TATA STEEL

TATA

Sustainability Report 2021-2023 Tata Steel's UK business

Contents

This Sustainability Report addresses non-financial disclosures related to topics often described alternatively as corporate social responsibility (CSR) or environment, social and governance (ESG). All deal with broad themes of corporate responsibility covering many aspects of operating a business. The primary intention of this report is to support disclosure and transparency relating to performance, impacts, activities, risks and opportunities.

INTRODUCTION

This report covers our activities in the years between April 2021 and March 2023 – a period of economic recovery following the pandemic, curtailed by supply chain shortages and high energy prices following the outbreak of war in Ukraine.

The past few years – with shortages of everything from domestic energy production to computer chips – have held back the UK's economic recovery and reminded us of the importance of being self-sufficient in critical materials and services.

Steel is an essential component of the UK's manufacturing, engineering and construction sectors – responsible for 16% of the country's economic output. There can also be no transition to a green economy without a thriving steel industry – almost every aspect of the UK's decarbonisation plan needs steel. It's why every G20 economy around the world has its own sovereign steelmaking capability.

Tata Steel recognises that steelmaking has to be sustainable in every sense. Thanks to the huge investments that we've made in reducing emissions, our Port Talbot plant is ranked in the top third of the most CO_2- efficient integrated steelworks in the global benchmark. Despite this, it still contributes 2% of the UK's overall carbon emissions.

The UK aims to reach net zero by 2050. For this to happen, we face two choices for the steel industry. It could be allowed to decline. The UK would lose its self-sufficiency and resilience in steel, as well as thousands of well-paid jobs in steel communities. Emissions would fall here, but we would be importing a lot more steel, leading to more emissions in other countries. This is, of course, illogical and undermines Britain's economy and the global effort to tackle climate change.

Or we could invest here in transformative technologies to produce steel in a carbon-neutral way. This is entirely possible, but it requires support from the UK Government on the same scale as our European neighbours, both in terms of direct investment and electricity market reform to ease the 60% higher energy prices we face here compared to those in Europe.

Tata Steel wants to help the UK achieve its ambition and its net-zero objectives. We understand the technologies, we have the ambition and we have the people to produce green steel. We are ready to lead the next technological leap forward, and produce sustainable steel for the wind and solar farms, electric vehicles, major infrastructure projects and efficient green buildings of the future. But we cannot do it alone.

This report shows where we are now, and also a glimpse of where we could be. We are at a crossroads, between letting steelmaking decline and offshoring our emissions, and a new era in which we transform the UK steel production process to make it fit for 2050 and a bright future.

Henrik Adam, Chair, Tata Steel UK

Henrik Adam, Chair, Tata Steel UK

Scope

This report covers the activities of Tata Steel's UK business for two years from April 2021 to March 2023.
The report can be read in conjunction with the annual financial report and accounts as well as the latest Tata Steel Ltd Integrated Report, which can be found on **tatasteeleurope.com** and **tatasteel.com** respectively.

On the cover: Steel plays a vital role in wind and solar power.

TATA STEEL IS THE UK'S LARGEST STEELMAKER

The 3.2 million tonnes of liquid steel that we produce annually at Port Talbot is processed into strip steel. This in turn is used by our customers to create a host of items that we all see and use every day: coins, cars, radiators, stadiums, hospitals, and food-safe packaging.

Our steel is also contributing to the UK's net zero targets. It is used in the construction of renewable energy projects such as offshore windfarms, in the manufacture of motors for electric cars, and in helping to reduce the weight and improve the fuel efficiency of vehicles.

Tata Steel is the UK's largest steelmaker. We meet over half of the total strip steel demand for the UK's downstream steel markets. We supply household names such as Jaguar Land Rover, JCB, Nissan, IKEA and Heinz as well as the small technology and engineering companies that are fundamental to the UK economy. We provide steel for the contractors and processors who deliver thousands of tonnes into major construction and infrastructure projects across the UK and overseas. To all of them, we are a technology and innovation partner as well as a steel supplier, helping them to find solutions to make their products and their businesses more productive, efficient and sustainable.

Our biggest market is construction, which accounts for 44% of our sales by revenue, followed by automotive (35%) packaging (10%) and engineering.

Altogether we offer 60,000 unique variations of grade and dimensions. Around 40% of products are differentiated – in other words not available from other European manufacturers. More than two-thirds of the steel we make in the UK stays in the UK, saving a quarter of a million tonnes of CO_2 per year compared to transporting steel from other countries.

All of our steel is 100% recyclable. So when it has fulfilled its function, we can make it into new steel products.

Our steelmaking operations run 24 hours a day, seven days a week, 365 days a year. Every day we make nearly 9,000 tonnes of strong, versatile and essential steel.

Our contribution to the UK economy

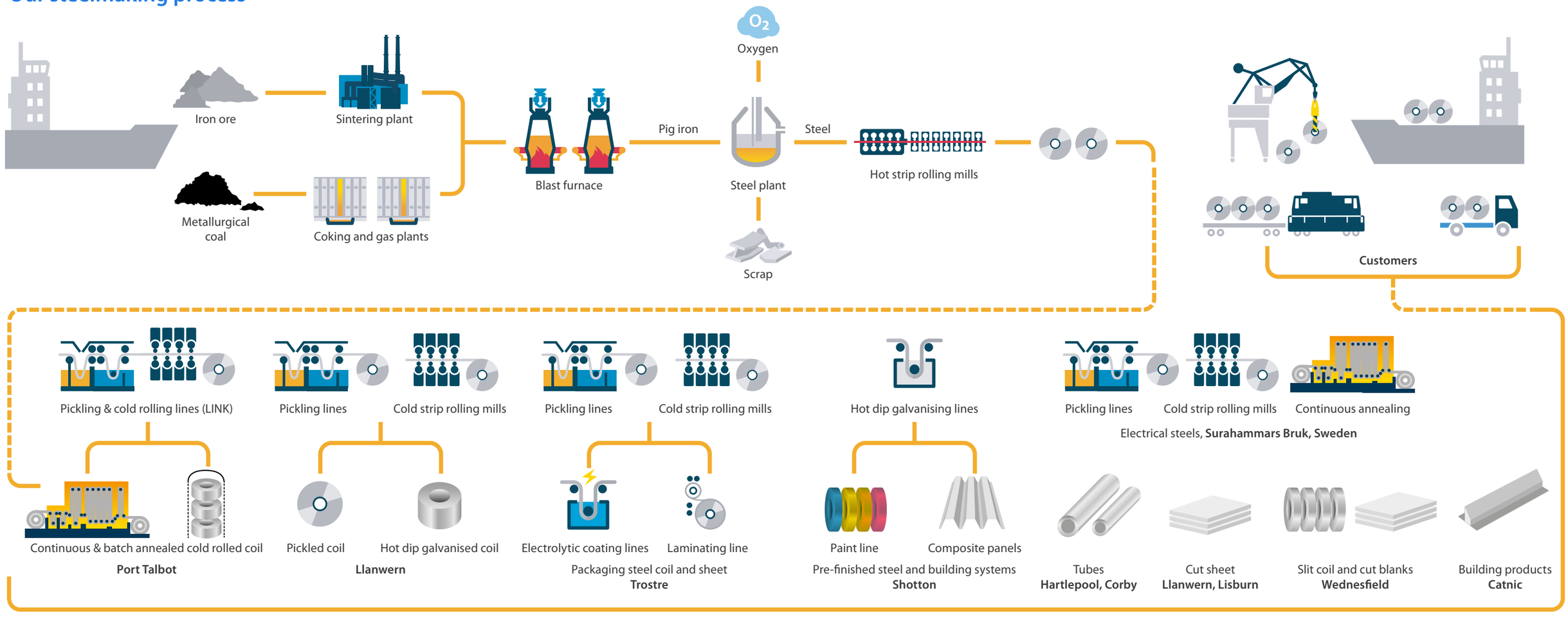
In the last 15 years Tata Steel has invested nearly £4.5 billion in its UK business. We are the only UK steel company with significant domestic R&D capabilities.

Our annual contribution

Investing **£11 million** in UK R&D, including the development of zero-carbon buildings which run off **100% sustainable energy**	Remunerating our employees with a **36% higher** than average UK salary
Purchasing **£2 billion** of goods and services from more than **2,500 UK businesses**	Contributing **£54 million** in tax each year
Exporting almost **£700 million** worth of steel around the globe	Delivering 3% of Wales's economic output as its **largest private sector contributor**

Tata Steel is a key driver for regional economic growth and is a source of prosperity and opportunity for local communities.

Our steelmaking process



Tata Steel's UK business at a glance

Steelmaking sites

1. Port Talbot
Product: integrated steelmaking: liquid steel production; hot and cold rolled coil
Applications: downstream processing mills within Tata Steel UK and customers UK and worldwide
Capacity: 5 million tonnes per year (5Mtpa)

Production sites

2. Corby
Product: hot and cold formed hollow sections and tubes
Applications: construction, lifting and excavating, energy & power, renewable energy
Capacity: 250,000 tonnes per year (250ktpa)

3. Hartlepool
Product: tubes, and hot & cold formed hollow sections
Applications: construction, engineering, energy & power, renewable energy
Capacity: 220ktpa

4. Shotton
Product: galvanising and Colorcoat® pre-finished steel. Building Systems UK: insulated panels, cladding profiles, roofing & decking.
Applications: Construction, domestic and consumer
Capacity: 500ktpa

5. Llanwern
Product: strip steel (pickling line and cold mill) cold rolled coil, galvanised steel (Zodiac line), heavy-gauge decoiling and distribution, construction products. Commercial HQ
Applications: automotive steels, highways, cold forming, building systems (eg Catnic)
Capacity: Approximately 550ktpa

6. Trostre
Product: tin, chromium and polymer coated steels for packaging industry
Applications: 100% recyclable food and beverage cans, aerosol cans.
Capacity: 400ktpa

7. Catnic UK*
Product: profiles and lintels (Building Systems)
Applications: residential construction
Capacity: 25ktpa

8. Skein, Norway
Building Systems components

9. Surahammars Bruk, Sweden
Non-oriented electrical steels for electric motors and generators

Distribution & sales

10. Lisburn (Northern Ireland)
Slitting, decoiling, blanking & distribution

11. Round Oak
Distribution railhead

12. Wednesfield
Slitting, blanking, tailor-welded blanking, decoiling, profiling and distribution

13. Tiller (Norway)
Building Systems distribution & sales

Other

14. Sheffield
Sustainability and environment, corporate teams

15. Shapfell
Lime and limestone products

Research centres

16. University of Warwick
Warwick Technology Centre

17. Swansea University
Steel and Materials Institute

Worldwide sales

Tata Steel UK has sales offices across the world:

Europe: Spain, Italy, France, Romania, Germany, Nordics, Czech Republic
Americas: USA, Mexico, Brazil
Middle East: Turkey, United Arab Emirates
Asia: India, Thailand, Hong Kong, Singapore, China
Africa: South Africa

