identify and assess our ESG impacts and review our material topics to match our report content with internal and external expectations to ensure a balanced approach between relevancy and transparency. Materiality input is obtained from various sources, including:

- ▶ External:
 - ▶ Stakeholders and providers of capital;
 - ▶ Customers and suppliers;
 - ▶ Industry associations and peer companies;
 - ▶ ESG standards and frameworks, such as the SASB standard;
 - ▶ Legislators and regulators;
 - ▶ Sustainability surveys from ratings organizations and proxy advisor policies;
 - ▶ Communities in which we operate;
 - ▶ Non-governmental organizations; and
 - ▶ Media coverage of Howmet Aerospace.
- ▶ Internal:
 - ▶ Our leadership;
 - ▶ Our enterprise risk management process; and
 - ▶ Our employees and their representatives.

We sought partial third-party assurance of our 2020 Scope 1 and Scope 2 emissions. The accuracy and completeness of all other information is verified by our internal experts and processes, which include our EHS and Ethics and Compliance audit and assessment processes.

MATERIAL TOPICS

TOPIC	BOUNDARIES
Energy	Global operations
Water	Global operations
Climate Change	Global operations
Air 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
Product Safety	Global operations

In addition to the material topics, this report contains information on other topics of relevant interest to our stakeholders.

COVID-19 PANDEMIC

COVID-19 remained a major health challenge throughout 2021,
impacting our employees, suppliers and customers.

In 2020, we focused on understanding the risk, building new controls and deploying programs to break the chain of transmission. Our aim in 2021 was implementing programs to encourage vaccination, battling the impact of virus variants and enhancing company-wide COVID-19 controls.

As a safe, effective and accessible way to mitigate the impacts of the pandemic, we embraced vaccination programs. In January 2021, we launched a global health promotion program to inform our employees about the benefits of vaccination and address any concerns or myths. Our leadership spoke out on the urgency of vaccination with several notes to employees. The pandemic team also posted bi-weekly health messages and posters under the “Lead the Way” program.

Due to our status as essential critical infrastructure, our workforce was prioritized for vaccination eligibility in several U.S. states. This initially helped when vaccines were scarce or where access was restricted during the early rollout. Where feasible, we organized on-site clinics with local health partners to make vaccinations accessible. Some of our sites went further, ordering

special deep freezers to store mRNA vaccines. We encouraged employees to get vaccinated during work hours and through paid time.

Boosting the vaccination pace was the Howmet Vaccination Lucky Draw, which we

designed to encourage more U.S. and Canadian employees to become vaccinated and thank those who had already received the vaccine. More than 400 vaccinated or vaccine-exempt employees received a US\$5,000 grand prize or US\$250 runner-up prize in the random drawing.

At the end of August 2021, our vaccination rate was 56 percent globally and

55 percent for our U.S. locations. The year concluded with a 77 percent global rate and a 72 percent U.S. rate. Ten of our locations had 100 percent of employees vaccinated by the end of the year.

Emerging COVID-19 variants like Beta, Delta and Omicron challenged our operations to build better defenses during 2021. We expanded established programs around entry screening, hygiene, mask use for vaccinated and unvaccinated individuals, social distancing, and tracing and quarantining. We also updated protocols to include weekly COVID-19 testing.

Lead The Way!

Be a Vaccine Champion.

You are critically important to our business and have been given top priority for getting vaccinated. Here's why:

1. You are critical to maintain production for the aerospace and defense industry.
2. Protecting you also helps protect your co-workers and your family, especially those who may be at higher risk for severe illness from COVID-19.
3. You matter. And you play an essential role in keeping your community healthy.

Lead The Way!

Encourage your coworkers, family and friends to get vaccinated.



Initially, we implemented the weekly testing at sites situated in communities with high transmission. In mid-October, we expanded weekly testing to all U.S. locations. Testing was established for unvaccinated employees either once a week using PCR testing or twice a week using antigen testing. By the end of the year, we identified 256 positive cases through the testing. We isolated these individuals, eliminating potential transmission on the shop floor.



During a two-day clinic at our Whitehall location in Michigan, 805 employees, contractors and members of the community received a COVID-19 vaccination.

In 2021, 2,722 employees had laboratory-confirmed cases of COVID-19, and an additional 64 employees were presumed to have contracted the virus. Most of these employees had minor symptoms, with a few having to be hospitalized. Severe COVID-19 cases resulted in 10 of our employees passing away during the year. We are deeply saddened by that loss.

Vaccination is providing our employees with strong protection against severe COVID-19 cases, which aligns with that of the communities in which we operate. Although breakthrough cases occur, severe COVID-19 is extremely rare among our vaccinated employees.

We will continue following the dynamics and risk profile of the virus and mitigate the impact at our operations. Our approach will be reflected in ongoing enhancements to our programs to keep our employees and visitors safe and safeguard business continuity with the best available tools and measures.

COVID-19 OUTCOMES

	CONFIRMED CASES	PRESUMED CASES	DEATHS
2020	1,169	183	14
2021	2,722	64	10

ENVIRONMENTAL

PRODUCTS

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

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 achieving net-zero carbon emissions by 2050, which was set in late 2021 by the International Air Transport Association. The prior International Civil Aviation Organization’s Carbon Offsetting and Reduction Scheme for International

Aviation (CORSIA), which established a goal of stabilizing international emissions at 2019 levels, will be a key initial enabler of meeting the industry’s long-term goal.



Howmet-THOR™ die-forged part

Our products and technologies are well positioned to support the industry drive to increase the use of sustainable aviation fuels (SAFs) and emerging engine technologies, such as hydrogen engines, open fan concepts and ultra-high-efficiency engine concepts.

These advancements are fully aligned with our core capabilities of developing higher temperature and lighter aerospace engine and structure products and materials.

Materials and cooling techniques that we developed enable aero engines to run hotter and under higher pressures, increasing fuel efficiency. For aerospace and defense engines, our single crystal airfoils with advanced cooling schemes operate in environments 200°C (392° F) above the melting point of the metals. That's like keeping an ice cube from melting in a hot oven.

Our Howmet-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.

We recycle and purchase scrap material to use in our alloy systems. Approximately 60 percent of the alloy content we use is made from recycled materials, negating the need to mine virgin elementals. Some alloys contain up to 100 percent reverted or recycled materials.

Other Howmet Aerospace solutions that enable an engine to withstand higher temperatures and pressures include:

- ▶ A technique for growing single crystal turbine airfoils, which is a grain structure that aligns better to centrifugal force inside the engine, resists deformation, and increases blade temperature capability and product life;
- ▶ Complex ceramic shapes that form internal passages in the turbine airfoils

to increase the efficiency of cooling air flowing across the metal surfaces;

- ▶ Advanced coatings that protect metal engine parts from extreme temperatures and the damaging effects of oxidation and corrosion;
- ▶ Rapid prototyping techniques that enable timely evaluation of iterative part configurations; 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 lighter than its predecessor.



Titanium seat rail

Our Flite-Tite® fasteners help enable large-scale, aerodynamic, lightweight and more fuel-efficient composite airframes by controlling the flow of energy in both the structure and fasteners, thereby protecting against lightning strike damage. In addition, our Ergo-Tech® blind bolt fasteners, which are designed to be installed from one side of a structure, enable the efficient production of more aerodynamic wing structures.

[Learn more](#)

COMMERCIAL TRANSPORTATION

New concepts like aerodynamics, electric vehicles and fuel-cell vehicles are having an impact on how commercial fleets operate. Other emerging issues are decarbonization initiatives, fuel emissions regulations, GHG emission standards and sustainable city transportation. Vehicles are also getting heavier due to the technologies required to meet standards driven by climate change, with every increase in weight having an impact on fuel consumption and related emissions.

Aerodynamics, which reduces air drag and consequently lowers fuel consumption and CO2 emissions, is becoming popular for fleets. In addition, a range of prototypes, demonstration trucks and commercially available hydrogen fuel-cell and plug-in electric vehicles have been introduced to the market.

In 2021, a real-world study of 13 electric trucks participating in the [Run on Less-Electric](#) demonstration found that if all U.S. and Canadian medium- and heavy-duty trucks became electric, about 100 million metric tons of CO2 emissions would be eliminated.

Electrification is all about lightweighting, and lighter wheels like our Alcoa® Wheels are becoming an increasingly important consideration as the industry moves toward a more sustainable future. Fitting vehicles with lighter forged aluminum wheels not only offsets the added weight of the battery, it also helps extend battery life and improve range.

We continue to identify ways to lightweight commercial transportation, ultimately providing the ideal opportunity to leverage sustainably efficient components while maintaining optimum freight capacity.

In addition to improved lightweighting and fuel economy, forged aluminum wheels increase freight efficiency, allowing a fleet to comply with emission regulations and

enhance payload per vehicle. Our Alcoa® Wheels are also 100% recyclable.



Alcoa Wheels

Our Alcoa® Ultra ONE® 18-kilogram (39-pound) wheel with MagnaForce® alloy is helping fleets, owner-operators and original equipment manufacturers (OEMs) reduce individual truck and trailer weight. This wheel reduces weight by up to 229 kilograms (504 pounds) on a tandem tractor trailer when aluminum wheels are specified versus steel wheels, and up to 635 kilograms (1,400 pounds) for wide-base wheels and tires.

Our innovative wheel technologies will continue to forge the future of the commercial transportation industry as it adjusts to demands for increased sustainability.

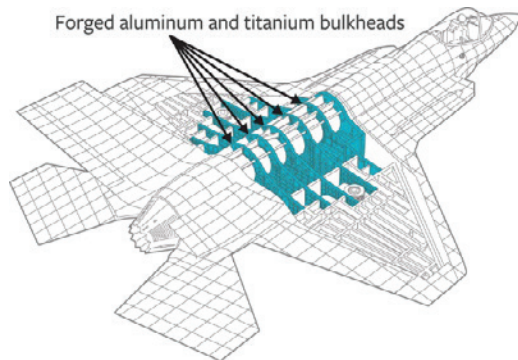
[Learn more.](#)

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 payloads. 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 advanced single crystal airfoils enable improved thrust, efficiency and loiter capability for defense engines. We're supporting the latest F135 engine technology with the world's most complex airfoils to achieve engine performance, reliability and durability.



F-35 Joint Strike Fighter

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

The F-35 also features more than 48,000 of 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.

In 2021, 5.1 million of our BobTail® lockbolts were used to assemble wind turbines in North America and Europe. This represents a 6 percent increase over 2020 usage due

to continued proliferation and adoption at leading wind-turbine manufacturers globally.

Our fasteners are used to assemble the structures in solar panel fields to improve structure reliability and reduce assembly costs. Our applications in the industry also include robust, maintenance-free electrical connections in direct current combiner boxes, which are critical components in getting solar power from the field to the grid.

During the year, we shipped 62 million BobTail lockbolts and 16 million BOM® blind fasteners to assemble 5.6 gigawatts of tracking solar fields. These fields will prevent the emission of 138,000 metric tons of carbon dioxide over their 25-year lifetime.



BobTail lockbolt

Our airfoils for industrial gas turbines (IGTs) support higher engine operating temperatures and pressures to maximize base load efficiency and reduce nitrogen oxide emissions by 40 percent. We are supporting a drive by OEMs to increase operational efficiency, such as fast starts and fuel flexibility, and turbine availability and reliability through longer-life components.

We supply the world's largest IGT blades, which are more than one meter (3.25 feet) in length. This enables combined cycle power generation of nearly 900 megawatts and pushes turbine efficiency toward 64 percent.

CLIMATE CHANGE

The 2021 United Nations Climate Change Conference (COP26) reconfirmed that climate change is a risk that faces all of us and we need to keep temperature rises within 1.5° C by aggressively mitigating carbon emissions to net zero by 2050.

We see the challenges associated with climate change as an opportunity for positive change. We expect to see major regulatory changes as well as the world transitioning to a lower-carbon economy with a price on carbon emissions. We are embracing these moves with proactive mitigation and a product portfolio that minimizes carbon usage for our customers. (See the [Products](#) section.)

During 2021, we published our first disclosure following the Task Force on Climate-related Financial Disclosures (TCFD) framework. To prepare the disclosure, we reviewed all aspects of our climate change management, including governance, strategy, risk management, metrics and targets for this maturing topic. Our updated TCFD disclosure is available on [our website](#).

