HOWMET AEROSPACE

Environmental, Social and Governance Report

2023

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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," "intends," "plans," "should," "will," or other words of similar meaning and are subject to a number of known and unknown risks and uncertainties. Some of the factors that may cause Howmet Aerospace's actual results to differ materially from those expressed or implied in the forward-looking statements include deterioration in global economic or financial market conditions generally or in the markets served by Howmet Aerospace; 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, failure to attract and retain a qualified workforce or labor disputes, 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; geopolitical, economic, and regulatory risks relating to Howmet Aerospace's global operations; and the other risk factors summarized in Howmet Aerospace's Form 10-K *for the year ended December 31, 2023, and other SEC reports.*

WHO WE ARE

Our Vision

We are a company of innovators and makers. We are transforming the future with high-performance engineered solutions that are paired with advanced manufacturing expertise.

Our Mission

Leverage our differentiated technologies to reduce the carbon footprint of our customers by delivering products that enable lighter, more fuel-efficient aircraft and commercial vehicles and enable sustainable power generation.

What We Do

We are a manufacturer of high-performance advanced engineered solutions for the aerospace, defense and transportation markets.

Engine Products

Produce components enabling quieter, cleaner and more fuel-efficient aerospace engines and industrial gas turbines.

Fastening Systems

Make aerospace and industrial fasteners to hold together aircraft, jet engines, commercial trucks, wind turbines, solar panels and more.

Engineered Structures

Manufacture advanced, multi-material parts that make aircraft and vehicles lighter and more fuel efficient.

Forged Wheels

Forge strong aluminum wheels that allow commercial trucks to run lighter and more fuel efficiently.

How We Operate

As one team, with one direction, using one plan.

Value Our People

- Emphasize health and safety.
- Foster a "speak up" culture.
- Embrace a diverse and inclusive work environment.
- Support the communities where we operate.

Drive Operational Excellence

- Lead with integrity.
- Continuously improve operations.
- Focus on the few things that matter.
- Align to win together.
- Deliver value to shareholders.

Win with Our Customers

- Collaborate to solve customer challenges.
- Innovate for our customers' success.
- Deliver with quality.
- Act with our customers in mind.

CEO STATEMENT

I am pleased to share with you our 2023 environmental, social and governance (ESG) achievements. We have made tremendous progress.

At Howmet, our more than 23,000 global employees are dedicated to manufacturing high-performance engineered solutions with determination, integrity and purpose. Our products play a crucial role in enabling fuel efficiency and lightweighting, contributing to our customers' success and making a positive impact on the world.

In the face of the current economic climate, building a sustainable and resilient business has never been more critical. Despite challenges, we experienced a commendable 17 percent growth in revenue in 2023 that was driven by healthy demand in the aerospace and defense segments.

As we navigate these dynamic times, our commitment to growing sustainably and delivering on our key ESG commitments remains unwavering.

Progress in Reducing Greenhouse Gas Emissions

In 2023, we marked the second year of our three-year target to reduce the greenhouse gas (GHG) emissions from our own operations by 21.5 percent versus our 2019 baseline. Through strategic improvements in the efficiency of our production processes, we successfully avoided 25,000 metric tons of these emissions, achieving a 13.6 percent intensity improvement. Our absolute emissions were 19.8 percent lower than our 2019 baseline at the end of 2023.

We are also progressing well on our water withdrawal and hazardous waste reduction targets.

Forward-looking GHG Targets Aligning with Paris Goals

Looking ahead, we have established ambitious GHG reduction targets for 2025-2027 that align with the Paris goals and aim for a 33.6 percent absolute reduction from our 2019 baseline. To achieve these targets, we have developed credible plans that leverage process efficiencies, renewables and green power procurement. These initiatives underscore our commitment to environmental responsibility and our role in contributing to global climate goals.

Safety Culture

Safety is paramount in our operations, and our commitment to a safe and secure work environment is embedded in our culture. I am pleased to report that we closed the year with no fatalities or serious injuries among our employees and contractors. Our incident performance remained strong, reflecting our ongoing dedication to the well-being of our workforce.

Enhancing Supply Chain Sustainability with New Due Diligence Process

In tandem with our commitment to sustainability, we have partnered with industry peers to launch a collaborative supplier due diligence process. This initiative is designed to enhance the efficiency and transparency of information exchange within our supply chain. By jointly assessing ESG criteria, we aim

to establish a robust framework that elevates standards across the industry. We firmly believe that such collaborative efforts are essential in promoting responsible business practices and fostering positive change within our supply chain.

Investing in Exceptional Talent and Diversity

We recognize that our long-term ESG, sustainability and economic performance hinges on the exceptional talent, skills and passion of our employees. As such, we are proud that we have been honored with awards for our commitment to the diversity, health and professional development of our workforce. While we celebrate the progress made in our diversity metrics, we acknowledge that there is more work ahead and remain committed to fostering an inclusive workplace.

Showcasing Our Metrics

We recognize that true sustainability is a journey of continuous improvement. To this end, we remain dedicated to transparency and accountability. That is why we have expanded the comprehensive data on our ESG performance at the end of this report.

Our ESG performance is rigorously monitored and assessed against international standards, and we actively seek feedback from stakeholders to guide our future initiatives. By regularly communicating our progress and challenges, we aim to foster a culture of openness and collaboration.

I extend my gratitude to our employees, partners and stakeholders for their ongoing dedication to advancing our ESG performance. Together, we are shaping a future where responsible business practices and sustainability go hand in hand.

John C. Plant
Executive Chairman and Chief Executive Officer

ESG AT HOWMET AEROSPACE

ESG APPROACH

Wherever we operate, it is our goal to understand both the impact we have on our stakeholders and surrounding communities and the impact the world around us has on our business. We believe that truly sustainable organizations understand these impacts and implement strategies to expand opportunities for generations to come.

Climate change and supply chain decarbonization take a prime position in our ESG focus. We recognize the need to act on GHG levels in the atmosphere to reduce the substantial climate change risk for society.

Our business strategy is to decarbonize the footprint of our products from when we responsibly source raw materials to when the products are manufactured and ultimately used by our customers. Our position as a manufacturer of high-performance multi-materials comes with a responsibility to manage these decarbonization ambitions throughout our complex and global supply chain. Advancement toward our decarbonization goals is described in the Climate Change, Energy and Supply Chain sections.

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

Governance Approach

Our commitment to ESG starts at the top of our organization with our Board of Directors. Our board is committed to our ESG goals and maintains oversight for ESG matters at the full board level and through various board committees. The full board reviews our comprehensive ESG program at least annually.

Our board members span a broad range of industries, including aerospace, transportation and finance, and bring a wide variety of skills, qualifications and viewpoints that strengthen the board's

ability to carry out its oversight role. In our Proxy Statement, we provide a skills matrix summary for each board member that includes environmental, social and corporate responsibility.

Goals and Metrics

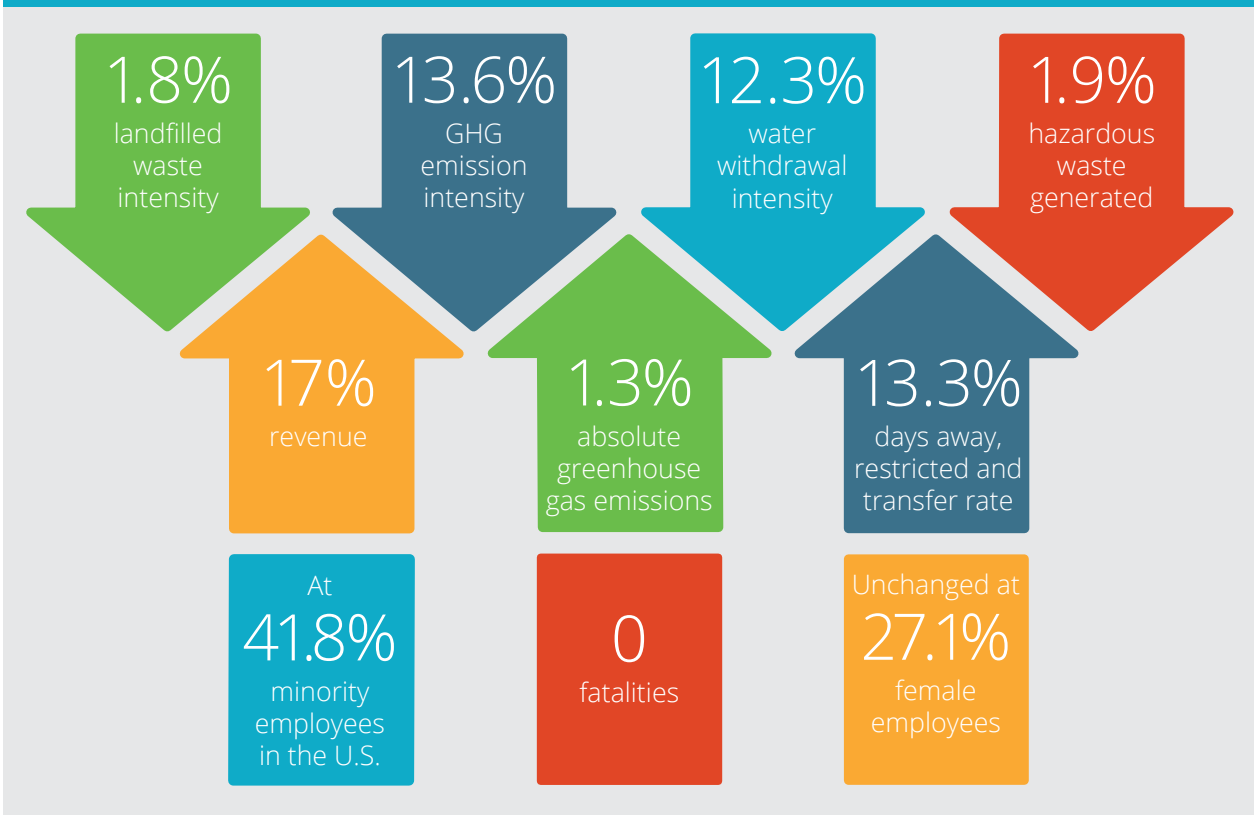
To help guide our actions, we developed several ESG goals and associated performance metrics to address material issues for our company and stakeholders. These goals aim to minimize negative effects and optimize positive impacts. Key metrics can be found throughout this report, with comprehensive metrics located in the ESG Performance Metrics section.

Awareness

Raising awareness and building capacity with our internal and external stakeholders is vitally important to the achievement of our commitments, and we have deployed an array of activities to share the importance of ESG sustainability. These include supplier workshops, customer engagements, investor meetings and various internal stakeholder events.

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

2023 Annual Performance



REPORTING, SIGNIFICANT TOPICS AND ASSURANCE

We developed the 2023 Howmet Aerospace ESG Report in accordance with the 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. Performance data beyond that contained in this report can be found on our website.

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

Significant ESG Topics

We periodically identify and assess our ESG impacts and review our significant topics to match our report content with internal and external expectations to ensure a balanced approach between relevancy and transparency.

We updated our assessment of significant topics in 2023, defining the range of assessed ESG issues based on relevant industry and regulatory references as well as internal expertise. Some of the references we used included:

- Reporting standards, such SASB Aerospace, GRI and European Sustainability Reporting Standards (ESRS);
- Existing and upcoming ESG regulations;
- Customer ESG questionnaires and feedback;
- Third-party raters;
- Feedback during stakeholder discussions; and
- Our enterprise risk management process.

We refined the list of topics to assess based on internal knowledge and feedback received from our stakeholder engagement. For the first time, we carried out the assessment considering both the potential impacts of our value chain on people and the environment along with the potential impacts of ESG topics on our company. We also included potential supply chain impacts following the GRI standard and trends in the latest ESG reporting regulations, such as the European Corporate Sustainability Reporting Directive.

To determine the level of impact for each selected ESG topic over the next three years, we based our qualitative assessment on internal expertise, external ratings received and stakeholder feedback. Sources included:

- 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;
  - Legal advisors;
  - 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 captured the results of this assessment in a matrix. The horizontal axis reflects the potential impacts of ESG topics on the company, and the vertical axis reflects a first estimation of potential impacts of activities along the company's value chain on people and the environment. Potential risks to human life and topics of widespread societal concern have been considered to have potential high impact for people and the environment.

Matrix of Significant ESG Topics

From this assessment, we identified the following significant topics as the basis for our 2023 ESG reporting.

Significant ESG Topics

Topic	Boundaries
Energy	Global operations
Water	Global operations
Climate Change	Global operations and supply chain
Air Emissions	Global operations
Waste	Global operations
Legal Compliance	Global operations
Health and Safety	Global operations
Human Capital: Employment, Working Conditions, Diversity and Equal Opportunity	Global operations
Cybersecurity	Global operations
Business Ethics	Global operations
Human Rights	Global operations
Supply Chain	Global operations
Product Safety	Global operations

We see our assessment process as a learning journey, and we expect to further refine it in the future.

Assurance

We sought third-party assurance of our 2022 GHG Scope 1 and 2 emissions and eight categories of our Scope 3 emissions. The accuracy and completeness of all other information in this report is verified by our internal experts and processes, which include our environment, health and safety (EHS) and ethics and compliance audit and assessment processes.

The external assurance process has been a very valuable learning experience, and it presented opportunities to improve our systems. It has also increased the credibility of our internal and external reporting.

ENVIRONMENTAL

PRODUCTS

- **Through our innovations, we are advancing the sustainability of our customers and the markets that we serve.**
- **Materials and cooling techniques that we developed enable aero engines to run hotter and under higher pressures, increasing fuel efficiency.**
- **We have achieved a 31 percent weight reduction in our 14-inch wide base wheel portfolio since the first wheel of this type was introduced in 2001.**

Working in close partnership with our customers, we solve complex engineering challenges to enable the next generation of air travel that is more fuel-efficient, quieter and cleaner and ground transportation that is more sustainable.

The challenges of climate change, resource scarcity and more are increasingly driving the global markets in which we compete. Our next-generation innovations are enabling our customers to achieve significant fuel-economy improvements, reduced emissions and maintenance efficiencies. Made from our advanced materials and technologies, these products are strong, efficient and durable.

Through our innovations, we are 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 (IATA). The 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 framework for meeting the industry's long-term goal.

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 lighter aerospace engine and structure products and materials that are capable of operating at extremely high temperatures.

Aero engine blades

We engage in concurrent engineering with our customers to optimize producible designs for commercial, defense and land-based turbine engine components. Coming out of the COVID-19 pandemic, we are reinforcing our engineering and manufac-

turing expertise to produce compliant products. This minimizes scrap as well as the footprint and resources needed to produce our products. We are also expanding our suite of technical capabilities and solutions, including process modeling and data analytics, to help our customers achieve significant fuel economies, reduced emissions and maintenance efficiencies.

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 above the melting point of the metals. That is 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 in 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, minimizing the need to purchase mined 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;
- Extensive process modeling to reduce the number of iterations required for physical process development;
- Rapid prototyping techniques that enable timely evaluation of iterative part configurations;
- The first-ever aluminum-lithium front fan blade forging developed with Pratt & Whitney that improves fuel efficiency; and
- Iso-thermal forging capabilities for the most demanding engine applications on the latest generation commercial and military engines.

We also have developed new materials and product forms that enable our customers to reduce material and energy usage in their processes. These include titanium sheet products with improved formability that enable temperature differences of up to 110˚ C during superplastic forming compared to current processes. This reduces energy usage and improves tool life for complex formed parts.

Our titanium extrusions capabilities enable us to provide our customers with lean and hot stretch formed extrusions that provide significant buy-to-fly improvements, reducing material usage and machining time.

Formed titanium T-chords

Lighter aircraft use less fuel and emit fewer greenhouse gases, and our solutions are helping the industry lighten up. New generation aircraft like the Boeing 787 and Airbus A350 make extensive use of carbon fiber reinforced plastic (CFRP) composite materials for the majority of their structure. The extensive use of composites requires titanium for key structural components, which we are providing to both of these lightweight aircraft. For example, our lightweight titanium seat rail for the Boeing 787 airframe is up to 20 percent lighter than its predecessor.

Finished titanium seat rails

Our Ergo-Tech® blind bolt family of fasteners enables efficient assembly automation and more aerodynamic wing structures though their one-sided installation. Our customers have been able to increase assembly throughput and deploy robotic automation of aircraft assembly through the use of this fastening system. In addition, 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.

Learn more. ➔ go

Commercial Transportation

The commercial transportation industry faces pressing challenges in improving efficiency and achieving sustainability. Volatile fuel costs and emission restrictions greatly impact operating budgets, heightening the need for new solutions that reduce fuel consumption. Stringent emission regulations have accelerated electric truck development, but battery weight presents difficulties and generates demand for products that promote weight reduction.

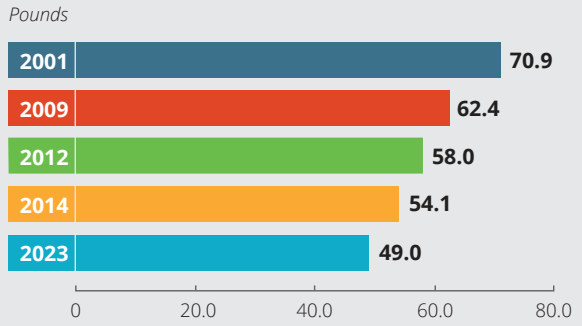
According to the 2023 State of Transportation Report from Breakthrough, 94 percent of transportation leaders agreed that consumer demand for more sustainable products makes reducing emissions a more critical priority. In addition, 99 percent of shippers agreed they would take advantage of electric or alternative energy vehicles, and 59 percent said they would add electric vehicles by the end of 2023. This data highlights the importance of lightweight and aerodynamic products.

We anticipated and responded to customer requirements by developing our proprietary MagnaForce® alloy, innovating our manufacturing process and evolving our stronger and lighter Alcoa® Wheels products to drive more value to our customers. Our new aerodynamic wheel covers significantly bolster mileage through reduced drag, with our Alcoa® Wheels Aero Dynamic Steer and Drive Covers decreasing fuel usage by up to 5.1 liters (1.35 gallons) per 1,609 kilometers (1,000 miles) in testing.

We also offer lightweight aluminum wheel solutions that reduce truck weight even more than our previous generation of wheels. For example, our Alcoa® Ultra ONE ULT36 model can reduce the wheel weight of a truck and trailer combination by up to 45 percent, which is equivalent to 237 kilograms (522 pounds) when compared to the lightest steel wheels.

We have achieved a 31 percent weight reduction in our 14-inch super-single wheel portfolio since the first wheel was introduced in 2001 at 32.2 kilograms (71 pounds). Today, our lightest wide base wheel – Alcoa® Ultra ONE® Wide Base Wheel – weighs 22.2 kilograms (49 pounds) and offers a 12,800-pound load rating.

14-Inch Wide Base Wheel Weight



Alcoa® Ultra ONE ULT36 Wheel with aerodynamic cover

Alcoa® Ultra ONE® Wide Base Wheel

Truck and trailer combinations can be made significantly lighter by using the Alcoa® Ultra ONE® Wide Base Wheel, which is 60 percent lighter than steel wheels and the lightest option available in its class. By switching from traditional steel

Wheel Weight Comparison

		Steel			Alcoa® Ultra ONE® ULT36		Weight Differential
	#	Weight per Wheel (pounds)	Total Weight (pounds)	#	Weight per Wheel (pounds)	Total Weight (pounds)	
Steer	2	65	130	2	36	72	45%
Drive	8	65	520	8	36	288	
Trailer	8	65	520	8	36	288	
Tractor+Trailer			1,170			648	45%

		Steel			Alcoa® Ultra ONE® Wide Base Wheel		
Steer	2	65	130	2	36	72	59%
Tractor	8	65	520	4	49	196	
Trailer	8	65	520	4	49	196	
Tractor + Trailer			1,170			464	60%

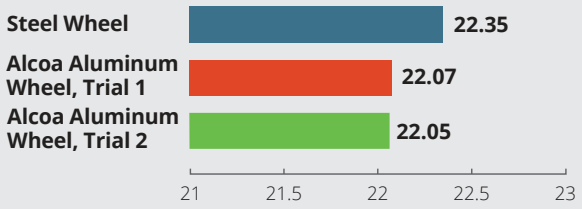
The steel wheel is the lightest 22.5 x 8.25 steel wheel on the market.

dual wheels, owners can save more than 320 kilograms (706 pounds) on an 18-wheeler. When including the weight of the tires for the wide based wheel, weight savings can be up to 1,400 pounds.