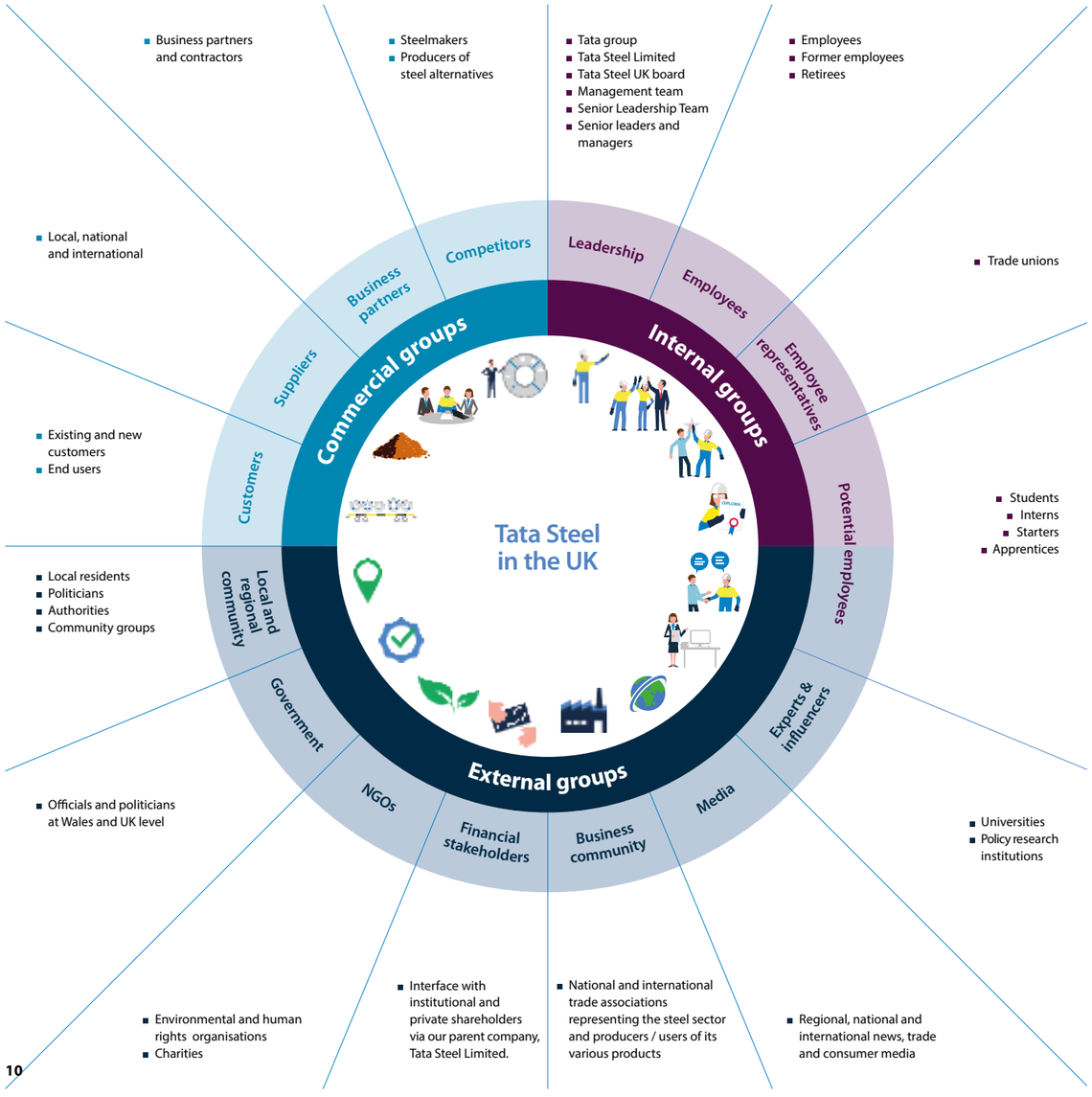
*Catnic also has operations at Sinsheim, Germany (manufacturing, distribution & sales) and Rouen, France (sales) and sales offices across the world.

Our stakeholders

As a business at the heart of the UK economy, we have many stakeholders. It is estimated that there are 750,000 people in the UK whose jobs rely on the supply of steel. These include our 8,000 employees, our 2,500 direct contractors and an additional 20,000 people in the supply chain.

Tata Steel is the foundation of many local economies in Wales, where we are the largest private sector employer, as well as in the Midlands and North East of England. We have over 2,500 suppliers and altogether we spend £2 billion every year across our UK supply chain. In all areas where our 2,000 customers are located, we play a vital role in encouraging and supporting technology clusters. It is estimated that our contribution to the Welsh economy alone is £3.2 billion. (source: Cardiff Business School)

With an annual R&D spend of £11 million, the largest in the UK steel sector, we have formed strong partnerships with world-class universities across the UK including Warwick, Swansea, Cambridge, Sheffield, Cardiff and Imperial College London and engage with UK Research & Innovation (UKRI), the Government's innovation body.



Leadership and governance

Founded by Jamsetji Tata in 1868, the Tata group is a global enterprise, headquartered in India.

The Tata group has adopted a mission 'to improve the quality of life of the communities we serve globally, through long-term stakeholder value creation based on leadership with trust' and encourages individual companies to address climate change through the Tata Business Excellence Model. The Tata group also requires all of its companies and employees to abide by the Tata Code of Conduct, which provides a framework for achieving the highest ethical standards in all business activities. Tata Steel UK embraces the core values (Pioneering, Responsibility, Excellence, Unity, Integrity) that underpin the Tata group vision and code of conduct.

Tata Steel UK Limited is the principal operating company of Tata Steel's UK business, and an indirect material subsidiary of Tata Steel Europe Limited. Its ultimate parent is Tata Steel Limited, a company registered in India with shares listed on the BSE and NSE stock exchanges of India. Oversight of Tata Steel UK Limited is carried out by its board which is responsible for setting strategic priorities and supporting stakeholder engagement. Two of its directors are also directors on the Tata Steel Limited board.

In line with the ethos of our ultimate parent, we are committed to incorporating sustainability into all facets of our business, from governance to strategy formulation to execution. The Tata Steel UK Limited board has adopted a group policy framework comprising a series of foundation and behavioural policies setting out our commitments to our people, customers, communities and the environment. The policy framework is supported by a further set of standards, codes of practice and guidelines and guidance documents to translate policy into required actions. We review our progress in meeting our sustainability aspirations through a regular cycle of performance review, both within the senior leadership of the UK business and at Tata Steel UK Limited board level. The Tata Steel Limited board has established a safety, health & environment committee, and a CSR & sustainability committee which provide additional oversight and scrutiny. Tata Steel UK Limited is directly represented at these committees and is required to submit regular reports describing its performance, improvement initiatives and other material developments.

We operate a rolling programme of compliance training which is mandatory for all senior managers and nominated individuals. Tata Steel UK Limited also operates a well-publicised confidential reporting line. Any reports that are received through the confidential reporting line are thoroughly investigated and appropriate actions taken.

Tata Steel UK recognises and values the differences in employees' background and skills and provides equal opportunities for all employees regardless of sex, race (including colour, nationality, national and ethnic origin), disability, religion or religious/philosophical belief, any gender reassignment, marital or civil partnership status, pregnancy/maternity, sexual orientation, age, part time or fixed term status. All employees have the right to be treated with dignity, fairness and respect.

More information on Tata Steel Europe and Tata Steel UK Limited's governance arrangements can be found in their respective annual reports and accounts, available on the Tata Steel Europe website: tatasteeleurope.com

Our challenges and responsibilities

Our industry faces challenges, but also opportunities, as the world transitions towards a low carbon future.

The steel industry has the opportunity to provide leadership in developing green technologies in fields such as mini-mill technology, the development of carbon capture, usage & storage, or hydrogen technology. As the steel sector decarbonises, it has the potential to enable the decarbonisation of other industrial sectors, both in the UK and internationally, through its innovation and its financing of new technologies and shared infrastructure.

Technology developed here in the UK could be exported to the rest of the world to help decarbonise the projected two billion tonnes of steel production that will be required to satisfy still-growing demand by mid-century.

Steel is a global product and part of a hugely complex supply chain. The movement of steel and finished steel products has an environmental cost. Until 2000, the UK was a net exporter of steel. It now relies on imports for more than half of its requirements. The seven million tonnes of steel imported into the UK each year equates to approximately 14 million tonnes of CO_2 emissions.

Our contribution

We can make a substantial contribution towards helping the UK achieve its net zero targets by 2050. We believe the country needs Tata Steel at the heart of its manufacturing sector if it is to meet its sustainability goals.

Our contribution includes:

- investment in future technologies, through our partnerships and collaborative research programmes in applied science, engineering and technology
- developing the skills and resources required to support the clean growth transition
- the industrial symbiosis inherent in the steelmaking process, which has the potential to take in low value residues of other sectors as raw materials, in turn supplying surplus quantities of low-grade waste heat and our own residues to other communities and industries
- playing an active role in the South Wales Industrial Cluster, in which companies are coordinating their climate change mitigation actions and speaking with one voice to UK and Welsh Governments
- enabling innovation in product design and supply chain efficiency optimisation
- our commitment to the knowledge economy, and wider manufacturing economy, through our development of future STEM leaders.

Accelerating our sustainability reporting

During 2022/23, we established a programme to increase the amount of non-financial data we will collect and disclose publicly. It includes:

- collaborating with a large software company to implement an integrated data management and reporting platform
- taking steps to secure third party assurance of core non-financial data
- a concerted effort, via a materiality exercise conducted by KPMG, to better understand the sustainability issues that different stakeholder groups regard as most important to them
- assessments of climate-related physical and transition risks in an approach in line with the recommendations of the Taskforce on Climate-related Financial Disclosure (TCFD).

Steel sustainability leader

We are one of ten companies recognised by worldsteel (the World Steel Association) as Sustainability Champions. We were a founder participant in worldsteel's Climate Action programme and an accredited Climate Action member. The Association has recognised our excellence in sustainability and in life cycle assessment by awarding us three of its 'Steelie' awards in four years (2019-2022). We are also the first steel company globally to operate its own Environmental Product Declaration (EPD) programme, helping customers to understand the environmental impacts associated with our products.

ResponsibleSteel

In September 2022, we announced our intention to secure certification to the ResponsibleSteel™ standard for our Port Talbot site and to engage with the Science-Based Targets initiative (SBTi) with a view to committing to a science-based target for CO_2 emission reductions. Our commitments to ResponsibleSteel and SBTi are a clear statement to the world and to our customers that we mean business. So, in addition to seeking certification against a broad range of sustainability principles, this will include decarbonising every aspect of our business, from our procurement of raw materials and energy to our iron and steelmaking at Port Talbot and through to our downstream coating, tube-making and further processing operations, and logistics. We have always valued collaborations with our customers, suppliers and academic experts, as well as independent bodies and groups such as ResponsibleSteel and SBTi. It is important that we not only continue on our journey to reduce our emissions and reach net-zero carbon by 2045, but also to do so in a transparent way, measuring and disclosing our progress in accordance with robust and agreed measurement processes.

SUSTAINABLE DEVELOPMENT GOALS

UN sustainable development goals

The United Nations' 17 sustainable development goals are important, interlinked objectives that serve as a shared blueprint for people and the planet.

We are currently seeking to understand how we can increase our contribution to them through our products, services and other activities. In this report, we have added icons to each section to illustrate some of the important links between our activities and the relevant goals.

PEOPLE

Our people are our greatest asset

Excellence in Health and Safety is a core value and is felt in everything we do and everything we say within the organisation. We are committed to our goal of ensuring zero harm to our employees, contractors and the communities in which we operate.

Health and safety

Health and safety: our five guiding commitments

- I protect myself and others because I care
- I follow current standards and procedures as the best way to work safely
- I assess risks whenever there is a change to the workplace
- I always lead by example
- I challenge (and accept being challenged) or I stop the job

Our ambition remains to be the health and safety benchmark in steel. Our key performance indicators are lost time injury frequency, recordable injury frequency and all-injury frequency. We recognise the need to maintain a high degree of focus on these numbers to achieve our ambition.