CLIMATE GOALS

We believe that our role in the transition to a lower-carbon economy is aligning our direct and indirect emissions with the goals of the Paris Agreement. This means that our target framework, pace of emission contraction and ultimate goal of net zero will be based on science and proven technologies.

Our objective is to develop a credible and realistic transition plan that we have divided into a near-, medium- and long-term phases focusing on 2024, 2030 and 2050, respectively. Our first efforts target our own operations. We will target Scope 3 emissions at a later date.

In 2021, we made substantial progress by setting near-term goals that seek to align with

the 1.5° C pathway. We identified more than 100 energy-saving projects that represent an investment of US\$28.3 million. These projects are forecasted to significantly improve our energy intensity and reduce the GHG footprint of our operations by 21.5 percent by 2024 from our 2019 baseline.

NEAR-TERM GOAL



21.5% combined Scope 1 and Scope 2 GHG emissions contraction by 2024 from a 2019 baseline.

All the identified projects will reduce energy consumption, which in turn will reduce GHG emissions either directly or indirectly. We will achieve the 21.5 percent reduction target by implementing lower-carbon and energy-efficient technologies that allow us to reduce energy demand while maintaining product specifications.

In the medium term (2025 to 2030), we believe that a further reduction of carbon emissions is achievable but represents a more significant challenge. This is because we will be dependent on technological developments that we can apply in our facilities and improvement in the energy infrastructure in the communities where we operate.

A newly created Transition Technology Workgroup that consists of our segment leads on energy and technology will initiate our reduction initiative for the medium term. The workgroup will identify strategies that will

lead to opportunities to both reduce our GHG emissions per unit produced and replace fuels with renewable alternatives where technically and economically feasible. As the cost of carbon is expected to rise, we will include this aspect in the evaluations of new projects and capital expenditures to ensure our investment are sustainable.

After analyzing technological opportunities, feasibility and costs, we will build a 2025 to 2030 plan to achieve a medium-term climate goal that seeks to align with the Paris Agreement.

In the long term (by 2050 at the latest), our operations need to transform toward carbon neutral and transition from a dependency on natural gas and a carbon-rich electricity grid. We believe that clean energy, including hydrogen fuel, has potential, but its use in our industry is in the early stages with significant technological acceleration and maturation needed.

Our research and development (R&D) teams will play an essential role in developing, selecting and implementing the technologies of tomorrow that will support our GHG ambitions. We will need to manage dependencies on R&D results, affordable clean energy and supporting infrastructure as part of our plan to achieve the climate goals. We expect to detail and communicate our long-term plan as we progress through our analysis.

PERFORMANCE

Our GHG emissions are strongly correlated with our consumption of natural gas and electricity, which comprise our most significant sources of energy. We have a solid history of deploying strategic energy-intensity improvements, which has resulted in GHG intensity improvements between 2017 and 2019 and even reduced total GHG emissions while our production volumes increased prior to the downturn from the pandemic.

In 2021, we continued these efforts through a detailed review of our locations with the biggest energy consumption to identify additional projects to reduce energy consumption and improve our near-term energy intensity. (See the [Energy](#) section.)

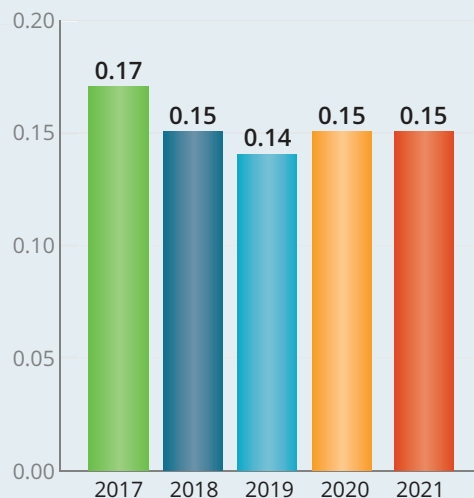
Our direct and indirect GHG emissions in 2021 equaled 0.76 million metric tons – a 6.2 percent decrease from 2020. This decline included reduced natural gas consumption (2.6 percent) and lower electricity consumption (7.0 percent).

During the year, our GHG intensity was flat compared to 2020 due to reduced energy consumption and revenue. Through implementation of the identified energy conservation projects, we expect to improve our GHG emissions intensity by 16.6 percent by 2024 from a 2019 baseline.

In 2021, we had our global 2020 Scope 1 and 2 GHG emissions reviewed and verified by an independent third party. This outside verification was a first for Howmet, and we expect that we will continue to have our GHG emissions verified on an annual basis.

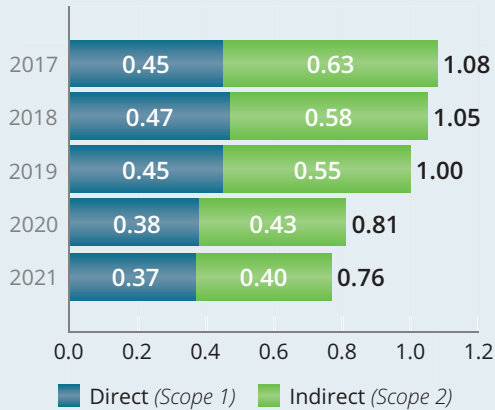
GREENHOUSE GAS EMISSIONS INTENSITY

Million metric tons of carbon dioxide equivalents per billion dollars in third-party revenue



GREENHOUSE GAS EMISSIONS

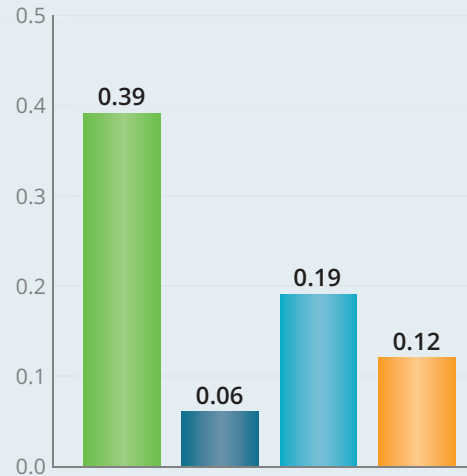
Million metric tons of carbon dioxide equivalents



The 2021 total does not match due to rounding. Gases included in the calculations are carbon dioxide, methane, nitrous oxide, and CFC and HFC from refrigerant releases (since 2020). Releases of SF6 are not considered a significant source of GHG emissions for our operations. We had zero biogenic emissions in 2021. We used the World Resources Institute's GHG protocol methodology based on operational control; regional or country Scope 1 and 2 emission factors; and 4th IPCC Assessment GWP factors. Data changes from prior reporting were due to the inclusion of diesel fuel consumption of the company-owned transportation fleet.

2021 SCOPE 1 AND 2 GREENHOUSE GAS EMISSIONS BY SEGMENT

Million metric tons of carbon dioxide equivalents

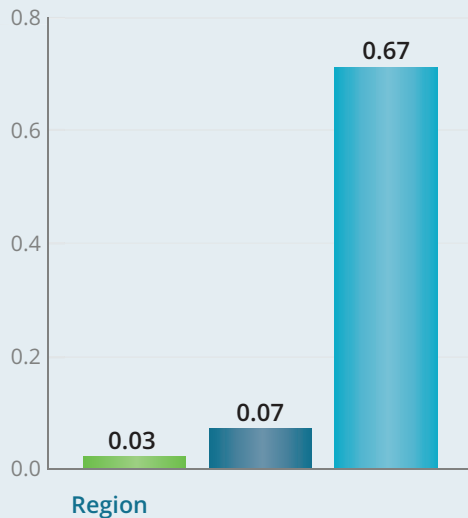


Segment

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

2021 SCOPE 1 AND 2 GREENHOUSE GAS EMISSIONS BY REGION

Million metric tons of carbon dioxide equivalents



Region

- Asia Pacific
- Europe
- North America

Since our most significant Scope 3 GHG 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.

In 2021, we embarked on engaging our suppliers to obtain a better understanding of the carbon intensity of the materials and products that they provide to us. (See the [Supply Chain](#) section.)

Our Scope 3 GHG emissions equaled 1.94 million metric tons in 2021, with purchased metals accounting for approximately 82 percent of the total. The 2021 Scope 3 emissions from purchased aluminum and aluminum scrap in North America were based on updated GHG intensity factors published in 2022. We also recalculated our 2020 and 2019 Scope 3 GHG emissions from purchased metal using these updated factors.

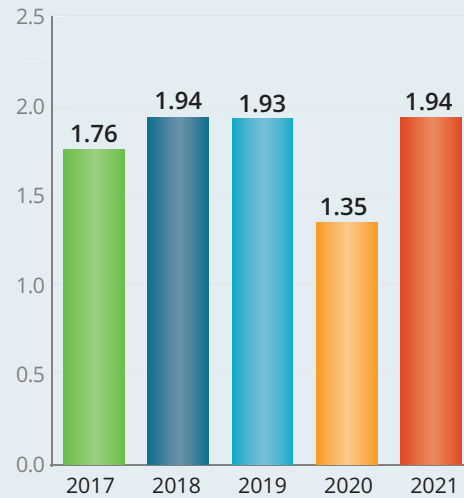
The 43.7 percent increase in our Scope 3 emissions from 2020 was almost all due to our purchasing more metals and alloys, particularly in our Howmet Wheel Systems segment. Reductions in purchased fuels and purchased electricity had a small favorable impact on these emissions, with a less than 0.1 percent decrease.

We continued our efforts to refine our Scope 3 emission estimates in 2021 by quantifying emissions from business travel, which is a category that we previously had considered immaterial and not quantified. The impact of this change was a less than 0.1 percent increase in Scope 3 emissions compared to our prior methodology.

Our climate change management efforts and performance were recognized in 2021 through a CDP climate change score of B, or “Management,” which was up from our previous score of C, or “Awareness.” Specifically, our activities around climate change governance and emissions reduction were recognized with the maximum score of A, or “Leadership.” Additional details on our 2021 CDP scores can be found in our [CDP Score Results – Climate Change 2021 report](#).

SCOPE 3 GREENHOUSE GAS EMISSIONS

Million metric tons of carbon dioxide equivalents



These values are based on WRI Scope 3 methodology for purchased goods, capital goods (since 2020), fuel and energy-related activities, upstream and downstream transportation, waste generated from operations (since 2020), business travel (since 2021) and end-of-life treatment of sold products. The 2019 and 2020 data changes from prior reporting were due to a change in the GHG intensity factor for purchased and scrap aluminum in North America.

AIR EMISSIONS

Depending upon the manufacturing process, our operations produce different types of air emissions.

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

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 2021, we continued collecting a standardized set of air emissions data from our operating locations to support alignment with external disclosure standards, such as the GRI Standards.

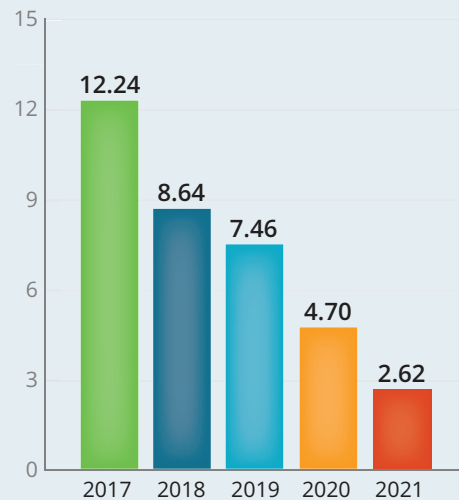
The reductions in metallic hazardous air pollutants in 2018 and 2019 reflect the addition of pollution-control equipment and updated emission factors at sites, resulting in

enhanced accuracy of the estimated emissions. In 2021, we continued these accuracy improvement efforts by conducting emissions testing at locations where mass-balance calculations were previously used.

Our 2021 air emissions were again impacted by reduced production related to COVID-19.

METALLIC HAZARDOUS AIR POLLUTANTS

Metric tons



Metallic hazardous air pollutants include chromium (total), cobalt, cadmium and nickel. The 2020 data change from prior reporting was due to a recalculation of emissions from some sites.

AIR EMISSIONS

Metric tons

	NITROGEN OXIDES	PARTICULATE MATTER	SULFUR OXIDES	VOLATILE ORGANIC COMPOUNDS
2018	405.57	360.41	3.77	213.68
2019	391.28	375.30	3.57	199.34
2020	316.10	289.90	2.78	174.39
2021	298.46	239.44	3.03	165.23

Data for 2017 is not included due to a reduced number of sites tracking and reporting these emissions in the centralized repository.