DEKRA Automobil GmbH Klettwitz Germany, an independent automotive testing laboratory founded in 1925 in Berlin, conducted a constant speed fuel consumption test per Annex VIII of Commission Regulation (EU) 2017/2400. Using a series production long-haul truck/trailer combination with aerodynamic components, the test compared Alcoa® aluminum wheels against steel wheels. The results showed the possibility of up to 1.29 percent in fuel savings with the Ultra ONE® Alcoa® aluminum wheels.

Steel and Alcoa® Aluminum Wheel Comparison Trials

Fuel consumption in liters per 100 kilometers



In addition to wheels, our fastening systems also enable lighter weight and more efficient aerodynamics on electric medium- and heavy-duty trucks. We have fastening solutions for securing battery covers, aerodynamic wheel covers, electrical groundings and trailer assemblies. Our fasteners for the latter are up to 10 percent lighter than other options without sacrificing joint strength.

Our products and technologies will continue to help fleet owners achieve their goals in an increasingly efficient and sustainable manner.

Learn more. ➔ go

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 have 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 are supporting the latest F135 engine technology with the world's most complex airfoils to achieve engine performance, reliability and durability.

Our monolithic forged aluminum and titanium bulkheads on the F-35 Joint Strike Fighter reduce total material volume, saving 136 to 181 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.

F-35 Joint Strike Fighter

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. Based on customer feedback, we have been developing a specialized titanium alloy for use in cryogenic applications, such as liquid hydrogen storage tanks for launch vehicles. This will enable weight savings and associated payload increases.

Learn more. ➔ go

Energy

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.

We have redesigned our larger 14-millimeter BOBTAIL® lockbolts to enable installation with battery tools. This allows us to address additional field-installed customer demand in photovoltaic solar tracking structures and wind turbine nacelles and tower sub-structures.

In the wind power market, our fastening systems for wind turbines provide superior joining and fatigue strength in even the most extreme loading and corrosion-prone environments. These attributes reduce maintenance requirements, cost and the safety risks associated with our customers' employees accessing these structures. In 2023, we delivered BOBTAIL® lockbolts and BOM® blind fasteners to support the installation of more than 11 gigawatts of solar panel fields.

Gas-fired power generation reduces carbon dioxide emissions by 50 percent compared to coal-fired power generation. 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 in length. This enables combined cycle power generation of nearly 900 megawatts and pushes turbine efficiency toward 64 percent, which is best-in-class efficiency.

ENERGY

- **In 2023, we achieved an additional annual energy savings of around 400,000 gigajoules.**
- **Our overall energy consumption was 11.5 million gigajoules during the year.**
- **We implemented a new data management system to manage and report on energy consumption.**

Fundamental to reducing our environmental footprint and that of our customers is measuring our energy use and implementing cost-effective energy-saving solutions to achieve our energy-reduction goals.

In 2023, natural gas and electricity accounted for roughly 98 percent of total energy use at our manufacturing locations. Our operations also rely on a mobile equipment fleet that uses diesel, gasoline and propane to move material within our facilities and finished products to our customers. This equipment accounted for about 2 percent of our energy use during the year.

We worked to strengthen our energy data management practices in 2023, implementing a sustainability data management system that has positioned us well for future legal reporting requirements and annual data verification activities. Our 2023 ESG Report is the first one to use data from the new system, which is populated with invoice-retrieved natural gas and electricity data that originates from a procurement data management system. Energy unit conversion calculations within the system are aligned with Intergovernmental Panel on Climate Change (IPCC) guidelines.

Our overall energy consumption was 11.5 million gigajoules in 2023, which was a 2.2 percent increase over 2022. This increase was driven by increased production, which offset the energy savings achieved during the year. As a testament of our energy-efficiency achievements, energy intensity based on revenue declined 13.1 percent from the prior year.

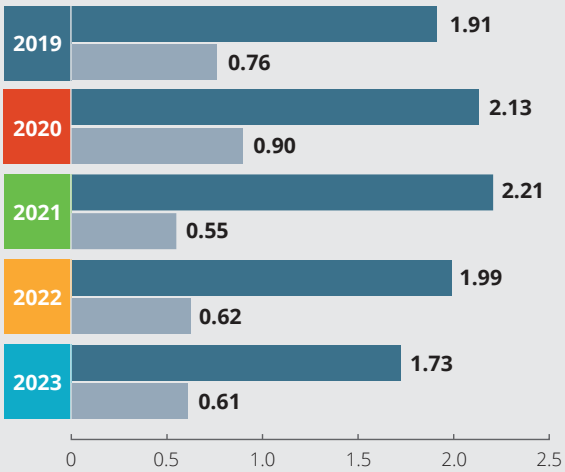
Global Energy Consumption

Millions of gigajoules

	Direct	Indirect		Total
		Sourced from Grid	Generated On-Site	
2019	8.78	4.79	0	13.57
2020	7.22	3.98	0	11.21
2021	7.07	3.91	0	10.98
2022	7.23	4.03	0	11.26
2023	7.40	4.11	0.001	11.51

For some locations, the December 2023 electricity and natural gas consumption was estimated due to final invoices not yet having been received. Data changes from prior reporting are due to minor conversion adjustments and estimated data being updated with actual data.

Energy Intensity



Millions of gigajoules per billion dollars of revenue
Hundreds of gigajoules per metric ton of purchased metal

Data changes from prior reporting are due to minor conversion adjustments and estimated data being updated with actual data.

A team of designated individuals from each business continuously tracks and routinely shares details on our energy-efficiency projects and supports our internal and external reporting to all stakeholders. These projects are geared toward energy efficiency within our buildings, production equipment efficiency, on-site energy generation and increased fuel efficiency of our mobile fleet. We prioritize initiatives with the highest potential efficiency gains. Progress on these projects is reviewed with our senior leadership quarterly and, in some cases, with our business presidents weekly.

Energy-efficiency projects implemented in 2023 reduced our annual consumption by approximately 400,000 gigajoules. When combined with the results from prior years, we have achieved a cumulative annual savings of around 1.2 million gigajoules from the baseline. This success is contributing to the achievement of our 2024 GHG emissions goal (see the Climate Change section).

Examples of 2023 energy-efficiency projects include:

- Improving furnace operational efficiency;
- Transitioning to LED lighting;
- Turning off equipment when not in use;
- Relocating equipment inside to reduce seasonal temperature swings and accompanying heat loss;
- Replacing heating, ventilation and air conditioning systems with more energy-efficient units; and
- Consolidating processes.

Exeter Harnesses Sun's Power

The 1,025 solar panels atop the roof of the core facility building at our Exeter, U.K., location provide around 20 percent of the building's annual electricity, giving a glimpse at one way we will reduce our energy costs and achieve our reduction goals for greenhouse gas emissions.

Completed in January 2023, the solar project is one of the first in the company and produces up to 380 megawatt hours of electricity each year, which is enough to power 131 average U.K. homes. All the array's energy is consumed on-site and not sent to the grid.

In 2022, the plant's energy costs were six times higher than they were previously. Strategically, it was a good time to look at installing solar, especially since the estimated return on the US$284,000 investment was 2.6 years.

The plant uses a combination of natural gas and electricity to power its operations, which produce aerospace and industrial gas turbine components. The solar array provides less than 2 percent of the site's annual electricity consumption but 20 percent for the 2,500-square-meter (26,910-square-foot) building where it's installed. On sunny days, the contribution can climb to more than 50 percent.

CLIMATE CHANGE

- **Our 2023 Scope 1 and Scope 2 GHG emissions equaled 0.81 million metric tons, which was a 19.8 percent reduction from the 2019 baseline.**
- **We avoided approximately 25,000 metric tons of GHG emissions through the implementation of various projects during the year.**
- **For the first time, we acquired third-party limited verification on Scope 3 categories.**

Climate change is a defining issue of our time, and we recognize the potential risk that comes with both the physical changes due to adapting to increasing temperatures and the transition to a low-carbon economy.

We also see climate change as an opportunity for us to contribute to minimizing the carbon footprint of the value chain with our lightweight and fuel-efficient products for the transportation, industrial and aerospace markets. We integrate these risks and opportunities into our enterprise risk management process.

We publish and annually update our climate strategy, which follows the Task Force on Climate-related Financial Disclosures (TCFD) framework. (View the most recent TCFD disclosure). This strategy includes three key levers:

- Products that positively impact the emissions of our customers' final products (see the Products section);
- Direct and indirect (Scope 1 and Scope 2) emissions associated with our own operations; and
- Emissions occurring in our supply chain (Scope 3).

We have made progress against all three levers.

Greenhouse Gas Goals

We believe that our role in the transition to a lower-carbon economy is aligning our Scope 1 and Scope 2 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 manage a credible and realistic transition plan that we have divided into near-, medium- and long-term periods on our way to 2030 and then 2050.

In 2021, we set our first near-term goal of a 21.5 percent reduction in absolute Scope 1 and Scope 2 emissions by 2024 against our 2019 baseline year. To achieve this, we initially identified more than 100 energy-saving projects that represented an investment of US$28.3 million. (See the Energy section.)

Near-term 2024 Goal
21.5 percent, or 217,529 metric tons, combined Scope 1 and Scope 2 GHG emissions contraction by 2024 from a 2019 baseline.

Our Transition Technology Workgroup, which consists of the energy and technology leads of each of our businesses, has identified opportunities to further reduce emissions from our operations. The group has created a plan that is both economically achievable and realistic. The outcomes of this exercise resulted in a goal that covers a second three-year period that ends in 2027.

Next Goal Period
Howmet commits to 33.6 percent, or 339,952 metric tons, absolute reduction of combined Scope 1 and Scope 2 global GHG emissions by 2027 from a 2019 baseline.

For this next goal period, the targeted reductions are aligned with science-based net zero 2050 target scenarios. This requires our Scope 1 and Scope 2 GHG emissions to be 33.6 percent – 339,952 metric tons – below our 2019 emissions by the end of 2027.

We anticipate accomplishing these reductions through a combination of continued energy-efficiency projects at our locations and the transition to power sources with lower carbon intensities. An initial US$9 million in capital funding has been approved for the energy efficiency efforts, which we estimate will contribute to an annual reduction of approximately 35,000 metric tons of carbon dioxide equivalents (CO2e). Additional identification and estimation of opportunities are underway.

We are also working toward setting a goal for Scope 3 GHG emissions. We believe that the quality, assurance, and specificity of Scope 3 data has not yet achieved the level of maturity that justifies a credible target. Although we have not set a Scope 3 target, we are engaging with key suppliers to analyze their contribution to these emissions.

Performance

Scope 1 and Scope 2 Emissions

Our GHG emissions are typically associated with the consumption of natural gas and electricity for heating, forging, casting and treating metal in our energy-intensive processes.

Our 2023 Scope 1 and Scope 2 GHG emissions equaled 0.81 million metric tons, which was a 19.8 percent reduction from the 2019 baseline and a 1.3 percent increase from 2022. Although energy-reduction projects achieved solid GHG savings, increased production offset the achieved reductions.

Through 2023, total cumulative savings since the start of our energy-reduction initiatives were approximately 70,000 metric tons of CO2e, with around 25,000 metric tons captured in 2023. We accomplished the savings through energy efficiencies and, to a small extent, by the implementation of on-site solar panels, including those at Exeter location in the United Kingdom and Casablanca facility in Morocco.

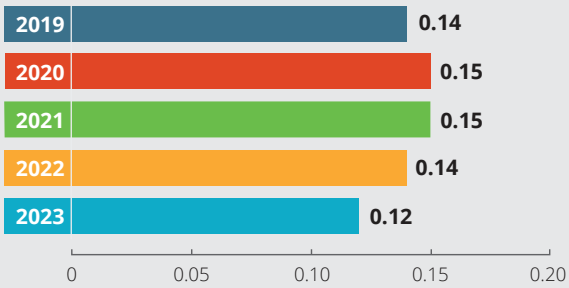
Our GHG emission intensity improved 13.6 percent over 2022, which reflects all the GHG-reduction initiatives implemented in 2023. Our revenue also increased 17 percent over the prior year.

We had our global 2022 Scope 1 and 2 GHG emissions audited and verified by an independent third party in 2023. (View the report.) This outside verification continued an effort that we started with our 2020 emissions, and we expect that we will have our GHG emissions verified on an annual basis.

In 2023, we began reporting both location-based and market-based emissions. This methodology provides better insight toward our consumption of energy from lower-carbon power sources.

Greenhouse Gas Emission Intensity

Million metric tons of Scope 1 and Scope 2 CO2e per billion dollars in third-party revenue



Our climate change management efforts and performance received a CDP climate change score of B in 2023. Our activities around business strategy, financial planning and scenario analysis as well as for Scope 1 and 2 emissions (including verification) were recognized with the maximum score of A/A-, or "Leadership." Our risk management processes received a score of B. Additional details on our 2023 CDP scores can be found in our CDP Score Results – Climate Change 2023 report.

Greenhouse Gas Emissions

Million metric tons of carbon dioxide equivalents

	Scope 1 (Direct)	Scope 2 (Indirect)		Total (Scope 1 + 2 location-based)
		Location-based	Market-based	
2019	0.45	0.56	-	1.01
2020	0.38	0.43	-	0.81
2021	0.37	0.39	-	0.76
2022	0.38	0.42	-	0.80
2023	0.39	0.42	0.46	0.81

Gases included in the calculations are carbon dioxide, methane, nitrous oxide, and CFC and HFC from refrigerant releases (since 2020). Releases of SF6 and NF3 are not considered a significant source of GHG emissions for our operations. We had zero biogenic emissions in 2023. 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 change from prior reporting is due to estimated data being updated with actual data.

Scope 3 Emissions

Our Scope 3 emissions are predominantly upstream and related to emissions of goods procured. Since we do not manufacture products that consume energy, we do not estimate emissions linked to the use of our products. Our downstream emissions represent less than 2 percent of our calculated Scope 3 emissions.

We are continuing to work with our suppliers to understand our upstream GHG emissions. Since our most significant Scope 3 emissions are related to the purchase of primary metals, it is 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.

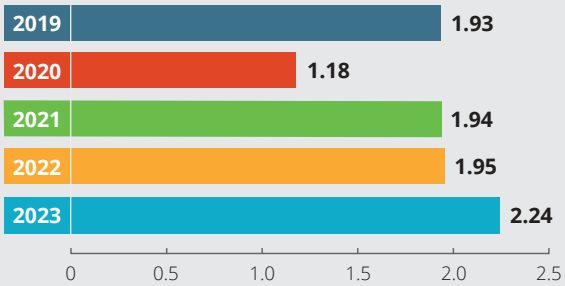
Through our Global Supplier Sustainability Program, we engage with our suppliers to obtain a better understanding of the carbon intensity of the materials and products that they provide to us. (See the Supply Chain section.) This effort has greatly enhanced our understanding, and that of our suppliers, of our material footprint from cradle to gate.

Our Scope 3 GHG emissions totaled 2.2 million metric tons in 2023, with purchased metals accounting for approximately 45 percent of the total. The 14.7 percent increase over 2022 was mainly due to an increase in the purchased goods and services category.

For the first time, we acquired third-party limited assurance on Scope 3 categories one through eight for our 2022 data. (View the report.) The assurance outcome is indicative of our commitment to strengthen our Scope 3 data and helps us prepare for a GHG target.

Scope 3 Greenhouse Gas Emissions

Million metric tons of carbon dioxide equivalents



These values are based on WRI Scope 3 methodology for purchased goods (expanded in 2022 to include non-metals), capital goods (since 2020), fuel and energy-related activities, upstream and downstream transportation, waste generated from operations (since 2020), business travel (since 2021), employee commuting (new for 2022), upstream leased properties (new for 2022) and end-of-life treatment of sold products. Data change from prior reporting is due to the use of updated emission factors for some suppliers and supporting data.

Scope 3 Greenhouse Gas Emissions by Category

Million metric tons of carbon dioxide equivalents

Category	2019	2020	2021	2022	2023
1: Purchased Goods & Services	1.77	0.90	1.60	1.62	1.89
2: Capital Goods		0.13	0.14	0.07	0.08
3: Fuel- and Energy-related Activities	0.04	0.10	0.10	0.10	0.10
4: Upstream Transportation	0.04	0.04	0.06	0.03	0.03
5: Waste from Operations		0.01	0.01	0.03	0.03
6: Business Travel			0	0	0
7: Employee Commuting				0.06	0.06
8: Upstream Leased Assets				0	0
9: Downstream Transportation	0.02	0.01	0.02	0.02	0.02
10: Processing of Sold Goods					
11: Use of Sold Goods	Not required	Not required	Not required	Not required	Not required
12: End-of-Life Treatment of Sold Products	0.06	0.01	0.02	0.02	0.02
13: Downstream Leased Assets	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14: Franchises	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
15: Investments	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Total Scope 3 Emissions	1.93	1.18	1.94	1.95	2.24
Number of Categories Reported	5	7	8	10	10

AIR EMISSIONS

- **Our 2023 air emissions increased consistent with our production increases.**
- **We had no significant unplanned air releases.**
- **We are applying new knowledge and data systems to address further reductions.**

We consider minimizing air emissions beyond GHGs very important to our operating efficiency and business. We aim to ensure we do not have a detrimental impact on our communities and local habitats, continuing to invest in controls, technologies, people and designs to achieve this.

Major processes contributing to our emissions include metal recycling, melting, casting, forging, grinding and machining, as well as the cleaning and coating of our products. Our approach to controlling and minimizing the emission of criteria air pollutants and metal hazardous air pollutants (HAPs) is driven by our internal air management standard, EHS management system, redundant internal controls and regulatory requirements. We track and measure emissions through source testing, site-specific consumption data, conservative published emission factors and parametric monitoring.

Some of our super alloys contain small amounts of metallic elements that are important to deliver performance features desired by our customers. We pay special attention to managing these materials and minimizing any release via emissions pathways.

We have operationalized sustainability, with an innovative team of operations professionals testing new solutions for minimizing our footprint. Beyond control technology upgrades and refined preventative maintenance, we are also continually focused on roadmaps for improvement in strategies, resource allocation and the sharing of best practices across our businesses.

In 2023, we had no significant unplanned air releases. We remain focused on further reducing criteria and HAP pollutants by evaluating new reduction strategies and upgrading our data management, analysis and forecasting capabilities.

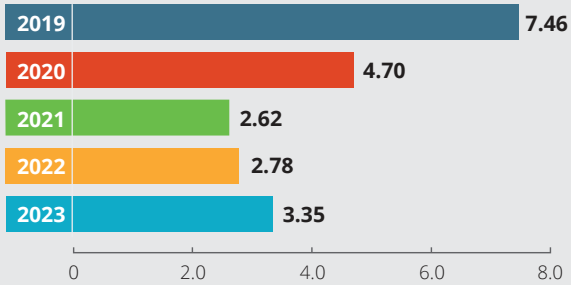
Air Emissions

Metric tons

	Nitrogen Oxides	Particulate Matter	Sulfur Oxides	Volatile Organic Compounds
2019	391.28	375.30	3.57	199.34
2020	316.10	289.90	2.78	174.39
2021	280.90	239.44	3.03	206.19
2022	318.89	260.61	2.97	205.79
2023	326.77	318.67	2.69	284.19

Metallic Hazardous Air Pollutants

Metric tons



Metallic hazardous air pollutants include chromium (total), cobalt, cadmium and nickel. Data change from prior reporting is due to a correction that was made in the 2022 total nickel emissions calculation at one of our Engineered Structures sites following the close of 2022 reporting.

WATER

- **We ended 2023 with an 11.7 percent improvement in our water withdrawal intensity compared to our 2019 baseline, exceeding our 2024 target of an 8.6 percent reduction.**
- **Our absolute water withdrawal increased 2.7 percent versus a revenue increase of 17 percent due to the implementation of water-saving projects that totaled approximately 775 megaliters (205 million gallons).**
- **We withdrew 4,088.6 megaliters (1.1 billion gallons) of fresh water in 2023.**

As the world's population grows and global temperatures rise, close attention to responsible management of freshwater resources is critical to our business, our communities and society.