Key statistics	FY22	FY23
Fatalities	0	1
Lost time injury frequency	2.35	3.03
Recordable injury frequency	3.81	4.23
All-injury frequency	12.4	10.6
Sickness absence (%)	4.90	4.95

Fatal incident

On 14 September 2022 an employee died of injuries which occurred while he was working on a rail shunting operation at Llanwern. We immediately began an internal investigation into the circumstances surrounding this tragic incident and have subsequently issued two interim sharing and learning Red Stripe bulletins. External authorities continue to carry out an independent investigation into the incident. Our thoughts remain with the employee's family.

We are carrying on with our journey of continuous improvement to make sure every colleague returns home from work safe and well. We use a number of interventions such as zero harm campaigns, time out for safety, and engagement sessions to communicate general and specific safety information.

With a continuing backdrop of Covid-19 during the early part of the period covered by this report, we continued to deploy our standards and codes of practice, focusing on our significant hazards. We increased sharing and learning through more effective communication via webinars, health and safety leadership training and e-learning, and also strengthened our business compliance auditing. We continued to hold regular webinars to increase knowledge and awareness of our systems, processes, and codes of practice, each attracting over 100 participants from a range of sites. We also reinvigorated a 'big tick' system of sharing good practice.

We revitalised our programme of face-to-face senior leadership safety tours. These are an effective way of engaging with employees, holding positive safety conversations, checking controls and barriers, and enabling challenge to improve standards, all helping to demonstrate felt leadership in the workplace.

Our focus has moved to high severity and potential high severity events, away from the low potential events such as slips trips and falls. Management team members visiting and reviewing potential high severity events has now become a regular feature to ensure we learn from such events and minimise the likelihood of any repeats.

World Safety Day in April 2022 provided an opportunity for the leadership team to focus on working at height, and included seminars and leadership tours across our UK sites and offices.

Working in collaboration with universities and experts, we continue to embrace technical innovation. As well as further developing a safety app to increase engagement, we use drone technology, virtual reality and fatigue testing in critical process safety areas to help reduce risk.

As a business we are working towards ISO 45001, the international standard on occupational health and safety.

Healthy Tata Steel

We want every individual who works at Tata Steel to be able to work and interact positively and productively with all colleagues and stakeholders, and to realise their full potential.

Healthy Tata Steel, a programme to embed a positive culture for health and wellbeing, strives to increase awareness, involvement and confidence. A regular focus on health, including mental health, has been integrated into our day-to-day business, aiming to prevent work-related illness, encourage health surveillance, promote health and wellbeing, and support recovery and rehabilitation.

During the year we deployed our mental health policy and created new supporting resources and training for our Mental Health First Aiders, whose numbers have increased. We have also continued to strengthen our network of health champions. We recognised the annual World Mental Health Days with a range of activities. With many people still working from home, especially in the first half of the period under review, we updated our information about ergonomics and sedentary work and ensured our Employee Assistance Programme (EAP) is fully available for all employees.

We have put in place a Health and Wellbeing Steering group chaired by the Health and Safety Director to further develop our approach to the wider subject of health and wellbeing for all our employees.

Safety leadership training

Leadership in health and safety is integral to both the overall culture and our health and safety performance. In the last two years we have developed a Safety Leader course. The two-day programme is led by the works managers at the Port Talbot and Llanwern sites, aiming to give frontline supervisors the skills, knowledge and motivation to lead safety in their teams. To date, more than 50% of the identified frontline supervisors have attended the course. The programme has been well received, increasing engagement and offering people new skills which will help to reduce incidents in works areas.

Working at Tata Steel

We are a major UK employer, employing about 8,000 people in a strategically important industry. Our human resources policy is based on core principles of development, fairness, mutual trust and teamwork.

Diversity and inclusion

We believe that having a diverse workforce can bring many benefits, and we continue to seek ways to improve the diversity of our organisation, raising awareness and monitoring our progress. For example, during the year, we targeted our social media activities to attract candidates who may not have previously considered working for us.

Opportunities to progress, develop and contribute are equally available to all employees. This is supported through our diversity and inclusion roadmap and will continue to be a key forward area of focus as we seek to make further improvements.

Gender

Approximately 89% of our workforce identify as being male, and 11% as female. Over half of our female employees work in professional, managerial or technical roles, compared with just over a third of our male employees, and 8.7% are employed in senior manager positions compared to 5.7% of the male population. The higher proportion of women in managerial roles is reflected in our gender pay report. The average hourly rate of pay is greater for men than it is for women, but our results are favourable compared to the UK average.

Our aim is to increase the diversity of employees across the business. This is supported by many passionate people in our teams, for example our Steel Women's Network, which promotes the industry through events and activities. A series of podcasts celebrating women in steel has been downloaded over 1,300 times.

A celebration of International Women's Day 2023 reached over 350 employees through network events.

We are keen to address the gender balance and encourage more women into our industry by building more awareness of STEM choices and the opportunities available.

Recruitment, talent, and widening access

We're continuously seeking new talent and investing in the future skills of our communities. We have a strong track record of recruiting apprentices, higher apprentices and graduates, and of sponsoring students through their studies.

Between April 2021 and March 2023 we recruited 199 apprentices (including 52 higher apprentices and one degree apprentice). We recruited 90 graduates and 54 placement students.

We work with local schools and colleges to provide careers and interview advice.

We held a programme of onsite events and tours, as well as recruitment activities, a combination of face-to-face and virtual experiences.

We held a total of 58 apprenticeship events, including open evenings, talks and assemblies, careers fairs, as well as offering mock interviews to students at local schools.

Tata Steel UK has consistently featured in the Rate my Placement Best 100 student employers list, moving up 29 places to 71 since the 2022 list. Along with moving up 46 places in the UK 300 top graduate employers, GTI list, from 257 to 211.

We continue with initiatives to break down barriers to entry, for example by ensuring all our external vacancies are accessible to those in unemployment, and ring-fencing jobs for those receiving government benefits under the Kick Start Campaign. As a signatory to the Armed Forces Covenant, we uphold principles which recognise the value of serving and ex-service personnel. We also work with Nacro, the National Association for the Care and Resettlement of Offenders, to ensure we do not discriminate against individuals with criminal convictions.

Training and opportunities

Learning and development is essential to maintain the core skills for our business and ensure a healthy pipeline of talent. With a total training budget of £2.7 million, we also utilise government funding schemes to further support the development our workforce and trainees.

Recovering the capability and competence of the workforce following the pandemic has been a key focus for the business.

During 2021/22, we delivered 138,000 hours of training. With social distancing rules easing, 47,000 hours of this was eLearning or online delivery and 91,000 hours being face-to-face training.

In 2022/23 training increased to 158,252 hours, with 21,687 hours of this being eLearning or online delivery and 130,565 hours being delivered as face-to-face training. We have continued to utilise online training delivery as a flexible option.

In 2022/23, the number of people taking part in our apprenticeship schemes across the UK was 365, including both apprentices (245) and current employees (120). Of the current apprentices, 204 are based in Wales and 41 are based in England, with 27 women in apprenticeships.

We continue to outperform (by around 20%) the national rates for apprenticeship completion and retention. In the two years to March 2023, 70 apprentices/higher apprentices have completed their courses, equating to 86% of those who started their courses with us.

We work with our trade union partners to improve capability and offer support for basic skills development. All new manufacturing trainees gain a recognised qualification by taking a Performing Manufacturing Operations NVQ. We also support our employees to be members of professional institutions such as IET, IMechE, CIPD, CIPS, IChemE, CIMA, and IEMA.

Looking ahead, our strong relationships with Regional Skills Councils will help us address the sustainability and technical skills we will need in future.

I WORK HERE

Tuesday Ibbotson, HR Graduate, Port Talbot

I support line managers in coke, sinter and iron through investigations and disciplinary procedures. I enjoy helping individuals to come back to work and I'm passionate about equality, diversity and inclusion (ED&I), both inside and outside the workplace.

How does your work contribute to making Tata Steel more sustainable?

Providing a working environment that welcomes people from different backgrounds and embraces cognitive diversity ensures innovation and is vital to our sustainability as a business.

Our communities

We strive to enrich our local communities and contribute to their future economic and social wellbeing. Our programme of proactive community partnerships embraces three aspects: health and wellbeing, environment, and education and learning.

Our long-running Tata Kids of Steel triathlon programme has given thousands of children the opportunity to try swimming, cycling and running through annual events held near our sites at Corby and Shotton.

Many colleagues volunteer to help run the events, highlighting the commitment of our employees to their communities.

We sponsor two activity-based programmes for primary school children in South Wales: the Aberavon Wizards' League, a competition to develop rugby and netball skills in Neath Port Talbot, and the Newport Dragons community outreach programme which offers sports, holiday skills camps and sessions on lifestyle, diet and teamwork for children in over 60 primary schools in Gwent.

One example of a long-term legacy has been our annual sponsorship of the Richard Burton 10k running event near Port Talbot, which saw over 2,400 runners cross the start line in 2022 – a record for the race – including local MP Stephen Kinnock (pictured right, in the centre, alongside Tata Steel UK's new CEO, Rajesh Nair). The event, combined with the Runtech Kevin Webber Mini-Miler, raised over £50,000 for local charities and good causes.

> "The community is not just another stakeholder in business, but is in fact the very purpose of its existence."
>
> **Jamsetji Tata, founder**

Graduate challenge

Each year we challenge participants in our graduate programme to complete a community project.

Working in small groups across the UK, they plan and deliver an activity of their choice. Projects have included fundraising auctions and events for local charities, providing on-site foodbanks for charities such as the Trussell Trust and Flintshire Foodbank, taking a cold dip in the sea in aid of AgeCymru, offering virtual site tours for schools and universities, and beach and river clean-ups.

These activities offer our graduates opportunities to develop their influencing, networking and leadership skills, at the same time building their relationships with, and understanding of, our local communities.

Helping our people to make a difference

At every site, we support and encourage our many employees who want to make an active contribution to the local community with their own charity events and fundraisers. Activities range from surfing, wildlife and sustainability education, to encouraging volunteering and supporting engagement in sport.

A very good example of the combined power of our colleagues to make a difference to their communities is Tata Steel UK's Christmas appeal. At Shotton and Corby, teams have arranged for food to be donated to their local foodbanks, while colleagues in Hartlepool donated to local charities Harbour Shelter and Love Amelia which support victims of domestic abuse and families facing hardship respectively. Trostre shows true community spirit by inviting local care home residents to site to enjoy a Christmas dinner and to listen to the festive tunes of local choir Côr Curiad.

Every March, the Tata Steel family bands together to mark Founder's Day and raise money for local cancer charities. Employees' efforts – which range from cake sales and raffles to charity football matches and skydives – are match-funded by Tata Steel UK.

The Port Talbot site raised £2,000 in 2022 as well as hundreds of gift and food donations, for local schools, hospitals and foodbanks, ensuring people facing hardship have something to celebrate at Christmas.

Tata Steel's very own Steelworks Santa, Allan Evans, has raised up to £10,000 each year for his chosen charities, GIST Cancer, Alzheimer's Society and Blood Bike Wales through his appearances as Father Christmas across South Wales.

Education and learning

All our UK sites offer site visits or online education so young people can find out more about our manufacturing activities and steel's contribution to society. A team from our packaging steels site at Trostre runs regular interactive, curriculum-linked educational workshops about recycling, in person and online, to schools, colleges and adult groups throughout the UK. Over the two-year period, we held over 70 engagements within the community, helping approximately 3,500 learners to understand what it means to be a responsible consumer, the value of participating in kerbside collections schemes and the sustainability and circularity of steel packaging. We have also been part of local and national speaking opportunities and press/TV coverage.