ENERGY

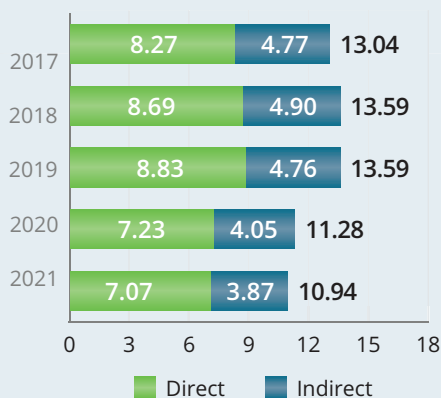
The amount and type of energy that we consume in our operations have a direct impact on our GHG emissions.

To reduce our energy consumption, we're improving our efficiency, evaluating strategies to use new technologies, reviewing footprint changes and using renewable and low-carbon fuels. We're also working to encourage compatible energy policies in regions where we're located.

During 2021, we completed an in-depth evaluation of 22 sites that are our largest energy consumers, accounting for approximately 78 percent of our 2019 company-wide energy consumption. This review identified near-term projects with potential energy savings of 1.36 million gigajoules. Implementing these projects will enable us to improve our revenue-based energy intensity by 16.6 percent, from 1.91 gigajoules per US\$1 billion in revenue in 2019 to 1.64 by 2024.

GLOBAL ENERGY CONSUMPTION

Millions of gigajoules

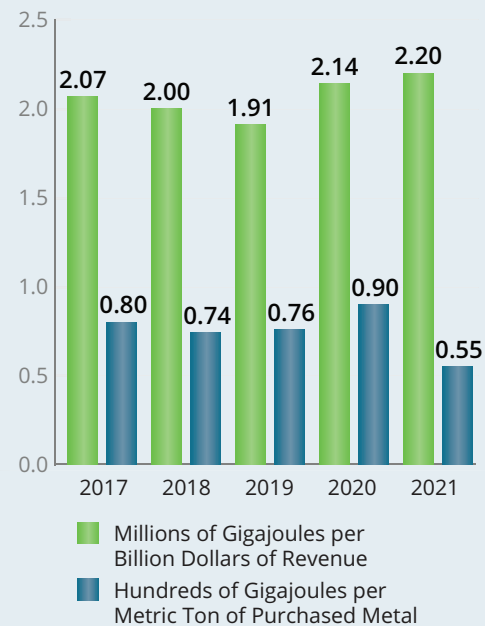


Of our total 2021 indirect energy consumption, 100 percent was supplied from the grid and 0 percent was renewable. For some locations, the December 2021 electricity and natural gas consumption was estimated due to final invoices not yet having been received. Data changes from prior reporting were due to the inclusion of direct energy from fuel consumed by our transportation fleet and a correction of purchased steam from direct to indirect energy for one location.

Our overall energy consumption was 10.9 million gigajoules in 2021. The 3.0 percent decrease over 2020 was driven by lower natural gas and electricity consumption due to our production continuing to be impacted by the pandemic.

Energy intensity based on revenue stayed generally flat compared to 2020, as our energy consumption decreased in line with revenue. Energy intensity based on purchased metal significantly improved due to increased metal conversion, particularly in our Howmet Wheel Systems segment.

ENERGY INTENSITY



Data represents all energy types consumed within Howmet Aerospace. Data changes from prior reporting were due to the inclusion of direct energy from fuel consumed by our transportation fleet.

WATER

Water is significantly valuable – to Howmet Aerospace and the communities where we’re located around the world.

To identify current water-saving opportunities, we completed an in-depth evaluation of our largest water-consuming sites in 2021. These locations account for approximately 88 percent of our company-wide consumption. Identified near-term opportunities have a potential water savings of 133.8 megaliters, enabling us to improve our revenue-based water intensity by 9.4 percent by 2024 from a 2019 baseline.

Our facilities use water primarily for cooling, plating and rinsing processes, as well as potable and sanitary uses. Our larger forging facilities are our biggest users of water, followed by our casting plants. We also have facilities that are less water-intensive but located in areas that can be prone to water stress, primarily in the U.S. states of California and Texas. Most of our operations are in industrialized areas, with 99 percent of our water from municipal supplies.

All of our locations report on the water they withdraw on an annual basis at a minimum, with withdrawal information obtained from utility invoices or reports, metering or estimation. Most of our production locations track their water use on a more frequent basis, such as monthly, to identify and respond to large, unexplained increases, including those caused by leaks.

We assess if our locations are in areas with water stress using publicly available tools, including the World Resources Institute’s [Aqueduct](#), and/or input from local governments or other stakeholders. A location identified as a larger water user and located in a water-stress area is further evaluated for opportunities to reduce its water withdrawal.

Each of our locations maintains 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. Our locations also use proper housekeeping and best management practices to minimize impacts caused by stormwater runoff.

In 2021, we again analyzed our total water withdrawal to identify the sources from which we withdrew water; capture the total water withdrawal in regions identified as having water stress; and break down our water withdrawal between fresh water and other water.

Our global operations withdrew 3,700.6 megaliters (977.6 million gallons) of fresh water in 2021. The 10.8 percent decrease from 2020 was mainly due to water conservation efforts and some reduced production.

TOTAL WATER WITHDRAWAL

	MEGALITERS WITHDRAWN	WITHDRAWAL INTENSITY (megaliters withdrawn per billion dollars of revenue)
2017	4,277.70	679.00
2018	4,367.45	642.46
2019	4,846.94	682.19
2020	4,146.44	788.75
2021	3,700.59	740.12

Rainwater not included. Some fourth quarter or December data has been estimated.

2021 WATER WITHDRAWAL BY SOURCE

SOURCE		ALL AREAS (megaliters)	AREAS WITH WATER STRESS (megaliters)
Surface Water		0	0
Fresh Water		0	0
Other Water		0	0
Groundwater		36.19	36.19
Fresh Water		36.19	36.19
Other Water		0	0
Seawater		0	0
Fresh Water		0	0
Other Water		0	0
Produced Water		0	0
Fresh Water		0	0
Other Water		0	0
Third-Party Water		3,664.40	1,545.64
Fresh Water		0	0
Other Water		0	0
Third-Party Water Withdrawal by Withdrawal Source	Surface Water		943.53
	Groundwater		602.11
	Seawater		0
	Produced Water		0
Total Water Withdrawal		3,700.59	1,581.83

Fresh water contains 1,000 milligrams of total dissolved solids per liter or less. Other water contains more than 1,000 milligrams of total dissolved solids per liter.

WASTEWATER

We require our larger water users, which represent 82.9 percent of total use, and locations that discharge wastewater directly to surface water to report on their water discharges at least annually. As with water withdraw, discharge information is obtained from utility invoices, discharge monitoring reports, metering or estimation.

Our internal standard for water and wastewater management requires that locations characterize their wastewater to assess the potential environmental impact associated with their discharge and identify any regulatory requirements that may apply

because of water quality standards, pre-treatment standards and effluent limitation guidelines. Our primary goal is compliance with location-specific water discharge permit limits.

Most of our operations discharge to local wastewater treatment plants, with many conducting onsite pretreatment prior to discharge. As such, we operate within the stringent requirements in our discharge permits and consents with oversight from various stakeholders. We have no facilities that operate in locations without local discharge requirements.

CASE STUDY

WATER SAVINGS APPROACH 50 PERCENT AT CLEVELAND OPERATIONS

The 231 megaliters (61 million gallons) of water saved at our Cleveland Operations in 2021 could fill more than 93 Olympic-sized swimming pools.

Continuing a multi-year effort to reduce its water consumption, the location held a kaizen (rapid improvement) event in February 2021 that generated an array of additional water-reduction opportunities.

One opportunity requiring no financial investment or physical modifications concerned two process water taps in the plant's boiler house that the operators used to verify water chemistry. The taps ran continuously, even though only periodic water chemistry checks were needed. The location changed its sampling procedure to only cycle water through the taps during sampling.



Cleveland Operations Water Team

Another initiative was a site-wide underground leak survey of the water supply lines. Equipment that generated ultrasonic waves detected rogue fluid motion to identify areas of concern. Several faulty valves and leaks discovered during the survey were repaired.

In 2021, the plant reduced its water consumption nearly 35 percent from prior year and 47 percent since 2018. This translated into \$1 million in cost savings during 2021 alone.

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. We recycle 100 percent of the dross from our two aluminum 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.

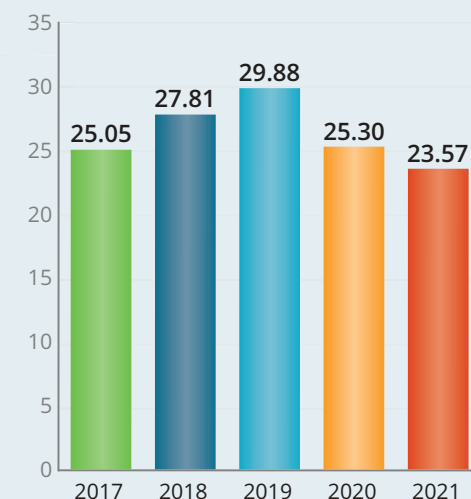
We consider all of our metals as valuable materials from both an economic and environmental footprint perspective and believe they require careful handling and processing to avoid waste. We have a detailed program to recycle scrap metal from our processes either in-house through our casthouses and melt shops in a closed recycling loop or externally through scrap handlers and processors. We landfill zero scrap metal.

In 2021, we landfilled 23,570 metric tons of waste. The year-over-year decline of 6.8 percent was due to lower production volumes. Waste intensity decreased 2.1 percent during the year.

We generated 24,950 metric tons of hazardous waste and recycled 9,730 metric tons (39.0 percent) during the year. Generation was 10.9% higher than 2020 due to increasing production volumes, particularly in our Alcoa Wheels segment, and a temporary limitation to treat and recycle on-site at one facility.

LANDFILLED WASTE

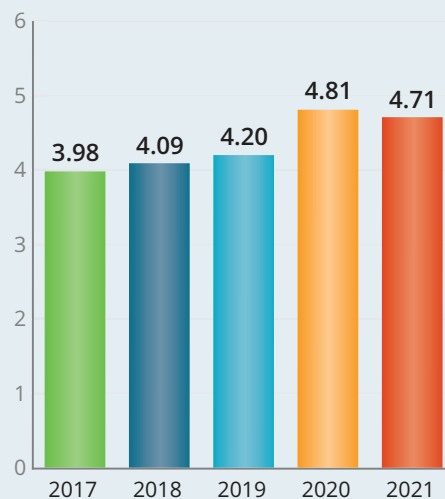
Thousand metric tons



Some fourth quarter or December data has been estimated.

LANDFILLED WASTE INTENSITY

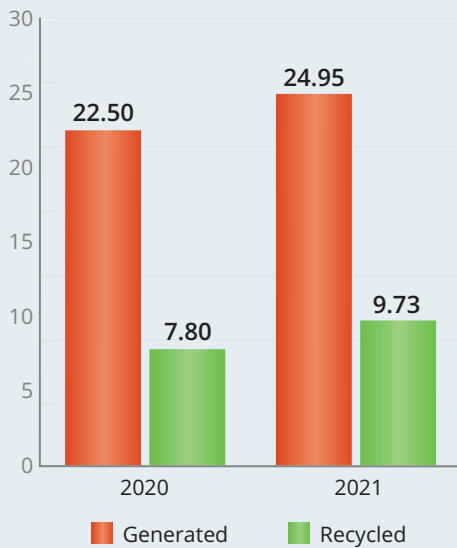
Thousand metric tons of waste per billion dollars of revenue



Some fourth quarter or December data has been estimated.

HAZARDOUS WASTE

Thousand metric tons



We began tracking hazardous waste generated and recycled during 2020. Our classification of a hazardous waste is based on the prevailing regulatory requirements in the jurisdictions where our locations generate the waste. The 2020 data change from prior reporting was due to updated information becoming available.

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.

We require our locations 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. As in 2020, we had zero reportable spills in 2021.

Our internal incident management system drives an analysis of a spill's 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 releases. We had zero significant spills or major environmental incidents in 2021, which is identical to our 2020 performance.

REMEDIATION

We are involved in ongoing and long-term assessment, cleanup and monitoring of contamination resulting from historic releases and disposal practices at current, former, divested and third-party properties.