In 2023, we continued significant efforts across our businesses to reduce the volume of water we withdraw. As a result, we ended the year with a 11.7 percent improvement in our water withdrawal intensity compared to our 2019 baseline. This is beyond our established goal of an 8.6 percent improvement by the end of 2024. We plan to evaluate setting a new water target in 2024 as we close out the current one.

Water-saving projects at our locations reduced consumption by approximately 775 megaliters (205 million gallons) in 2023. These initiatives included technology to operate water-cooling systems more efficiently, such as demand-based sensors and closed-loop control equipment that ensures only the minimum volume of water needed for cooling is withdrawn. We also have installed filtration systems to recycle and reuse water instead of discharging it. In one facility located in a water-stressed area in California, nano-filtration units return 48 megaliters (12.7 million gallons) of water to the process for reuse annually.

These efforts helped us obtain a water score of 88 out of 100 on the S&P Global Corporate Sustainability Assessment (CSA), which focuses on industry-specific and financial material sustainability criteria. Our performance was significantly higher than the average score of 38 achieved by the more than 3,000 companies from around the world that responded to the survey.

We withdrew 4,088.6 megaliters (1.1 billion gallons) of fresh water during 2023. This is a 2.7 percent increase from 2022, despite a significant increase in production due to a higher demand for our products. Most of the water we withdraw is not consumed but treated and returned to the local system for further use.

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. The majority of our operations are in industrialized areas, with 99 percent of our water sourced from municipal supplies.

We assess if our locations are in areas with water stress using two publicly available tools – the World Resources Institute's Aqueduct and the World Wildlife Fund's Water Risk Filter. These tools are complex models that use a variety of inputs. At their core, however, they measure the water stress/scarcity of a geographic region. A water-stressed area is one in which the available water is being used at a higher rate than it is being recharged.

The two tools provide a rating based on average recent water risk conditions and are not intended to evaluate real-time conditions. For example, the heavy rain and snow experienced in California in 2023 resulted in the removal of all drought warnings for the state's southern region. The models provide a longer-term assessment of the conditions.

In 2024, we plan to use these tools to evaluate areas where we might need to prioritize additional water conservation efforts. In general, we will focus on areas of high stress, such as Southern California and Arizona.

Each of our locations maintains a water-flow diagram that identifies how and where water is used throughout the facility. These diagrams, which include daily usage volumes, are used to identify opportunities to eliminate, minimize or reuse water. In addition, actual monthly usage is compared to these diagrams to monitor for unusual changes in volume that might require further investigation.

In 2023, 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.

Total Water Withdrawal

	Megaliters Withdrawn	Withdrawal Intensity (megaliters withdrawn per billion dollars of revenue)
2019	4,954.48	697.32
2020	4,242.21	806.96
2021	3,733.83	746.77
2022	3,981.15	702.14
2023	4,088.57	615.75

Rainwater not included. Some fourth quarter or December data has been estimated. Data changes from prior reporting are due to estimated data being updated with actual data. Our water utility in Michigan discovered a meter malfunction that affected our reporting of 2019 water use based on invoices. The revised 2019 baseline reflects the correction.

Wastewater

We track the water discharged at all locations that use water. As with water withdrawal, we obtain discharge information 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 mitigating environmental impact in 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.

WASTE AND CIRCULARITY

- **We set a new goal to reduce our hazardous waste intensity by 10 percent by 2026 from a 2022 baseline.**
- **We are progressing on our circular materials management journey.**
- **Our 2023 hazardous waste generation declined 1.9 percent from prior year.**

We see the value in all materials that we use as well as those that are by-products or waste from our manufacturing processes. We believe it is important to find secondary uses for these production residues in accordance with a circular economy.

We understand that the production of materials from extractive sources has a larger impact on climate, biodiversity and other environmental metrics. As such, viewing materials as valuable inputs to the economy enhances business sustainability.

We are investing in a transition to a more sustainable future and expanding our aspirations in the circular economy. Currently, more than 60 percent of our titanium products are made from recycled inputs, and we are working to increase that percentage through closer attention to monitoring and procurement practices. For some of our primary raw materials, there is not a sufficient supply of recycled input to address the market demand for our intentionally long-life products.

We are also changing our perspective from being managers of waste to becoming circular material managers. We try to keep materials in the economy, providing additional value through reuse and recycling and eliminating waste that is disposed of in landfills or through incineration. It will be a long journey as we transition to this mindset. In 2024, we plan to further develop the circular materials management concept, build capabilities, explore more innovative opportunities and share the successes.

We have already made some progress across the value chain with the circular use of shipping materials, crating and padding material with certain customers and intermediate processors as well as within our own operations. The amount of production residues we divert from disposal is also increasing, and we are working to improve our comprehensive measurement of this.

Our customers' specifications on product safety and quality require us to use certain hazardous chemicals in our processes. Some of these chemicals eventually become production residues embedded in filter cakes and dust-collection systems.

In 2023, we achieved significant reductions in the generation of hazardous waste at some of our largest locations through teamwork that identified site-specific process improvements. We estimate that these efforts will reduce hazardous waste generation by approximately 985 metric tons annually. This is an important step in our journey to reduce our impact from the generation of waste materials.

To build upon momentum achieved in 2023, we have set a hazardous waste intensity target using 2022 as the baseline year and 2026 as the target completion year. Our goal is to reduce our hazardous waste intensity by 10 percent during this time frame. We also plan to focus on our landfilled waste and evaluate opportunities to make better use of our production residues in the broader economy.

In 2023, 15 percent of our manufacturing locations reported a residuals diversion rate greater than 80 percent. We also had 35 percent of our manufacturing locations generate less than 10 metric tons of hazardous waste.

2023 Waste

Thousand metric tons

	Total Generated	Diverted from Disposal	Directed to Disposal
Hazardous	26.14	8.88	17.26
Non-hazardous	71.78	28.49	43.28

Diverted includes preparation for reuse, recycling and other recovery operations. Disposal includes landfilled, incinerated with and without energy recovery, and other disposal methods.

Landfilled Waste

	Waste (thousand metric tons)	Waste Intensity (thousand metric tons of waste per billion dollars of revenue)
2019	29.88	4.20
2020	25.30	4.81
2021	23.57	4.71
2022	27.95	4.93
2023	32.11	4.84

Some fourth quarter or December data has been estimated.

Spills

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

We require our locations to have a spill prevention control and countermeasure plan 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.

Our internal incident management program 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 one spill that met this criteria in 2023. It occurred at our location in Dover, New Jersey, where approximately 2,725 liters (720 gallons) of a 10 percent potassium hydroxide solution was unintentionally released into a drainage ditch and contained on-site. The location completed cleanup within three days.

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 2023, our payments for these activities were approximately US$3 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$17 million on December 31, 2023.

Eliminating Waste at Its Source

From neutralizing acidic wastewater to diverting steam condensate from the hazardous waste stream, three of our U.S. locations have reduced their collective hazardous and non-hazardous waste by nearly 1,540 metric tons in 2023.

Descaling, where chemicals are used to remove contaminants and imperfections from a metal surface, historically accounted for a third of our Niles, Ohio, plant's hazardous waste. By neutralizing the acidic wastewater onsite before sending it offsite for further treatment and disposal, the location eliminated 250 metrics tons of hazardous waste annually. The site also began working with a supplier to recycle the sand-like garnet used in its cutting processes, diverting 1,000 metric tons of non-hazardous waste from the landfill each year.

When trench waste, which is overflow from chemical tanks, spiked significantly at our Torrance, California, location in 2022, a root-cause analysis found that operators were accidentally overfilling the tanks. By installing an inexpensive dosing unit that automatically controls the volume of liquid being added to a tank, the location reduced its hazardous waste by 58 metric tons in 2023 compared to the prior year.

At our Cleveland Works location, tanks containing caustic and acid that are used in the etching process are heated with steam. While the steam never came into direct contact with the chemical bath, its condensate was discharged into the bottom of the tank system, where it comingled with a tank's hazardous waste.

Through a process change that isolates the condensate, the location now annually discharges 10 metric tons – 100 percent – of this non-hazardous water from one of its two large aerospace etching lines through the sewer system. The process change will be extended to the plant's second etching line in 2024. The location also used analytical data to extend how often a tank's caustic and acid bath is changed, eliminating an additional 219 metric tons of hazardous waste each year.

Safe Disposal of Household Hazardous Waste

Rather than being placed in the trash or poured down the drain, 542 kilograms (1,195 pounds) of household hazardous waste were disposed of safely during the 2023 Environmental Day at our Fastening Systems location in Hildesheim, Germany.

Safe disposal of household hazardous waste is available through local municipalities, but residents must pay for the service and drop off the waste at predetermined times. The cost and inconvenience often discourage use of the service, resulting in unsafe waste disposal.

At the Hildesheim event, a local waste contractor stationed in the plant's parking lot collected a wide variety of household hazardous waste from employees. The contractor then oversaw the safe disposal of the collected waste, with the plant covering all costs.

Collected Wastes

- Paints, varnishes, adhesives
- Solvents, thinners
- Acids, pickling
- Lyes
- Household chemicals, cleaners
- Spray cans
- Lead-acid batteries
- Waste containing oil
- Waste oil

"I had a lot of old oil, paint and varnish due to renovation work at my home," said Cathrin Clemens, quality management coordinator at the Hildesheim location. "It was very convenient to have it collected at my workplace. For me, it's important to know that these wastes are being disposed of in the right way."

Hildesheim employee Cathrin Clemens (left) drops off household hazardous waste at the onsite collection point.

Spill Simulation Unifies Emergency Responders

With water serving as a substitute for hydrofluoric acid, a simulated major spill at our Cleveland Works facility brought together nearly 60 internal and external responders to coordinate a unified response to the highly unlikely situation.

Because the location has onsite containment to keep spills from breaching the building, the drill simulated a release of hydrofluoric acid from a tanker truck transporting chemical residuals for off-site processing. Such a spill, which is a worst-case scenario for the plant, requires effective coordination between the internal and external emergency responders to minimize the impact.

Joining our onsite emergency response team, medical team and contract security personnel in the drill were representatives from the Cuyahoga Heights and Newburgh Heights fire departments, Southwest Emergency Response Team (SERT) hazmat team and Northeast Ohio Regional Sewer District.

The four-hour drill, which was conducted in August 2023, had multiple goals:

- Provide site personnel with the opportunity to practice the skills needed for real emergencies, such as implementing the response system, coordinating and communicating, and securing the scene;
- Allow these employees to practice collaborating with outside emergency response agencies to increase interoperability in dynamic situations; and
- Increase the emergency response agencies' familiarity with the facility, personnel and processes in advance of a potential real emergency.

"Although the site has very good regular communication with our fire department, the drill gave us an even better understanding of what's in the plant as well as its processes," said Reno Contipelli, retired fire lieutenant, Cuyahoga Heights Fire Department. "In the event there's an incident, everyone will be aligned on how to handle it. Building these relationships before there's a crisis is very important."

A debriefing following the drill identified opportunities for further improvement, including a better strategy for initial scene isolation and increased employee and contractor education on the facility's barricade program and spill kit locations.

BIODIVERSITY

- **We manage our business and manufacturing operations in a manner that minimizes or enhances our impact on nature.**
- **We are working to continually increase circular raw material inputs.**
- **We will be refining our biodiversity strategy in 2024.**

We understand our critical relationship with nature and are committed to avoiding misuse of land and water. We seek to protect and enhance biodiversity across our value chain, and we have made investments in the protection of natural heritage. We also promote transparency and engagement on nature-related topics.

We do not operate in a priority sector for a nature-positive transition, and our landholdings are quite limited. However, we know that we have an obligation to manage our business and manufacturing operations in a manner that minimizes or enhances our impact on nature. Our decarbonization, circularity and water-reduction initiatives align around this obligation.

We are working to continually increase circular raw material inputs to avoid extractive practices, and we strive toward circular materials management of non-product materials generated in our differentiated manufacturing processes. This keeps materials in the economy, providing continued value.

As we continue to learn about our potential impacts on key biodiversity areas, we are refining our biodiversity strategy. In 2024, we plan to:

- Further assess and scope our program;
- Generate an impact profile for representative larger sites;
- Select indicators and set goals;
- Integrate nature consideration in our decision-making processes;
- Build partnerships for addressing challenges; and
- Monitor, learn and adapt.

We also will strive to select the most appropriate biodiversity framework, standards and guidance for our unique business from the many available to us.

Whitehall Campus, Michigan

CHEMICAL MANAGEMENT

- **We reduced our use of chlorinated solvents by 40 percent in 2023.**
- **In close coordination with our customers, we are conducting trials to identify suitable alternatives to chromium trioxide in chemical conversion coating after the ion vapor deposition of aluminum.**
- **We have abandoned some uses of nonylphenol ethoxylate and octylphenol ethoxylate.**

Our chemical management program is focused on three key areas – understanding the impacts of chemical management regulations to our products and processes, reducing the use of hazardous substances and mixtures in our operations, and ensuring compliance with chemical regulations.

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 is 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 actions undertaken through our chemical management program in 2023 were:

- Working toward our goal to abandon the use of chlorinated solvents in operations in non-laboratory settings by 2025, where technically and economically feasible. In 2023, we managed to reduce our use of chlorinated solvents by 40 percent;
- Continuing to conduct trials to identify suitable alternatives to chromium trioxide in chemical conversion coating after ion vapor deposition of aluminum. This process deposits a thin layer of pure aluminum on the product's surface, which is then protected against corrosion by a chromated chemical treatment;
- Undertaking further trials on alternatives to chromium trioxide in passivation, which is when a corrosion protection layer is created at the surface, after cadmium plating;
- Collaborating with customers to substitute the use of sodium dichromate in stainless steel passivation;
- Abandoning some uses of nonylphenol ethoxylate and octylphenol ethoxylate in our European locations, with work continuing to achieve new substitutions for the substances; and
- Reviewing our use of per- and polyfluoroalkyl substances (PFAS).

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

- **Women's representation was 27.1 percent and U.S. racial and ethnic minority representation reached 41.8 percent in 2023.**
- **We began using technology to extend training access to our hourly employees.**
- **Our overall turnover rate decreased to 19.3 percent during the year.**

Our success depends on our ability to create innovative solutions that exceed our customers' goals. We can achieve this by fostering inclusive work environments that leverage the diversity of backgrounds, experience and thought within our organization.

Diversity, Equity and Inclusion (DEI)

Progress in DEI is not a moment in time or a set of metrics. It is commitment and action from all of us every day.

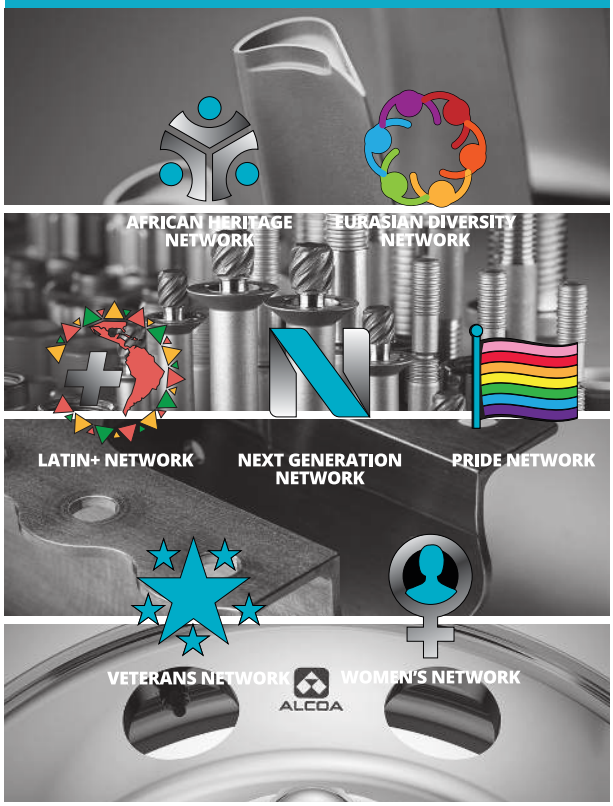
Inclusion is an intrinsic part of our core values because it makes Howmet and each individual better. By embracing diversity, we gain access to a wealth of perspectives, ideas and traditions that enrich our lives. When we celebrate our differences, we create an environment that values our varied experiences, ultimately driving innovation and organizational success on a global scale.

Our DEI strategy is a comprehensive approach to creating an inclusive and equitable workplace that acknowledges and embraces the unique attributes of individuals worldwide.

Employee Resource Groups

Our seven employee resource groups (ERGs) serve as platforms for diverse voices, fostering collaboration and understanding. Membership is open to every employee to ensure our ERGs represent underrepresented communities and build allyship.

Howmet Employee Resource Groups



ERG sponsorship by five of our executive vice presidents reinforces leadership's active role in championing DEI. This nurtures a culture that reflects our commitment to social responsibility.

Our ERG strategy is built on a continuum of continuous growth and improvement.

Employee Resource Group Continuum

Initiate

- Feel welcomed
- Connect socially
- Build a network
- Establish connections with members and allies

Build

- Establish mission
- Create ERG strategy with goals
- Establish leadership structure
- Identify executive sponsorship
- Create/lead programming
- Establish charter
- Attract and retain best talent
- Communicate success
- Establish intersectionality and sharing of resources

Scale

- Connect to the business strategy
- Increase member and employee engagement
- Focus on member attraction and retention
- Enhance community outreach and external engagement
- Educate members
- Create networking opportunities

Evolve

- Grow local alignment to a national presence
- Build allyship/common ground
- Add structure nationally

During 2023, our ERGs' successful programs and activities led to requests to expand their scope. As a result, our Hispanic Network changed its name to Latin+ and added activities highlighting the traditions and history of a wider range of Latin American countries.

Our European Network expanded its scope to include Asia and added a focus on disability, leading to a relaunch and name change to the Eurasian Diversity & Inclusion Network. The ERG also held an event in Székesfehérvár, Hungary – home to our largest European site – that provided employees with insight into the business case for diversity and featured prominent women from industries across Europe sharing their experience of breaking the glass ceiling.

Other ERG activities during 2023 included regular book clubs that raised awareness of barriers and provided educational opportunities; visible representation during Lunch & Learn career journey discussions, where panelists shared their personal journeys and challenges they overcame; and Meet the Leader sessions, where members joined virtual discussions with senior leaders and board members.

In 2023, our ERGs celebrated various heritage months by sponsoring events and activities that included:

- **PRIDE Network:** Wear Your Colors, where employees were invited to wear colorful clothing to show their support for the LGBTQ+ community;

- **African Heritage Network and Women's Network:** Sponsorship for members to attend Women in Manufacturing and other executive leadership educational programs;

- **Veterans Network:** Participation in panel discussions with veterans transitioning into the workforce during the Manufacturing Institute's Heroes Make America.
- **African Heritage Network:** Cardiac arrest training for employees that highlighted the issue of poor healthcare in Black and Latin communities; and
- **Next-Generation Network:** Sponsorship of licenses for members to take online certification and leadership development courses.

Our ERGs also work in partnership with the Howmet Aerospace Foundation to ensure nonprofits focused on assisting underrepresented groups are supported throughout local communities. Successful partnerships in 2023 included:

- Next-Generation Network providing approximately 630 books for YWCA after-school STEM programs;
- African Heritage Network and Women's Network partnering with Gwen's Girls on STEM education;
- Women's Network supporting organizations focused on human trafficking and domestic abuse; and
- Veterans Network providing continued support for K9 service dog sponsorship.

DEI Training and Development

Implicit bias training is embedded into all of our talent initiatives, ensuring a continuous commitment to recognizing and addressing unconscious prejudices. These initiatives include processes and training on how we source new talent to ensure diverse slates for interviews; our performance management cycle, including recognizing implicit bias in goal setting and performance rating; the understanding of our own implicit bias in our leadership and development programs; and a range of implicit bias awareness training available to all employees within our learning management system.

Despite these efforts, we recognize the need for a behavior breakthrough to increase participation in supporting our underrepresented and minority groups. Allyship plays a pivotal role in fostering understanding and serves as a powerful catalyst for promoting unity among individuals. By celebrating our shared humanity and embracing the unique qualities that make each individual special, we pave the way for a more inclusive and compassionate world.

