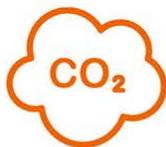




Sustainability and
Responsibility Report
2020



CO₂ intensity improved by 4%

Absolute CO₂ reduced by 15%



Total energy use reduced by 12%



Total water use reduced by 20%

Water use intensity improved by 8%



Total waste generation reduced by 27%

Waste intensity improved by 17%



Percentage of waste recycled 50%



Lost-time accident rate 0.18

Accident rate 2.46



Completed 38,400 ethics and compliance training courses



43% of employees completed anti-bribery & anti-corruption training



43% female board members

30% female leaders



38% leadership development alumni promoted or expanded roles



We are working to reduce our environmental impact and deliver robust environmental, social and governance (ESG) practices.

At the end of 2020, the Group Executive Team and I went through a process to define Morgan's ESG priorities through to 2030. We took inputs from our Board and our business leaders, gathered data on the perspectives of our shareholders and other stakeholders, and reviewed our performance as a business. Based on these inputs we have defined our priorities and committed to an ambitious set of goals.

In support of global efforts to reduce climate change we have set an aspiration as a business to **reduce our CO₂ emissions to net zero by 2050**, with a 2030 goal of **reducing our scope one and scope two CO₂ emissions by 50%**. This will require intense energy efficiency work across our business, and process change, resulting in a move away from fossil fuels and the adoption of new technologies.

In the latter part of 2020, we introduced energy teams to many of our sites, allowing us to accelerate our improvement work. These teams are looking to further reduce Scope 1 and 2 Greenhouse Gas (GHG) emissions as part of our emission reduction programme. From 2021, GHG emissions will be tracked and reported monthly. We are also looking to develop strong relationships and a collaborative approach with suppliers to focus on Scope 3 emissions (raw materials emanating from our supply chain). We are a relatively energy-intensive business, and this will be a big challenge for us, but it is one that we commit to wholeheartedly.

In addition to energy usage, we have also set an objective to use water sustainably across our

business and we have committed to water reduction goals for 2030 in support of that.

Beyond our environmental goals, we are also committed to providing a safe, fair and inclusive workplace for our people. We have defined goals for our safety performance, the diversity of our leadership population and the engagement of our employees. These are long term goals for our business. We have made progress in the last five years, but there is much we need to do to improve and we are pleased to make these commitments and work with our employees to deliver them.

Our impact as a business is not limited to the production of materials. Our products directly benefit the environment by making the operations of our customers significantly more energy efficient. We directly enable solar and wind energy, and we produce a wide range of products to help our customers operate efficient high temperature processes, from ceramic and glass manufacture to high efficiency industrial gas turbines. We provide good jobs for people and we work to make a positive contribution to the communities in which we operate.

Pete Raby, **CEO**

As the world is changing at an extraordinary pace, sustainability is ever more important and advanced materials have a key role to play in delivering a sustainable world.

Our products make a positive contribution and support the United Nations Sustainable Development Goals. The Goals aim to overcome global challenges such as inequality and climate change, and present the opportunity to put the world on a more sustainable path.

As part of the next phase of our strategy we have set stretching targets to make further improvements to our environmental impact, to the safety of our employees and to the diversity and inclusion of our workplaces. These targets further underline our support of the UN Sustainability Goals.

The UN goals focused on environment and sustainability are; Goal 7, Affordable and Clean Energy; Goal 9, Industry, Innovation and Infrastructure; and Goal 11, Sustainable Cities and Communities. To meet these Goals,

we help our customers to manage heat and insulation to reduce their energy usage, as well as enabling green energy production through wind and solar. We contribute to the electrification of public transport, reducing emissions and increasing efficiency, and we help create safer medical devices and better fire protection.

A further six UN goals form the foundation for our 2030 goals and long-term ambitions to protect the environment and provide a safe, fair and inclusive workplace.