In 2021, our payments for these activities were approximately US\$1.4 million. Our remediation reserve balance, which reflects the most probable costs to remediate identified environmental conditions for which costs can be reasonably estimated, was approximately US\$15 million on December 31, 2021.

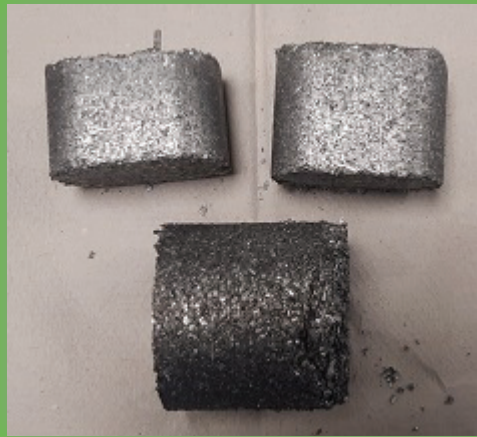
The balance increase of around US\$5 million compared to 2020 was primarily due to settlement agreements to assume a share of environmental remediation liabilities at previously owned properties in California.

CASE STUDY

CAPTURING WASTE'S HIDDEN VALUE

By capturing the hidden value – pure aluminum – in a sludge waste stream, our Howmet Köfém location in Hungary anticipates it will eliminate approximately 200 metric tons of waste and generate US\$260,000 annually from the sale of aluminum briquettes.

During the location's wheel manufacturing process, the turning and drilling of aluminum produces metal chips. Chips larger than 0.5



Aluminum briquettes

millimeters (0.02 inches) are recycled onsite in the casthouse, while smaller chips fall into and are then filtered out of the line's emulsion (liquid coolant) tanks. This filtering process produces a sludge consisting of 90 percent pure aluminum and 10 percent oil and water.

The location historically paid for the sludge's safe disposal, but a "Cost Busters" program

implemented by our Howmet Wheels Systems business spurred an onsite team to take a closer look at the value contained in the waste. The solution – separate the aluminum from the oil and water by compressing the sludge into a briquette. The team tested and analyzed the aluminum briquettes to verify they would be acceptable for local foundries to remelt and recycle into aluminum billet that Howmet Köfém then forges into wheels.

Following installation of specialized machinery, the location expects to begin producing and selling briquettes to a local foundry in 2022.

CASE STUDY

WASTE-REDUCTION PROJECT EASY ON THE PALLET

Reusing and repairing wooden pallets, reducing the number of pallet sizes and creating an organized pallet storage area eliminated more than 57 metric tons of wood waste in 2021 at our Washington, Missouri, location in the U.S.

A waste stream analysis identified wood as one of the site's three largest waste streams by volume and top four for cost. The primary reason was the lack of a process to manage used pallets, which were often thrown in the waste bin or relegated to an unorganized onsite storage area. Some of the disposed or stored pallets were in reusable condition or required minimal repair.

The location tackled its wood waste by:

- ▶ Using 5S principles (sort, set in order, shine, standardize, sustain) to organize the formerly haphazard storage area by pallet size to make it easier to find and reuse a pallet;
- ▶ Training all employees with a forklift license on 5S principles to manage used pallets;
- ▶ Reducing the number of pallet sizes from 27 to 12 main sizes;
- ▶ When possible, repairing damaged pallets or reusing the wood to make new pallets on-site; and
- ▶ Allowing employees and another company to take unusable wood scrap for repurposing.

In 2021, the location diverted an average of 4.75 metric tons of waste from the landfill each month, saving more than US\$18,000 in annual disposal costs.



The on-site pallet storage area before (left) and after

ENVIRONMENTAL COMPLIANCE

Our true north is defined in our global EHS Policy – Howmet Aerospace is committed to operating in a way 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.

In 2021, we had 45 environmental non-compliance incidents. Through our

environmental compliance process, we were able to complete corrective actions and review and close 38 incidents during the year, including 12 that originated in prior years.

One of the 2020 non-compliance incidents resulted in a significant fine, which we define

as greater than US\$25,000. We paid the fine in 2021 to settle emission-limit exceedances for carbon monoxide and particulate matter and emission testing administrative issues at our Bestwig, Germany, facility.

ENVIRONMENTAL NON-COMPLIANCE PERFORMANCE

	SIGNIFICANT FINES (US\$)	NUMBER OF SIGNIFICANT NON-MONETARY SANCTIONS	NUMBER OF DISPUTE RESOLUTIONS
2017	231,878	0	0
2018	59,000	0	0
2019	0	0	0
2020	0	0	1
2021	46,083	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. Dispute resolutions refer to cases brought through dispute resolution mechanisms.

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. Our 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 our 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.

Key topics for our chemical compliance program in 2021 were:

- Ensuring compliance with changing legal requirements following the exit of the United Kingdom from the European Union;
- Submitting notifications to the [Substance of Concern In articles as](#)

[such or in complex objects \(Products\)](#)

database, which is also known as SCIP.

These notifications are for products that we manufacture or import for commercialization in Europe that contain a substance on the REACH candidate list above 0.1 percent in weight;

- Complying with rules on persistent, bioaccumulative and toxic substances (PBTs) under the U.S. Toxic Substance Control Act (TSCA);
- Reporting to the European Chemicals Agency on our use of chromates; and
- Submitting EU Poison Center notifications on products commercialized for professional users.

In support of our aerospace customers, we are an active member of the [International Aerospace Environmental Group](#). 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.



SOCIAL

HUMAN CAPITAL

Our people make a critical difference to our success, and our investment in them protects and strengthens our company.

RECRUITMENT, DEVELOPMENT AND RETENTION

We employ an integrated approach to empower employees to achieve their career goals, reach their full potential and deliver success for Howmet Aerospace. We understand that when our people win, we win.

In 2021, we launched Runways to better align individual, team and company goals. Runways organizes our talent programs into five areas, or runways, focused on engagement, hiring, career development, performance and succession planning. Together, these runways gauge our collective action to connect, build, learn, achieve and grow as one Howmet team. Runways also draws attention to the behaviors that we care about most and guides our employees in creating careers with us that are meaningful and impactful.

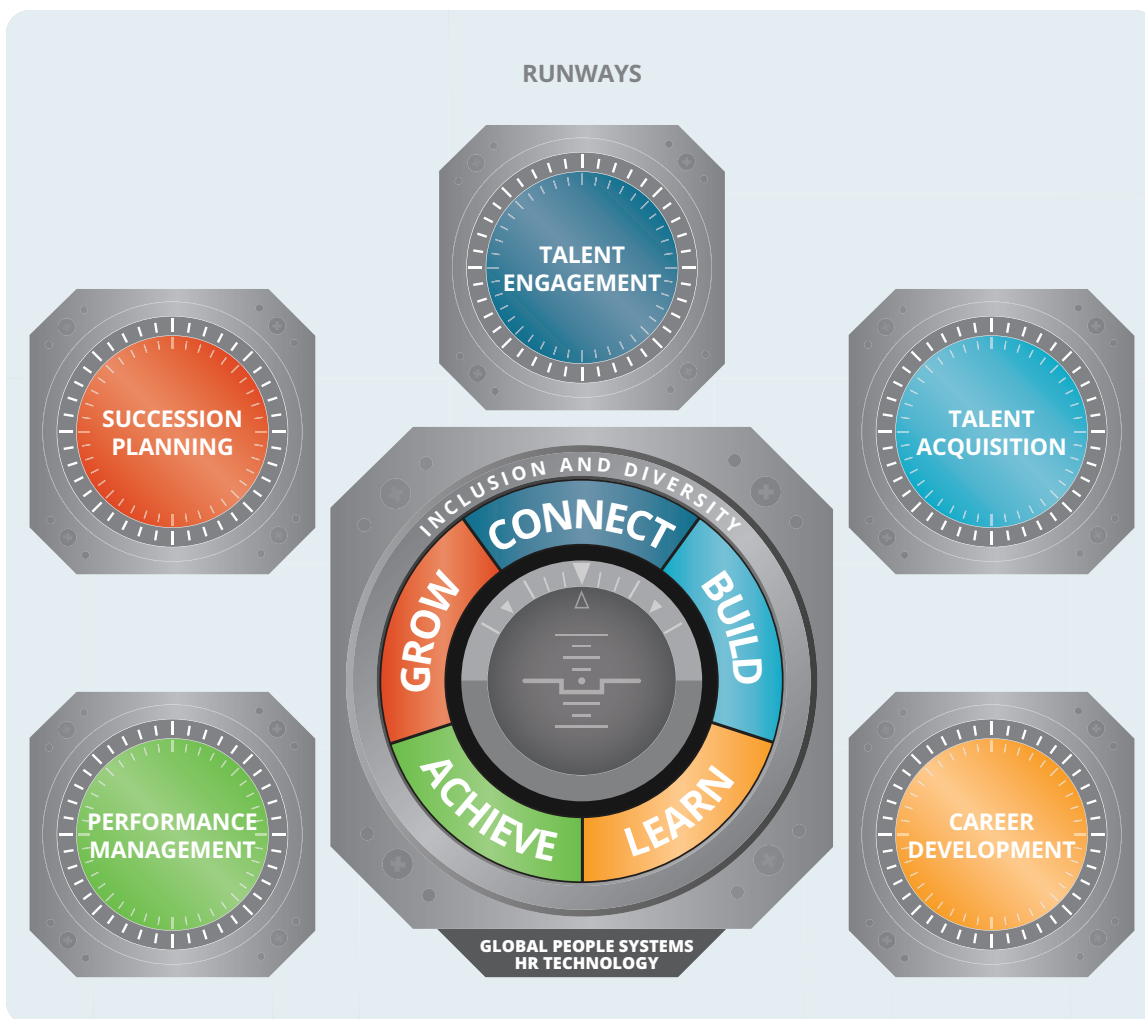
Our career development strategy includes a focus on both individual success and alignment to the future needs of the company. It is comprehensive and considers our employees' goals, the support that they need and the impact to our long-term talent pipeline. Goal achievement is enabled through formal

learning, challenging role assignments and active engagement in our culture.

Our employees are further empowered to actively participate in succession planning by sharing a comprehensive picture of their experience, qualifications, accomplishments and work desires. By entering this information into our human resources information system known as the Global People System, or GPS, more than 3,500 employees have actively informed succession planning.

We believe that challenging experiences build leaders and strengthen our future. In 2021, internal candidates successfully filled more than 17 positions at the director level and above, achieving an internal fill rate of more than 70 percent. On average, 10 percent of our leaders at the director level and above moved into new or expanded roles to continue their growth and development. A new role assignment combines the needs of the organization, candidate accomplishment and readiness for new development experiences.

We also support our emerging and growing leaders through formal Howmet leadership development programs. We



maintain a foundational series of leadership development programs that enable our future leaders to connect with others from across the globe, learn from our senior leaders, receive personalized coaching and review 360-degree feedback while expanding their leadership toolkit with new knowledge and tools.

In 2021, we intensified our focus on leadership development accessibility to ensure that our emerging and advancing leaders across the globe have equal access. Specifically, we:

- ▮ Doubled the number of employees attending a formal leadership program by expanding our investments;
- ▮ Expanded global offerings by adding

sessions specifically for employees in each of our regions – Asia Pacific, Europe, Central America and North America.

- ▮ Blended in-person learning experiences with virtual and self-paced learning sources to ensure those with time or travel constraints maintained equal learning opportunity; and
- ▮ Augmented our leadership programs with leadership development resources targeted toward developing women leaders.

We also believe strong performance management is essential and tightly integrated with activity related to career development and succession planning.

Our performance management process is built on an ongoing dialog between our leaders and employees. It begins with a designated goal-setting period, where employees and managers collaborate to set challenging performance goals that will impact our most critical business objectives. Throughout the year, leaders check in formally and informally with employees to ensure that goals remain relevant and in line with current challenges and needs and are properly supported with coaching and resources.

Using GPS, employees and managers record goals and check-in notes and gather feedback from others in a continuous cycle. We house performance plans and evaluations for more than 4,500 global employees in GPS, which tracked more than 14,000 individual performance and development goals in 2021.

During the year, we reenergized our dialog with employees by flattening our communication to get information to employees and leaders quickly in a rapidly changing COVID and market environment. We maintain regular senior leadership calls and town halls as well as a robust global intranet.