Trostre celebrated its 70th anniversary in 2022 with a giant 'canniversary' cake made from Heinz food cans. All cans were donated to a local food bank.

Environmental engagement

In the summer of 2022 we ran a series of roadshows to engage the community around Port Talbot and explain the investments we have made in environmental improvements (totalling £21.57 million in capital expenditure between 2019 and 2022) that have enhanced the efficiency of fume extraction and reduced dust emissions.

Communication

In Port Talbot, *Steel News*, a quarterly community newspaper, informs local people about our investments, environmental improvements, and community support. An outreach programme has brought Tata Steel to leisure centres, shopping centres and MP surgeries to show how we are investing to improve the local environment and create employment opportunities to young people.

SteelCast

In 2020, we launched a **SteelCast** podcast to communicate with employees and contractors who were away from the office or on furlough due to the pandemic.

In February 2022, we decided to use the same platform to discuss the challenges and opportunities of decarbonising the steel industry. With around 20 episodes a year, the podcast guest list has included politicians, trade bodies, customers, environmental groups and academia as well as our own experts.

SteelCast helps to inform and educate stakeholders about a complex topic in an easy-to-access format. It has received many plaudits and thousands of downloads.

Social media

Our community activity is reflected in our social media, where the engagement rate (a measure of how actively our audience engages with the content) has grown by over 700% since April 2021 and audiences have increased by an average of 79% across all social channels (Facebook, Twitter, LinkedIn, YouTube and Instagram).

UK Steel Enterprise

We support the economic regeneration of communities affected by changes in the steel industry through our subsidiary, UK Steel Enterprise (UKSE). Established in 1975, UKSE assists with job and wealth creation in steel areas by supporting small and medium sized businesses with finance and business premises, creating a supportive environment for people with entrepreneurial spirit and encouraging job and wealth creation in steel areas. Since it was founded, it has given financial support of over £110 million, and offered help and advice to more than 8,000 growth businesses, enabling the creation of over 82,000 new jobs. It also contributes both in kind and financially to numerous worthwhile community support initiatives.

US company Adient Aerospace, which designs and produces luxury airline seating, chose to locate its design studio at the Ebbw Vale Innovation Centre in South Wales, where it now employs 24 people and is growing fast.

STEEL IN A SUSTAINABLE SOCIETY

Contributing to the low carbon economy

This section aims to show the positive role that our steel can play in decarbonising society, and how we are working with customers to innovate low emissions solutions.

Steel is a fundamental material for a low-carbon economy. Steel is needed for renewable energy, low-CO_2 transportation, infrastructure schemes for large-scale hydrogen production and distribution, and carbon capture, usage & storage. It will be needed to build and power the electric vehicles of tomorrow, as well as creating sustainable buildings and delivering major infrastructure projects which will help the nation achieve its net zero goals.

Steel's role in the net zero world of the future is clear, but we recognise that the steelmaking process itself creates substantial CO_2 emissions. We feel a strong sense of responsibility, therefore, to reduce our own emissions. We have made a commitment to achieving carbon neutral steelmaking by 2045 and to achieve a 30% reduction in CO_2 emissions by 2030 compared to 2018.

Achieving decarbonisation, however, is complex, and depends on a number of levers, including the availability of infrastructure, deployable technology, policy support, and demand for near or net zero steel (see also the section describing our Roadmap to 2045, p48). We have been working hard for several years to assess the feasibility of possible options which could help decarbonise our operations.

Decarbonisation initiatives

We understand the importance of innovation and collaboration in addressing climate change. Tata Steel has been one of the leaders in global initiatives for decarbonisation of the sector and is at the forefront of two worldwide collaborations. The Mission Possible Partnership's Net Zero Steel Initiative aims to inspire an accelerated transition to net zero for the steel sector, including essential innovation, investments, policy, and procurement decisions by the broader industry value chain. The Net Zero Steel Pathway Methodology Project has laid out the foundations for the development of robust guidelines for steelmakers who wish to make a realistic and credible commitment to near or net zero target setting.

Case study: RWE floating wind

As a partner of RWE, Wales's largest electricity producer, we are working to explore the production of steel components that could be used in foundations and turbines for high-tech floating wind projects in the Celtic Sea. Less mature than seabed-fixed wind technology, floating wind, which deploys wind turbines on top of floating structures that are secured to the seabed with mooring lines and anchors, offers exciting opportunities to harness energy in deeper seas. The Celtic Sea region offers a huge opportunity to develop large-scale, commercial floating offshore wind. Our shared knowledge and expertise in this area will support industrial decarbonisation and economic development in Wales.

Credit TetraSpar Demonstrator ApS/RWE

Helping our customers to be sustainable

We have always supported our customers to use steel as efficiently as possible, assisting them with material choices and with ways of optimising their production processes.

Increasingly, we are working closely with customers in all market sectors on every aspect of sustainability. Our knowledge and transparency about the performance of our products allows them to understand the sustainability of steel applications, enabling them in turn to develop their approach to material usage and meet their environmental goals.

Life cycle assessment

Life cycle assessment (LCA) is a powerful tool for identifying opportunities to reduce the environmental impact of a product – whether that is a building, a vehicle, a piece of machinery or packaging – throughout its life cycle.

Tata Steel is widely recognised for its expertise in LCA. Taking a supply chain perspective allows us to demonstrate how improvements in material utilisation and right-first-time manufacturing can reduce emissions during the production phase. Our LCA models allow us to consider the complete value chain, for instance the impact of the carbon intensity of regional grid electricity (gCO_2/kWh) on the carbon footprint of a vehicle or building.

To extend our capability in this area, we developed the PACI (Product Assessment Carbon Indicator) tool. This streamlines the process of undertaking life cycle studies of products and enables an understanding of greenhouse gas (GHG) emission hotspots and trade-offs in the steel product value chain, which can be used to inform new product developments and optimise existing manufacturing routes. PACI has been used to support collaborative projects with customers and to support sharing and learning about opportunities for emissions reduction over the product's life cycle from manufacture through to use and finally end-of-life: for example, working with an automotive OEM to examine all aspects of materials selection, including material type, steel grade, gauge, and aspects of formability and part design. Another example has been the use of the tool in understanding the trade-off between benefits in use from improving motor efficiency versus embodied GHG emissions associated with different grades of electrical steels. The tool has recently been recognised by the World Steel Association, winning a Steelie award for Excellence in Life Cycle Assessment.

EPDs in construction

In this reporting period we produced our 100th Environmental Product Declaration (EPD) for our construction sector customers – double the amount that we reported during FY21 – demonstrating our continued commitment to transparency when it comes to reporting product environmental data.

An EPD is a recognised method of describing a product's whole life impact, backed by international standards. Tata Steel was the world's first steel manufacturer to operate an EPD programme.

An EPD contains a description of the manufacturing route and a technical description of the product. Along with quantified environmental information, it covers specific aspects of the product life cycle, from raw material extraction, manufacture, and fabrication through to use and end-of-life.

We can produce product-specific EPDs that comply with EN 15804 and ISO 14025 standards and which are third-party validated.

Being able to supply product-specific EPDs, along with BES 6001 responsible sourcing certification, enables our customers to accrue points under building certification schemes such as LEED and BREEAM on their building projects. This level of transparency and reporting allows them to make optimum decisions about resources – and demonstrates the sustainability of steel and our steel building products.

Catnic® Urban (formally Colorcoat Urban®) standing seam steel system, is a lightweight, strong and versatile alternative to traditional building materials that is seven times lighter than standard roof tiles.

MagiZinc® and solar

MagiZinc®, an innovative corrosion-protection coating that we first developed for automotive applications, is now being used in a wide range of applications, including ground mount systems for large solar farms. Using fewer resources in its manufacture and with a longer product life than conventional galvanised steel, MagiZinc is being chosen by many designers and manufacturers. Our material is providing a UK solution for UK decarbonisation as the country seeks to reduce its dependence on fossil fuels.

Carbon Lite

Customers are facing a carbon reduction dilemma: consumers and legislators are calling for reduced carbon across the whole supply chain, but currently the availability of truly decarbonised steel is far outstripped by demand.

Recognising this challenge, we have developed a way to create a robust, third party-verified mass allocation scheme so we can pass on achieved CO_2 emissions savings to customers. We call it Carbon Lite.

Steel end-users are turning their attention to the environmental credentials of the materials they use, including assurances about responsible sourcing, circularity and carbon footprint. Many recognise that the CO_2 emitted during the production of materials – known as 'embodied carbon' – can be a major factor in the overall carbon footprint of their products.

For **automotive** OEMs, legislation has for some years focused on the 'use phase' – ie tailpipe – emissions as a key indicator of performance. As we move into an era of electrification, where such emissions are significantly reduced, attention has turned to the CO_2 emissions from the manufacture of vehicles. Emissions from vehicle assembly are relatively small compared to the embodied carbon of the materials themselves.

In the **construction** sector, specifiers and standards organisations are actively setting limits to the overall performance of a building with the aim of driving down the carbon footprint of the construction materials. Again the focus is not just on the use phase, but also on the upfront embodied carbon of the construction materials per square metre of building.

For steel end-users, the embodied carbon of steel constitutes an upstream Scope 3 emission – emissions inherited through the purchase of goods. The preferred option for these end-users to reduce Scope 3 emissions is to buy decarbonised steel products, i.e. steel with a significantly reduced carbon footprint, but they recognise that it is not available in the quantities required. The immensity of the transformation required to decarbonise the steel industry means it will be many years before there is significant volume of 'embodied green steel' available. This has created a tension in the marketplace – a desire from end-users for low embodied carbon steel products, but hugely constrained availability.

Carbon accounting

For customers wanting to take action to reduce their emissions now, an interim solution using what's known as a carbon accounting approach is a credible option. This is where CO_2 savings are associated with a proportion of products, using mass balancing and certificates.

Rather than apply the CO_2 savings across all products, the savings are apportioned through mass balancing to a proportion of products using a certificate approach. Customers can flexibly select the CO_2 intensity they require and report the achieved CO_2 savings as a reduction in their own Scope 3 emissions.

Introducing Carbon Lite

Carbon Lite is described as an insetting scheme because the savings are made within the boundary of Tata Steel's operations – only CO_2 reductions achieved within Tata Steel can be passed on through certificates. Input materials such as alloying elements and coatings are purchased and their carbon footprints are inherited. They are not influenced by CO_2 reduction projects conducted on Tata Steel sites and therefore cannot be inset.

Third-party assurance

Credibility is a critical aspect of the scheme. Significant care was taken with the design of Carbon Lite, which is based on a methodology agreed with external third party assurance experts DNV. Carbon Lite is underpinned by alignment to recognised standards. CO_2 savings projects are verified in accordance with the Greenhouse Gas (GHG) Protocol Project and Product Accounting Standard and the operation of the CO_2 banks is based on a mass balance approach outlined in ISO 22095:2020. Each CO_2 savings project is verified according to the GHG Protocol Project and Product Accounting Standard by DNV, which oversees all credits to and withdrawals from the CO_2 bank.

Certificated CO_2 savings are made relative to baseline product intensities, established in accordance with the worldsteel Life Cycle Inventory (LCI) methodology and/or EN15804 and only products for which there is a third party verified life cycle assessment document, or Environmental Product Declaration (EPD), are available under the scheme. Any risk of double-counting is avoided as only projects which contribute CO_2 savings outside the period of data collection of life cycle assessment data contribute to the CO_2 banks.