Protect the environment

Our aspiration

Our 2030 goals²

- A CO₂ net zero business by 2050¹
- Use water sustainably across our business

- 50% reduction in Scope 1 and Scope 2³ CO₂ emissions
- 30% reduction in water use in high and extremely high stress areas
- 30% reduction in total water usage

Provide a safe, fair and inclusive workplace

- Zero harm to our employees
- A workforce reflective of the communities in which we operate
- A welcoming and inclusive environment where employees can grow and thrive

- 0.10 Lost time accident rate
- 40% of our leadership population is female
- Top quartile engagement score

Our progress in 2020

Our approach to sustainability continues to evolve as we encompass more and more elements related to our operations, processes and products.

As part of our continuous improvement commitment in environmental management, we apply 'lean' principles to our processes, resulting in year-on-year improvements in all Group environmental metrics.

We are constantly evaluating and improving our operations to optimise energy efficiency, and we are reducing our overall consumption of fossil fuels and standard electricity through the utilisation of renewable energies.

LEARN MORE: See how we're working together to create a more sustainable future in [our animation](#).

With our purpose at the heart of what we do, we are dedicated to ensuring that our products and manufacturing processes are designed, built and managed in a way that enhances their contribution to the environment.

Morgan's products can be found in a number of renewable technologies today. For example, our Electrical Carbon business has partnered with customers in the wind power market to produce customised parts and bespoke systems which operate more efficiently, while reducing overall maintenance and costs.

In the US, our Technical Ceramics teams in Massachusetts and California have collaborated to eliminate TCE, an industrial solvent previously used in cleaning parts. Through this effort we have reduced our environmental impact, improved working conditions for our people and removed a significant volume of raw materials from the process.

Use of energy in our manufacturing

During 2020 we focused on driving energy efficiency improvements within our operations through process efficiency. Overall, these projects have not only provided an increase in energy efficiency but have also led to enhanced safety and a lower environmental impact.

- Sites continued converting fluorescent and high-energy intensity lighting to LED lighting
- Furnace melt efficiency and heat containment within our kilns, furnaces and ovens improved
- We invested in and installed additional energy meters. This approach allows us to monitor individual buildings and energy intensive equipment in order to identify efficiency improvements, target energy use reductions and identify retrofitting opportunities.

Water Footprint

We are reducing our water usage through investment and employee engagement programmes. Based on a three-year average (2018-2020), our Thermal Ceramics site in Augusta, Georgia, US accounts for 44% of all water use across the Group. In 2020 we introduced an improved water monitoring system, which has allowed us to better track and control high water use areas within the site. We have invested in and installed additional water meters, improving efficiency and water recycling opportunities. This single site has reduced its absolute water use (m³) by 51% and water intensity (m³/£k) by 42% as compared to 2016.

At our facility in Stourport, UK water used in production processes comes from on-site wells. After engaging engineers to evaluate and control the amount of water used by each process, total water usage has been brought down by 20%. Water flow (used to cool our presses) is down by 30% as compared to 2019.

We are also focusing on water reductions in areas of high or extremely high-water stress. Water withdrawal in water stress areas accounts for 5-6% of our total water withdrawals. Water management plans will be integrated into regular facility assessments to proactively engage our workforce in reduction activities in order to address water-related issues within the watershed of these local communities.

Waste

Waste generation improvements have been made at several sites, through an increased focus on waste segregation and by improving waste by category. This allows each site to better understand its waste streams in order to evaluate improvement opportunities. With a continued focus on improvements in production scheduling, and improved planning during production trials, in 2020 our businesses reduced waste intensity by 18% compared to 2019, with an overall waste generation reduction of 27% (on an absolute basis).

In 2020, a 'Go Green' initiative was set up by our UK Seals and Bearings business, to drive lasting change and improvements in our environmental accountability. From reduced energy use, to switching to recycled options and implementing overall waste reduction, the team is working hard to make positive changes to their approach. Since introducing the recycling programme 3.9 tonnes of waste have been diverted from landfill. Additionally, the site added further recycling bins to support and give back to the community.