In 2021, we introduced a pulse survey to gauge employee attitudes about the company

and their specific business units while also informing leaders, creating a full circle of discussion. The overall survey results indicated that employees had a positive view of the company, with high ratings in two critical areas:

- ▮ Employees said they are treated with respect by coworkers; and
- ▮ Employees felt that our company is inclusive, and they can be themselves at work.

Employee feedback also emphasized the importance of relationships and human connection considering the restrictions imposed by pandemic requirements.

Employees from various locations noted that the company did a good job protecting them in response to COVID-19, as critical manufacturing continued during COVID-19 lockdowns.

In response to the survey's results, we introduced a hybrid working model, where employees work in the office three days a week and at home two days a week. This approach is an investment in our employees' well-being and safety as well as in our business.

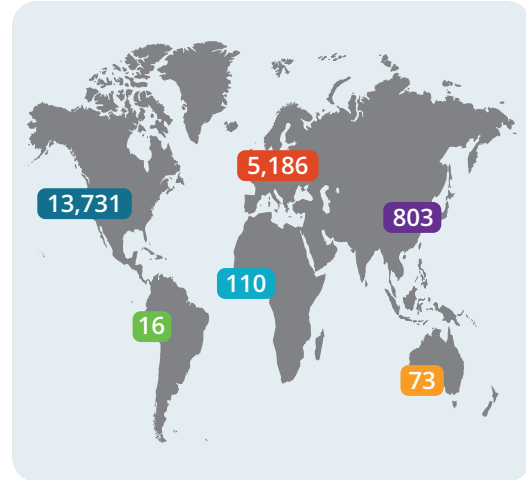
2021 EMPLOYEES

	CONTRACT		TYPE	
	PERMANENT	TEMPORARY	FULL-TIME	PART-TIME
Male	13,813	119	13,882	50
Female	5,059	55	5,030	84
Not Specified	7	0	7	0
Total	18,879	174	18,919	134

Data does not include employees in Germany due to data privacy laws regarding employment type.

2021 EMPLOYEES BY REGION

	PERMANENT	TEMPORARY	TOTAL
Asia	740	63	803
Australia	73	0	73
Europe	5,089	97	5,186
Middle East and Africa	105	5	110
North America	13,701	30	13,731
South America	16	0	16



Data includes employees in Germany.

2021 NEW EMPLOYEE HIRES BY AGE

	MALE	FEMALE	NOT SPECIFIED	TOTAL
Under 30	1,109	541	5	1,655
30-50	1,094	567	3	1,664
Over 50	306	146	1	453

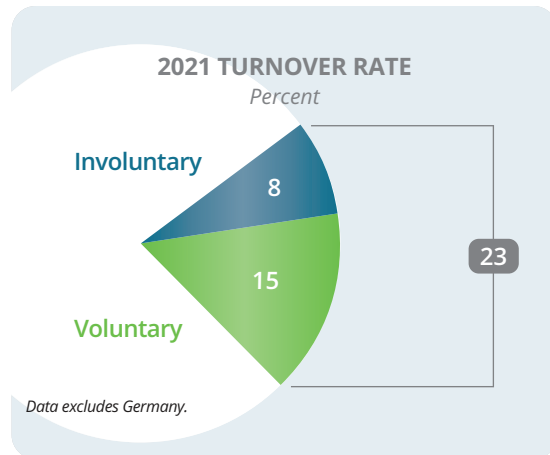
One new hire did not provide their date of birth.

2021 EMPLOYEE TURNOVER BY AGE

	MALE	FEMALE	NOT SPECIFIED	TOTAL
Under 30	815	376	2	1,193
30-50	1,334	547	0	1,881
Over 50	870	361	1	1,232

2021 NEW EMPLOYEE HIRES BY REGION

	MALE	FEMALE	NOT SPECIFIED	TOTAL
Asia	85	9	1	95
Australia	3	3	0	6
Europe	435	107	3	545
Middle East and Africa	5	3	0	8
North America	1,980	1,131	5	3,116
South America	1	2	0	3



2021 EMPLOYEE TURNOVER BY REGION

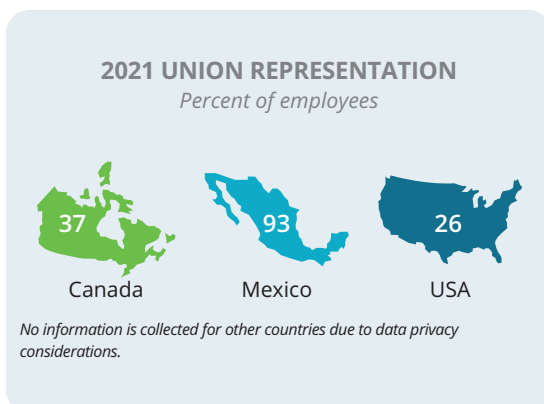
	MALE	FEMALE	NOT SPECIFIED	TOTAL
Asia	55	21	0	76
Australia	4	6	0	10
Europe	596	180	2	778
Middle East and Africa	10	5	0	15
North America	2,352	1,072	1	3,425
South America	2	0	0	2

LABOR RELATIONS

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

Our business and human resources leaders work directly with union representatives to negotiate our collective bargaining agreements and comply with those agreements. Continual collaboration at the local level has resulted in improved effectiveness of our dispute resolution processes.

In 2021, we established union representation at our Laval facility in Quebec, Canada, and employees voted to remain union free at our LaPorte location in the U.S.



Through collaboration with our global union partners, we were able to respond to complicated business challenges in 2021, such as labor increases due to industry recovery and COVID-19-related requirements.

WORKFORCE DIVERSITY, EQUITY AND INCLUSION

We believe that by providing a workplace that fosters diversity, equity and inclusion, we can build more effective teams, encourage innovation, and better attract and retain top talent.

Diversity, equity and inclusion is not only a legal and social imperative, it's also a business imperative that's key to our future success. We aim to create a workplace that reflects the diverse communities in which we live and operate and that will empower our employees to achieve their highest potential.

In 2021, we further diversified our Board of Directors with the addition of Sharon Barner. We also added a minority woman to our senior leadership team – Lola Lin, executive vice president, chief legal officer and secretary.

To enhance our diversity disclosures, we expect to publish our consolidated 2021 EEO-1 report for our U.S. workforce when it is available on Howmet.com.

Our talent program includes investing in our future leaders, inclusive hiring and leadership training. We have partnered with several non-profit and community organizations that build future talent and engage diverse talent through a variety of networks.

Examples of these partnerships include the following:

- We established a partnership with [The Pittsburgh Promise](#) to fund education for diverse and underserved youth, providing scholarships and career support to youth interested in

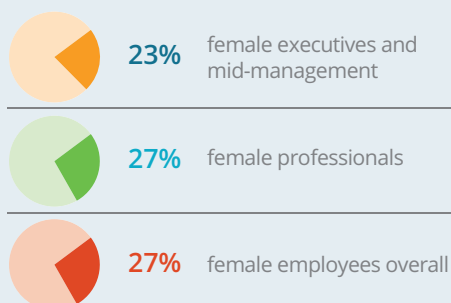
2021 EMPLOYEE DIVERSITY

	GENDER			AGE		
	MALE	FEMALE	NOT SPECIFIED	UNDER 30	30-50	OVER 50
Board of Directors	6	4	0	0	1	9
Officers and Assistant Officers	6	4	0	0	4	6
Employees	13,932	5,114	7	2,635	9,193	7,224

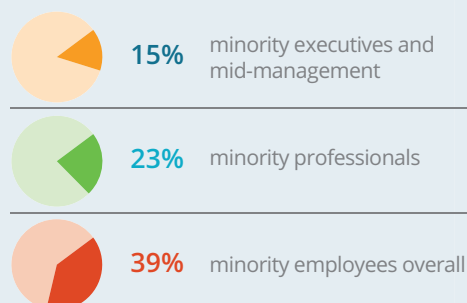
One employee did not provide their date of birth. Data does not include employees in Germany due to data privacy laws regarding gender and age.

2021 WOMEN AND U.S. MINORITY REPRESENTATION

Global Women



U.S. Minorities



Minorities represent employees who identify as Asian, African American, Alaska Native, American Indian, Black, Hispanic, Latino, Native Hawaiian, Pacific Islander, or two or more races.

aerospace. Our leaders will share career guidance, mentor these students and assist them in growing a professional network that might normally be out of their reach. We have committed to funding this program for 2021 to 2025.

- To reach veterans, we've built a partnership with [Heroes Make America](#) to connect existing and future employees and showcase the careers of many of our veterans.
- We've connected with the [Tent Partnership for Refugees](#) to reach a new workforce and support our changing communities by helping

refugees develop their skills and identify mentors and career opportunities.

We provided leadership and awareness training to provide a strong foundation for building a diverse, equitable and inclusive organization. In 2021, 164 women and diverse employees participated in our leadership training programs. We also facilitated 13 diversity awareness training events and sponsored 33 placements at conferences focused on developing women. Through these and other focused efforts, we have improved the diversity of our leadership and our overall workforce, specifically in the representation of women and diverse employees.

HOWMET LEADERSHIP DEVELOPMENT PROGRAMS

	TOTAL PROGRAM ATTENDANCE		HOWMET BUSINESS ESSENTIALS		HOWMET MANAGEMENT ESSENTIALS		HOWMET ORGANIZATIONAL LEADER DEVELOPMENT	
	ALL LEVELS		TARGETS EMERGING LEADERS		DEVELOPS PEOPLE LEADERS		DEVELOPS ORGANIZATIONAL LEADERS – SENIOR AND EXECUTIVE	
	2020	2021	2020	2021	2020	2021	2020	2021
Total Participants	88	164	30	60	40	80	18	24
Diverse	—	—	36%	27%	47%	28%	11%	4%
Women	—	—	30%	44%	36%	36%	22%	24%
Identified as Leadership Successor	—	—	50%	80%	50%	100%	100%	100%

We have expanded our diversity, equity and inclusion initiatives through investments in institutions serving minority populations, outreach programs and employee engagement through participation in our employee resource groups (ERGs).

Our ERGs are voluntary, employee-led groups sponsored by our senior leaders and fundamental to building our culture of inclusion. The groups are focused on women, LGBTQ+, African heritage, Hispanic, veteran and next generation. In 2021, we added the European Diversity Employee Resource Group, which is focused on connecting our European employees with one another to build inclusion and diversity across our locations in England, France, Germany, Hungary, the Netherlands and Italy.

These networks help connect employees with diverse backgrounds and perspectives to drive inclusion through collaboration, education and sponsorship. In 2021, our ERG membership grew by 32 percent, and we had more than 810 active ERG members at the end of 2021.

Through our ERG's active involvement in our local communities and collaboration with the Howmet Aerospace Foundation, we have provided \$14.9 million in grants. These include grants focused on quality and science, technology, engineering and mathematics (STEM) for underrepresented individuals and organizations.

We received recognition for our diversity, equity and inclusion efforts from the Human Rights Campaign Foundation as one of the Best Places to Work for LGBTQ Equality; 50/50 Women on Boards for having 40 percent of our 2021 Board of Directors made up of women; Forbes Best Employers 2021; and DiversityJobs.com 2021 Top Diversity Employer in the aerospace industry.

CASE STUDY

RUNWAY TO SUCCESS

A passion for helping members of the military transition to civil careers as well as a strong desire to develop his own skills as a leader have put Wil Dickens on a runway to personal, team and company success.

A 24-year veteran of the U.S. Marine Corps, Dickens serves as operations manager at our Rancho Cucamonga location in California. His military experience in aviation logistics and maintenance and as a combat arms officer formed a strong foundation upon which to build his Howmet career through our Runways approach.



“The organization has created numerous opportunities for me to develop, grow, advance and be promoted,” said Dickens. “When I joined the company, I asked for and received a mentor through the company’s African Heritage Employee Resource Group to help me better understand financials and how to engage with people in more senior positions. I’ve also participated in the Howmet Management Essentials leadership program, which further developed my leadership skills and connected me with others who have the same desire to build a career rather than have a job.”

Looking to help military veterans in our workforce, Dickens joined our Veterans ERG. He also participated in a Heroes MAKE America recruiting event to assist veterans seeking positions in manufacturing.