Reinvestment

Tata Steel has committed to reinvest the revenues from the sale of Carbon Lite certificates to fund projects which will generate further verified CO_2 savings, which in turn will help to accelerate decarbonisation of the supply chain. By buying Carbon Lite, Tata Steel customers contribute directly to a reduction in atmospheric CO_2 today and a transition to a fully decarbonised supply chain for tomorrow.

Making safe, affordable food packaging

In 2022, our Trostre Works celebrated its 70th anniversary. Located in Llanelli, Wales, where it is one of the largest employers, it manufactures approximately 380,000-400,000 tonnes of tin, chrome, and polymer-coated steels every year for food and drinks cans, bakeware and other packaging industries, supplying over 50 countries worldwide.

The tinplate we make in Trostre is an important packaging material for the food industry. Canned food is affordable, robust, and retains nutrients extremely well. It can be stored for a long shelf-life without using energy-consuming refrigeration. Canned foods have an incredibly long shelf life – up to three years – which helps to reduce food waste at home. All canned food is cooked in the can and so needs only re-heating, saving time and energy.

Food safety

In 2022, Trostre was awarded the prestigious AA rating in the BRCGS Global Standard for Packaging and Packaging Materials. Certification assures our customers – such as for example makers of baby food formula – that we comply with the most stringent of food safety standards and that the tinplate we process is completely food safe as it leaves our site. We have also successfully completed Halal certification.

In February 2023 Trostre was able to demonstrate how it operates according to stringent food hygiene standards all day, every day, when it was featured on Channel 4's *Food Unwrapped* series, helping to educate viewers about the canned food supply chain and our vital role in it.

High prices and recent shortages of fresh produce in the UK have highlighted the important role that cans play in providing a safe, reliable and reasonably priced food source.

Recycled packaging

Steel cans are a packaging material that is infinitely recyclable and is recycled at scale. It is easily sorted from post-consumer waste due to its magnetic properties. Steel is the most recycled packaging material in Europe, with a recycling rate of 85.5% in 2020. (source: APEAL) In the UK we have been at the forefront of the recycling drive, actively contributing to government-supported recycling programmes.

Through programmes such as Metal Matters, we are collaborating with the UK Government and partners in the metal packaging sector including local authorities and waste management contractors to educate consumers and encourage householders to participate in household collection schemes and drive up the recycling rates for metal packaging.

I WORK HERE

Eleanor Shorland, Packaging Recycling Education Officer, Trostre

I deliver workshops to primary and secondary schools, college students and adult groups. My aim is to educate, engage and enthuse audiences about steel and its environmental credentials, and show how versatile it is, especially as a packaging material. I enjoy defending packaging and the steel industry.

How does your work contribute to making Tata Steel more sustainable?

Recycling is a vital element of steel's sustainability and allows it to be a circular material. Teaching people how we can all play a part in making new steel from old, by recycling empty steel packaging, even small items such as caps and closures, allows me to be a part of the story.

Building partnerships in construction

Construction is one of the most critical sectors for Tata Steel. Around 60% of the steel we produce and process in our downstream sites goes into the construction sector. Construction output in the UK is worth more than £110 billion a year and makes up 7% of the UK's GDP.

Construction Summit 2023

In March 2023, we took a leadership role in addressing key issues facing the sector in 2030 and beyond when we jointly hosted a construction conference with Constructing Excellence at the Buildings Research Establishment (BRE) in Watford.

Over 130 delegates from across the supply chain including government departments, academics, architects, engineers and manufacturers came together to better understand the collective needs, responsibilities and commitments required to develop a sustainable future construction sector. The session generated lively debate and significant engagement on topics such as whether the industry is really prepared for net zero which will continue in the coming months and years.

We were also able to showcase our collaborative innovation, including our participation in the Construction Innovation Hub adapting products to be used in the innovative Forge project (see picture); collaboration and manufacturing in the UKRI-funded Seismic project (see p41), and initiating work with Innovate UK, AMRC and Bryden Wood on the FASTtruss project for industrial warehousing.

Jo Evans, Director, Building Systems

Building Systems UK – driving transformation in UK construction

UK construction productivity has been lagging behind other sectors for many years (source: Farmer Review 2016). Diverse and fragmented, the sector's siloed approach has led to a lack of collaboration as well as insufficient research and development and innovation. The UK Government's 2018 Transforming Construction Challenge aimed to utilise digital technology and modern methods of construction (MMC), to deliver healthier, safer and more sustainable buildings while reducing the productivity gap and improving the whole-life value of buildings.

As the UK's largest manufacturer of structural roof and floor decking systems, our business unit Building Systems UK plays a key part in delivering high quality sustainable buildings and infrastructure to the construction market. We are determined to drive change in the market through collaboration, recognising that no individual part of the supply chain can deliver in isolation.

Our pipeline of new product development includes more sustainable and durable ComFlor® and Roofdek® decking and roofing products with enhanced corrosion resistance and longer life capability. Our innovative Trimawall® Fast Fit, which utilises Reform Systems' patented universal mounting system, has been designed to facilitate the move to off-site build solutions that is radically changing the speed, safety and environmental impact of construction, and can easily be demounted and re-used.

We are helping to decarbonise construction supply chains. Tata Steel UK's entire construction product portfolio is certified as Responsibly Sourced and with tools that allow 'specification bespoke' Environmental Product Declaration (EPDs), we are one of the most transparent and reported construction product manufacturers in the world. Our Carbon Lite offering (see previous) provides clients with the opportunity to purchase products with greater than 50% reduction in emissions.

The Forge in London, the UK's first net zero carbon commercial building, contains Tata Steel's **ComFlor®** beam, specifically designed for a pioneering construction technique: a platform approach to design for manufacture and assembly known as P-DfMA.

Working with the automotive sector

Electric vehicles

Electrification is happening fast. Most automotive manufacturers have announced plans to move towards fully electrified vehicles (EVs) in the next decade. In the UK, 2021 was the most successful year in history for uptake of electric vehicles, with 27.5% of the total market now electrified in some form (source: SMMT). There are now 690,000 battery-electric cars in the UK, after sales grew 40% in 2022 (source zap-map.com). We are working with a number of stampers and motor manufacturers on future EV launches and are involved in a collaborative UK Government-funded (Innovate UK) project, which is looking at the use of electrical steels in EV motors. As an example, our value analysis and value engineering (VA/VE) collaboration with a leading UK vehicle manufacturer on three models has the potential to save 22,000 tonnes of CO_2 per year.

We are partners in Steel E-Motive, a WorldAutoSteel vehicle engineering programme which is developing virtual concepts for two fully autonomous and connected electric vehicles designed for mobility-as-a-service (MaaS) applications. It uses Advanced High-Strength Steel (AHSS) technologies and products to design autonomous vehicle concepts to enable MaaS solutions which are safe, affordable, accessible and environmentally conscious. The use of AHSS is making the vehicle body structure and battery packaging 25% and 33% lighter respectively, enabling an emissions reduction of 44%.

Case study: CompETe

We are one of nine industrial partners and universities in a Jaguar Land Rover-led project to create a high-performance compact electric drive unit (EDU) for battery electric vehicles. The three-and-half-year collaboration, known as CompETe, is match-funded by the UK government via the Advanced Propulsion Centre.

Our product engineering knowledge group, working closely with our electrical steel business Surahammars Bruks AB in Sweden, actively supports the EDU designs, especially in characterising ultra-thin non-grain-oriented (NGO) electrical steels, while our computer-aided engineering specialist has developed 2D and 3D models for assessing the high-speed motor rotors' structural integrity. We are continuing to work actively with CompETe partners to enable Jaguar Land Rover to achieve volume production in 2025.

Role of steel in renewable and alternative energy

Steel is a vital component in the transition from traditional fossil fuel energy to renewable and alternative sources. In the UK, Tata Steel's materials are being used in some of the country's largest low-carbon energy projects. These are very demanding applications where quality is highly valued.

As well as providing the necessary infrastructure, our products are used in buildings and homes which can generate their own renewable energy, thereby helping to reduce carbon emissions and fuel poverty.

We are a partner in Swansea University's SPECIFIC Innovation and Knowledge Centre, which has a full-scale demonstration programme to prove innovative technologies that generate, store and release solar energy.

Case study: Dogger Bank Wind Farm

Hundreds of tonnes of Tata Steel products, able to endure the harshest North Sea conditions, are being used in the first two phases of Dogger Bank Wind Farm, the world's largest offshore windfarm, 130 km off the north-east coast of England. The giant windfarm project is due to be completed in 2026 when it will be capable of providing green energy for six million homes in the UK.

Applications for our products

- **Celsius®** structural hollow sections and **ComFlor® RoofDek** are being used in Hinckley Point C, the first in a new generation of nuclear power stations that will provide zero-carbon electricity for around six million homes.
- **Celsius®** hollow sections are widely used in structural steelwork in offshore windfarms around the world.
- **MagiZinc®** for solar panel frames, offering superior corrosion protection and extended life.
- **Colorcoat® High Reflect**, an internal liner with maximum reflectivity to reduce energy requirements.

Case study: Celsius

Wind power

Offshore wind power is a big success story for the UK, which is now a leading force in this technology. The country has the second largest fleet of offshore wind turbines of any country globally, and its immense growth here is set to continue. Offshore wind turbines use large amounts of steel, and our Celsius® premium structural hollow sections are playing their part in this renewables revolution. Celsius steel is valued for its properties which make it reliable in the harshest of environments. It can be found in most of the offshore windfarms around the UK, as well as in many off the coasts of Germany, Denmark, Netherlands and even Taiwan.

Decarbonising our own operations

We are assessing options that will enable us to make a step-change reduction in CO_2 emissions consistent with our commitment to carbon neutral steelmaking in 2045, which is five years ahead of UK Government's target of net zero by 2050.

In parallel with this assessment of future approaches, we remain focused on optimising our existing assets during their remaining lives. Most of the CO_2 emissions associated with the manufacture of our steel products occur at our integrated steelworks at Port Talbot, where iron ore and coal are brought together in the blast furnace process.

Tata Steel was a worldsteel (World Steel Association) Climate Action data provider in 2021 and 2022, a designation that recognises those steel producers that have fulfilled their commitment to participate in worldsteel's CO_2 emissions data collection programme.

Taking account of so-called Scope 1, 2 and 3 emissions, our Port Talbot steelworks emitted 2.18 tonnes of CO_2 for every tonne of steel produced (tCO_2/tcs). This places Port Talbot in the top third of the most CO_2 efficient integrated steelworks around the world operated by companies providing data to worldsteel and compares with an average for all participating steelworks of 2.32 tCO_2/tcs for 2021, the last year for which worldsteel has published data.

Over the course of 2022/23 we have achieved significant reductions in CO_2 emissions in upstream iron- and steelmaking through various improvement and optimisation projects. These include three key schemes at Port Talbot:

- A £23 million programme to upgrade the burners in three of the seven blast furnace stoves with the best available technology, along with the replacement of refractory bricks, will result in savings of around 160,000 tonnes of CO_2 a year.

- Optimised blast furnace performance through the introduction of 'Topscan' technology. This cutting-edge digital technique captures 1,000 data points every 10 seconds, allowing precision understanding of the distribution of raw materials in the furnace and yielding savings of up 50,000 tonnes of CO_2 per year.