Water and waste metrics

WATER

- Water Withdrawal (million m³)
- Water Use Intensity (m³/£m²)
- Water Consumption (million m³)
- Water Consumption Intensity (m³/£m²)



- Water from all sources, including process, irrigation and sanitary use.
- Constant-currency* revenue basis, updated to reflect clarifications and changes in reporting methodology to ensure year-on-year consistency.

WATER WITHDRAWAL IN STRESSED AREAS

- Water Withdrawal (million m³)
- Water Consumption (million m³)



- Water from all sources, including process, irrigation and sanitary use in countries of high and extremely high water stress as identified by the World Resource Institute.

WASTE

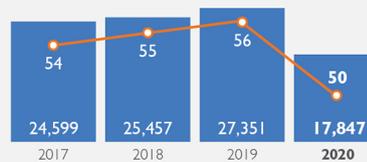
- Waste Generation (metric tons)
- Waste Intensity (metric tons/£m²)



- Constant-currency* revenue basis, updated to reflect clarifications and changes in reporting methodology to ensure year-on-year consistency.

RECYCLE

- Recycle (tonnes)
- Recycle (% of total waste)



- Energy from all sources.
- Constant-currency* revenue basis, updated to reflect clarifications and changes in reporting methodology to ensure year-on-year consistency.

SINGLE-USE PLASTIC



In the second half of 2020, our global Thermal Products division launched an initiative to phase out approximately 500,000 single-use plastic bottles. Sites installed purified drinking water stations and provided our people and contractors with refillable drinking bottles to drive this initiative.

Streamlined energy and carbon reporting

We comply with the Streamlined Energy and Carbon Reporting (SECR) requirements. We also support the recommendations of the Financial Stability Boards Taskforce on climate related Financial Disclosures (TCFD) and will be taking action to implement these.

In 2020, the UK accounted for 4% of our global total Scope 1 and 2 emissions, as outlined in our mandatory GHG reporting. Our absolute GHG emissions (Scopes 1 and 2) for our UK operations were down by 22% compared to 2018 levels and 11% compared to 2019 levels.

Greenhouse Gas Emissions

Morgan's greenhouse gas (GHG) emissions, such as carbon dioxide (CO₂), are mostly generated by the combustion of fossil fuels at various stages of our manufacturing processes. We are pleased to report that our absolute GHG emissions (~Scopes 1 and 2) are down by 22% compared to 2018 levels and 15% compared to 2019 levels.

We report climate data to CDP and were awarded a 'C' (awareness) score in 2020, in the climate category. Our score dropped from a 'B' (management) the previous year. A few reasons for the drop in score were noted as our emission reduction target was mistakenly assigned as 2018 instead of 2015 and we did not mention adoption of a science-based approach to target setting and/or set a specifically noted SBTi approved target(s). This will be our focus in 2021.

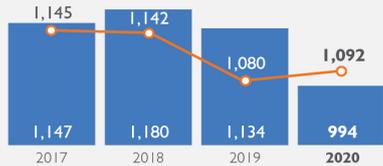
We reported we have target(s) to increase low carbon energy consumption/production, however we did not provide specific details as to what those are. Additionally, we must disclose and report on the % of revenue earned from low carbon product(s). For detailed information on how we calculate our carbon footprint, including Scope 1 and 2 emissions, please download our Climate Change Disclosure statement available at www.cdp.net.

Our CDP climate submission also contains extensive disclosures on our climate risks, opportunities, impacts and mitigating actions. Ongoing modernisation and optimisation initiatives are helping to further reduce our carbon footprint

Energy and CO₂ metrics

ENERGY

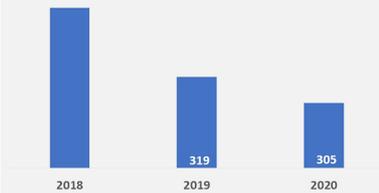
- Energy Use (GWh)¹
- Energy Intensity (MWh/£m)²



- Energy from all sources.
- Constant-currency* revenue basis, updated to reflect clarifications and changes in reporting methodology to ensure year-on-year consistency.