Developing allies is now a key feature of our DEI strategy, as it is through allyship that we build bridges of understanding that foster a global community where everyone is seen, heard and valued.

Allyship requires active listening, humility and a commitment to continuous learning. It involves standing up against discrimination and injustice, amplifying marginalized voices and being willing to challenge preconceived notions. We have built these behaviors into our values and the competencies we use for hiring and development to ensure we are all actively contributing to the creation of a world where everyone can thrive, irrespective of their background.

DEI Performance

Over the past three years, the representation of women globally and racial and ethnic minorities in the U.S. has increased at nearly every level in our

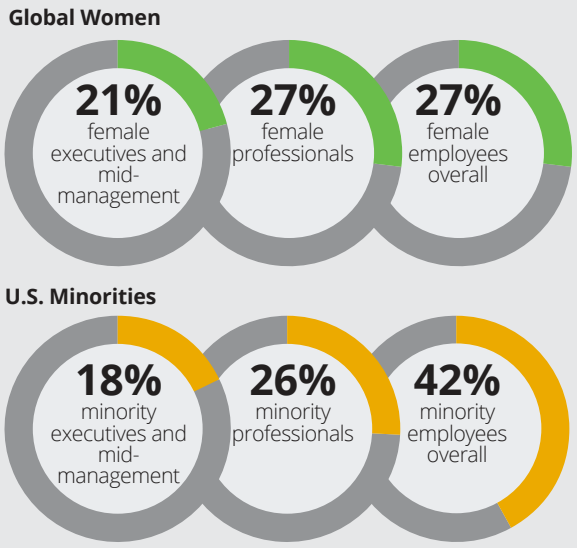
2023 Employee Diversity

	Gender			Age		
	Male	**Female**	**Not Specified**	**Under 30**	**30-50**	**Over 50**
Board of Directors	7	3			2	8
Officers and Assistant Officers	5	4			4	5
Employees	15,949	5,985	173	3,764	10,657	7,686
Total	**15,961**	**5,992**	**173**	**3,764**	**10,663**	**7,699**

Data does not include employees in Germany.

organization because of our hiring efforts and stronger retention. Women's representation increased to 27.1 percent in 2023 from 25.2 percent in 2020, while U.S. racial and ethnic minority representation increased to 41.8 percent from 37.7 percent during the same time period.

2023 Women and U.S. Minority Representation



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.

Our veteran representation rate increased slightly in 2023 to 2.4 percent compared to 2.3 percent in 2022. While we had more veterans in 2023, our non-veteran population grew at a faster rate during the year.

Employee Well-being

Programs that contribute to a healthier work environment, reduce stress, absenteeism and turnover rates, and ultimately foster a positive corporate culture have always been a focus for our company. In the past few years, the fast-paced and dynamic changes in society and the workplace have made it crucial that we address mental health to ensure we maintain a healthy and engaged workforce.

To support our employees' mental health, we introduced resources that provide therapy sessions and messages through a virtual therapy platform. This enables our employees and their dependents to use an app on their mobile devices that matches them with a licensed therapist or psychiatrist within their benefits program. In addition, our telemedicine vendor has added the ability for employees and their dependents to schedule therapy.

One major benefit of both services is the ability for our employees and their dependents to use these resources in the privacy of their own homes.

See the Health and Safety section for additional information on our efforts around employee health and wellness.

Training and Development

In today's dynamic and competitive business landscape, the value of a skilled and motivated workforce cannot be overstated.

While our training development programs have traditionally been reserved for salaried employees, we began using technology to extend training access to our hourly employees during 2023. Adding these user-friendly and accessible learning platforms ensures our employees can easily engage with the training materials on their mobile devices. We believe this will yield significant benefits for both our people and company.

Providing hourly employees with avenues to new skills enhances their overall contribution to the organization and can lead to greater job satisfaction. This significantly contributes to increased motivation and fosters a sense of loyalty and engagement, resulting in higher employee retention.

In an era of rapid technological advancements, this cultural shift to continuous learning also helps our hourly employees keep their skills relevant, stay abreast of industry changes, and be adaptable and better equipped to handle their responsibilities efficiently.

Ensuring our employees are both aware of the many career opportunities and pathways available to them and understand how to take advantage of them is an important element in talent acquisition and retention. To that end, we introduced our Development Process Framework – Assess, Acquire and Apply in 2023 to provide the tools and resources individuals need to identify career options, skills gaps and actions they can take to progress within the company.

While formal development programs provide new knowledge, we all need support and reinforcement to apply those skills on a day-to-day basis. In 2023, we introduced a formal mentoring program available to all employees on their mobile devices. The program is aimed at providing personalized guidance, practical insights and a supportive relationship to foster skill acquisition and professional growth in a real-world context.

Workplace Culture

During 2023, we introduced new company values aimed at aligning our teams with a shared vision to guide their decision making, foster a positive workplace culture and adapt to our evolving business needs. We believe these values help create a unified identity and reinforces our organization's principles. See the Who We Are section for more information.

Talent Acquisition and Retention

Several factors made 2023 a challenging year for talent acquisition and retention. Increased competition for skilled individuals, evolving job market dynamics and changing employee expectations all contributed to the need to adapt and refresh our strategies to attract and retain top talent.

New technology that increases the automation of job postings enables a wider dissemination to diverse partners and job boards, increasing the opportunity for applications from underrepresented groups. Minorities remain sorely underrepresented in STEM, especially in the aerospace and defense sector.

We are committed to not only improving our own diversity but also ensuring a robust and diverse pipeline of talent for generations to come. We are also focused on offering an application process that is accessible and fast and has improved communication for a better candidate experience.

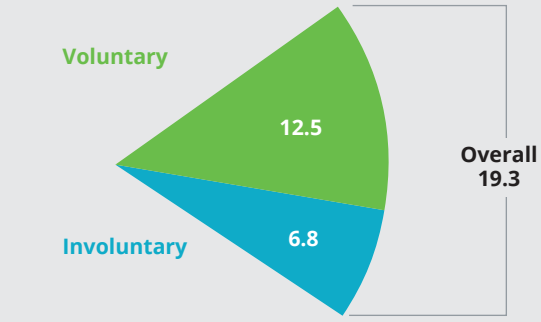
In 2023, we strengthened our onboarding initiatives, which set the tone for employees' experiences and influence their engagement and productivity. For example, we implemented new training centers at several key locations for employees to learn the skill set needed for various tools and equipment versus a more traditional on-the-job approach spread over a longer period.

Our structured onboarding process combines technology and face-to-face support provided by the addition of onboarding coordinators. This process helps new hires acclimate to the company culture, understand their roles and build relationships. All contribute to job satisfaction, reduce turnover and accelerate the integration of new employees into the organization.

As a result of these initiatives, our overall turnover rate decreased to 19.3 percent in 2023 compared to 22.1 percent the previous year.

2023 Turnover Rate

Percent



Data excludes Germany.

Labor Relations

A significant portion of our employees are represented by labor unions in several countries in Europe, North America and South America under various collective bargaining agreements (CBAs), each with differing durations and expiration dates. We believe that we have positive relationships with our employees and their labor union representatives.

At each location with a CBA, we demonstrate respect for the unions and engage union officials in candid discussions regarding the needs of the business. We strive to balance those needs with the needs of our employees.

Our business and human resources leaders work directly with union representatives to negotiate mutually beneficial CBAs for our company and for union members. Our local leaders' continual collaboration with union officials also has resulted in improved effectiveness of our dispute resolution processes.

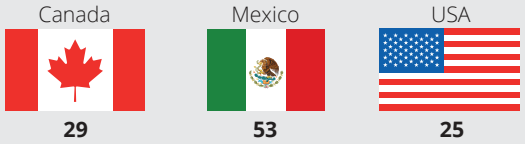
In Europe, our business and human resources leaders engage intensively with unions and works councils at local, country and regional levels on employment-related matters. Most of our European locations have a local works council, and we have works councils at the national level in France and Germany. With a presence in the European Union and European Economic Area, we engage periodically with Euroforum, which is the European works council. This engagement focuses on information and consultation processes relating to transnational matters that concern the region's workforce.

Within the U.S., we have eight CBAs with various labor unions that cover approximately 3,400 employees, or 25 percent of the workforce. The largest workforce covered under one of these agreements is with the United Autoworkers (UAW) at our Whitehall, Michigan, location. Ratified in 2023, the agreement covers approximately 1,400 employees and expires on April 1, 2028.

The second largest workforce covered under a CBA is also with the UAW at our Cleveland, Ohio, location. Covering approximately 750 employees, the current agreement expires on April 28, 2024. The location began negotiations with the UAW in February 2024. Ratified in 2024, the agreement covers approximately 750 employees and expires on February 28, 2029.

2023 Union Representation

Percent of employees



No information is collected for other countries due to data privacy considerations.

Full-circle Moment

A routine show of appreciation brought one of our employee's story full circle.

In October 2023, our Acuña operations in Mexico and the Howmet Hispanic Network (HHN) received a plaque for their support of nonprofit Hand of the Niño, which primarily awards scholarships to students who have the desire and drive to further their education. The organization's founder, Mike Figart, and one of its teachers, Carmen Marquez Avilla, visited the location to recognize the US$10,000 Howmet Foundation grants their organization received in 2022 and 2023 due to HHN's efforts.

Cinthia Cortes, who works as a purchasing analyst at the location, saw Mike and Carmen while they were visiting and was brought to tears. Cinthia was helped by Hand of the Niño nearly a decade prior.

"I started crying because it was the first time I had seen them in so many years," said Cinthia. "I wanted to give them thanks for allowing me to be in the position that I am."

Cinthia was not aware of our involvement with The Hand of the Niño and did not know that Mike and Carmen would be on-site that day.

"I was pregnant in high school and had no resources to continue my schooling," she said. "I had to stop going to school to give birth to my son, but the support that I received from The Hand of the Niño allowed me to go back and finish high school. The organization helped me pay for school, helped me with childcare and helped take care of me."

The organization also provided financial support for Cinthia to attend college and study enterprise engineering.

"I'm very thankful for everything Hand of the Niño did for me," said Cinthia. "I felt like I had lost my opportunity. The organization gave me hope and allowed me to continue my studies."

Cinthia said that it's "unbelievable" that after so many years, she's in a place that supports a cause that helped her so much.

"It's a great organization that gives opportunities to people without judging who you are or what you did," Cinthia added. "Its people open their arms and inspire you to move forward."

HEALTH AND SAFETY

- **Globally, we had zero fatalities and serious injuries in 2023.**
- **We completed 42 facility fire and risk-reduction projects, which improved our overall loss expectancy.**
- **Each business deployed a new-to-the-job safety program that is designed to onboard new employees.**

Our strong health and safety culture empowers all 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.

Occupational Health and Safety Management System

Our Environment, Health and Safety Policy sets requirements against which our businesses and locations are held accountable and measured. 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. The policy is also signed by each location leader, posted in strategic and visible areas, and audited to demonstrate our value of health and safety.

Our EHS management system is key to the successful implementation of our EHS Policy. The system aligns with the ISO 45001:2018 (occupational health and safety systems) and ISO 14001:2015 (environmental management systems) standards. The standards' requirements are incorporated into our site-specific EHS management systems, which cover all the production and office sites and applies to all employees, contractors and visitors worldwide.

To help us achieve our ultimate goal of zero incidents, we have annual health and safety goals and objectives for each location. These goals and objectives are built into our annual EHS planning process and address required improvements based on identified weaknesses against internal and external standards and regulations as well as audit findings and non-compliances. Each location's EHS plan is linked to our EHS management system and reviewed on a regular basis, including quarterly updates with our Executive Lead Team. Our employees have access to the plans, requirements and results on our internal website to ensure transparency and accountability.

Accountability for deploying our internal EHS policies and procedures is validated through our internal audit process. Using this process, we evaluate a location's inherent and controlled risks and review its implementation of the EHS management system and conformance with regulatory and internal requirements. In 2023, we conducted 11 health and safety and 11 environmental audits that covered a subset of our global locations.

Risk Assessment and Incident Investigation

We use various risk identification, assessment and control processes to reduce the likelihood of safety and health incidents in the workplace. Core to our effort is the prevention of fatal and serious injuries, as these types of events have the potential for life-threatening and/or life-altering outcomes. Globally, mobile equipment and contractor management remain our highest fatality risks within our operations.

We require each business to identify safety risks, evaluate root causes, verify competent support, address gaps and reduce risk using the hierarchy of controls methodology. Unacceptable or marginal risks must be eliminated or reduced in a timely manner, with management reviewing metrics that document risk reductions.

Our management of change process ensures that any new or modified processes are evaluated for EHS risks. Prior to the change, we eliminate or reduce risks with the inclusion of control strategies. We also use industrial hygiene (IH) qualitative assessments to assess chemical exposures prior to use, with additional local exhaust ventilation or personal protective equipment considered as needed if a less hazardous material cannot be used. Quantitative IH sampling helps ensure that implemented controls prevent exceedances of any internal or governmental occupational exposure limits.

We achieved the following milestones in controlling risk in 2023:

- We implemented a standard contractor management system to evaluate the risks for each contractor and the documented controls related to the hazards of the work or work environment.
- As part of a three-year initiative to abandon the use of chlorinated solvents in non-laboratory operations by 2025 (where technically and economically feasible), we reduced the total number of products containing these solvents at our locations by 40 percent.
- Our Global Safety Committee updated our product heating system policy, procedures, training and best practices related to the control of natural gas combustion hazards. We conducted a global webinar to train employees responsible for combustion at their location on their roles and responsibilities. We also provided resources and best practice tools to help evaluate risk at sites with natural gas combustion furnaces.

Our incident reporting and investigation requirements are embedded in our policies and standards and designed to support our principle of relentlessly pursuing and continually improving EHS systems and processes to achieve an incident-free workplace.

When an incident occurs, the location must follow a pre-defined process to ensure root causes are identified and eliminated. Depending on the incident's severity, management awareness and involvement is escalated. Incident learnings are communicated to share systematic improvements across all of our locations to avoid a similar injury from occurring again. Our Executive Lead Team reviews our incident performance each quarter, while our board reviews it once per year.

In addition to protecting the health and safety of our employees, we also focus on the safety of our facilities and operations. Our locations continue to invest in reducing fire, natural disaster and other business operational risks.

We completed 42 facility fire and risk-reduction projects in 2023, improving our overall loss expectancy. Investments to reduce the overall risk of fire and natural disasters will continue to be a major focus.

After closing its final two fire-protection actions, which involved installing earthquake bracing for natural gas lines and a main earthquake shutoff valve for natural gas, our location in Suzhou, China, received the Highly Protected Risk Award from our property loss insurance company in 2023.

Employee Engagement and Empowerment

We support a safety culture in which employees feel comfortable communicating 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.

Health and safety programs can only be truly effective if they include employee input and feedback. 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 and employee EHS committees, to receive ideas and feedback for improvement. Locations have a variety of communication and reporting avenues at their disposal to share observations of any ideas for improvement and results of actions to address concerns.

Employees can report any EHS or other concern via our Integrity Line. Our Code of Conduct prohibits retaliation against employees who report a concern in good faith.

All employees have the authority to refuse or stop unsafe work. We expect them to exercise this authority, and we reward them 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.

To further build on empowering our employees to stop unsafe work and proactively identify where error-likely situations may arise from the tasks being performed, we continued to train human performance coaches in all regions of the world where we operate. The training teaches each coach to: assess where error-likely situations may be present based on the task assigned; evaluate risks associated with the task assignment; and identify which error prevention tool can be used to control the identified human error-likely scenario.

Connie Paige (left), metal cell operator at our Hampton, Virginia, location, receives a STOP coin from Kim Woodard, her team leader. By stopping to check the routers for the part she was about to begin working on, Connie recognized that a manufacturing step was potentially skipped. Her actions avoided possible rework costs and delays.

Employee Health and Safety Training

The education and training of our employees, contractors and visitors about our workplace health and safety requirements and expectations are cornerstones of our EHS management system.

Our training programs are based on a needs assessment that includes input on an individual's exposure, workplace hazards and other requirements. Single points of accountability (SPAs) at the plant, EHS pro-

fessionals and third-party consultants provide the training to ensure company and regulatory requirements are delivered to those required to receive the training. We review and update our training needs assessments as part of our annual planning process.

Through a combination of toolbox talks, classroom training, hands-on proficiency testing, webinars and e-learning, our locations meet local, company and regulatory training requirements. We provide regulatory-required training materials to affected employees at no cost and make the materials available for reference after the training session through local networks, SharePoint pages or our global EHS management system webpage. Training is provided in the language understood by the employee.

Our global EHS committees continued to conduct skill development training webinars for our EHS professionals in 2023. In addition to EHS compliance, training included a human performance tool refresher, seasonal safety training to avoid heat-related illnesses, a substance abuse policy refresher, combustion safety designee training, chemical management system training, and environmental metrics and reporting user training.

In 2023, training for new business leaders was a key focus to help ensure they understand their roles and accountabilities related to EHS management. The training reinforces how their leadership in EHS can help or hurt the EHS culture at their local operation.

Through the training, we introduce our new business leaders to a number of our business unit presidents, who discuss challenges as well as tactics and strategies they have taken to improve EHS performance in their careers. The training also covers leadership EHS expectations, leading a fatal and serious injury (FSI) prevention team, leading human performance deployment, driving accountability through an effective SPA process, environmental responsibilities, critical skills for emergency response and improving health metrics.

Occupational Medicine Services

Our employees and select embedded contractors have access to occupational medicine services to optimize their health and well-being both on and off the job. These services include regulatory-required or internal risk-based chemical surveillance evaluations, fitness for-duty assessments, hearing evaluations, lung-function testing, work-related injury and illness evaluation, substance abuse testing and job-related immunizations.

We require that internal and third-party medical providers conform, at a minimum, to our internal standards for defining qualified and responsible occupational healthcare professionals and applicable government requirements. Privacy of medical data is supported by our Code of Conduct and Personal Data Privacy Policy and is managed in alignment with our internal standards and applicable government requirements. Our Human Rights Policy prohibits discrimination against any employee disability or medical condition.

Employee Health Promotion and Benefits

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

We have a broad range of healthcare coverage arrangements that are subject to location, country and union contract. 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.

Many of our locations and employees marked Breast Cancer Awareness Month in October 2023 by offering talks by breast cancer survivors, conducting breast exams, donating to breast cancer nonprofits and encouraging pink clothing, among other activities.

- Mexico: Employees have required government-provided healthcare, and we also provide additional coverage depending on union or non-union status.
- U.S.: 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.

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.

Individual locations further promote healthy lifestyles by holding various health events focused on topics that include smoking cessation, breast cancer awareness and stress reduction. U.S. employees are also offered access to the LifeBalance Program, which is a discount ticketing platform designed to help promote work/life balance.

See the Human Capital section for additional efforts focused on employee well-being.

Travel and Off-site Employee Safety

We rely on our internal standards to protect the safety and well-being of employees who are required to travel or visit locations that we do not control to perform their job. These standards cover safe driving, general travel safety guidelines, cell phone restrictions and training. The latter includes defensive driving, medical provisions, hotel safety and other topics that further educate employees on risk identification and reduction. The standards also specify requirements for reporting travel incidents so that we can identify common trends and develop control strategies to reduce the risk of a reoccurrence.

As referenced in our Code of Conduct, all employees share accountability for protecting themselves and their colleagues by performing their job in a safe and responsible manner, regardless of where that work is performed. Just as they are empowered within our own locations, our employees can refuse or stop work at sites that are not under our control if they feel there is an unsafe condition.

New Hire, Temporary Employee and Contractor Safety

All new hires, temporary employees and contractors are covered under our EHS Management System through orientation, training, policies, procedures, safety planning and observations.

In 2023, we paid particular attention to onboarding and training new hires and ensuring contractor safety requirements are being managed.

Each business has deployed a new-to-the-job safety program that is designed to onboard new temporary and full-time employees with the goal that they can safely produce high-quality parts in a timely manner. The key focus points of our new-to-the-job standard are orientation, EHS training, observations, assigning of a mentor, visual identification through hard hats (where allowed by local regulations), wrist bands or badge colors, work restrictions on overtime and supervisor oversight. The newly hired employees are formally part of the program for their first six months on the job.