- Enhanced gas utilisation at the basic oxygen steelmaking plant. This tops up the site's native gases only when required, so minimising the consumption of imported gas, with savings of up to 10,000 tonnes of CO_2 per year.

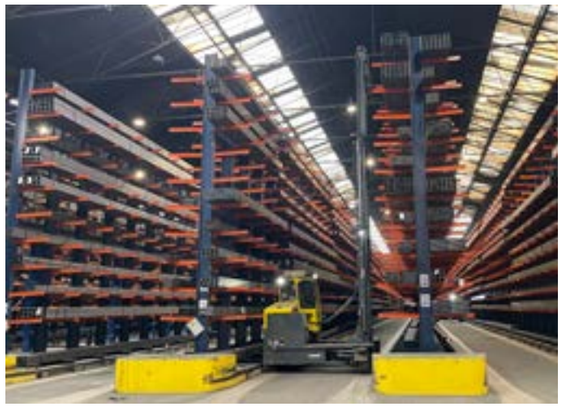
While reducing CO_2 emissions is the primary focus, energy optimisation remains a priority even where renewable energy is used. An example of this is the implementation of LED lighting across the Shotton site.

Whilst our operations are already very efficient, and opportunities for further improvements are becoming progressively smaller, we remain committed to making marginal gains wherever the opportunity arises to do so.

We have used a process optimisation tool called the energy efficiency 'wave' approach which systematically targets energy efficiency opportunities at our main operations. We have also developed MoniCA, a steel industry monitoring and benchmarking tool for energy and CO_2 emissions from our processes. We are part of the UK's Energy Saving Opportunities Scheme (ESOS) and have fulfilled our obligations under this regime by delivering a rolling programme of audit and assessment.

We have instituted a robust governance process to identify new opportunities and to drive project execution.

One of our biggest energy efficiency opportunities concerns the power plant at Port Talbot, where process gases from the steelworks are combusted to produce heat and power to send back to the processes. In autumn 2021, we commissioned a new 30MWe steam turbine, which increased the electricity generated from the site through increased capacity and efficiency. The additional electricity generated reduces the amount of electricity taken from the national grid, equivalent to a saving of over 40,000 tonnes of CO_2 per annum.



Investments at Corby

In March 2023, we announced that we are investing £5 million in electric induction furnaces at our Corby site. This will reduce emissions by at least 2,000 tonnes of CO_2 a year. The line produces the premium branded Celsius® sections, and the emissions saving comes from the new furnaces' improved efficiency. The electricity supply will also be moved to low-carbon, renewable sources. A further £4 million investment is creating a storage and distribution facility that will improve safety and stock accuracy. Its added efficiency will reduce emissions by saving steel movements.

We are currently commissioning an innovative system in the reheating furnaces at the Port Talbot hot rolling mill which uses lasers to measure the efficiency of fuel combustion, with a view to substantially optimising fuel rates and therefore emissions.

Where opportunities arise to do so, we are implementing electrification schemes to reduce our direct emissions. One such example has been the installation of electric ovens to replace natural gas burners for heating refractory nozzles at our Port Talbot site.

In the past three years, we have conducted a number of other large schemes for waste heat recovery, fuel switching and higher recycling rates at our plants. A number of these projects come at a very high cost. We are seeking to access UK and Welsh Government support funds for projects linked to energy efficiency, carbon reduction and circular economy, for example, the UK Government's Industrial Energy Transformation Fund, to be able to realise these opportunities and ensure a sustainable business.

Through RECTIFI, a collaborative project with European Metal Recycling, Darlow Lloyd and Swansea University, we are investigating options to increase the proportion of steel scrap we use at Port Talbot. Supported by grant funding from UK Research and Innovation as part of the Transforming Foundation Industries Challenge, this will involve investment of over £10 million to create an innovative new circular supply chain for high-grade recycled steel and sustainable alternative raw materials for cement production. RECTIFI has the potential to avoid almost five million tonnes of CO_2 equivalent from entering the earth's atmosphere each year.

We are also engaged in development of novel technologies. Within the I-ThERM project, we are working with technology providers and academics to overcome some of the existing barriers to cost effective waste heat recovery and have conducted a demonstration trial at our site in Port Talbot.

We are engaging with renewable energy providers to explore opportunities for renewable electricity at our UK sites.

Steel in the circular economy

A circular economy aims to reduce waste by moving away from a linear take-make-dispose system to one where a product maintains its value when it reaches the end of its useful life. Steel is ideal within a circular economy because it is not only 100% recyclable, but also durable and flexible, providing many opportunities for reuse and extending product life.

Recycling

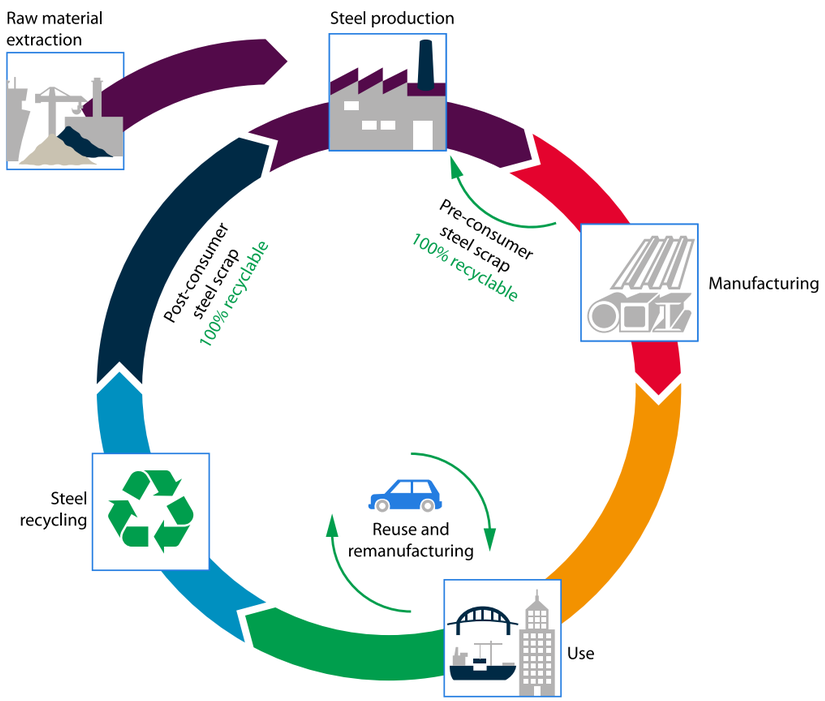
Steel can be recycled over and over again within a closed material loop. The magnetic property of steel means that it can be recovered from almost any waste stream, and its high scrap value makes recycling economically viable, which is why steel is the most recycled material in the world. Recycling rates are frequently over 90% in sectors such as automotive, engineering and construction. In the packaging sector, the recycling rate for steel packaging has increased year-on-year and has now reached 85% in Europe.

Despite its high recycling rates, the demand for steel is greater than the availability of steel scrap globally. This means that for the foreseeable future, the world will still need to produce new steel to satisfy the needs of society, and not all steel products are able to be produced with a high recycled content. We optimise scrap usage within our processes and support initiatives to further increase the recycling rates of steel.

Recycling infrastructure

Every steel plant is a recycling plant, and all steel is fully recyclable. Tata Steel has been instrumental in setting up the national infrastructure to create an end market in the UK for steel packaging at the end of its life. All local authorities now collect steel packaging at the kerbside, contributing to the UK's high recycling rates for packaging steel and demonstrating that steel is a sustainable packaging material as well as providing valuable feedstock for our furnaces.

Extended Producer Responsibility (EPR) will see the full cost of managing household waste shift to producers, in the hope of delivering a more circular economy for packaging where greater quantities of recyclable waste are reprocessed into valuable, high-quality secondary resources. Revised EPR legislation targets have been confirmed at 85% for steel packaging by 2030. The EPR fees that obligated businesses must pay will increase or decrease depending on the recyclability of the packaging they place onto the market. These eco-modulation fees mean that those using difficult-to-recycle, not recycled, or unrecyclable packaging, will likely see higher costs associated with complying with the reformed Packaging Waste Regulations. As steel packaging achieves a high recycling rate, we are expecting to see low modulated fees placed on the material we produce.



Case study: Seismic

We are partners in Seismic II, a demonstrator project that uses modern methods of construction (MMC) to make construction more streamlined by using offsite production processes. It examines how components such as the steel frame can be reused and looks at the whole life performance of a building. With a focus on the public sector, it builds on the success of Seismic I, which showed how a standardised light steel frame could change the way new schools were designed and constructed. Seismic II encompasses the production of wall, floor, ceiling and roof components that are all completely interoperable with the standardised light steel frame. The completed demonstrator building is a template for high performance buildings of all types, delivered using high quality, reliable, standardised components. While construction steel is regularly recycled now, with nearly all being recycled following demolition, its reuse is still being explored by projects such as this. Reuse of construction materials could lead to a reduction of 22.3 million tonnes of CO_2 (source: The Alliance for Sustainable Building Products) between 2023 and 2034. It is possible, through the development of sophisticated traceability and tracking, that the end-of-life reuse rate for the steel frame will be between 80% to 95%, saving the carbon emissions and costs associated with using new steel.

Reuse

Steel's durability makes it highly suitable for applications involving reuse. In the transition to a circular economy, designing-in reuse will become increasingly important, and this is already beginning to happen.

In construction, a built-in plan to reuse or recycle components avoids waste and delivers a lower environmental impact. We are enabling our durable steel products to be more easily reused at the end of a building's useful life by providing accompanying data so that all details of a component's provenance can be traced, giving future users information about the grade of the material, its chemical composition and other aspects that make identification more efficient and economic.

Our products also allow the creation of 'active' buildings, which use steel to help generate power as well as heating and cooling solutions with zero emissions.

Reduce

Reducing consumption is another key pillar of the circular economy and we can do this by improving the efficiency of our material. In the automotive industry, precision-pressed tailor-welded blanks can join together steels with different chemistry, grade or coating prior to being press-formed into the final part. This technique reduces the number of parts to be tooled, saving energy. It also enhances yield and reduces waste from splitting, as well as allowing thinner gauge, lighter-weight materials to be used where possible.

New product development

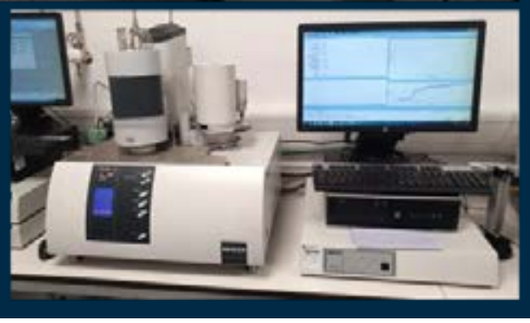
Providing sustainable solutions continues to be at the heart of our new product development. During the period we launched 18 new products (five in 2021/22 and 13 in 2022/23) for the tubes, solar and construction sectors, many of them, including MagiZinc and Carbon Lite, with significant sustainable attributes, such as making them longer-lasting and providing product performance guarantees.

Sustainability profiler

Our industry-leading sustainability assessment profiler helps us evaluate our new product development portfolio by considering environmental, social, and economic issues over the complete product life cycle. The profiler guides our teams at each stage of product development, alerting them to key sustainability issues and trends, tracking progress, and identifying value-creating sustainable product attributes. The profiler has been recognised by the World Steel Association and in 2021, it won a Tata global Innovista award for innovation.