GREENHOUSE GAS INTENSITY

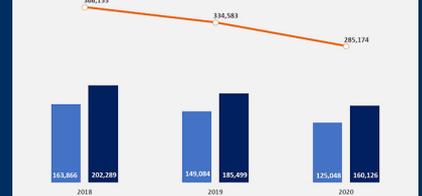
- GHG Intensity (tonnes CO₂e/£m)



- For manufacturing, we have selected an intensity ratio based on sales (constant-currency basis). This aligns with our longstanding reporting of manufacturing performance. Emissions from the combustion of biogenic fuels (biomass, coffee husks etc.) within our operations are reported separately to other Scope 1 and 2 emissions, as recommended by the GHG Protocol, and are excluded from our intensity ratio calculation. The data also excludes Scope 3 emissions, and emissions from Company-owned and leased vehicles.

GREENHOUSE GAS EMISSIONS

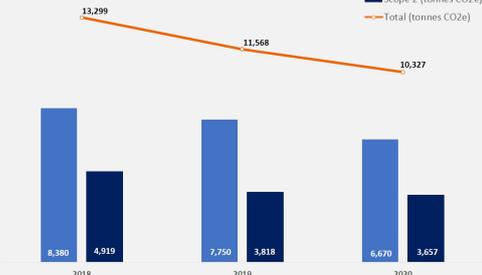
- Scope 1 (tonnes CO₂e)
- Scope 2 (tonnes CO₂e)
- Total (tonnes CO₂e)



- For Scopes 1 and 2 we report our CO₂ emissions only, not other GHG emissions as these are not material. Carbon emission factors are used to convert energy used in our operations to emissions of CO₂. Carbon emission factors for fuels are provided by the Intergovernmental Panel on Climate Change (IPCC). We report our emissions with reference to the latest Greenhouse Gas Protocol Corporate Accounting and Reporting Standard. Emissions are excluded from steam supplied by two sites in China and one in Europe.
- Carbon emission factors for grid electricity are calculated according to the 'location-based method', which reflects the average emissions intensity of the grids on which energy consumption occurs (using nearby grid-average emission factor data).

GREENHOUSE GAS EMISSIONS UK OPERATIONS

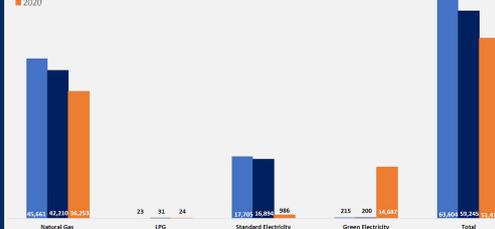
- Scope 1 (tonnes CO₂e)
- Scope 2 (tonnes CO₂e)
- Total (tonnes CO₂e)



- Carbon emission factors for grid electricity are calculated according to location-based method.
- The data represents our associated greenhouse gas emissions from fuel and electricity in the UK for the 2018, 2019 and 2020 reporting years in compliance with the voluntary reporting recommended by the UK Government's Streamlined Energy and Carbon Reporting (SECR) policy.
- The scope of the data includes six manufacturing sites and two non-manufacturing sites based in the UK.

STREAMLINED ENERGY UK

- 2018
- 2019
- 2020



- The data represents our energy use from fuel and electricity in the UK for the 2018, 2019 and 2020 reporting years in compliance with the voluntary reporting recommended by the UK Government's Streamlined Energy and Carbon Reporting (SECR) policy.
- The scope of the data includes six manufacturing sites and two non-manufacturing sites based in the UK.
- All data reported in megawatt hours (MWh).
- Our UK operations reported no energy from biogas, fuel oils and coal for the years reported.

50% reduction

In support of global efforts to reduce climate change, we have made the commitment to reduce our Scope 1 and 2 CO₂ emissions by 50% by 2030, as part of our aspiration to be a net zero CO₂ business by 2050.

Our people are responsible for the culture at Morgan and are the driving force behind our success. In return we aim to be an open and engaging organisation where everyone feels valued and appreciated.