Our contractor EHS standard requires each location to have at least one person assigned as the Howmet responsible person to oversee contractor safety expectations. This responsible person has the authority to choose contractors, define scope of work, validate that safety plans cover the risk of the work performed, ensure the hazards of the work have countermeasures, confirm contractors are trained for the tasks assigned, and perform routine audits of the work to validate compliance to location and company rules.

In addition to assigning a Howmet responsible person, our contractor EHS standard requires the following:

- Each contractor or sub-contractor is pre-qualified, and risk rating is current.
- A job-specific safety plan is documented and covers hazards and controls for the work being performed and reviewed each day to include risks and controls for that day's work.
- The Howmet responsible person approves the safety plan for that day's work.
- Frequent field-based audits are conducted to ensure compliance to the safety plan and site rules.

2023 Performance

In 2023, our employees worked more 48.3 million hours with zero fatal or serious injuries. We define serious injuries as those that result in life-threatening or life-altering conditions.

Our key employee safety rates increased compared to our 2022 performance, but we continued to remain significantly below the most recent U.S. industry averages.

Compared to the prior year, our 2023 days away, restricted and transfer (DART) rate increased 13.3 percent, and our total recordable incident rate (TRIR) rose 7.6 percent. Both rates were below our 2023 targets of 0.27 and 0.99, respectively. Our lost workday (LWD) rate, which is a subset of DART cases, increased 11.1 percent. A key factor for the rate increases was a surge of new hires in 2023, with our new-to-job injuries increasing 23 percent from 2022.

At the end of 2023, 79 percent of our locations globally had worked the year without a DART incident, 84 percent without a LWD and 55 percent without a total recordable incident.

Contractors spent more than 2.1 million hours on our projects during 2023. Our contractor DART rate of 0.19 improved 24.0 percent over the prior year, while our 0.56 TRIR improved 27.2 percent. The targets for both were equivalent to our employee targets.

Incident Rates — Employees and Supervised Workers

	Fatalities	Days Away, Restricted and Transfer			Lost Workday		Total Recordable Incident		
		Count	Rate		Count	Rate	Count	Rate	
2019	0	76	0.25		37	0.12	272	0.90	
2020	0	55	0.24		28	0.12	158	0.71	
2021	0	45	0.22		31	0.15	148	0.71	
2022	1	38	0.15		22	0.09	153	0.66	
2023	0	40	0.17	Target 0.27	25	0.10	171	0.71	Target 0.99

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		
		Count	Rate		Count	Rate	Count	Rate	
2019	0	5	0.36		3	0.24	13	0.84	
2020	0	1	0.11		1	0.11	4	0.50	
2021	0	3	0.34		2	0.23	4	0.45	
2022	0	3	0.25		2	0.17	9	0.77	
2023	0	2	0.19	Target 0.27	2	0.19	6	0.56	Target 0.99

STAKEHOLDER AND COMMUNITY ENGAGEMENT

- **Howmet Aerospace Foundation disbursed more than US$4.5 million in STEM-focused grants in 2023.**
- **Grants for diversity, equity and inclusion initiatives totaled US$600,000.**
- **Community donations included US$200,000 for earthquake relief in Morocco.**

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, we earn our social license to operate.

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$173 million in 2023. 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.

Through collaboration with nonprofit partners, the foundation's 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 2023, the foundation disbursed more than US$4.5 million in STEM-focused grants. These included US$500,000 to the SoLa Foundation for the development of a material science and engineering lab and US$451,807 to Purdue University for the purchase of an optical 3D measuring machine for the Purdue Polytechnic Institute and the College of Engineering.

The foundation also disbursed US$600,000 in grants focused on diversity, equity and inclusion. These included US$150,000 to Thrive Scholars for its Tech & Engineering Pathway program and US$300,000 to Gwen's Girls for STEM programming.

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

- US$200,000 to the American Red Cross for earthquake relief in Morocco;
- US$50,000 to Cruz Roja Mexicana Delegación Acuña in Acuña, Mexico, for the purchase of an ambulance and stretchers; and
- US$15,000 to the Nomi City Library in Nomi, Japan, for the purchase of e-books.

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

Employee volunteers and their families removed non-native vegetation to protect native wildflowers and other plants in Gochi City Park in Japan.

PRODUCT SAFETY

- **In 2023, we had zero product safety-related recalls.**
- **Our facilities held more than 300 unique third-party accreditations and approvals at year's end.**
- **We evaluate our suppliers for risk to product integrity and make our selection based on that risk.**

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 or exceed the highest safety standards, applicable regulations, and industry and market requirements throughout their entire life cycle.

We constantly strive to evaluate and improve our products to ensure that they are as safe as possible. Every employee, regardless of job assignment, title or location, plays an important role in this endeavor.

Quality Management

The complexity and criticality of the products we produce require equally robust systems to assure all contractual and regulatory requirements are met.

All of our manufacturing facilities hold one or more third-party quality management system accreditations, which include ISO 9000, AS/EN 9100, IATF/TS 16949 and ISO 17025. We also have a distribution quality management system at all of our facilities involved in the distribution of aerospace hardware.

At the end of 2023, we held the following externally granted accreditations and approvals:

- ISO 9000: Quality Management Systems – 60 unique approvals;
- AS/EN 9100: Aerospace Quality Management Systems – 67 unique approvals;
- IATF/TS 16949: Automotive Quality Management Systems – 10 unique approvals;
- ISO 17025: Laboratory Management Systems – 10 unique approvals;
- AS9120: Aerospace Distribution Quality Management Systems – seven unique approvals;
- Nadcap: Aerospace Special Process – 150 unique accreditations; and
- Federal Aviation Administration (FAA): Organization Designation Authorization – five unique approvals.

We also hold a significant number of technical standard order (TSO) approvals and parts manufacturer approvals (PMAs) issued by the FAA. The PMAs that we hold cover both design and production and can be found in the Dynamic Regulatory System. The approvals may be listed under our previous company name (Arconic) and are in the process of being updated in coordination with the FAA.

In addition to external systems and regulations, our internal quality management system drives an evaluation of all contracts to assure the requested product is within our known capabilities and capacity. This allows us to focus on manufacturing process controls, which increase our quality yields and reduce lead times. Our drive for continuous improvement is evident in our year-over-year improvement in both metrics.

We perform product-release testing on all manufacturing batches in accordance with customer contractual requirements or internally established standards, assuring product conformity prior to shipment. These tests are designed to ensure any

anomalies in materials or manufacturing that might affect part quality are identified prior to our release of the product to the customer. We also perform additional testing for investigative purposes to support continuous improvement opportunities and initial qualification of processes and products. All of our testing equipment used for product release is calibrated and traceable to internationally recognized standards.

We regularly validate our processes that are subject to variables (time, temperature, concentrations, etc.) to ensure their ongoing integrity. These special processes include heat treatment, chemical processing, nondestructive testing, metallurgical testing, mechanical testing, nonconventional machining and welding. All are evaluated to the strictest industry standards, with many also directly evaluated and approved by our external customers. In addition, third-party accreditations, typically through the National Aerospace and Defense Contractors Accreditation Program (Nadcap), are required for the aerospace sector.

Suppliers

We evaluate our suppliers for risk to product integrity and determine approval based on that risk. In cases where we deem the risk as significant, we perform on-site evaluations on a periodic basis. We also evaluate suppliers that are performing special processes to the strictest of industry standards, and some of these supplier processes are evaluated and approved by our customers. Our suppliers in the aerospace sector also must have third-party accreditations.

We periodically conduct training with specific suppliers on root cause analysis, continuous improvement, blueprint reading, quality assurance, inspection techniques and process management. This training is intended to improve our overall operations, product flow time and product quality.

We periodically check products received from suppliers for conformance to contract requirements, with the level of scrutiny based on the risk of the process and supplier performance. Communication with suppliers is continuous, and we provide periodic scorecards to our key suppliers.

Product Safety Management

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 ensure product safety during all stages of the manufacturing process.

Our PSMS is supported by ongoing training for all employees that is necessary for them to perform their functions. There is a special emphasis on new hire orientation, an employee's role relative to product integrity, our Code of Conduct and quality management systems.

Many of our employees belong to or participate in industry associations, including the American Society for Quality, ASM International, ASTM International, Society of Automotive Engineers and Nadcap.

Using our PSMS, we identify and minimize risks related to, or in direct support of, product manufacturing throughout the product life cycle. We continuously improve and mitigate product risk through risk identification, data collection and analysis, and continuous risk assessment associated with product recalls, counterfeit parts, number of airworthiness directives and monetary losses. Our senior management regularly reviews these metrics.

To systematically identify risks, our PSMS uses tools that include a political, economic, social, technological, environmental and legal (PESTEL) analysis; a strengths, weaknesses, opportunities and threats (SWOT) analysis; and a failure mode effects analysis

(FEMA). These tools are used in a "plug-and-play" approach, providing flexibility to the teams responsible for identification and mitigation of the risks. The teams select these tools based on the system, process or product risk upon which they are focused.

Identified risks are addressed through the implementation of risk mitigation action plans that can be owned by the process owner, process manager, site leadership or others. We believe that implementation plans must include, or be driven by, the individuals that are actively performing the process, ensuring active engagement from all employees in identifying and mitigating risk. We also communicate risks associated with manufacturing incidents to affected stakeholders for mitigation and resolution.

Where appropriate, we have worked in conjunction with, and received product qualifications from, our customers to provide multiple site capabilities to support customer demand in the most severe of circumstances.

We conduct internal audits on a risk-based frequency to assure adherence to quality management system expectations, with the internal audits supported by third-party audits and certifications. Independent audits are conducted to further ensure compliance with our product integrity expectations. These audits and associated actions continue to minimize product integrity risk.

Our enterprise risk management (ERM) process consists of monitoring and reviewing the risk levels of identified enterprise risks, such as product quality and safety, and identifying any new enterprise risks we may have. All identified key risks have a mitigating action plan to manage the risk, and we present the status of key enterprise risks to our Board of Directors annually.

We had zero product safety-related recalls in 2023.

Product Safety-related Recalls

	Voluntary	Involuntary
2019	0	0
2020	0	0
2021	1	0
2022	0	0
2023	0	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.

GOVERNANCE

SUPPLY CHAIN

- **We joined the aerospace industry's ESG supplier assessment initiative, which is conducted by EcoVadis.**
- **Our Global Supplier Sustainability Program was revamped and strengthened.**
- **We have requested suppliers of aluminum, titanium alloys and titanium sponge to provide their carbon footprint.**

Our vision is to have a solid, reliable, responsible and resilient supply chain that positively impacts society and the environment and guarantees security of supply at a competitive price.

As a global company, we conduct business with more than 14,000 suppliers around the world and have more than US$4 billion dollars in annual spend. Additional details on the number of suppliers by major categories and spend by region can be found in the ESG Performance Metrics section.

In 2023, minority business enterprises (MBE) accounted for approximately US$8.2 million of our total spend. We also purchased more than US$1 million in products and services from small and medium enterprises (SMEs), specifically HUBZone and disadvantaged businesses, during the year.

The operations in our supply chain have impacts on the environment and society. We can influence and support our suppliers to improve their ESG performance by setting requirements that they must meet and are accountable for throughout their own supply chains in order to do business with us. These requirements are outlined in our Supplier Code of Conduct, which aligns with the model supplier code of the International Forum on Business Ethical Conduct (IFBEC), and our corporate Code of Conduct. The requirements cover compliance with laws, integrity and business ethics, product safety, information protection, human rights, employment practices, environment, health, safety and global trade.

Our interactions with suppliers are also 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 and/or in the Uyghur Forced Labour Prevention Act Entity List. We do not partner with any suppliers who appear on these lists.

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.

Global Supplier Sustainability Program

We are committed to the responsible sourcing of materials and components necessary for the production of the products that we manufacture and to the wider objective of strengthening the sustainability of the aerospace and defense sector's supply chain.

For many years, we have acted upon this commitment through our Global Supplier Sustainability Program and its four components:

- **Communicate expectations:** Our Supplier Code of Conduct outlines 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 2023, we completely revamped and strengthened the program by joining a global aerospace and defense industry initiative to externalize and share supplier assessments.

We are a member of the International Aerospace Environmental Group (IAEG), an association of 56 leading aerospace and defense companies that represent more than 70 percent of the industry globally. In 2023, IAEG selected EcoVadis, a third-party leader in sustainability assessments, to conduct ESG performance assessments of the aerospace and defense supply chain against a common standard shared by major market players.

We participated in the development of this initiative, which aims to improve ESG performance in the industry and its supply chain. Other initial participants included Airbus, ATR, Boeing, CAE, Leonardo, Raytheon Technologies, Lockheed Martin, Rolls-Royce and Thales.

Through the initiative, suppliers complete one ESG assessment for sharing with their customers instead of undergoing multiple assessments. This provides suppliers with an efficient and cost-effective way to assess their ESG performance. The initiative also drives continuous improvement of the industry's ESG performance through awareness campaigns and on-demand supplier access to training materials focused on improving ESG acumen.

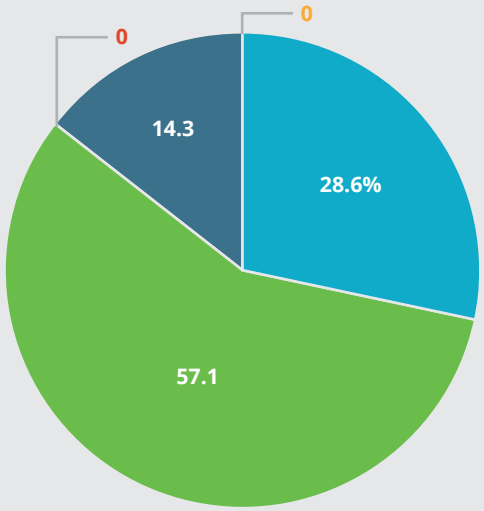
The assessment model used by EcoVadis to evaluate company ESG performance is set to globally recognized standards, such as the Global Reporting Initiative (GRI), United Nations Global Compact and ISO 26000. EcoVadis assesses four areas – environment, labor and human rights, ethics and sustainable procurement – through 21 indicators and provides companies with a comprehensive scorecard.

We onboarded the IAEG assessment in the second half of 2023, initially taking advantage of information already present in the EcoVadis system. We targeted key suppliers, which are metal suppliers and companies that receive more than US$1 million of our annual spend. In 2024, we plan to launch a supplier engagement campaign to bring EcoVadis to suppliers that were not already using the platform for their ESG assessments.

We have renamed our assessment results from lagging, emerging, active and leading to insufficient, partial, good, advanced and outstanding to align with the EcoVadis scores.

2023 Key Supplier Assessment Results

Percent of Key Suppliers



Supplier Engagement Initiatives

In addition to our Global Supplier Sustainability Program, we have several supplier-specific initiatives.

We engage yearly with our suppliers of conflict minerals. Additional information is available in our most current Specialized Disclosure Report on Conflict Minerals and Conflict Minerals Policy Statement.

To strengthen our Scope 3 emission calculations in 2023, we requested suppliers of aluminum, titanium alloys and titanium sponge to provide their carbon footprint as measured by carbon dioxide equivalents per ton of products sold to us. We also engaged with our suppliers of the aluminum and steel that we use to manufacture products affected by the European Carbon Border Adjustment Mechanism to gather required data.

HUMAN RIGHTS

- **We uphold the highest standards for the protection of human rights and respect internationally recognized human rights.**
- **Since 2023, we have included human rights in our supplier due diligence program.**
- **Our grievance process is open to all stakeholders, including our employees.**

As a responsible business, we uphold the highest standards for the protection of human rights, and we respect internationally recognized human rights. We also hold our employees and suppliers accountable for managing potential impacts on human rights as a result of our business activities.

Our respect for human rights is expressed in our Human Rights Policy, Code of Conduct, Supplier Code of Conduct and other policies related to our global business activities. These policies communicate our expectations for human rights, including workers' rights, and health and safety.

Human Rights Due Diligence

We are conscious of our responsibility as a company with global operations and aim to carry out appropriate due diligence with regard to human rights. Since 2023, we have included human rights in our supplier due diligence program. More information about our commitments can be found in the Supply Chain section.

Child Labor

As a fundamental principle, we do not employ children or support the use of child labor. We do encourage the creation of educational, training or apprenticeship programs tied to formal education for young people.

Forced Labor

We prohibit the use of slavery and human trafficking within our business and throughout our supply chain. We communicate this position and our expectations through our Human Rights Policy and our Supplier Code of Conduct.

Non-Discrimination

We are an equal opportunity employer that supports diversity and inclusion. We provide equal employment opportunities for all employees and applicants for employment and prohibit discrimination and harassment of any type without regard to race, color, religion, age, sex (including pregnancy), national origin, disability, genetics, protected veteran status, sexual orientation, gender identity or expression, or any other characteristics protected by law.

Remuneration

We are committed to ensuring equal pay for equal work, without regard to gender or any other prohibited basis. Our compensation structures, which include base pay ranges and incentive opportunities, are gender neutral. Our compensation philosophy is based on pay for performance with the same opportunities for all employees with the same job responsibilities. We report annually on the U.K. Equality Act 2010, and our annual ESG Report includes the ratio of basic salary and remuneration of women to men.

We believe that all employees deserve a living wage. Our wage practices meet all applicable legal requirements, and our pay levels exceed minimum wage in each market that we operate.

For suppliers, we have set specific remuneration requirements in our Supplier Code of Conduct.

Working Hours

We provide employees with regulated hours of work, including vacation time, holidays and any periods of paid time off that are required by applicable law. Rules are in place to approve overtime and reduce safety risks, including limiting extended work hours for our facilities.

Social Dialogue and Freedom of Association

We respect the freedom of individual employees to join, or refrain from joining, legally authorized associations or organizations.

We expect our suppliers to respect the rights of workers to associate freely and communicate openly with management regarding working conditions, without fear of harassment, intimidation, penalty, interference or reprisal. Suppliers must recognize and respect any rights of workers to exercise lawful rights of free association, including joining or not joining any legally authorized associations or organizations.

Grievance Process

Our grievance process is open to all stakeholders, including our employees. The process has been designed so that we can comprehensively and systematically follow up on reports and complaints. It starts with the Howmet Integrity Line, which is supported by a third party. The Integrity Line is available in 12 languages both online and via telephone in 11 countries.

ETHICS, ANTI-CORRUPTION AND COMPLIANCE

- **In 2023, we received 528 new concerns, questions and comments through our Integrity Line.**
- **We had zero monetary losses as a result of legal proceedings associated with incidents of corruption, bribery or illicit international trade.**
- **We had zero new environmental compliance cases of higher risk.**

In every part of the world, we are committed to conduct 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 via phone, email and our website for all employees and external stakeholders who wish to seek advice or raise a concern. In 2023, we received 528 new concerns, questions and comments through this hotline and ensured that each was investigated appropriately and addressed. As a result of issues raised, we implemented more than 85 corrective actions during the year that included discipline, training, coaching and process improvements.

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.

Through the E&C Program, we continued initiatives in 2023 that included:

- Training employees on various topics covered in our Code of Conduct, including conflicts of interest, anti-harassment, reporting concerns and anti-corruption. We track all training, with the goal of 100 percent completion. Each employee also certifies adherence to our Code of Conduct and anti-corruption policies after completing the annual training;
- Partnering with our global learning management team to improve training administration and completion reporting;
- Maintaining a third-party solution that provides oversight of third-party intermediary relationships, including risk-based reviews, due diligence, annual certification tracking and ongoing monitoring;
- Reviewing and assessing the need for active intermediaries with business partners on a continuous basis;
- Receiving certification from all employees that any conflicts of interests will be reported; and
- Continually assessing the program through our bi-annual Enterprise Risk Management process.

We had zero monetary losses as a result of legal proceedings associated with incidents of corruption, bribery or illicit international trade in 2023.

Additional information on our ethics, anti-corruption and compliance programs can be found on our website.

Environmental Compliance

Important to our success and our stakeholders, environmental compliance results in improved operating efficiency, reduced costs and lower environmental impact.