Case study – Rapid Alloy Prototyping

We have been working with Swansea University's Materials Advanced Characterisation Centre (MACH1) and its joint Prosperity Partnership with Warwick University – which aims to speed up development time for new strip steel grades – to develop Rapid Alloy Prototyping (RAP), a way of producing and testing samples of synthetic alloys. RAP replicates the steelmaking process at a lab scale as a faster way of gaining results, allowing research into residual elements and nitrogen in high and low alloy steels: vital areas of research in moving towards less carbon-intensive steelmaking.



Responsible supply chains

Tata Steel and our suppliers are interdependent. We recognise that mutually beneficial relationships enhance our ability both to be sustainable and to create value for our customers, for society and for our investors.

Our customers increasingly want to understand more about the sustainability of the supply chain behind the steel they buy. Governments, NGOs, financial institutions, the media and consumers are also demanding increased supply chain transparency.

Tata Steel has a responsible sourcing policy that aims to encourage all suppliers to share our commitment to embedding sustainable business practices. It applies to all goods and services from our immediate suppliers and their own supply chains. Responsible sourcing generates a systematic evaluation of the entire supply chain, and we are determined to collaborate with our suppliers to help them continuously improve.

We have enhanced our onboarding process for suppliers to identify and evaluate risks. Suppliers must declare their commitment to our responsible sourcing policy and supplier code of conduct, abiding by our ethical, social, safety, and security standards for transparency and long-term business relationships. If a risk is identified, we will ensure evaluation and subsequent risk assessment is undertaken.

OECD guidance

As part of a worldwide project led by our parent company in India, we have embraced the Organisation for Economic Co-operation and Development (OECD)'s due diligence guidance for responsible business conduct to drive supply chain transparency, adherence to laws and regulations, minimum standards and continuous improvement.

We use OECD reporting on risk identification, assessment and mitigation to engage with iron ore, coal and process material suppliers. As well as assessing quality, business integrity and health and safety, we are working with these suppliers to understand their impact on indigenous peoples, and how they are managing environmental aspects such as tailings (mining residues), biodiversity and protected forests.

Conflict minerals

Tata Steel supports the overarching goal of Section 1502 of the US Dodd Frank act, to identify and ultimately discourage the use of minerals and their derivatives mined in conflict zones, especially the Democratic Republic of the Congo (DRC) and adjacent countries. These minerals include tin, an important raw material for our packaging steels. We never knowingly purchase tin from the Democratic Republic of Congo.

Tata Steel is a member of the OECD pilot working on guidance for minerals from conflict areas and the International Tin Research Institute's Tin Supply Chain Initiative to assist companies with traceability and audit requirements when purchasing minerals from high risk areas. We are also a member of the Responsible Minerals Initiative which offers an independent, third-party verification of suppliers' systems to ensure they are in line with global standards.

Product sustainability standard

We hold BES6001 certification for all products manufactured in the UK, covering 14 different product groups produced at seven manufacturing locations across the country. BES6001 is a product sustainability standard comprising a series of requirements for products and the organisations making them. These requirements cover CO_2 emissions, environmental protection, energy use, community engagement, business ethics, employment and skills. The standard requires that the constituents in certified products can be traced back to their source of extraction, and that high levels of responsibility are evident within the supply chain. Certification is particularly important in construction sector public procurement.

BES 6001 Responsible Sourcing

Our responsible sourcing policy principles

Health and safety – we expect our suppliers to adopt management practices which provide a high safeguarding level for their workers.

Fair business practices – the Tata Code of Conduct outlines the ethical standards and fair business practices by which Tata Steel conducts its business and we expect our suppliers to adopt similar principles.

Environmental protection – we expect suppliers to maintain effective policies, processes and procedures to manage their environmental impact.

Human rights – we expect our suppliers to develop and implement policies and procedures to promote and protect human rights in their business and to encourage their suppliers to do likewise.

Local community development – we expect our suppliers to contribute to the social, economic and institutional development of the communities in which they operate.

Onsite diesel vehicles at Shotton are now fuelled by HVO.

Procurement initiatives

Following a review of our diesel use across our UK operations, we have switched to hydrotreated vegetable oil (HVO). This is made from recycled and renewable sources and reduces harmful emissions by up to 90% versus traditional diesel. In the next year, HVO will replace diesel in vehicles delivering to customers and on trains between our sites.

FUELLED BY HVO

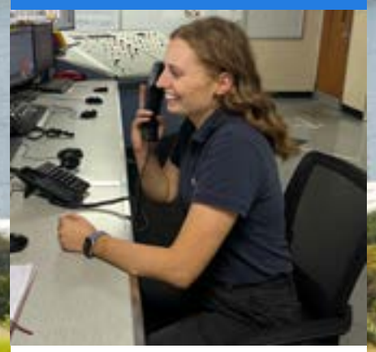
We have changed how we purchase the hydrochloric acid and sulphuric acid that we use for steel pickling. This comes from other industries as co- or by-products, and we now buy 'reduced spec' rather than virgin product, both saving it from going to landfill and reducing carbon.

Where possible we take deliveries in bulk to reduce packaging and road transport. In an ongoing project with Shell, we have installed several new tanks on our sites so we can reduce packaging waste.

ENVIRONMENTAL MANAGEMENT

We are committed to minimising the environmental impact of our operations and products through the adoption of sustainable practices and continuous improvement in environmental performance. This commitment is set out in our environmental policy and implemented through our environmental management framework which requires that all our manufacturing sites be independently certified as meeting the international environmental management system standard, ISO 14001:2015.

I WORK HERE



Jessica Williams, Specialist Operator, Port Talbot

I started in September 2019 as a Manufacturing Higher Apprentice. I'm responsible for controlling all operations for Blast Furnace No 4, including charging, cooling and hot blast systems.

How does your work contribute to making Tata Steel more sustainable?

We re-use on-site gases, reducing the amount of natural gas needed. I ensure revert material such as e-scrap and hot mill sludge pellets is always available to use. The furnace is set up to run efficiently and minimise wasted energy and high running costs.

Environmental policy and performance

We continue to pursue targeted investment in environmental control technology to achieve reductions in its environmental impact.

In June 2021, we commissioned a new emissions control unit at our Port Talbot sinter plant after an investment of more than £20 million in new filtration systems. This is now delivering a substantially reduced level of particulate emissions.

We are using a wide range of measures to ensure that we don't have an adverse impact on local air quality in Port Talbot. We have instituted a measurement network around our site and invested in data management and modelling software.

During the reporting period, emissions to air were reduced by, for example, the installation of a bag filter at the sinter plant in mid-2021, as mentioned above, and the use of coking coals with a lower sulphur content.

However, despite our efforts, we have noted an increase in the number of complaints received from members of the public in 2022/23, specifically regarding concerns about odour, noise, and dust. These concerns arose due to a few blast furnace stability issues, and we acknowledge the impact they had on the local community.

In response to the complaints, we have closely examined our processes and operations to ensure compliance with applicable regulations. We remain committed to actively monitoring and controlling our emissions, taking necessary steps to meet and beat regulatory requirements.

We value the feedback received from the local community and take their concerns seriously. We are actively working on improving our complaint management process to ensure timely and effective resolution of issues raised by the public. By fostering open lines of communication, we aim to strengthen our relationship with the community and address their environmental concerns more effectively.

We always have, and always will, deeply value the wellbeing and prosperity of everyone who forms a part of the communities in which we operate, and our commitment to reducing the environmental impact of our operations remains resolute.

Resource efficiency

The importance of resource efficiency continues to become more urgent. The world needs to move to a more circular model of consumption and reduce its reliance on finite raw materials. We are already playing an important role in the transition to a circular economy through the products we make (*see previous section*) but we also need to ensure that we use resources responsibly within our own processes. This helps to reduce the strain on ecological systems but also makes sound business sense. We have made substantial strides over recent years towards zero landfill and optimised resource utilisation at our sites.

Biodiversity

Tata Steel is guardian to large areas of natural habitat including several Sites of Special Scientific Interest (SSSIs). In addition to meeting our responsibilities for protected sites, where opportunities arise to do so, we also look for ways to encourage biodiversity on other land-holdings and thereby contribute to protecting the natural heritage of the UK's landscape.

Case study – Shotton sustainability commitment

Our Shotton site in North Wales has been producing steel products for over 125 years and pre-finished steel for over 50 years.

The Shotton sustainability commitment, launched in 2022, builds on decades of effort, uniting the activities already started and establishing these principles further within operations so that the Shotton site can provide a positive environmental legacy. The holistic approach to sustainability covers four key themes of sustainable development, giving a clear focus for all business decisions made today, and in the future:

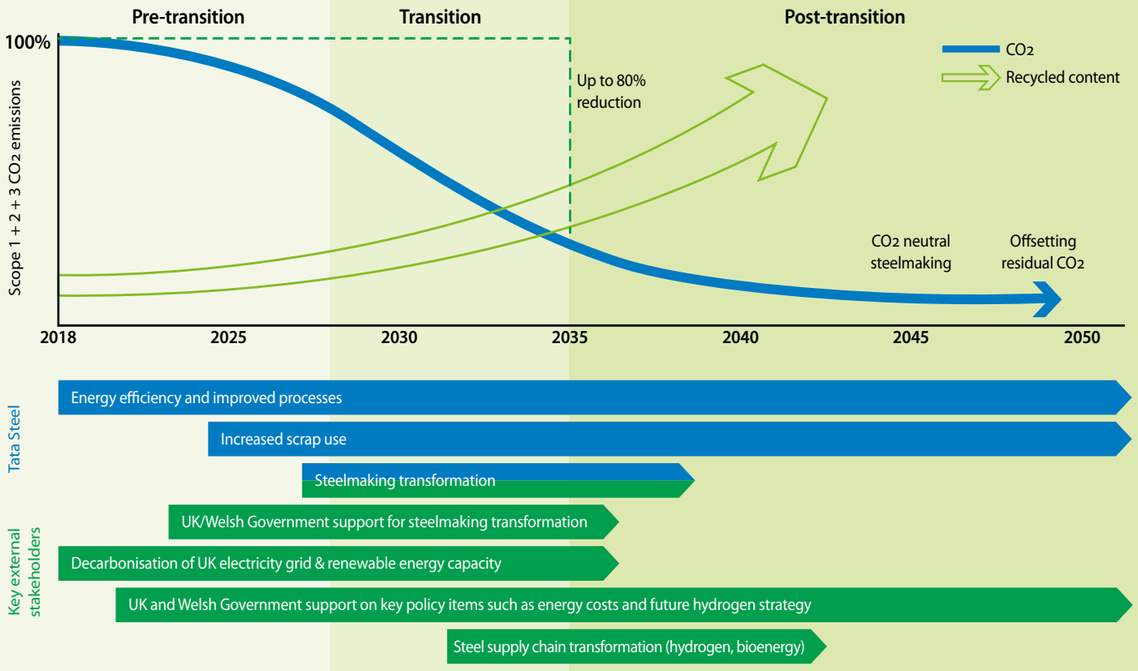
1. Reducing the site's carbon footprint.
2. Developing and producing products and services that support sustainable construction.
3. Protecting and expanding the biodiversity that co-exists on the site.
4. Maximising material efficiency and achieving zero on-site waste.

The Shotton site is situated next to a protected wetland, where our efforts in preserving our natural environment have been recognised for many years, starting with a Prince of Wales Award for Conservation back in 1971.

CLIMATE ACTION

Roadmap to 2045 and our future options

Our roadmap to CO_2 neutral steelmaking



Successful implementation of our roadmap requires appropriate government support including through policies and frameworks

We have committed to achieving carbon neutrality of our steelmaking by 2045.