“I know the challenges of transitioning from serviceperson to civilian, and I’m passionate about helping others navigate through this,” he said. “Working with the ERG and participating in recruiting events let me provide guidance to others with similar backgrounds and life experiences to create opportunities for them. On a personal level, these activities help me further develop the communication and relationship skills that I use in my regular job.”

He adds, “Howmet’s value of caring for people aligns with the values instilled in me during my time in the military. I see that displayed every day in the opportunities offered to me and my employees.”

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](#) sets requirements for which our businesses and locations are held accountable and measured against. Our leaders, from our 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 aim for 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 updates with our Executive Lead Team. Our employees also have access to the plan as well as health and safety requirements and results to ensure transparency and accountability.

Health and safety programs can only be truly effective if they include the input from our employees. Ensuring broad engagement – both formally and informally – is at the center of our program deployment. Formal engagement may occur locally, such as through works councils in many of our European locations. Depending on union agreements, employee participation may be organized through safety committees or other platforms to allow for input and discussion.

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 largest office sites and applies to all employees, contractors and visitors.

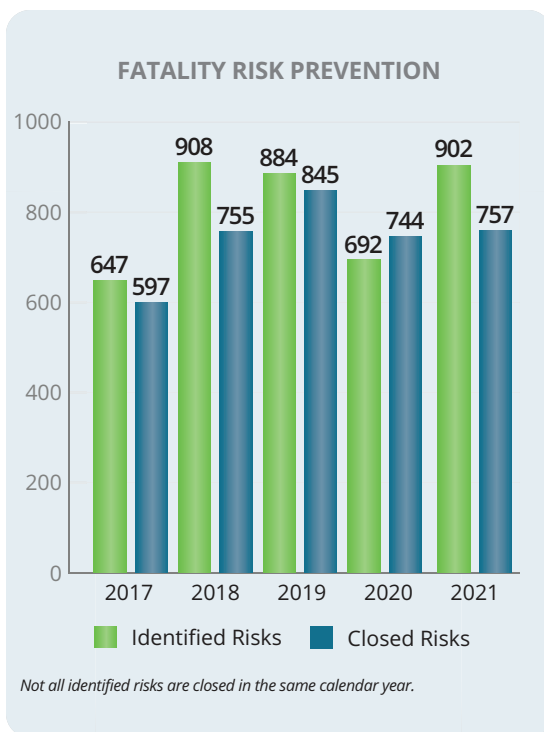
Additional information on our health and safety programs can be found on our [website](#).

SAFETY

We had zero work-related employee or contractor fatalities in 2021, which was the 18th consecutive year that our locations achieved this important milestone.

Prevention of fatal and serious injuries remains a major focus. We require each business to review its operations annually and identify key EHS risk areas for improvement at least once per quarter. We prioritize fatal and serious injury risks that have the potential for life-altering outcomes, with mobile equipment remaining the highest fatality risk within our global operations.

Under our fatality prevention program, we have a multidisciplinary team at each site that is chaired by the location manager. The team proactively identifies safety risks, looks for root causes, ensures competent support, addresses gaps and reduces risk. In 2021, we increased our identification of fatality risks by 30.3 percent and our closed risks by 1.7 percent.



We support a safety culture in which employees feel comfortable speaking up to raise health and safety questions and concerns. They 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 2021, most of our key safety rates were comparable to our 2020 performance, and we remained significantly below the most recent U.S. industry averages. Our days away, restricted and transfer (DART) rate was 8.3 percent lower than prior year, and our total recordable incident rate was flat. Our lost workday rate, which is a subset of the DART cases, increased 25.0 percent due to more cases leading to lost time versus restrictions or transfers.

At the end of 2021, 69.4 percent of our locations globally had worked 12 consecutive months without a DART incident, 75.5 percent without a lost workday and 45.9 percent without a total recordable incident.

Although we experienced increases in our contractor DART and lost workday rates compared to 2020, the multiyear improvement trend continued. Performance in 2020 was unique due to the pandemic's impact and reduced contractor activity.

INCIDENT RATES

Employees and supervised workers

	FATALITIES	DAYS AWAY, RESTRICTED AND TRANSFER	LOST WORKDAY	TOTAL RECORDABLE INCIDENT
2017	0	0.49	0.18	1.23
2018	0	0.35	0.20	1.08
2019	0	0.25	0.12	0.90
2020	0	0.24	0.12	0.71
2021	0	0.22	0.15	0.71

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
2017	0	0.69	0.41	1.24
2018	0	0.36	0.31	1.04
2019	0	0.36	0.24	0.84
2020	0	0.11	0.11	0.50
2021	0	0.34	0.23	0.45

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 periodically conduct an audit to assess the location's implementation of the EHS management system and conformance with regulatory and Howmet Aerospace requirements.

The COVID-19 pandemic combined with travel restrictions caused us to suspend our in-person audits in 2020. We restarted the process in July 2021 but were forced to postpone several audits later in the year due to a worsening global COVID-19 situation.

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. This philosophy extends to health, environmental and other production observations.



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 hazards and other requirements.

In 2021, our Global Safety Committee initiated a project to provide locations with on-line EHS learning tools to expand our reach to employees. Locations will be deploying these tools along with classroom EHS learning in 2022.

Our global health, safety and environmental committees shared more than 20 hours of EHS professional development on a variety of technical topics in 2021.

Facility and Operational Risk

In addition to protecting the health and safety of our employees, we also focus on the safety of our facilities and operations.

We made significant progress in facility and operational risk reduction in 2021, with our locations investing in process and facility improvements to prevent loss through fire and natural disasters. Between June 2020 and the end of 2021, we closed more than 470 risk-improvement activities. We also reduced our facility loss expectancy by more than US\$7 billion by investing in excess of US\$4.5 million in capital in 2020 and 2021.

OCCUPATIONAL HEALTH

Regardless of the size of the location, all of our employees and select embedded contractors have access to occupational medicine services to optimize their health and well-being. These services include regulatory-required 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.

We provide occupational medical services in agreement with internal standards that set expectations around confidentiality, qualifications, quality and regulatory requirements. Where we involve third-party services, the providers must abide by our internal standards as a minimum.

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

Industrial noise is an inherent risk in the metals industry due to the processes and equipment in use. Within our operations, we deploy a comprehensive hearing conservation program that focuses on the elimination or reduction of harmful noise exposures through process changes and engineering controls. Hearing protection is in place where we are installing engineering controls or where other controls are not feasible to bring noise levels below 80 decibels.

During 2021, we launched new initiatives focused on reducing and controlling employee exposure to chemicals at our businesses and locations. These included a multiyear effort to enhance our controls around ventilation and extraction systems that is focused on training our professionals and maintenance technicians and developing inventories of control equipment.

We also continued our year-over-year efforts to eliminate specific chemicals, move employees away from areas where chemicals are used and ensure stringent adherence to requirements for personal protective equipment.

During 2021, we identified and eliminated an additional 23 ergonomic risks through job analyses, workplace surveys and other proactive methods.

HEALTH PROMOTION

As part of our responsibilities as an employer, we work to ensure our employees and their dependents have access to quality healthcare.

Subject to location, country and union contract, we have a broad range of healthcare coverage arrangements. The following address the majority of our employees:

- ▶ Canada, France, Germany, Hungary and the United Kingdom: Employees have state-regulated access to high-quality and accessible health services. Depending on the plan, we may contribute financially to state or private insurance funds as part of the labor premiums. Depending on the country, we provide additional coverage related to health and welfare for some populations.
- ▶ Mexico: Employees have required government-provided healthcare, and we also provide additional coverage depending on union or non-union status.
- ▶ United States: Employees have access to company-sponsored health and welfare plans, including medical, prescription, dental, vision, life and disability coverage. These plans are administered by large and well-known third-party insurance providers.

Similar to 2020, our health promotion campaign was centered around the COVID-19 pandemic. The focus moved from awareness and infection prevention to encouraging vaccination by providing science-based and unbiased information. The campaign was aimed at promoting work-related health but also included off-the-job COVID-19 prevention to protect our employees, their families and the communities in which we operate. (See the [COVID-19 Pandemic](#) section.)

Individual employee results from any company health promotion are treated confidentially. We analyze only aggregated and anonymized information to evaluate the efficacy of our activities.

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 our customers, suppliers and employees; the people who live in the communities where we operate; shareholders and lenders who provide our financial capital; 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](#) is an independently endowed private foundation with assets of approximately US\$200 million in 2021. The foundation directs a significant portion of its grantmaking each year to nonprofit organizations in communities around the world to develop partnerships and strategies that address specific community needs and interests where Howmet Aerospace has operating facilities.

Through collaboration with our nonprofit partners, our initiatives make quality STEM educational 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 2021, Howmet Aerospace Foundation disbursed more than US\$4.7 million in STEM-focused grants. These included US\$1.8 million to the Carnegie Science Center in Pittsburgh, Pennsylvania, for the “Our Destiny in Space” exhibition and the “Flight Path to Career and Community Readiness” initiative.

The foundation also disbursed US\$2.8 million in grants focused on diversity, equity and inclusion. These included a US\$20,000 grant to [Rainbow Railroad USA](#) in New York, New York; US\$30,000 to [Latino Health Access](#) in Santa Ana, California; and US\$200,000 to the [It Gets Better Project](#) in Los Angeles, California.

Other supported initiatives during the year addressed a variety of local needs in the communities where we operate. Grants included:

- ▶ US\$100,000 to the Hungarian Charity Service of the Order of Malta in Budapest, Hungary;
- ▶ US\$60,000 to Fundacion Universidad Autonoma de Nuevo Leon AC in Monterrey, Mexico;
- ▶ US\$40,000 to Nomi Municipal Terai Elementary School in Nomi, Japan;
- ▶ US\$40,000 to Young Enterprise in London, United Kingdom;
- ▶ US\$100,000 to the Kids’ Food Basket in Grand Rapids, Michigan;
- ▶ US\$40,000 to Aktion Lichtblicke e.V. in Koeln, Germany
- ▶ US\$135,000 to the Pat Tillman Foundation in Chicago, Illinois;

- ▶ US\$60,000 to Mission Locale Sarthe Nord in Mamers, France;
- ▶ US\$175,000 to the La Porte Economic Advancement Partnership in La Porte, Indiana; and
- ▶ US\$220,000 to the American Red Cross Los Angeles Region in Los Angeles, California.

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

CASE STUDY

PATCHES OF BUTTERFLY CONSERVATION

In several milkweed patches on our campus in Whitehall, Michigan, two local elementary teachers can be found studying ways to improve the monarch breeding habitat to help conserve and increase the population of these once prolific butterflies.

The monarch population has decreased significantly in recent decades due to pesticide use, land development and deforestation. Milkweed is an important part of the butterfly's lifecycle since it serves as a host plant for monarch caterpillars.

At our Whitehall location, fourth grade teachers Gabriel Knowles and Britney Christensen are participating in the [ReGrow Milkweed for Monarchs](#) citizens project run by Landis Lab at Michigan State University. The project is studying ways to improve the monarch breeding habitat, specifically if cutting back milkweed plants in early or mid-summer encourages monarchs to lay more eggs as they prefer new milkweed stems. The regrown stems also appear to be a safer environment for eggs and young caterpillars since they contain fewer spiders, ants and other predators.

"Before I was a teacher, I worked for Howmet in Whitehall," said Knowles. "I remembered participating in an education outreach program with Ealy Elementary School where employees went into classrooms to facilitate science activities with students. I knew Howmet was a strong supporter of education outreach, so I approached the company."

Knowles and Christensen have taken what they've learned in our milkweed patches directly into their classrooms to inspire their students to be engaged in the world around them. Their efforts build upon our long-standing support of STEM education in the local community.



A Monarch caterpillar and butterfly make use of a milkweed patch on our Whitehall campus.

PRODUCT SAFETY

Product safety is an integral part of our business model and strategy for growth and value creation. We are committed to offering products that meet the highest safety standards throughout their entire life cycle.

We seek to meet or exceed regulations and industry and market requirements while addressing the safety needs and concerns of our customers and other stakeholders. We strive to constantly evaluate and improve our products to ensure they're as safe as possible.

Regardless of job assignment or title, all of our employees are mindful of, and held accountable for, the quality of their product or service for both internal and external customers.

Our Product Safety Management System (PSMS) and policy provide the foundation of product safety and quality. This systematic approach guides our planning, implementation and control of the processes needed to assure product safety during all stages of the manufacturing process.