We hold ourselves to the highest standards, and our internal controls for managing environmental compliance are expansive and overlapping. These include:

- Corporate EHS management system;
- Monthly mandatory topic-specific self-assessments for each location;
- Maintenance of up-to-date regulatory registers;
- Monthly corporate EHS audit of a global manufacturing location;
- Formal enterprise risk management process;
- Global compliance task management system;
- Site compliance reviews;
- Project EHS review process; and
- Formal environmental compliance case management process.

In 2023, we improved our environmental compliance case management process, which is focused on potential non-conformities related to environmental regulatory issues. Our process is more stringent than merely addressing agency enforcement cases, as we constantly seek to find and manage potential precursor and non-compliance situations.

With each case, closure requires that we investigate root causes, plan corrective actions to prevent recurrence, confirm compliance and work to share lessons learned with other locations. The purposes of this case management process include:

- Reducing environmental risk, promoting organizational learning, maintaining corporate oversight and reducing non-compliance;
- Serving as a mechanism for assurance to top management;
- Ensuring consistency in the management of environmental risks across Howmet globally; and
- Identifying non-compliance precursors and building capabilities to address them.

In 2023, we had zero new cases of non-compliance that we consider representing higher risk. We agreed to pay penalties totaling US$57,000 associated with draft rules on stormwater discharge to agencies in California. One of these penalties, which was for US$45,000, is considered a significant fine under our internal definition. We received no other significant fines during the year.

We plan to build on our success in 2024 by improving trend analysis, sharing lessons learned and identifying more precursors to potential non-conformities related to environmental regulatory issues. We also plan to update several of our internal environmental standards and upgrade our electronic environmental management tools.

Environmental Non-compliance Performance

	Significant Fines (US$)	Number of Significant Non-monetary Sanctions	Number of Dispute Resolutions
2019	0	0	0
2020	0	0	1
2021	46,083	0	0
2022	27,900	1	0
2023	45,000	0	0

Significant instances include those that result in fines in excess of US$25,000. 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 environmental cases brought through dispute resolution mechanisms. The 2022 fine included US$10,900 that was paid as remittance to a supplemental environmental program in lieu of penalty.

PRIVACY

- **We protect personally identifiable information through a company-wide privacy program.**
- **Our benchmark for privacy law is the European Union's General Data Protection Regulation.**
- **Our Privacy Office ensures we comply with all applicable privacy laws.**

We have a company-wide data privacy program to protect personally identifiable information (PII). This program is supported by privacy enhancing technologies (PET) covering training, data event management, cookie consent, privacy impact assessments (PIA), data protection impact assessment (DPIA) and data subject right management.

The program complies with applicable privacy laws around the world, including:

- European Union General Data Protection Regulation (GDPR);
- UK General Data Protection Regulation (UK GDPR);
- Lei Geral de Proteção de Dados (LGPD);
- Personal Information Protection Law (PIPL);
- California Consumer Privacy Act (CCPA/CPRA);
- Personal Information Protection and Electronic Documents Act (PIPEDA); and
- Act on the Protection of Personal Information (APPI).

Our Privacy Office ensures we comply with these laws by using GDPR as the benchmark, analyzing the different laws, evaluating the impact to our company and implementing any required changes.

The office's responsibilities include tasks such as:

- Advising on data privacy and how to reduce risk;
- Assisting in deploying privacy standards;
- Serving as the liaison with data protection authorities;
- Deploying annual privacy training globally;
- Maintaining a register of processing activities in which we process 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 events that involve PII in conjunction with the corporate information security team; and
- Analyzing high-risk processing activities.

Our data protection officer (DPO), 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

Forbes World's Best Employers 2023

Our inclusion in the Forbes World's Best Employers ranking continued in 2023. The ranking was based on a survey of more than 170,000 employees in 50-plus countries who work for multinational companies and institutions. Key performance indicators included employee diversity, work/life balance and career advancement opportunities.

Forbes Best Employers for Diversity 2023

We were named to the 2023 Forbes Best Employers for Diversity ranking, which was based on a survey of approximately 45,000 U.S. employees working for companies with a minimum of 1,000 employees. Our employee resource groups and female representation on our Board of Directors were highlighted factors in our selection.

TIME Magazine World's Best Companies 2023

TIME Magazine's inaugural World's Best Companies list featured 750 companies changing the world, including Howmet Aerospace. Selection was based on three primary dimensions – employee satisfaction that was evaluated using survey data, revenue growth and sustainability/ESG.

Heavy Duty Trucking Top 20 Product Award

Heavy Duty Trucking (HDT) named our Alcoa®ULT36x 22.5" x 8.25" wheel as one of its Top 20 Products for 2023. The 36-pound wheel is three pounds lighter than its predecessor and is equipped with our proprietary MagnaForce® alloy, making it the world's lightest and strongest heavy-duty truck wheel.

Deborah Lockridge (left), HDT editor in chief, presented the HDT Top 20 Product award to Nathalie Tessier, general manager of the Americas, Howmet Wheel Systems.

Inland Empire Water Regulatory Agency Compliance Recognition

Our location in Rancho Cucamonga, California, was recognized by the Inland Empire Utilities Agency (IEUA) for its wastewater discharges being in 100 percent compliance in 2022. The plant was one of only 13 organizations under the agency's authority to achieve this level of compliance.

Naro Kuch (left), Howmet Aerospace senior environmental engineer, accepts the compliance award from Marco Tule, IEUA president.

ESG PERFORMANCE METRICS

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1. General Disclosures

Significant Instances* of Non-compliance		Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Significant instances of non-compliance with laws and regulations	Environmental	Count	0	0	1	1	1		2-27-a
	Social	Count	0	1	0	0	0		
Total monetary value of fines for significant instances of non-compliance with laws and regulations that occurred in the reporting period that were paid during the reporting period.	Environmental	US $	0	0	46,083	27,900	45,000		2-27-b-i 2-27-b-ii
	Social	US $	0	61,477	0	0	0		
Significant non-monetary sanctions for non-compliance with environmental laws and regulations		Count	0	0	0	1	0		
Dispute Resolutions linked to non-compliance with environmental laws and regulations		Count	0	1	0	0	0		

**Significant instances include those that result in fines in excess of US$25,000.*

2. Environmental Management System

Key Metric	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Sites ISO 14001 Certified	Count	10	21	31	33	33		
Sites ISO 14001 Certified	% of total	16%	34%	53%	57%	57%		
Sites ISO 14001 Implemented but Not Certified	Count	51	40	27	25	25		
Sites ISO 14001 Implemented but Not Certified	% of total	84%	66%	47%	43%	43%		
Sites ISO 14001 Implemented	% of total	100%	100%	100%	100%	100%		
Operational sites Covered by an Environmental Risk Assessment	% of total	100%	100%	100%	100%	100%		

3. Energy

Energy Consumption within the Organization – Howmet Wide	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Total (direct and indirect)	Millions of gigajoules	13.57	11.21	10.98	11.26	11.51	RT-AE-130a.1	
Direct	Millions of gigajoules	8.78	7.22	7.07	7.23	7.40		
Diesel	Millions of gigajoules	0.10	0.17	0.14	0.14	0.17		302-1-a
Gasoline	Millions of gigajoules	0.00	0.00	0.00	0.00	0.00		302-1-a
LNG	Millions of gigajoules	0.02	0.01	0.00	0.00	0.00		302-1-a
LPG	Millions of gigajoules	0.02	0.04	0.03	0.02	0.02		302-1-a
Natural Gas	Millions of gigajoules	8.63	6.99	6.88	7.03	7.20		302-1-a
Propane	Millions of gigajoules	0.00	0.01	0.01	0.02	0.01		302-1-a
Kerosene	Millions of gigajoules	0.00	0.00	0.00	0.03	0.00		302-1-a
Indirect	Millions of gigajoules	4.79	3.98	3.91	4.03	4.11		
Retail Electricity	Millions of gigajoules	4.79	3.98	3.91	4.03	4.11		302-1-c-i
Electricity Generated On-site	Millions of gigajoules	0.00	0.00	0.00	0.00	0.001		
Heating Consumption	Millions of gigajoules	0.00	0.00	0.00	0.00	0.00		302-1-c-ii

Energy Consumption within the Organization – Howmet Wide *(continued)*		Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Cooling Consumption		Millions of gigajoules	0.00	0.00	0.00	0.00	0.00		302-1-c-iii
Steam Consumption		Millions of gigajoules	0.00	0.00	0.00	0.00	0.00		302-1-c-iv
Energy Consumption within the Organization – By Business Segment	**Segment**	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Direct	Corporate	Millions of gigajoules	0.01	0.01	0.01	0.01	0.00		
Direct	Engines	Millions of gigajoules	4.65	3.69	3.53	3.59	3.57		
Direct	Fasteners	Millions of gigajoules	0.45	0.39	0.43	0.46	0.44		
Direct	Structures	Millions of gigajoules	2.54	2.21	1.92	2.01	2.13		
Direct	Wheels	Millions of gigajoules	1.13	0.92	1.17	1.17	1.26		
Indirect	Corporate	Millions of gigajoules	0.02	0.02	0.02	0.01	0.00		
Indirect	Engines	Millions of gigajoules	2.49	2.11	2.08	2.18	2.19		
Indirect	Fasteners	Millions of gigajoules	0.59	0.50	0.48	0.48	0.50		
Indirect	Structures	Millions of gigajoules	1.09	0.88	0.73	0.73	0.77		
Indirect	Wheels	Millions of gigajoules	0.59	0.48	0.61	0.63	0.65		
Total (direct and indirect)	Corporate	Millions of gigajoules	0.03	0.03	0.03	0.02	0.00		
Total (direct and indirect)	Engines	Millions of gigajoules	7.14	5.80	5.61	5.77	5.76		
Total (direct and indirect)	Fasteners	Millions of gigajoules	1.04	0.89	0.91	0.94	0.94		
Total (direct and indirect)	Structures	Millions of gigajoules	3.63	3.09	2.65	2.74	2.90		
Total (direct and indirect)	Wheels	Millions of gigajoules	1.72	1.40	1.78	1.80	1.91		

Energy Consumption Continued	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
US eGrid % renewables - used as a surrogate for all of Howmet	%	17.0%	17.6%	19.5%	19.6%	21.0%	RT-AE-130a.1	
Consumption of fuel (excluding feedstock) Millions of gigajoules from renewable sources	Millions of gigajoules	0.00	0.00	0.00	0.00	0.00		302-1-b
Consumption of fuel (excluding feedstock) Millions of gigajoules from non-renewable sources	Millions of gigajoules	8.77	7.22	7.06	7.21	7.40		302-1-a
Consumption of fuel (excluding feedstock) Total (renewable and non-renewable Millions of gigajoules)	Millions of gigajoules	8.77	7.22	7.06	7.21	7.40		
Consumption of purchased or acquired electricity Millions of gigajoules from renewable sources	Millions of gigajoules	0.81	0.70	0.76	0.79	0.86		
Consumption of purchased or acquired electricity Millions of gigajoules from non-renewable sources	Millions of gigajoules	3.98	3.28	3.15	3.24	3.25		
Consumption of purchased or acquired electricity Total (renewable and non-renewable Millions of gigajoules)	Millions of gigajoules	4.79	3.98	3.91	4.03	4.11		
Total Energy Consumption Millions of gigajoules from renewable sources	Millions of gigajoules	0.81	0.70	0.76	0.79	0.86		302-1-b
Total Energy Consumption Millions of gigajoules from non-renewable sources	Millions of gigajoules	12.75	10.50	10.21	10.45	10.65		302-1-a
Total Energy Consumption Total (renewable and non-renewable Millions of gigajoules)	Millions of gigajoules	13.57	11.21	10.98	11.26	11.51		302-1-e
Electricity Sold	MWH	0	0	0	0	0		302-1-d-i
Heating Sold	MWH	0	0	0	0	0		302-1-d-ii
Cooling Sold	MWH	0	0	0	0	0		302-1-d-iii
Steam Sold	MWH	0	0	0	0	0		302-1-d-iv
Energy Intensity	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Energy intensity ratio : Total (direct + indirect) / Third Party Revenue $	Millions of GJ / billion dollars revenue	1.91	2.13	2.21	1.99	1.73		302-3-a, 302-3-b
Energy intensity ratio : Total (direct + indirect) / Metric Ton of Purchased Metal	Millions of GJ / MT metal	0.76	0.90	0.55	0.62	0.61		
Reduction of Energy Consumption	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Amount of reductions in energy consumption achieved as a direct result of conservation and efficiency initiatives implemented in the year	Millions of MJ	4	11	7	300	400		302-4-a

4. Water and Effluents

Water Withdrawal	Area Type	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Withdrawal Intensity	All areas	Megaliters / billion dollars of revenue	697.32	806.96	746.77	702.14	615.75		
Total Water Withdrawal	All areas	Megaliters of water	4,954.48	4,242.21	3,733.83	3,981.15	4,088.57		303-3-a
Withdrawn Surface Water	All areas	Megaliters of water		0	0	0	0		303-3-a-i
Withdrawn Surface Water - Fresh Water	All areas	Megaliters of water		0	0	0	0		303-3-c-i
Withdrawn Surface Water - Other Water	All areas	Megaliters of water		0	0	0	0		303-3-c-ii
Withdrawn Groundwater	All areas	Megaliters of water		39.51	36.19	30.20	8.82		303-3-a-ii
Withdrawn Groundwater - Fresh Water	All areas	Megaliters of water		39.51	36.19	30.20	8.82		303-3-c-i
Withdrawn Groundwater - Other Water	All areas	Megaliters of water		0	0	0	0		303-3-c-ii
Withdrawn Seawater	All areas	Megaliters of water		0	0	0	0		303-3-a-iii
Withdrawn Seawater - Fresh Water	All areas	Megaliters of water		0	0	0	0		303-3-c-i
Withdrawn Seawater - Other Water	All areas	Megaliters of water		0	0	0	0		303-3-c-ii
Withdrawn Produced Water	All areas	Megaliters of water		0	0	0	0		303-3-a-iv
Withdrawn Produced Water - Fresh Water	All areas	Megaliters of water		0	0	0	0		303-3-c-i
Withdrawn Produced Water - Other Water	All areas	Megaliters of water		0	0	0	0		303-3-c-ii
Withdrawn Third-Party Water	All areas	Megaliters of water		4,106.93	3,664.40	3,981.15	4,079.75		303-3-a-v
Withdrawn Third-Party Water - Fresh Water	All areas	Megaliters of water				3,981.15	4,079.75		303-3-c-i
Withdrawn Third-Party Water - Other Water	All areas	Megaliters of water		0	0	0	0		303-3-c-ii
Total Water Withdrawal	Areas with water stress	Megaliters of water		1,735.03	1,581.83	437.79	409.28		303-3-b
Withdrawn Surface Water	Areas with water stress	Megaliters of water		0	0	0	0		303-3-b-i

Water Withdrawal ***(continued)***	**Area Type**	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Withdrawn Surface Water - Fresh Water	Areas with water stress	Megaliters of water		0	0	0	0		303-3-c-i
Withdrawn Surface Water - Other Water	Areas with water stress	Megaliters of water		0	0	0	0		303-3-c-ii
Withdrawn Groundwater	Areas with water stress	Megaliters of water		39.51	36.19	0	0		303-3-b-ii
Withdrawn Groundwater - Fresh Water	Areas with water stress	Megaliters of water		39.51	36.19	0	0		303-3-c-i
Withdrawn Groundwater - Other Water	Areas with water stress	Megaliters of water		0	0	0	0		303-3-c-ii
Withdrawn Seawater	Areas with water stress	Megaliters of water		0	0	0	0		303-3-b-iii
Withdrawn Seawater - Fresh Water	Areas with water stress	Megaliters of water		0	0	0	0		303-3-c-i
Withdrawn Seawater - Other Water	Areas with water stress	Megaliters of water		0	0	0	0		303-3-c-ii
Withdrawn Produced Water	Areas with water stress	Megaliters of water		0	0	0	0		303-3-b-iv
Withdrawn Produced Water - Fresh Water	Areas with water stress	Megaliters of water		0	0	0	0		303-3-c-i
Withdrawn Produced Water - Other Water	Areas with water stress	Megaliters of water		0	0	0	0		303-3-c-ii
Withdrawn Third-Party Water	Areas with water stress	Megaliters of water		1,695.52	1,545.64	437.79	409.28		303-3-b-v
Withdrawn Third-Party Water - Fresh Water	Areas with water stress	Megaliters of water				437.79	409.28		303-3-c-i
Withdrawn Third-Party Water - Other Water	Areas with water stress	Megaliters of water		0	0	0	0		303-3-c-ii
Third-Party Water Withdrawal by Withdrawal Source - Surface Water	Areas with water stress	Megaliters of water		1,021.26	943.53	153.92	119.86		303-3-b-v
Third-Party Water Withdrawal by Withdrawal Source - Groundwater	Areas with water stress	Megaliters of water		674.26	602.11	284.31	289.42		303-3-b-v
Third-Party Water Withdrawal by Withdrawal Source - Sea Water	Areas with water stress	Megaliters of water		0	0	0	0		303-3-b-v
Third-Party Water Withdrawal by Withdrawal Source - Produced Water	Areas with water stress	Megaliters of water		0	0	0	0		303-3-b-v

Total Water Discharge	Area Type	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Total Water Discharge	All areas	Megaliters of water				3,040.55	2,959.23		303-4-a
Discharge to Surface Water	All areas	Megaliters of water				528.77	543.42		303-4-a-i
Discharge to Surface Water - Fresh Water	All areas	Megaliters of water				0	0		303-4-c-i
Discharge to Surface Water - Other Water	All areas	Megaliters of water				0	0		303-4-c-ii
Discharge to Groundwater	All areas	Megaliters of water				0	0		303-4-a-ii
Discharge to Seawater	All areas	Megaliters of water				0	0		303-4-a-iii
Discharge to Third-Party Water	All areas	Megaliters of water				2,511.79	2,415.81		303-4-a-v
Third-Party Water Sent for Use to Other Organizations	All areas	Megaliters of water				0	0		
Total Water Discharge	Areas with water stress	Megaliters of water				211.11	187.2		303-4-c
Discharge to Surface Water	Areas with water stress	Megaliters of water				73.28	66.65		
Discharge to Surface Water - Fresh Water	Areas with water stress	Megaliters of water				0	0		303-4-c-i
Discharge to Surface Water - Other Water	Areas with water stress	Megaliters of water				0	0		303-4-c-ii
Discharge to Groundwater	Areas with water stress	Megaliters of water				0	0		
Discharge to Seawater	Areas with water stress	Megaliters of water				0	0		
Discharge to Third-Party Water	Areas with water stress	Megaliters of water				137.83	120.55		
Third-Party Water Water Sent for Use to Other Organizations	Areas with water stress	Megaliters of water				0	0		

5. Emissions

Greenhouse Gas Emissions	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Scope 1 (direct)	Million MT CO2e	0.45	0.38	0.37	0.38	0.39		305-1-a
Scope 2 (indirect location based)	Million MT CO2e	0.56	0.43	0.39	0.42	0.42		305-2-a

Greenhouse Gas Emissions *(continued)*	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Scope 2 (indirect market based)	Million MT CO2e					0.46		
Scope 1 + Scope 2 (indirect location based)	Million MT CO2e	1.01	0.81	0.76	0.8	0.81		
Scope 1 + Scope 2 (indirect market based)	Million MT CO2e					0.85		
Scope 3 - Total	Million MT CO2e	1.93	1.18	1.94	1.95	2.24		305-3-a
Scope 3 - Category 1	Million MT CO2e	1.77	0.90	1.60	1.62	1.89		
Scope 3 - Category 2	Million MT CO2e		0.13	0.14	0.07	0.08		
Scope 3 - Category 3	Million MT CO2e	0.04	0.10	0.10	0.10	0.10		
Scope 3 - Category 4	Million MT CO2e	0.04	0.04	0.06	0.03	0.03		
Scope 3 - Category 5	Million MT CO2e		0.01	0.01	0.03	0.03		
Scope 3 - Category 6	Million MT CO2e			0.00	0.00	0.00		
Scope 3 - Category 7	Million MT CO2e				0.06	0.06		
Scope 3 - Category 8	Million MT CO2e				0.00	0.00		
Scope 3 - Category 9	Million MT CO2e	0.02	0.01	0.02	0.02	0.02		
Scope 3 - Category 10	Million MT CO2e							
Scope 3 - Category 11	Million MT CO2e	Not required	Not required	Not required	Not required	Not required		
Scope 3 - Category 12	Million MT CO2e	0.06	0.01	0.02	0.02	0.02		
Scope 3 - Category 13	Million MT CO2e	NA	NA	NA	NA	NA		
Scope 3 - Category 14	Million MT CO2e	NA	NA	NA	NA	NA		
Scope 3 - Category 15	Million MT CO2e	NA	NA	NA	NA	NA		
Number of scope 3 categories reported	Count	5	7	8	10	10		