Our key principle is that 'it is not just what you do, but how you do it that is important'. We use our leadership behaviours and the Morgan Code to guide the actions we take, and we are committed to conducting all our activities in a manner that achieves high standards of ethics and health & safety for all employees and stakeholders.

Developing our people

We want every employee to perform at their best, reach their full potential and feel rewarded for what they do. In 2020 each employee received on average eight hours of training and we have widened our virtual learning offering across our employee population. Specific training on enhanced protective measures to combat the COVID-19 has been prioritised. In addition, we have provided wider access to e-learning resources, which employees can utilise on an ad-hoc basis to develop. These resources are aligned to role and career aspirations.

We also identify and develop individuals with the potential to take on bigger or more complex roles in the future, and in 2020 we expanded our succession planning scope. We continue to review our senior leadership population, as well as looking further down and across the organisation. We identify successors with the potential to take on senior or middle leadership roles in the near term, as well as those individuals (with potential) earlier in their career.



"During these turbulent days, as a leader of a small team as well as a Management team member, I have to ensure that I create realistic and achievable goals for my team by demonstrating visionary leadership; my remote learning has allowed me take this successful approach."

Monika, HR Manager

Leadership Programmes

In 2020 we adapted our global leadership programmes – Catalyst and Ignite – to run virtually to enable the development of participants to continue.

Participants having completed the programmes, have developed greater alignment to our strategy and purpose, have expanded their network and are demonstrating enhanced leadership capability and resulting business impact. Thirty-eight per cent of participants have been promoted or have expanded their roles thanks to their involvement in the programmes. Externally we have also received recognition, winning a Silver award at the Learning Technologies Awards in November 2020. We have also continued to support leadership and management development through promotion of our global e-learning platform. With significantly more of our people working from home, use of this platform has increased as a way to continue employee development. Over a six-month period in 2020, over 1,200 courses were completed.

Our supervisor training is similarly being upgraded to run virtually, or socially distanced if face to face. In 2021, we will also increase the support for line managers of programme participants, to ensure that supervisor learning is embedded, applied successfully in the workplace and the return on investment realised.

A diverse and inclusive culture

It takes a large number of very talented people to keep Morgan running and we believe that our diversity is our strength.

We promote equal opportunities for all employees and job applicants and make reasonable adjustments to accommodate any employee who may have a disability within the meaning of all global equality legislation.

Watch [our animation below](#) to find out how the diversity of our people drives the success of our organisation.



The importance of wellbeing

At Morgan we recognise the importance of our people, and we strive to support their wellbeing. We have built a grass-roots wellbeing programme called 'Better You, Better Life', which supports our purpose of improving the quality of life. In a similar way to our Morgan safety week, the programme runs activities across the Group to promote healthy choices and encourages our people to take part.

With the uncertainty that accompanied COVID-19, we also kick-started an awareness programme to support better mental health. We provided resources and links to charities and organisations across the globe, and we started a conversation with our people on the importance of recognising mental health at work. In 2021, we are looking to train our first mental health first-aiders and provide further support to our sites and remote employees.

Zero harm

Our aspiration is 'zero harm' to our employees. Preventing fatalities and serious injuries continues to be a focus and therefore we are pleased to report that we have had no employee or contractor fatalities in the past five years. We have developed and agreed a five-year health and safety plan that will drive us towards achieving our aspiration of 'zero harm'. The programme focuses on two areas, achieving cultural maturity and driving down risk.

Achieving cultural maturity

Centred around our 'thinkSAFE' refresh we have developed and are delivering a number of behaviour-based sessions using COVID-19 secure methods and virtual learning. After learning from the pilot, we will roll out the programme globally. In addition, we are focusing on strengthening our technical health and safety teams, by providing additional resources and enhancing skills and competence through coaching and training.