We minimize risks related to, or in direct support of, product manufacturing throughout the product life cycle. We continuously improve and mitigate product risk through identification, data collection and analysis, and continuous risk assessment associated with product recalls, counterfeit parts, number of airworthiness directives and monetary losses. Through our PSMS, we seek to proactively assess and control risks before they result in the failure of manufacturing systems.

Our enterprise risk management (ERM) process consists of monitoring and reviewing the risk levels of already-identified enterprise risks, such as product quality and safety, and identifying any new enterprise risks we might have. All identified key risks have a mitigating action plan to manage the risk and are

detailed in our annual 10-K. We present the status of key enterprise risks to our Board of Directors annually.

ASSURANCE

Providing independent assurance on product safety is critical to our PSMS. We conduct extensive internal audits and work with our customers, who frequently conduct product safety audits at our facilities.

We also engage third parties to conduct annual audits to ensure product safety as part of AS9100D, IATF 16949 (ISO/TS 16949) certification and other relevant product safety and quality standards.

In 2021, we recalled 22 ALCOA® Wheels products. These wheels may not be able to support the load under certain circumstances, which can cause them to bend or break while in use. There are no known injuries or fatalities associated with this recall. For more information, refer to [NHTSA Campaign Number 21E007000](#).

PRODUCT SAFETY-RELATED RECALLS

	VOLUNTARY	INVOLUNTARY
2018	0	0
2019	0	0
2020	0	0
2021	1	0

Consistent with the definition in the U.S. Consumer Product Safety Commission's Recall Handbook, a recall is any repair, replacement, refund or notice/warning program intended to protect consumers from products that present a safety risk.

DETECTED OR SUSPECTED COUNTERFEIT PARTS IN HOWMET AEROSPACE OPERATIONS

	ACTUAL	SUSPECTED
2018	0	0
2019	0	0
2020	0	0
2021	0	0

Counterfeit parts and suspected counterfeit parts are defined according to definitions contained in U.S. 48 CFR Part 252.246-7007, Contractor Counterfeit Electronic Part Detection and Avoidance System. Counterfeit parts may increase the risk of safety incidents due to low product quality.

AIRWORTHINESS DIRECTIVES

	NUMBER
2018	0
2019	0
2020	0
2021	0

An airworthiness directive is a legally enforceable rule issued by the Federal Aviation Administration (FAA), the Department of Defense (DoD) or non-U.S. equivalent that applies to aircraft, aircraft engines, propellers and appliances.

PRODUCT SAFETY MONETARY LOSSES

	U.S. DOLLARS
2018	Not disclosed
2019	0
2020	0
2021	0

Losses are from legal proceedings associated with product safety, including but not limited to the enforcement of relevant industry regulations, such as the U.S. Consumer Product Safety Act, U.S. Federal Aviation Act and U.S. National Electrical Code.

Like other manufacturers, we and our subsidiaries have been named as defendants in legal proceedings relating to product safety in which third parties have alleged that products manufactured by us or our subsidiaries are defective and have contributed to incidents that caused injuries to people and/or damage to property. The precise nature of these proceedings is varied, but rare.

In 2018, we settled LeBlanc, et al. v. Howmet et al., a matter arising out of a helicopter accident in the Gulf of Mexico. We resolved the case for an undisclosed payment.

This information reflects legal proceedings involving only the continuing operations of Howmet Aerospace Inc. It does not include subsidiaries of Arconic Inc., some of which were transferred to Arconic Corporation as of the April 2020 separation transaction.

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 2021, we received 315 new concerns, questions and comments through this hotline and ensured that each was addressed. As a result of issues raised, we implemented 75 corrective actions during the year that included discipline, training, coaching and process improvements.

The amount of activity and the resulting corrective actions were often linked to the COVID-19 pandemic due to significant staff reductions, temporary plant closures and a focus on reporting COVID-related activities. Reporting on COVID issues from shop floor and other employees provided valuable input – mostly early in the pandemic – and informed our strategy. Each facility has a COVID team that addresses any COVID-related reports immediately.

During 2021, we had zero monetary losses or penalties associated with incidents of corruption, bribery or illicit international trade. In countries ranked in the “E” or “F” bands of Transparency International’s Government Defense Anti-Corruption Index, we had US\$94.6 million in combined revenue from our four businesses. Of the total revenue in the E and F bands, 76 percent was generated in China from all four businesses. In Brazil, four of our businesses generated 17 percent of the total E and F band revenue. The remaining 7 percent of E and F band revenue came from Morocco, Thailand, United Arab Emirates, Kuwait, Republic of Cote d’Ivoire, Jordan, Qatar, Bahrain, Sri Lanka and Saudi Arabia. Our Howmet Engine Products and Fastening Systems businesses generated the majority of this revenue.

Our Ethics and Compliance (E&C) 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.

Despite the challenges of the pandemic, we maintained a strong E&C Program during the year. New and ongoing initiatives included:

- ▶ Partnering with our global learning management team to improve training completion reporting;
- ▶ Assisting our human resources leadership to ensure 100 percent completion for online training courses;
- ▶ Providing quarterly training on the Code of Conduct for new hires through our New Hire Onboarding Training Program;
- ▶ Deploying an annual Conflicts of Interest Survey, which we distributed to salaried employees globally with a 100 percent completion rate;
- ▶ Continuing implementation of a third-party solution that provides oversight of third-party intermediary relationships, including risk-based reviews, due diligence, annual certification tracking and ongoing monitoring;
- ▶ Training employees on topics that included the Code of Conduct, conflicts of interest, anti-harassment, reporting to our Integrity line and anti-corruption. All training is tracked, with the goal of

100 percent completion. In 2021, we implemented training under a new system that assigned a full year of training to new employees as they joined the company. Despite the added assignment burden, we achieved 99.5 percent completion.

- ▶ Partnering with our chief legal officer's office to issue six "Tear Sheets," which provide training on significant legal and compliance issues based on prominent, real-life cases;
- ▶ Issuing eight Leading with Integrity emails covering compliance topics. The emails used internal investigations as case studies to emphasize the importance of compliance with internal policies and procedures and to identify the discipline implemented for these cases; and
- ▶ Partnering with our audit function to provide a compliance presentation to the leaders of 21 facilities during their audit period. The presentations were made to an average of four people during each audit – manager, controller, head of human resources, and either director of sales or director of procurement. The presentation explained government incentives and expectations for corporate compliance programs, our company history and what the Ethics and Compliance program does to meet the government expectations.

Additional information on our ethics and compliance program can be found on [our website](#).

SUPPLY CHAIN

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

As a global company, we conduct business with more than 12,000 suppliers around the world who are expected to demonstrate responsible and sustainable conduct by following our [Supplier Standards](#) and our [Code of Conduct](#).

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.)

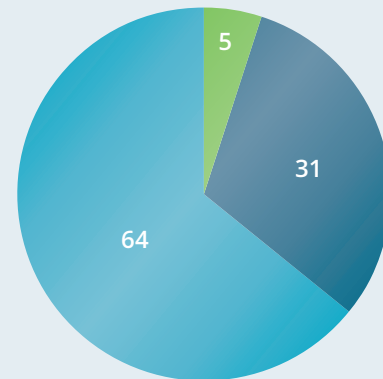
Before considering any potential new supplier, we perform due diligence to ensure the supplier is not in the consolidated database of the U.S. Department of Commerce International Trade Commission's denied and restricted parties. We do not partner with any suppliers who appear on this list.

To manage risks associated with suppliers that provide critical materials and services, we are leveraging master agreements with our preferred vendors where possible to secure pricing and negotiated terms and conditions. When needed, we engage with these vendors on potential supply chain disruptions and what actions can be taken to mitigate that risk.

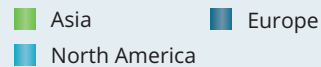
We are committed to the responsible sourcing of materials and components necessary for the production and functionality of the products we manufacture. Additional information is available in our most current [Specialized Disclosure Report on Conflict Minerals](#) and Conflict Minerals Policy Statement.

2021 SPEND BY REGION

Percent

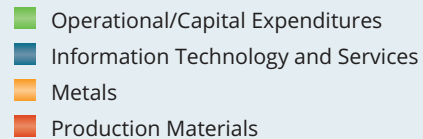
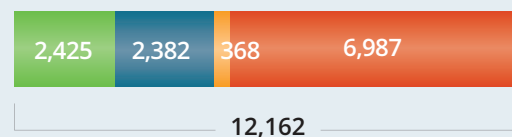


Region



2021 SUPPLIERS BY MAJOR CATEGORY

Number



GLOBAL SUPPLIER SUSTAINABILITY PROGRAM

In 2021, we again measured the sustainability of key suppliers through our Global Supplier Sustainability Program. We expanded the number of suppliers surveyed by including those that receive more than US\$1 million of our annual spend, up from the previous limit of US\$5 million.

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.
- ▶ **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.

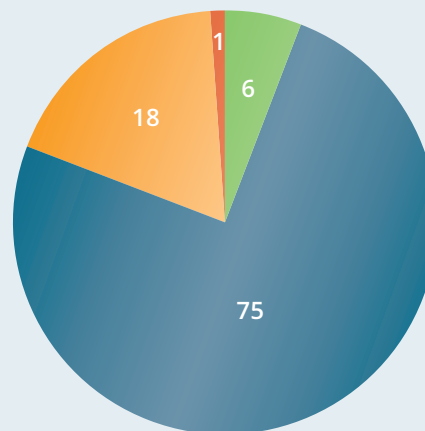
In 2021, we requested that suppliers of aluminum, cobalt, titanium alloys and

titanium sponge provide their carbon footprint as measured by carbon dioxide equivalents per ton of products sold to Howmet.

The 2021 assessment found that 81 percent of key suppliers that responded to the survey had sustainability programs considered leading or active. The survey response rate was 65 percent, which was slightly lower than the prior year's rate of 68 percent. We attribute the lower rate to the considerably expanded scope of suppliers that we surveyed due to the annual spend threshold change that we implemented during the year.

2021 KEY SUPPLIER ASSESSMENT RESULTS

Percent of key suppliers



Sustainability Maturity Rating

- Leading
- Active
- Emerging
- Lagging

CYBERSECURITY

Ensuring our systems and operations are protected from cyber threats and data security breaches is of paramount importance.

We continuously evaluate our cyber defenses and procedures with the understanding that adversaries frequently adjust their methods of attack. We adapt our capabilities accordingly to maintain readiness.

Incident response and other security metrics ensure our mature standards are met continuously, and these metrics capture quantifiable improvements to our overall cybersecurity program. We also have operational targets regarding the urgency and frequency of patching systems to remediate vulnerabilities.

Other objectives of our cybersecurity program include securing and hardening critical business industrial control systems; developing and maintaining incident reporting programs; and providing guidance and recommendations to our businesses while maintaining appropriate cyber hygiene.

We use an array of technologies and processes to protect and secure our computing platforms, assets and data, including:

- ▶ Perimeter protection and intrusion prevention;
- ▶ Continuous environmental monitoring and alerting;
- ▶ Operating/application system security, configuration, baselining and hardening;
- ▶ Endpoint detection and protection tools, such as antimalware and remote forensics;
- ▶ Continual compliance assessments supplemented with internal and external audits;

- ▶ Security standards and policies based on industry-leading cybersecurity frameworks;
- ▶ A data governance and protection program involving both technical and procedural controls; and
- ▶ Physical (video surveillance, locks, etc.) and technical safeguards at our facilities. Many of the technical safeguards are derived from the National Institute of Standards and Technology (NIST) Special Publication 800-53 and NIST Special Publication 800-171.

We also subscribe to managed security service providers (MSSPs) that offer continuous monitoring. Vital to our cybersecurity program, MSSPs assist with early threat detection and protection and escalate issues to our corporate cybersecurity team.

We carry cybersecurity insurance to help protect the company in the event of a cyber-attack. In addition, we have a company-wide data program to protect personally identifiable information that includes compliance with the privacy laws around the world. These include the European Union General Data Protection Regulation (GDPR), Personal Information Protection Law (PIPL), California Consumer Privacy Act (CCPA), Colorado Privacy Act (CPA) and other privacy regulations, as well as our intellectual property protection utilities to avoid data loss.

Our cybersecurity program includes benchmarking with key customers, suppliers and other third parties to identify best practices. When evaluating third parties that

will serve as business resources, we evaluate their cybersecurity practices to ensure their standards meet or exceed our expectations. This is achieved by confirming certain industry certifications are in place and having the third party attest to the controls through a cybersecurity questionnaire.