Scope 1 Greenhouse Gas Emissions by Segment	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Corporate	Million MT CO2e	0	0	0	0	0		
Engines	Million MT CO2e	0.24	0.20	0.19	0.19	0.19		
Fasteners	Million MT CO2e	0.02	0.02	0.02	0.02	0.02		
Structures	Million MT CO2e	0.13	0.11	0.10	0.10	0.11		
Wheels	Million MT CO2e	0.06	0.05	0.06	0.06	0.06		
Scope 2 Greenhouse Gas Emissions by Segment	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Corporate	Million MT CO2e	0	0	0	0	0		
Engines	Million MT CO2e	0.27	0.22	0.20	0.22	0.22		
Fasteners	Million MT CO2e	0.05	0.04	0.04	0.04	0.04		
Structures	Million MT CO2e	0.15	0.11	0.09	0.09	0.09		
Wheels	Million MT CO2e	0.07	0.06	0.06	0.06	0.07		
GHG Emissions Intensity	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
GHG Intensity	Millions of MT / billion dollars 3rd party revenue	0.14	0.15	0.15	0.14	0.12		305-4-a
Scope 1 Intensity	Millions of MT / billion dollars 3rd party revenue	0.06	0.07	0.07	0.07	0.06		
Scope 2 Intensity (location based)	Millions of MT / billion dollars 3rd party revenue	0.08	0.08	0.08	0.07	0.06		
Scope 2 Intensity (market based)	Millions of MT / billion dollars 3rd party revenue					0.07		

Greenhouse Gas Emissions by Region	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Asia Pacific	Million MT CO2e	0.03	0.03	0.03	0.03	0.03		
Europe	Million MT CO2e	0.08	0.07	0.07	0.07	0.07		
North America	Million MT CO2e	0.89	0.72	0.66	0.70	0.71		
Scope 1 Greenhouse Gas Emissions by Region	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Asia Pacific	Million MT CO2e	0.01	0.01	0.01	0.01	0.01		
Europe	Million MT CO2e	0.04	0.03	0.04	0.04	0.04		
North America	Million MT CO2e	0.40	0.34	0.32	0.33	0.34		
Scope 2 Greenhouse Gas Emissions by Region (location based)	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Asia Pacific	Million MT CO2e	0.02	0.02	0.02	0.02	0.02		
Europe	Million MT CO2e	0.04	0.04	0.03	0.03	0.03		
North America	Million MT CO2e	0.49	0.38	0.34	0.37	0.37		
Scope 2 Greenhouse Gas Emissions by Region (market based)	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Asia Pacific	Million MT CO2e					0.02		
Europe	Million MT CO2e					0.06		
North America	Million MT CO2e					0.38		
Reduction of GHG Emissions	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Scope 1 GHG emissions reduced as a direct result of reduction initiatives implemented in the year, in metric tons of CO2 equivalent.	MT CO2e	569	276	423	12,000	10,000		305-5-a
Scope 2 GHG emissions reduced as a direct result of reduction initiatives implemented in the year, in metric tons of CO2 equivalent.	MT CO2e	282	1,823	396	5,000	15,000		305-5-a
Combined total of CO2e reductions implemented since 2019						70,000		

Air Emissions	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Nitrogen Oxides	Metric tons	391.28	316.10	280.90	318.89	326.77		305-7-a-i
Sulfur Oxides	Metric tons	3.57	2.78	3.03	2.97	2.69		305-7-a-ii
Volatile organic compounds (VOC)	Metric tons	199.34	174.39	206.19	205.79	284.19		305-7-a-iv
Particulate Matter (PM)	Metric tons	375.30	289.90	239.44	260.61	318.67		305-7-a-vi
Metallic Hazardous Air Pollutants	Metric tons	7.46	4.70	2.62	2.78	3.35		

6. Waste

Waste Variable	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Hazardous Waste- Generated	Thousand metric tons		23	25	26.64	26.14	RT-AE-150a.1	
Non-Hazardous Waste- Generated	Thousand metric tons				67.58	71.78		
Hazardous Waste- Diverted from disposal	Thousand metric tons		7.80	9.73	10.36	8.88		306-4-b
Non-Hazardous Waste- Diverted from disposal	Thousand metric tons				25.89	28.49		306-4-c
Landfilled Waste	Thousand metric tons	29.88	25.30	23.57	27.95	32.11		
Landfilled Waste Intensity	Thousand metric tons of waste per billion dollars of revenue	4.20	4.81	4.71	4.93	4.84		
Waste Directed to Disposal	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Total weight of hazardous waste directed to disposal	Metric tons				16.68	17.26		306-5-b
Total weight of non-hazardous waste directed to disposal.	Metric tons				41.79	43.28		306-5-c

7. Supply Chain Metrics

Suppliers by Major Category	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Operational/Capital Expenditures	Count	3,172	2,708	2,425	2,301	2,509		
Information Technology and Services	Count	4,361	3,399	2,382	2,565	3,488		

Suppliers by Major Category ***(continued)***	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Metals	Count	559	452	368	309	417		
Production Materials	Count	9,533	7,601	6,987	6,551	7,855		
Total	Count	17,625	14,160	12,162	11,726	14,269		
Spend by Region	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Asia	% of total	4%	3%	5%	3%	5%		
Europe	% of total	17%	20%	32%	26%	24%		
North America	% of total	79%	78%	64%	71%	72%		
Key Supplier Assessment Results	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Outstanding- Sustainability Maturity Rating *	% of key suppliers					0%		
Advanced- Sustainability Maturity Rating *	% of key suppliers					29%		
Good- Sustainability Maturity Rating *	% of key suppliers					57%		
Partial- Sustainability Maturity Rating *	% of key suppliers					14%		
Insufficient- Sustainability Maturity Rating *	% of key suppliers					0%		
Leading- Sustainability Maturity Rating **	% of key suppliers	3%	9%	6%	6%			
Active- Sustainability Maturity Rating **	% of key suppliers	80%	79%	75%	69%			
Emerging- Sustainability Maturity Rating **	% of key suppliers	9%	9%	18%	22%			
Lagging- Sustainability Maturity Rating **	% of key suppliers	9%	3%	1%	3%			

** Supplier ESG Maturity ratings of the EcoVadis platform, new third party ESG evaluation software implemented in 2023*

*** Historical supplier ESG Maturity Rating Categories, use abandoned after 2022*

8. Employment

Total Employees (Permanent + Temporary) by Region	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Asia- Total	Count	985	783	803	839	848		
Australia- Total	Count	88	78	73	80	85		
Europe- Total	Count	6,577	5,692	5,186	5,484	5,820		
Middle East and Africa- Total	Count			110	106	110		
North America- Total	Count	18,585	12,893	13,731	14,837	16,341		
South America- Total	Count	25	17	16	19	19		
Permanent Employees	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Male- Permanent Contract	Count	19,145	13,747	13,813	14,637	15,808		
Female- Permanent Contract	Count	6,824	4,629	5,059	5,490	5,942		
Not Specified- Permanent Contract	Count			7	57	160		
Total- Permanent Contract	Count	25,969	18,376	18,879	20,184	21,910	RT-AE-000.B	
Permanent Employees by Region	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Asia- Permanent Contract	Count	941	734	740	771	783		2-7-b-i
Australia- Permanent Contract	Count	86	78	73	80	85		2-7-b-i
Europe- Permanent Contract	Count	6,423	5,604	5,089	5,398	5,709		2-7-b-i
Middle East and Africa- Permanent Contract	Count			105	105	109		2-7-b-i
North America- Permanent Contract	Count	18,494	12,885	13,701	14,817	16,321		2-7-b-i
South America- Permanent Contract	Count	25	17	16	19	19		2-7-b-i
Temporary Employees	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Male- Temporary Contract	Count	221	92	119	123	141		2-7-b-ii
Female- Temporary Contract	Count	70	39	55	46	43		2-7-b-ii
Not Specified- Temporary Contract	Count			0	6	13		2-7-b-ii
Total- Temporary Contract	Count	291	131	174	175	197		2-7-b-ii

Temporary Employees by Region	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Asia- Temporary Contract	Count	44	49	63	68	65		2-7-b-ii
Australia- Temporary Contract	Count	2	0	0	0	0		2-7-b-ii
Europe- Temporary Contract	Count	154	88	97	86	111		2-7-b-ii
Middle East and Africa- Temporary Contract	Count			5	1	1		2-7-b-ii
North America- Temporary Contract	Count	91	8	30	20	20		2-7-b-ii
South America- Temporary Contract	Count	0	0	0	0	0		2-7-b-ii
Full-time and Part-time Employees by Gender	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Male- Full-time	Count	19,280	13,697	13,882	14,702	15,872		2-7-iv
Female- Full-time	Count	6,736	4,569	5,030	5,444	5,886		2-7-iv
Not Specified- Full-time	Count			7	62	173		2-7-iv
Total- Full-time	Count	26,016	18,266	18,919	20,208	21,931		2-7-iv
Male- Part-time	Count	86	142	50	58	77		2-7-v
Female- Part-time	Count	158	99	84	92	99		2-7-v
Not Specified- Part-time	Count			0	1	0		2-7-v
Total- Part-time	Count	244	241	134	151	176		2-7-v
New Employee Hires by Age	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Age Under 30- Total	Count	2,204	621	1,655	2,350	2,379		401-1-a
Age 30 - 50- Total	Count	2,136	877	1,664	2,413	2,774		401-1-a
Age Over 50- Total	Count	663	254	453	795	919		401-1-a
Age Under 30- Male	Count	1,529	438	1,109	1,638	1,669		401-1-a
Age 30 - 50- Male	Count	1,448	638	1,094	1,613	1,895		401-1-a
Age Over 50- Male	Count	464	183	306	530	590		401-1-a
Age Under 30- Female	Count	675	182	541	688	608		401-1-a
Age 30 - 50- Female	Count	688	238	567	772	785		401-1-a
Age Over 50- Female	Count	199	71	146	260	317		401-1-a
Age Under 30- Not Specified	Count		1	5	24	102		401-1-a
Age 30 - 50- Not Specified	Count		1	3	28	94		401-1-a
Age Over 50- Not Specified	Count		0	1	5	12		401-1-a

New Employee Hires by Region	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Asia- Total	Count	129	55	95	124	90		401-1-a
Australia- Total	Count	5	0	6	15	14		401-1-a
Europe- Total	Count	817	517	545	767	1,094		401-1-a
Middle East and Africa- Total	Count			8	15	19		401-1-a
North America- Total	Count	4,051	1,171	3,116	4,633	4,855		401-1-a
South America- Total	Count	1	15	3	4	0		401-1-a
Asia- Male	Count	107	34	85	101	44		401-1-a
Australia- Male	Count	3	0	3	7	6		401-1-a
Europe- Male	Count	641	409	435	566	794		401-1-a
Middle East and Africa- Male	Count			5	12	10		401-1-a
North America- Male	Count	2,690	805	1,980	3,092	3,300		401-1-a
South America- Male	Count	0	13	1	3	0		401-1-a
Asia- Female	Count	22	21	9	12	13		401-1-a
Australia- Female	Count	2	0	3	3	7		401-1-a
Europe- Female	Count	176	107	107	183	279		401-1-a
Middle East and Africa- Female	Count			3	1	4		401-1-a
North America- Female	Count	1,361	365	1,131	1,521	1,407		401-1-a
South America- Female	Count	1	2	2	0	0		401-1-a
Asia- Not Specified	Count		0	1	11	33		401-1-a
Australia- Not Specified	Count		0	0	5	1		401-1-a
Europe- Not Specified	Count		1	3	18	21		401-1-a
Middle East and Africa- Not Specified	Count			0	2	5		401-1-a
North America- Not Specified	Count		1	5	20	148		401-1-a
South America- Not Specified	Count		0	0	1	0		401-1-a
Employee Turnover Rate	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Voluntary	% of total		10.0%	15.0%	16.8%	12.5%		
Involuntary	% of total		27.0%	8.0%	5.3%	6.8%		
Overall	% of total		37.0%	23.0%	22.1%	19.3%		

Employee Turnover by Age	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Age Under 30- Total	Count	1,637	1,741	1,193	1,347	1,419		401-1-b
Age 30 - 50- Total	Count	2,158	3,149	1,881	1,788	1,741		401-1-b
Age Over 50- Total	Count	1,423	2,053	1,232	1,264	944		401-1-b
Age Under 30- Male	Count	1,173	1,264	815	927	1,005		401-1-b
Age 30 - 50- Male	Count	1,560	2,281	1,334	1,255	1,203		401-1-b
Age Over 50- Male	Count	1,060	1,477	870	878	644		401-1-b
Age Under 30- Female	Count	464	477	376	416	380		401-1-b
Age 30 - 50- Female	Count	598	868	547	526	506		401-1-b
Age Over 50- Female	Count	363	576	361	386	291		401-1-b
Age Under 30- Not Specified	Count			2	4	34		401-1-b
Age 30 - 50- Not Specified	Count			0	7	32		401-1-b
Age Over 50- Not Specified	Count			1	0	9		401-1-b
Employee Turnover by Region	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Asia- Total	Count	141	242	76	88	82		401-1-b
Australia- Total	Count	7	11	10	10	9		401-1-b
Europe- Total	Count	1431	946	778	660	607		401-1-b
Middle East and Africa- Total	Count			15	16	17		401-1-b
North America- Total	Count	3,636	5,747	3,425	3,624	3,389		401-1-b
South America- Total	Count	3	10	2	1	0		401-1-b
Asia- Male	Count	112	204	55	75	56		401-1-b
Australia- Male	Count	5	5	4	4	5		401-1-b
Europe- Male	Count	1,172	756	596	524	462		401-1-b
Middle East and Africa- Male	Count			10	10	12		401-1-b
North America- Male	Count	2,501	4,062	2,352	2,446	2,317		401-1-b
South America- Male	Count	3	8	2	1	0		401-1-b
Asia- Female	Count	29	38	21	9	13		401-1-b
Australia- Female	Count	2	6	6	6	3		401-1-b
Europe- Female	Count	259	190	180	135	131		401-1-b

Employee Turnover by Region *(continued)*	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Middle East and Africa- Female	Count			5	6	5		401-1-b
North America- Female	Count	1,135	1,685	1,072	1,172	1,025		401-1-b
South America- Female	Count	0	2	0	0	0		401-1-b
Asia- Not Specified	Count			0	4	13		401-1-b
Australia- Not Specified	Count			0	0	1		401-1-b
Europe- Not Specified	Count			2	1	14		401-1-b
Middle East and Africa- Not Specified	Count			0	0	0		401-1-b
North America- Not Specified	Count			1	6	47		401-1-b
South America- Not Specified	Count			0	0	0		401-1-b
Additional Labor Indicators	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Locations with leave of absence provisions in place beyond standard vacations.	% of total	100%	100%	100%	100%	100%		
Locations with health care coverage arrangements for employees.	% of total	100%	100%	100%	100%	100%		
Employees covered by collective bargaining agreements	% of total				33%	41%		2-30-a
Employees covered by formally elected employee representatives	% of total				49%	50%		
Employees represented in formal joint management-worker health & safety committees	% of total				34%	47%		
Country or Region of Union Representation	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Canada	% of total			37%	27%	29%		
Mexico	% of total		64%	69%	56%	53%		
USA	% of total		24%	26%	25%	25%		

9. Occupational Safety and Health

H&S Management System	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Sites ISO 45001 Certified	Count	1	4	6	6	6		
Sites ISO 45001 Certified	% of total	2%	7%	10%	10%	10%		
Sites ISO 45001 Implemented but Not Certified	Count	60	57	52	52	52		
Sites ISO 45001 Implemented but Not Certified	% of total	98%	93%	90%	90%	90%		
Sites ISO 45001 Implemented	% of total	100%	100%	100%	100%	100%		
Operational sites Covered by a Health and Safety Risk Assessment	% of total	100%	100%	100%	100%	100%		

H&S Management System ***(continued)***	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Locations with Implemented processes for safe handling of chemicals	% of total	100%	100%	100%	100%	100%		
Employees enrolled in Occupational Health Programs	% of total	100%	100%	100%	100%	100%		
Contractors and subcontractors trained on H&S risks before working on the premises.	% of total	100%	100%	100%	100%	100%		
Prevention of Fatality Risks	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Risks Identified	Count	884	692	902	1,071	1,729		
Risks Closed	Count	845	744	757	914	1,598		
Incident Rates – All Employees and Supervised Workers	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Fatalities	Count	0	0	0	1	0		403-9-a-i
Recordable Incidents	Ratio*	0.9	0.71	0.71	0.66	0.71		403-9-a-iii
Days Away, Restricted and Transfer	Ratio*	0.25	0.24	0.22	0.15	0.17		
Lost Workday	Ratio*	0.12	0.12	0.15	0.09	0.1		
Incident Rates – Contractors and Contracted Services	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Fatalities	Number	0	0	0	0	0		
Total Recordable Incident	Ratio*	0.84	0.5	0.45	0.77	0.56		
Total Recordable Incident Benchmark- Aerospace and Defense Sector Average**	Ratio*	2.0	1.7	1.8	1.9	NOT AVAILABLE		
Days Away, Restricted and Transfer	Ratio*	0.36	0.11	0.34	0.25	0.19		
Days Away, Restricted and Transfer Benchmark- Aerospace and Defense Sector Average**	Ratio*	1.2	1.1	1.1	1.2	NOT AVAILABLE		
Lost Workday	Ratio*	0.24	0.11	0.23	0.17	0.19		
Lost Workday Benchmark- Aerospace and Defense Sector Average**	Ratio*		0.5	0.6	0.7	NOT AVAILABLE		
Occupational Health Rates – All Employees and Supervised Workers	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Occupational Disease Recordable Rates *** and **	Ratio*	0.07	0.03	0.08	0.04	0.05		
Musculoskeletal Disorder Recordable Rate	Ratio*	0.18	0.17	0.1	0.09	0.09		
Occupational Disease DART Rate *** and **	Ratio*	0.01	0.01	0	0	0		
Musculoskeletal Disorder DART Rate *** and **	Ratio*	0.08	0.09	0.05	0.03	0.04		

**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.*

***Source: https://www.bls.gov/web/osh/table-1-industry-rates-national.htm NAICS code 3364*

**** Some country medical providers access to occupational classifications, which may affect the occupational disease recordable and DART rates. Ratios based on 100 full-time workers.*

10. Training and Education

Training	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Employee Environmental Training	% of total	100%	100%	100%	100%	100%		
Employee Health and Safety Training	% of total	100%	100%	100%	100%	100%		
Contractors and subcontractors trained on H&S risks before working on the premises.	% of total	100%	100%	100%	100%	100%		
Employees and supervised contractors receiving personal protective equipment (e.g. shoes, helmet, gloves, respiratory protection) including training on hazards and use	% of total	>99%	>99%	>99%	>99%	>99%		
Employees and supervised contractors receiving health and safety training, instructions, safety data sheets (SDS) in local language	% of total	>99%	>99%	>99%	>99%	>99%		
Employees and supervised contractors receiving training on safety and health hazards including e.g. machine safety, mobile equipment safety, workplace violence, safely working with hazardous substances, and ergonomics.	% of total	>99%	>99%	>99%	>99%	>99%		
Employees and supervised contractors receiving training on risk assessment, STOP (unsafe situations) and Human Performance.	% of total	>99%	>99%	>99%	>99%	>99%		
Employees receiving Training on Howmet´s Code of Conduct, including business ethics, preventing discrimination and human rights violations.	% of total	100%	100%	100%	100%	100%		
Cybersecurity training - Cybersecurity Awareness	% of computer users				>95%	>95%		
Cybersecurity training - Data Privacy Awareness (salaried employees and hourly supervisors)	% of computer users				>95%	>98%		