Driving down risk

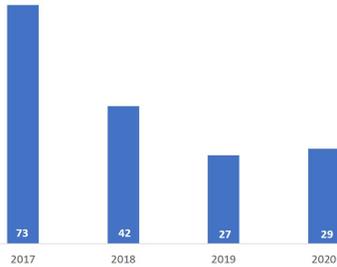
Working with a third party, we are constructing a framework and methodology to further improve our approach to managing health and safety risks. We are working hard to identify and control our existing 'known' risks better, while simultaneously working to identify new risks.

During 2020 we focused on driving energy efficiency improvements within our operations through process efficiency. Overall, these projects have not only provided an increase in energy efficiency but have also led to enhanced safety and a lower environmental impact.

People and safety metrics

NUMBER OF LOST TIME ACCIDENTS

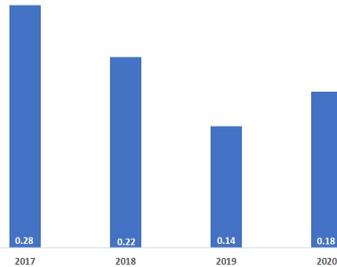
■ Number of Lost Time Accidents (LTAs)



1. A lost-time accident (LTA) is defined as an accident or work-related illness which results in one or more days' lost time.
 2. Defined as total time lost due to health and safety accidents in the year, divided by the number of lost-time accidents reported in the year.

LOST TIME ACCIDENT RATE

■ Lost Time Accidents/100,000 hours worked



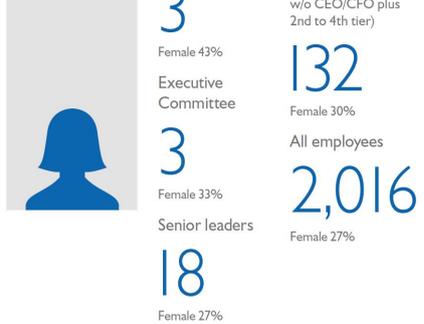
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 2. Defined as total time lost due to health and safety accidents in the year, divided by the number of lost-time accidents reported in the year.

WORKFORCE BY GENDER

Members as at 31 December 2020



FEMALE



WORKFORCE BY GEOGRAPHY

Number of employees as at 31 December 2020



Supporting our communities

We aim to have a positive impact on our communities, from supporting job creation and skills advancement to reducing energy and water consumption at our plants. All our efforts and engagements are driven by our Morgan Code, our purpose and our Group policies.

As our sites and operations are spread across the globe, we have the opportunity to work with many communities. We get involved at a local level and look to understand each community's priorities and concerns. We also pride ourselves on having some of the most passionate and inspiring people working at Morgan. Not only do our people have a real love of science, maths and technology, but many also follow that passionate spirit through into other aspects of their lives – by giving back to their local communities.

We want our people to have the freedom to support what they care about most. We share these stories through our internal social media platform, Yammer, where you will often see the generous spirit and nature of our employees displayed: from bake sales to cultural celebrations, and from charity donations to sponsorship events.

Educating Local Children on Keeping Safe

Our Coudersport team support their local school children via the Officer Phil Child Safety Program.

Officer Phil, which has been run by the Borough Police Department for over 25 years, teaches children how to deal with potentially dangerous situations; from fire safety, to stranger danger and responding to emergencies. The programme equips children with the knowledge and tools they need to stay safe.



The dedication of our team in this excellent local initiative is helping to build a safe and harmonious community for the future generations.

Keeping the Huangpu River Clean



For several years, volunteers from our Electrical Carbon Shanghai site have been actively involved in the community initiative to clean up floating waste on Huangpu River.

Even this year, with the pandemic impacting the region, the volunteers never stopped. On a Saturday in October, our volunteers travelled to join this important activity. Some employees took along their children to help pass on the importance of volunteering to the future generation.

We're proud of the fantastic efforts by the team to protect look after their community.



We are committed to a sustainable future. Our aim is to ensure that our products and manufacturing processes are designed, built and managed in a way that enhances their value to society and our environment.

Read our policies and practices to learn how our ESG approach is governed:

www.morganadvancedmaterials.com/esgpolicies

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