In the past year, as our plans have become more detailed, we have brought forward the target date for our steelmaking to achieve carbon neutrality to 2045, in line with Tata group targets. We have branded our Tata Steel UK decarbonisation journey Optemis.

Optemis is our journey towards a carbon-neutral, circular world and our ambition to become a carbon neutral steelmaker by 2045.

While the critical role of steel in helping to build the net zero world of the future is clear – renewable energy projects, electric vehicles and sustainable buildings to name just a few – we recognise the current steelmaking process creates substantial CO_2 emissions.

Tata Steel's UK business is committed to reducing its emissions, with the ambition of achieving CO_2-neutral steelmaking by 2045 and achieving at least a 30% reduction in CO_2 emissions by 2030 (compared to 2018 levels) and up to 80% reduction in CO_2 emissions by 2035. To achieve this we are looking at a range of technology options and are in detailed discussions with the UK Government.

To reach carbon neutrality by 2045 we have to fundamentally transform our iron and steel production processes which will take a number of years to complete. In the meantime we are working on a number of projects to make reductions in CO_2 emissions. Each of these will help us to further reduce our carbon emissions.

The challenge of meeting society's demands for net-zero carbon steelmaking is huge. But our company has a long history of meeting such challenges in a responsible way and we believe passionately in steel's vital role in society's low-carbon future.

Optemis™
A brighter, greener future

Science-based targets

Tata Steel UK's Chief Commercial Officer, Anil Jhanji, announced that we are to formally adopt Science Based Targets (SBTi) for our programme of emission reductions and net zero aspirations:

"We are on a journey to decarbonise, to make a better world for the future. Our commitments to SBTi and ResponsibleSteel certification are a clear statement to the world and to our customers that we mean business. This will include decarbonising every aspect of our business from our procurement of raw materials and energy to our iron and steelmaking at Port Talbot and our downstream coating, tube-making and further processing operations, through to our logistics.

"We have always valued collaborations with our customers, suppliers and academic experts, as well as independent bodies and groups. It is important that we continue on our journey to reach net-zero carbon by 2045 in a validated way, measuring our progress according to robust and agreed measurement processes. We firmly believe these partnerships will help us achieve our goals."

In pursuit of our carbon neutrality target, we have for several years been actively exploring a number of possible options which could be used to decarbonise our operations whilst meeting the needs of our customers who, whilst increasingly requiring low-CO_2 steel supply, cannot sacrifice quality or integrity as they make and supply the very products which are needed to create the net zero future.

We're now at the stage where we are beginning detailed feasibility work on some of these step-change technology options. Across the developed world there is a growing recognition that steelmakers need government support to decarbonise. Steelmakers and governments in a number

of countries are working together to develop their decarbonisation plans. A final decision on the approach is not just about selecting suitable technology: we will only know our exact path when we have more confidence that we can access the right energy supplies and infrastructure at a competitive price, agree the appropriate support from the UK Government, and have a competitive regulatory environment. To this end we have been involved in detailed engagement with the UK and Welsh Governments on these complex themes.

To remain sustainable and competitive, Tata Steel in the UK will need government support. We are all in a race to net zero emissions, but with expensive assets that last for decades and require connection to outside infrastructure, we need answers to important questions about energy, infrastructure and future policy before we can commit to a particular technological option for decarbonising our steelmaking.

Our decarbonisation journey is described in the diagram opposite which brings together the anticipated trajectory of decarbonisation with the essential need for clarity on policy, energy and infrastructure from UK and Welsh governments. Most notably, our planned transition pathway can achieve up to 80% reduction in CO_2 emissions by 2035.

Active leadership and external collaboration

We were instrumental in the formation of the South Wales Industrial Cluster (SWIC). This region accounts for the equivalent of 16 million tonnes of CO_2 emissions per year. The collaboration allows multiple industries to come together, to share knowledge and expertise with a common goal of reaching net zero. The focus of the group is to identify the best pathway to net zero, develop technology solutions and create the necessary future skilled workforce. Government and industry have contributed co-funding of nearly £40 million in order to achieve this aim.

SWIC
SOUTH WALES INDUSTRIAL CLUSTER

We are working with academic partners to address a number of sustainability challenges:

- We have been engaged in a collaboration with The University of South Wales on the carbon utilisation project COACE, from an initial concept and PhD, right through to industrial demonstration and securing funding of over £2.5 million. The process uses biological fermentation to generate acetates, a high value chemical, from waste carbon sources.
- Project MESH is led by Swansea University and is focused on the thermochemical storage of heat. Researchers are investigating the feasibility of storing surplus process heat from the South Wales steelmaking operations.
- We are supporting researchers at Swansea, Sheffield and Warwick Universities with the project SUSTAIN. This £35 million research programme aims to support the steel industry, developing environmentally sustainable solutions to ensure the future of manufacturing in the UK.
- Project COZMOS is a collaboration across multiple industries to recognise the value in carbon utilisation in which we are leading on life cycle assessment methodologies and techno-economic analysis.

In parallel with our assessment of future approaches to achieve a step-change reduction in our emissions, we remain focused on optimising our existing assets during their remaining lives and on future-proofing our investments.

Decarbonisation will be vital for our future in the UK and the thousands of people we employ, as well as the thousands of customers we supply. The challenge of meeting ever-more demanding customer expectations while committing to a path towards net zero carbon steelmaking is huge. Our company has a long history of meeting such challenges, whilst retaining its values and believing passionately in the industry's vital role in society's future.

KEY PERFORMANCE DATA

Tata Steel's UK business

Key Performance Indicator	Units	FY 18/19	FY 19/20	FY 20/21	FY 21/22	FY 22/23
Performance						
Crude steel production	million tonnes	3.13	3.38	3.27	3.40	2.93
Liquid steel production	million tonnes	3.22	3.48	3.35	3.50	3.02
Calendar year		**2018**	**2019**	**2020**	**2021**	**2022**
Crude steel production	million tonnes	3.09	3.39	3.25	3.54	2.93
Liquid steel production	million tonnes	3.17	3.49	3.33	3.64	3.02
Health and safety						
Fatalities	—	0	2	0	0	1
Lost-time injury rate – total	per million hours worked	1.24	2.06	1.97	2.35	3.03
Lost-time injury rate – employee	per million hours worked	1.13	2.25	1.93	2.10	3.29
Lost-time injury rate – contractor	per million hours worked	1.61	1.43	2.10	3.17	2.24
Recordables (total)	—	84	80	79	74	84
Recordables (employees)	—	60	62	57	50	65
Recordables (contractors)	—	24	18	22	24	19
Sickness absence rate	%	4.1	4.4	3.5	4.9	4.95
Climate change[1]						
Crude steel production	million tonnes	3.10	3.38	3.27	3.40	2.93
Steel recycled – total	1,000 tonnes	531	497	554	596	472
External steel recycled	1,000 tonnes	133	117	167	179	106
Internal steel recycled[2]	1,000 tonnes	399	379	387	417	366
CO_2 saved from external steel recycled[2]	1,000 tonnes	222	195	278	298	176
Energy intensity per tonne crude steel (tcs)	GJ/tcs	24.2	23.8	22.8	23.1	23.3
CO_2 emission – (audited UK ETS emissions)[3]	million tonnes	5.81	6.43	6.07	6.64	5.67
CO_2 emissions – total (ws scope 1+2+3)[4]	million tonnes	6.92	7.51	6.99	7.33	6.69
Carbon intensity in tonnes of CO_2 per tonne of crude steel	t/tcs	2.21	2.22	2.14	2.16	2.18
Resources, emissions and waste[5]						
Dust (PM)[6]	tonnes	1,961	1,936	2,231	1,960	1,704
	kg/tcs	0.64	0.57	0.69	0.55	0.58
NOx (oxides of nitrogen)	tonnes	3,842	4,834	5,140	5,054	4,341
	kg/tcs	1.24	1.43	1.58	1.43	1.48
SO_2 (sulphur dioxide)	tonnes	7,065	7,090	6,614	4,956	4,784
	kg/tcs	2.29	2.10	2.04	1.40	1.63
Mass emissions to water, hydrocarbons	tonnes	66	66	51	45	52
Mass emissions to water, suspended solids	tonnes	1,528	1,530	487	508	681
Material re-used through our process (excluding scrap steel)	1,000 tonnes	233	300	557	893	420
Volume of by-products sold (excluding granulated blast furnace slag (GBS))	1,000 tonnes	641	561	606	552	464

Key Performance Indicator	Units	FY 18/19	FY 19/20	FY 20/21	FY 21/22	FY 22/23
Resources, emissions and waste[5] continued						
Slag to cement industry (i.e. GBS sales)	1,000 tonnes	686	818	781	703	773
Waste generated	1,000 tonnes	320	240	363	193	321
Waste – material reused, recycled by third parties	1,000 tonnes	297	223	356	184	315
Waste – material disposed to landfill	1,000 tonnes	30	17	7	9	6
Fresh water consumption	m^3/tcs	6.03	6.53	5.94	8.7	9.82
	million m^3	18.6	22.1	19.3	30.8	28.8
Environmental complaints[7]	—	779	1,274	481	207	458
People[8]						
Number of employees	—	8,620	8,113	7,496	8,182	8,320
Number of new hires	—	826	354	302	697	869
Number of new hires by gender	#M/#F	731/95	288/66	276/26	648/49	747/122
Number of retirements	—	221	294	203	249	206
Average age	—	43	43	44	44	43
Employees over the age of 50	—	2,877	2,817	3,208	3,314	3,594
Total turnover rate	%	7.5	10.2	5.5	6.6	6.5
Percentage of female employees	%	10.7	11.0	10.8	10.7	10.8
Percentage managers that are female	%	19.1	20.0	18.6	14.2	18.2
Number of hours training per employee	hrs/employee	21.6	15.4	N/A[9]	16.9	19.7
% of staff development appraisal	%	71	N/A	85	37	74
Community						
Number of applications for financial or in-kind support received	—	184	101	64	69	185
Number of applications for financial or in-kind support approved	—	56	54	41	44	58
Number of youngsters attending Tata Kids of Steel events	—	2,700	2,800	0[10]	0[10]	2,214
Number of Tata Kids of Steel events	—	3	3	0[10]	0[10]	2

NOTES:

1. These data relate only to the primary steelmaking operations at Port Talbot except where stated otherwise..
2. Internal scrap equates to 'home scrap' according to the worldsteel definition. The CO_2 saved from the recycling of external steel scrap (i.e. steel products recovered at their end-of-life) is based on a calculation of the avoided emissions related to the making of an equivalent amount of iron from virgin ore via the blast furnace route.
3. Direct emissions scope 1: formal and audited emissions according to ETS. These figures relate to calendar years (i.e. the figure in column FY2022/23 is for calendar year 2022 etc.).
4. Total (scope 1+2+3): based on methodology of worldsteel, excluding credits for slag delivery to cement industry.
5. These data relate only to the primary steelmaking operations at Port Talbot except where stated otherwise. Note that emissions data relate to calendar years (i.e. the figure in the column 2022/23 is for calendar year 2022 etc.) to retain consistency with data reported to public authorities
6. Emission figures are estimates based on spot measurements and emission factors.
7. Complaints for all activities in Tata Steel's UK business.
8. These data relate to UK-based staff employed by Tata Steel's UK business, who collectively account for over 97% of the total employees of Tata Steel's UK business.
9. No data available as Covid restrictions severely hampered training opportunities during FY2020/21.
10. As a result of Covid restrictions it was not possible to run Tata Kids of Steel events during FY2020/21 or FY2021/22.

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