Leadership Development Programs	Breakdown	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Organizational Development - Develops Organizational Leaders = Senior and Executive	Total Participants	Count		18	24	24	22		
Organizational Development - Develops Organizational Leaders = Senior and Executive	Diverse	% of total		11%	4%	4%	23%		
Organizational Development - Develops Organizational Leaders = Senior and Executive	Women	% of total		22%	24%	17%	32%		
Management Essentials - Develops People Leaders	Total Participants	Count		40	80	34	54		
Management Essentials - Develops People Leaders	Diverse	% of total		47%	28%	18%	30%		
Management Essentials - Develops People Leaders	Women	% of total		36%	36%	41%	26%		
Business Essentials - Targets Emerging Leaders	Total Participants	Count		30	60	137	56		
Business Essentials - Targets Emerging Leaders	Diverse	% of total		36%	27%	19%	13%		
Business Essentials - Targets Emerging Leaders	Women	% of total		30%	44%	36%	34%		
Total Program Attendance - All Levels		Count		88	164	195	132		

Employee Performance Reviews	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Performance Plans	Count				4,840	5,240		
Performance Goals	Count				23,536	24,568		
Development Goals	Count				2,251	2,330		
Talent Development*	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Leadership Career Mobility	% of total			10%	31%	24%		
Employee Career Mobility	Count			7,453	6,488	6,812		
Employee Talent Profiles	Count				1,425	3,675		
Employee Succession Plans	Count			255	421	702		

**Leadership career mobility represents our leaders at director level and above. Career mobility refers to a transfer or promotion during the specified time period. We did not track employee talent profiles in 2021.*

11. Diversity

Employee Diversity Variable	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Board of Directors- Age Under 30	Count	0	0	0	0	0		
Officers and Assistant Officers- Age Under 30	Count	0	0	0	0	0		
Employees- Age Under 30	Count	4,028	2,037	2,635	3,295	3,764		
Board of Directors- Age 30 - 50	Count	1	2	1	1	2		
Officers and Assistant Officers- Age 30 - 50	Count	3	4	4	4	4		
Employees- Age 30 - 50	Count	12,467	8,918	9,193	9,766	10,657		
Board of Directors- Age Over 50	Count	9	8	9	9	8		
Officers and Assistant Officers- Age Over 50	Count	11	5	6	4	5		
Employees- Age Over 50	Count	9,765	7,548	7,224	7,298	7,686		
Board of Directors- Age Under 30	% of total	0%	0%	0%	0%	0%		405-1-a-ii
Officers and Assistant Officers- Age Under 30	% of total	0%	0%	0%	0%	0%		405-1-a-ii
Employees- Age Under 30	% of total	15%	11%	14%	16%	17%		405-1-b-ii
Board of Directors- Age 30 - 50	% of total	10%	20%	10%	10%	20%		405-1-a-ii
Officers and Assistant Officers- Age 30 - 50	% of total	21%	44%	40%	50%	44%		405-1-a-ii
Employees- Age 30 - 50	% of total	47%	48%	48%	48%	48%		405-1-b-ii
Board of Directors- Age Over 50	% of total	90%	80%	90%	90%	80%		405-1-a-ii

Employee Diversity Variable ***(continued)***	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Officers and Assistant Officers- Age Over 50	% of total	79%	56%	60%	50%	56%		405-1-a-ii
Employees- Age Over 50	% of total	37%	41%	38%	36%	35%		405-1-b-ii
Male- Board of Directors	Count	9	7	6	6	7		
Male- Officers and Assistant Officers	Count	9	5	6	4	5		
Male- Employees	Count	19,366	13,839	13,932	14,760	15,949		
Female- Board of Directors	Count	1	3	4	4	3		
Female- Officers and Assistant Officers	Count	5	4	4	4	4		
Female- Employees	Count	6,894	4,668	5,114	5,536	5,985		
Not Specified- Board of Directors	Count			0	0	0		
Not Specified- Officers and Assistant Officers	Count			0	0	0		
Not Specified- Employees	Count			7	63	173		
Male- Board of Directors	% of total	90%	70%	60%	60%	70%		405-1-a-i
Male- Officers and Assistant Officers	% of total	64%	56%	60%	50%	56%		405-1-a-i
Male- Employees	% of total	74%	75%	73%	72%	72%		405-1-b-i
Female- Board of Directors	% of total	10%	30%	40%	40%	30%		405-1-a-i
Female- Officers and Assistant Officers	% of total	36%	44%	40%	50%	44%		405-1-a-i
Female- Employees	% of total	26%	25%	27%	27%	27%		405-1-b-i
Not Specified- Board of Directors	% of total	0%	0%	0%	0%	0%		405-1-a-i
Not Specified- Officers and Assistant Officers	% of total	0%	0%	0%	0%	0%		405-1-a-i
Not Specified- Employees	% of total	0%	0%	0.04%	0.31%	0.78%		405-1-b-i
Ratio of Basic Salary and Remuneration of Women and Men	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Canada	Count*				110	116		
China	Count*				134	118		
France	Count*				311	317		
Hungary	Count*				457	446		
Japan	Count*				163	156		
Mexico	Count*				254	270		

Ratio of Basic Salary and Remuneration of Women and Men *(continued)*	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
United Kingdom	Count*				362	357		
United States	Count*				2,581	2,825		
Total	Count*				4,372	4,605		
Canada- Mid-Level Management	% female salary to male				91%	100%		405-2-a
China- Mid-Level Management	% female salary to male				80%	75%		405-2-a
France- Mid-Level Management	% female salary to male				106%	110%		405-2-a
Hungary- Mid-Level Management	% female salary to male				106%	103%		405-2-a
Japan- Mid-Level Management	% female salary to male					n/a		405-2-a
Mexico- Mid-Level Management	% female salary to male				144%	112%		405-2-a
United Kingdom- Mid-Level Management	% female salary to male				94%	107%		405-2-a
United States- Mid-Level Management	% female salary to male				97%	97%		405-2-a
Total- Mid-Level Management	% female salary to male				97%	97%		405-2-a
Canada- Professional	% female salary to male				86%	82%		405-2-a
China- Professional	% female salary to male				107%	101%		405-2-a
France- Professional	% female salary to male				93%	94%		405-2-a
Hungary- Professional	% female salary to male				91%	94%		405-2-a
Japan- Professional	% female salary to male				97%	96%		405-2-a
Mexico- Professional	% female salary to male				111%	101%		405-2-a
United Kingdom- Professional	% female salary to male				89%	91%		405-2-a
United States- Professional	% female salary to male				98%	97%		405-2-a
Total- Professional	% female salary to male				96%	96%		405-2-a

**Salaried Employees - includes countries with more than 100 employees and represents 96.6% of all salaried employees (4,372 out of 4,528).*

Women and Minority* Representation	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Global Women - Female Executives and Mid-Management	% of total	24%	13%	23%	22%	21%		
Global Women - Female Professionals	% of total	30%	28%	27%	27%	27%		
Global Women - Female Employees Overall	% of total	26%	25%	27%	27%	27%		
U.S. Minorities - U.S. Minority Executives and Mid-Management	% of total	13%	3%	15%	14%	18%		
U.S. Minorities - U.S. Minority Professionals	% of total	22%	22%	23%	25%	26%		
U.S. Minorities - U.S. Minority Employees Overall	% of total	39%	38%	39%	39%	42%		

**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.*

12. Ethics

Ethics Variable	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Integrity Line Calls	Count	553	413	315	395	528		
Corrective Action Implemented in the Year	Count	129	38	75	40	85		
Certification to disclose any conflict of interest by Salaried Employees globally (instead of Survey)	% total					100%		
Completion of Annual Conflicts of Interest Survey by Salaried Employees globally	% of total	100%	100%	100%	100%			
Revenue from Countries ranked in the "E" or "F" Band on Transparency International's Government Defense Anti-Corruption Index.	US $ million		94.0	94.6	140.0	135.0	RT-AE-510a.2	

13. Customer Health and Safety and Product Safety

Product Safety-related Recalls	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Voluntary recalls issued	Count	0	0	1	0	0	RT-AE-250a.1	
Involuntary recalls issued	Count	0	0	0	0	0	RT-AE-250a.1	
Total units recalled	Count	0	0	22	0	0	RT-AE-250a.1	
Detected or Suspected Counterfeit Parts in Operations	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Actual	Count	0	0	0	0	0	RT-AE-250a.2	
Suspected	Count	0	0	0	0	0		
Airworthiness Directives	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Airworthiness Directives issued by Federal Aviation Administration	Count	0	0	0	0	0	RT-AE-250a.3	

Product Safety Monetary Losses	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Losses from legal proceedings associated with product safety.	U.S. dollars	0	0	0	0	0	RT-AE-250a.4	
Certifications	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**	**SASB Standard**	**GRI Standard**
Locations with one or more quality certifications including Quality Management Systems (QMS).	% of total	100%	100%	100%	100%	100%		

14. Cybersecurity

Cyber Security Variable	Unit	2019	2020	2021	2022	2023	SASB Standard	GRI Standard
Data Breaches	Count		6	5	2	3	RT-AE-230a.1	
Involving Confidential Data	Count		0	0	2	3	RT-AE-230a.1	
Net Expenses Incurred from Security Breaches (US$)	Count		Immaterial	Immaterial	Immaterial	Immaterial		

Last Update: February 2024

GRI CONTENT INDEX

Howmet Aerospace has reported in accordance with the GRI Standards for the period Jan. 1, 2023, through Dec. 31, 2023.

This index helps readers compare the information from our ESG report, annual report and website with the GRI Standards.

General Disclosures 2021

Disclosure	Location	Omission		
		Requirement(s) Omitted	***Reason***	***Explanation***
Organization and Reporting Practices				
2-1: Organizational details	Headquartered in Pittsburgh, Pennsylvania, Howmet Aerospace Inc. is a publicly traded company listed on the New York Stock Exchange (NYSE: HWM). Countries of operation			
2-2: Entities included in the organization's sustainability reporting	Form 10-K (Item 1: Business)			
2-3: Reporting period, frequency and contact point	2023 Annual Marcel van der Velden Vice President, Environment, Health and Safety and Sustainability			
2-4: Restatements of information	Found throughout this report.			
2-5: External assurance	Reporting, Significant Topics and Assurance			
Activities and Workers				
2-6: Activities, value chain and other business relationships	About Us Markets and Product Lines Supply Chain			
2-7: Employees	Human Capital			
2-8: Workers who are not employees	Human Capital			
Governance				
2-9: Governance structure and composition	Corporate Governance Form 10-K (Item 10: Directors, Executive Officers and Corporate Governance) Proxy Statement (The Structure and Role of the Board of Directors)			

Disclosure	Location	Omission		
		Requirement(s) Omitted	***Reason***	***Explanation***
Governance *(continued)*				
2-10: Nomination and selection of the highest governance body	Proxy Statement (Item 1: Election of Directors; Voting for Directors) Certificate of Incorporation Bylaws Governance and Nominating Committee Charter			
2-11: Chair of the highest governance body	Form 10-K (Item 10: Directors, Executive Officers and Corporate Governance)			
2-12: Role of the highest governance body in overseeing the management of impacts	Proxy Statement (The Structure and Role of the Board of Directors) Audit Committee Charter Finance Committee Charter Corporate Governance Guidelines (Corporate Citizenship section)			
2-13: Delegation of responsibility for managing impacts	Proxy Statement (The Board's Role in Risk Oversight – describes the role of management in risk management.)			
2-14: Role of the highest governance body in sustainability reporting	Corporate Governance Guidelines (Corporate Citizenship section) Proxy Statement (Environmental and Social Responsibility; Corporate Governance)			
2-15: Conflicts of interest	Form 10-K (Item 13: Certain Relationships and Related Transactions, and Director Independence) Governance and Nominating Committee Charter			
2-16: Communication of critical concerns	Form 10-K (Item 1A: Risk Factors; Item 1B: Unresolved Staff Comments; Item 1C: Cybersecurity) Proxy Statement (Shareholder Engagement; Shareholder Feedback) Corporate Governance Guidelines Compensation and Benefits Committee Charter			
2-17: Collective knowledge of the highest governance body	Proxy Statement (Summary of Director Diversity and Attributes; Director Nominees)			
2-18: Evaluation of the performance of the highest governance body	Proxy Statement (Board Meetings and Attendance; Board, Committee and Director Evaluations) Governance and Nominating Committee Charter			

Disclosure	Location	Omission		
		Requirement(s) Omitted	***Reason***	***Explanation***
Governance *(continued)*				
2-19: Remuneration policies	Form 10-K (Item 11: Executive Compensation) Proxy Statement (Director Compensation; Executive Compensation; Recovery of Incentive Compensation) Corporate Governance Guidelines Compensation and Benefits Committee Charter			
2-20: Process to determine remuneration	Form 10-K (Item 11: Executive Compensation) Proxy Statement (Compensation Philosophy and Design) Corporate Governance Guidelines Compensation and Benefits Committee Charter			
2-21: Annual total compensation ratio	Form 10-K (Item 11: Executive Compensation) Proxy Statement (CEO Pay Ratio)			
Strategy, Policies and Practices				
2-22: Statement on sustainable development strategy	ESG Approach			
2-23: Policy commitments	Howmet Policies Human Rights Policy			
2-24: Embedding policy commitments	Ethics, Anti-corruption and Compliance Human Rights Supply Chain			
2-25: Processes to remediate negative impacts	Ethics and Compliance Waste and Spills			
2-26: Mechanisms for seeking advice and raising concerns	Integrity Line			
2-27: Compliance with laws and regulations	Ethics, Anti-corruption and Compliance			
2-28: Membership associations	International Titanium Association International Aerospace Environmental Group Aerospace Industries Association U.S. Chamber of Commerce, Europe Program			

Disclosure	Location	Omission		
		Requirement(s) Omitted	***Reason***	***Explanation***
Stakeholder Engagement				
2-29: Approach to stakeholder engagement	Stakeholder Engagement			
2-30: Collective bargaining agreements	Human Capital			
GRI 3: Material Topics 2021				
3-1: Process to determine material topics	Reporting, Significant Topics and Assurance			
3-2: List of material topics	Reporting, Significant Topics and Assurance			
3-3: Management of material topic	Each section of this report covering a significant topic	Limited disclosure on human rights impact	Limited data	Incomplete assessment on human rights impacts for some material topics
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			
201-3: Defined benefit plan obligations and other retirement plans	Form 10-K (Item 8: Financial Statements and Supplementary Data, Note G: Pension and Other Postretirement Benefits)			
201-4: Financial assistance received from government	Form 10-K (Item 8: Financial Statements and Supplementary Data, Note H: Income Taxes)			
GRI 205: Anti-corruption 2016				
3-3: Management of material topic	Ethics, Anti-corruption and Compliance			
205-1: Operations assessed for risks related to corruption	Ethics, Anti-corruption and Compliance			
205-2: Communication and training about anti-corruption policies and procedures	Ethics, Anti-corruption and Compliance			
205-3: Confirmed incidents of corruption and actions taken	Ethics, Anti-corruption and Compliance			

Disclosure	Location	Omission		
		Requirement(s) Omitted	***Reason***	***Explanation***
GRI 302: Energy 2016				
3-3: Management of material topic	Energy			
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	Products			
GRI 303: Water and Effluents 2018				
3-3: Management of material topic	Water			
303-1: Interactions with water as a shared resource	Water			
303-2: Management of water discharge-related impacts	Water			
303-3: Water withdrawal	Water			
303-4: Water discharge	ESG Performance Metrics			
303-5: Water consumption	Water			
GRI 304: Biodiversity 2016				
3-3: Management of material topic	Biodiversity			
304-1: Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Biodiversity	a	Limited data	Topic was recently added and requires additional assessment.
304-2: Significant impacts of activities, products and services on biodiversity	Biodiversity	a, b	Limited data	Topic was recently added and requires additional assessment.
304-3: Habitats protected or restored	Biodiversity	a-d	Limited data	Topic was recently added and requires additional assessment.

Disclosure	Location	Omission		
		Requirement(s) Omitted	***Reason***	***Explanation***
GRI 304: Biodiversity 2016 *(continued)*				
304-4: IUCN Red List species and national conservation list species with habitats in areas affected by operations	Biodiversity	a	Limited data	Topic was recently added and requires additional assessment.
GRI 305: Emissions 2016				
3-3: Management of material topic	Climate Change			
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			
305-6: Emissions of ozone-depleting substances (ODS)	CDP Report			
305-7: Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	Air Emissions			
GRI 306: Waste 2020				
3-3: Management of material topic	Waste and Circularity			
306-1: Waste generation and significant waste-related impacts	Waste and Circularity			
306-2: Management of significant waste-related impacts	Waste and Circularity			
306-3: Waste generated	Waste and Circularity			
306-4: Waste diverted from disposal	Waste and Circularity			
306-5: Waste directed to disposal	Waste and Circularity			
GRI 308: Supplier Environmental Assessment 2016				
308-1: New suppliers that were screened using environmental criteria	Supply Chain			
308-2: Negative environmental impacts in the supply chain and actions taken	Supply Chain	b-e	Limited data	Due diligence process changed in 2023.

Disclosure	Location	Omission		
		Requirement(s) Omitted	***Reason***	***Explanation***
GRI 403: Occupational Health and Safety 2018				
3-3: Management of material topic	Health and Safety			
403-1: Occupational health and safety management system	Health and Safety			
403-2: Hazard identification, risk assessment, and incident investigation	Health and Safety			
403-3: Occupational health services	Health and Safety			
403-4: Worker participation, consultation, and communication on occupational health and safety	Health and Safety			
403-5: Worker training on occupational health and safety	Health and Safety			
403-6: Promotion of worker health	Health and Safety			
403-7: 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	ESG Performance Metrics			
GRI 405: Diversity and Equal Opportunity 2016				
3-3: Management of material topic	Human Capital			
405-1: Diversity of governance bodies and employees	Leadership Human Capital			
405-2: Ratio of basic salary and remuneration of women to men	ESG Performance Metrics			
GRI 414: Supplier Social Assessment 2016				
414-1: New suppliers that were screened using social criteria	Supply Chain			
414-2 Negative social impacts in the supply chain and actions taken	Supply Chain	b-e	Limited data	Due diligence process changed in 2023.

Disclosure	Location	Omission		
		Requirement(s) Omitted	***Reason***	***Explanation***
GRI 416: Customer Health and Safety 2016				
3-3: Management of material topic	Product Safety Chemical Management			
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				
3-3: Management of material topic	Privacy			
418-1: Substantiated complaints concerning breaches of customer privacy and losses of customer data	Privacy ESG Performance Metrics			

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 the RT-AE Version 2023-12 of this standard.

Sustainability Disclosure Topics & Metrics

Topic	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 Circularity
	Number and aggregate quantity of reportable spills, quantity recovered	Quantitative	RT-AE-150a.2	Waste and Circularity
Data Security	(1) Number of data breaches, (2) percentage involving confidential information	Quantitative	RT-AE-230a.1	ESG Performance Metrics
	Description of approach to identifying and addressing data security risks in (1) entity operations and (2) products	Discussion and Analysis	RT-AE-230a.2	Form 10K (Item 1C: 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	ESG Performance Metrics
	Number of Airworthiness Directives received, total units affected	Quantitative	RT-AE-250a.3	ESG Performance Metrics
	Total amount of monetary losses as a result of legal proceedings associated with product safety	Quantitative	RT-AE-250a.4	ESG Performance Metrics
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	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, Anti-corruption and Compliance
	Revenue from countries ranked in the "E" or "F" Band of Transparency International's Government Defence Anti-Corruption Index	Quantitative	RT-AE-510a.2	ESG Performance Metrics
	Discussion of processes to manage business ethics risks throughout the value chain	Discussion and Analysis	RT-AE-510a.3	Ethics, Anti-corruption and Compliance

Activity Metrics

Metric	Category	Code	Report Location
Production by reportable segment	Quantitative	RT-AE-000.A	Not reported
Number of employees	Quantitative	RT-AE-000.B	Human Capital