STRUCTURE

Our chief information security officer (CISO) is responsible for overseeing our cybersecurity program across the corporation and supervises our corporate information team.

The CISO reports directly to the chief information officer (CIO), who is responsible for the usability, implementation and management of our information and computing systems. On a quarterly basis, the CIO and CISO bring cybersecurity improvements and challenges to the attention of the [Cybersecurity Advisory Subcommittee](#) of the Howmet Aerospace Board of Directors. This subcommittee oversees the company's management of cybersecurity, ensuring that appropriate enterprise risk mitigations and strategies are in place.

Our employees also play an important role in ensuring strong cybersecurity. We have a robust program of user testing, training and education that is focused on improving user engagement in cyber defense through safe behavior. We perform monthly cyber assessments and training of all computer users across the company and an annual assessment that we use to benchmark our program against others in the industry.

RISK AND VULNERABILITY ASSESSMENTS

To assess our cybersecurity risks, we use the following three-pronged approach that is focused on technology, policy and people:

- ▶ Compilation of a global inventory of systems and resources;
- ▶ Identification of critical assets to prioritize time-sensitive work, such as patches; and
- ▶ Identification of potential weaknesses and threats while developing solutions to close them.

We conduct internal vulnerability assessments on a frequent basis in addition to performing external cybersecurity penetration tests at least annually. We also conduct regular internal audits, with all significant controls tested.

The array of technologies and processes that we use for assessing threats and vulnerabilities include:

- ▶ Performing vulnerability scans;
- ▶ Monitoring vulnerability intelligence services to stay aware of emerging threats and exposures;
- ▶ Ensuring vulnerability tools are updated on a constant basis; and
- ▶ Ensuring software and applications are patched regularly.

Our information technology infrastructure, applications and network connectivity standards are governed by a set of requirements. We test these controls to assess the current state of our solutions relative to these standards. The results of each assessment are documented and reported, and we execute remediation strategies where gaps exist.

INCIDENT RESPONSE

Our response to a cybersecurity incident is based on an industry standard framework developed by NIST. It consists of four phases:

- ▶ Preparation;
- ▶ Detection and analysis;
- ▶ Containment, eradication and recovery; and
- ▶ Post-incident activity.

We use a “kill chain” to evaluate the ability of each security control to detect, deny, disrupt, degrade and contain an attack aimed at disabling IT services, disrupting computing or data communications, or exfiltrating data.

In 2021, we had five data breaches, with none considered material. No customer data was involved, which meant it was not necessary for us to notify customers of a breach as required either by law or voluntarily as part of our process.

We investigated each data breach and identified and addressed root causes to avoid reoccurrence.

DATA BREACHES

	NUMBER	PERCENT INVOLVING CONFIDENTIAL DATA	NET EXPENSES INCURRED FROM SECURITY BREACHES (US\$)
2020	6	0	Immaterial
2021	5	0	Immaterial

DATA PRIVACY

Due to the rapid increase in the number and complexity of data privacy laws globally, we established our Privacy Office in 2018 to ensure we comply with these laws. The Privacy Office achieves this by analyzing the different laws, evaluating the impact to our company and implementing the required changes.

The office’s other responsibilities include:

- ▶ Maintaining a register of processing activities in which we process personally identifiable information (PII);
- ▶ Ensuring we have the appropriate safeguards in place for our internal and external international data transfers;
- ▶ Processing data subject (person to whom the PII relates) requests;
- ▶ Handling data incidents that involve PII; and
- ▶ Analyzing high-risk processing activities.

Our data protection officer, who reports directly to our CIO, is responsible for our privacy program and supervises our Privacy Office. This office is responsible for our compliance with worldwide privacy laws and regulations that are designed to protect individuals’ personal data.

More information on our privacy policies and programs can be found on [our website](#).

AWARDS AND RECOGNITION

2022 Newsweek Most Responsible Company

Newsweek magazine named Howmet Aerospace to its 2022 Most Responsible Companies list. The ranking focuses on a holistic view of corporate responsibility that considers the three areas of ESG – environmental, social and governance.

With an overall score of 80.9 on a 100-point scale, we ranked 107 out of the 500 companies selected for the list.

Best Places to Work for LGBTQ Equality

We received a score of 100 percent on the Human Rights Campaign Foundation's 2022 Corporate Equality Index (CEI), which is the foremost U.S. benchmarking survey and report measuring corporate policies and practices related to LGBTQ+ workplace equality. Based on this perfect score, we earned the distinction of being one of the Best Places to Work for LGBTQ Equality in the U.S.



50/50 Women on Boards 3+ Designation



We received the "3+" designation from 50/50 Women on Boards for having three or more women serving on our

board of directors. In 2021, our four female board members made up 40 percent of our board.

50/50 Women on Boards is the leading global education and advocacy campaign driving the movement toward diverse, gender-balanced corporate boards.



Howmet Aerospace woman board members in 2021 (clockwise from top left): Amy E. Alving, Sharon R. Barner, Nicole W. Piasecki and Jody G. Miller.

Forbes World's Best Employers 2021

We were ranked 598 on the Forbes 2021 World's Best Employers list. To compile the list, survey participants were asked to rate their willingness to recommend their own employers to friends and family. They were also asked to evaluate other employers in their respective industries that stood out positively or negatively. The 750 companies that received the highest scores were named to the list.



2021 Top Diversity Employer

DiversityJobs.com named Howmet Aerospace to its 2021 Top Diversity Employers list in the aerospace industry. The list reflects organizations that have shown consistent outreach and dedication to recruiting and hiring from all diversity groups.



FACC Excellent Supplier Award

As the best FACC supplier of 2020, our Howmet Fastening Systems business received the FACC Excellent Supplier Award in gold.

The awards recognize outstanding supplier performance in product quality and on-time delivery. Other factors FACC considers when selecting the recipients are environmental protection and sustainability, customer service, flexibility, cooperation and the willingness to define, accept and implement cost-reducing and process-optimizing measures.

FACC is a worldwide leading aerospace company in design, development and production of aerospace technologies and advanced aircraft lightweight systems.

2021 Genius Loci Award

Howmet Köfém received the prestigious 2021 Genius Loci award for its outstanding workforce development efforts in the Székesfehérvár and Nemesvámos communities in Hungary. Given annually by the Association of Hungarian Talent Management Organizations, the award recognizes businesses that support talent development in their communities.

Since 1993, Howmet and the Howmet

Aerospace Foundation have invested more than US\$8 million in community initiatives in the Székesfehérvár area. As a part of this investment, Howmet Köfém has supported workforce development activities at secondary and higher education schools as well as nonprofit organizations operating in Székesfehérvár and Veszprém.

Mitsubishi Honor

Mitsubishi Power honored our Howmet Engine Systems location in Nomi, Japan, for its blade development and production work on the Mitsubishi M501JAC2. The M501JAC2 is a natural gas fired industrial turbine designed to operate at 1,700°C and deliver 435 MW of power generation.

2021 Ulster County Business of the Year

Our Howmet Fastening Systems location in Kingston, New York, was named the 2021 Ulster County Business of the Year by the Ulster County Chamber of Commerce and the Ulster County Economic Development Alliance.

The location received the award in recognition of its long presence in Ulster County and for its commitment to community service. Employees are routinely involved with a host of local fundraisers and projects, including back-to-school and coat drives.

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.

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 5)
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 8) Supply Chain
102-11	Precautionary Principle or approach	Environmental Management at Howmet Aerospace
102-12	External initiatives	Stakeholder and Community Engagement
102-13	Membership of associations	Key memberships include: ▶ Aerospace Industries Association (AIA) ▶ American Chamber of Commerce to the EU (AmCham EU) ▶ International Aerospace Environmental Group (IAEG) ▶ Motor & Equipment Manufacturers Association (MEMA)

DISCLOSURE	DESCRIPTION	LOCATION
Strategy		
102-14	Statement from senior decision-maker	CEO Statement
102-15	Key impacts, risks, and opportunities	Form 10-K (pages 9 to 18)
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 89) Proxy Statement (page 24)
102-19	Delegating authority	Bylaws (Article 4)
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 (pages 24 and 42 to 43)
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 (page 89)
102-24	Nominating and selecting the highest governance body	Proxy Statement (pages 6 to 15 and 30) Certificate of Incorporation Bylaws Governance and Nominating Committee Charter
102-25	Conflicts of interest	Form 10-K (page 90) 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 8 to 13)
102-28	Evaluating the highest governance body's performance	Proxy Statement (page 24) Governance and Nominating Committee Charter

DISCLOSURE	DESCRIPTION	LOCATION
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 25) 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) Proxy Statement (page 23)
102-33	Communicating critical concerns	Proxy Statement (pages 29, 42 and 68) Integrity Line
102-35	Remuneration policies for the highest governance body and senior executives	Form 10-K (page 90) Proxy Statement (pages 16 to 18 and 41 to 60) Corporate Governance Guidelines Compensation and Benefits Committee Charter
102-36	Process for determining remuneration	Form 10-K (page 90) Proxy Statement (page 44) Corporate Governance Guidelines Compensation and Benefits Committee Charter
102-37	Stakeholders' involvement in remuneration	Form 10-K (page 90) Proxy Statement (pages 29 and 42 to 43) Compensation and Benefits Committee Charter
102-38	Annual total compensation ratio	Form 10-K (page 90) Proxy Statement (page 60)
102-39	Percentage increase in annual total compensation ratio	46 percent decrease over 2020
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

DISCLOSURE	DESCRIPTION	LOCATION
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 to 8)
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	2021
102-51	Date of most recent report	2020
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
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 and Materiality

MATERIAL TOPICS

DISCLOSURE	DESCRIPTION	LOCATION
GRI 201: Economic Performance 2016		
201-1	Direct economic value generated and distributed	Form 10-K
201-2	Financial implications and other risks and opportunities due to climate change	Climate Change
GRI 205: Anti-corruption 2016		
205-3	Confirmed incidents of corruption and actions taken	Ethics, Compliance and Human Rights

DISCLOSURE	DESCRIPTION	LOCATION
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		
303-1	Interactions with water as a shared resource	Water
303-2	Management of water discharge-related impacts	Water
303-3	Water withdrawal	Water
GRI 305: Emissions 2016		
305-1	Direct (Scope 1) GHG emissions	Climate Change
305-2	Energy indirect (Scope 2) GHG emissions	Climate Change
305-3	Other indirect (Scope 3) GHG emissions	Climate Change
305-4	GHG emissions intensity	Climate Change
305-5	Reduction of GHG emissions	Climate Change
305-7	Nitrogen oxides (NO _x), sulfur oxides (SO _x), and other significant air emissions	Air 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

DISCLOSURE	DESCRIPTION	LOCATION
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
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Health and Safety
403-8	Workers covered by an occupational health and safety management system	Health and Safety
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 416: Customer Health and Safety 2016		
416-1	Assessment of the health and safety impacts of product and service categories	Product Safety Chemical Management
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	Product Safety
GRI 418: Customer Privacy 2016		
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	Cybersecurity

SUSTAINABILITY ACCOUNTING STANDARDS BOARD INDEX

Howmet Aerospace is committed to reporting against the aerospace and defense sustainability accounting standard from SASB. This index provides a guide to 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
Hazardous Waste Management	Amount of hazardous waste generated, percentage recycled	Quantitative	RT-AE-150a.1	Waste and Spills
	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	Cybersecurity
	Description of approach to identifying and addressing data security risks in (1) company operations and (2) products	Discussion and Analysis	RT-AE-230a.2	Cybersecurity
Product Safety	Number of recalls issued, total units recalled	Quantitative	RT-AE-250a.1	Product Safety
	Number of counterfeit parts detected, percentage avoided	Quantitative	RT-AE-250a.2	Product Safety
	Number of Airworthiness Directives received, total units affected	Quantitative	RT-AE-250a.3	Product Safety
	Total amount of monetary losses as a result of legal proceedings associated with product safety	Quantitative	RT-AE-250a.4	Product Safety
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

TOPIC	ACCOUNTING METRIC	CATEGORY	CODE	REPORT LOCATION
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
	Revenue from countries ranked in the "E" or "F" Band of Transparency International's Government Defence Anti-Corruption Index	Quantitative	RT-AE-510a.2	Ethics, Compliance and Human Rights
	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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