UK STEEL – SUBMISSION TO THE STEEL STRATEGY: THE PLAN FOR STEEL

Date: 31st March 2025
To: steelstrategy@businessandtrade.gov.uk

About UK Steel

UK Steel, a division of Make UK, is the trade association for the UK steel industry. It represents all the country's steelmakers and a large number of downstream steel processors.

Submission to the steel strategy: the plan for steel

1. What are the strengths of the UK steel sector and the biggest challenges it faces?

Britain has a long and proud history of steelmaking, and today, the industry supports over 34,000 jobs and world-class British manufacturing. The country is in a prime position to lead the world in Net Zero steelmaking as the UK sits on an abundance of steel scrap resources critical to the circular economy.

Steel is a foundation industry, literally the building block of our society, feeding into everything from construction to transport, critical national infrastructure, defence, energy pipelines, wind turbines, household goods, food packaging, and medical, industrial, and agricultural equipment. Steel is the bedrock of the UK's supply chains and is fundamental to the future of the UK economy, our economic resilience and national security. The industry supports thousands of jobs and communities both directly and indirectly along the supply chain, particularly in Wales and the North East of England.

Steel is also central to any ambition to decarbonise the UK economy – a meaningful decarbonisation, not through deindustrialisation and offshoring emissions, but by actually taking responsibility for the emissions of our steel consumption. With its infinite recyclability, steel is an essential component of a circular economy, generating thousands of green jobs and powering the decarbonisation of other sectors, too. It is used in every single technology that a green economy relies on, from wind turbines and solar panels to electric vehicles and hydrogen infrastructure.

The UK is in a prime position to lead the world on Net Zero steel and grow the green economy by tapping into its strengths and resources. Not only is the UK already leading the way on renewable energy and boasting world-class research and innovation, but it also has abundant access to a critical resource, steel scrap, which has a central role to play in the steel sector's decarbonisation journey. In addition to the obvious widespread economic and environmental benefits of steelmaking in the UK, access to a key raw material further enhances the business case for UK steel production as we transition to increasingly electric scrap-based processes.

Despite the clear advantages of a strong steel sector, an uncompetitive UK business environment marked by persistently high electricity prices has meant that UK steel plants have failed to attract the necessary investment from their internationally owned parent companies. Combined with the unprecedented growth in Chinese steel production fuelled by state subsidies, it has become increasingly difficult to compete in a global market for steel riddled with distortions and excess steelmaking capacity. The landscape remains challenging for the UK steel sector amid a weak economic climate and lack of a clear operating framework that will ensure a competitive business landscape and a level playing field with our competitors.

The link between economic growth and manufacturing output is well established, and steel sits at the foundation of a large proportion of manufacturing activity. Nearly every economy in the G20 boasts a strong steel sector, which is a testament to the important role it plays as the bedrock of a strong economy. Governments worldwide recognise the strategic importance of their steel industries in driving economic growth, productivity and resilience and take the necessary actions to support their domestic sectors when needed.

Steel is a highly internationally traded product – 43% of all steel produced globally crosses borders when excluding China – and the competitive landscape is often challenged by a variety of subsidies,

tariffs, trade defence measures, energy costs and environmental regulations. The much sought-after level playing field is, therefore, often a moving target and steel industries in countries where government plays a less active role in industrial policy are often at a disadvantage. In many countries, however, governments recognise that they need to actively provide the right business environment for their steel industries and see this as a sound investment in order to strengthen their economies.

Particularly as the world becomes increasingly fragmented, it is more than ever vitally important to have strong domestic foundation industries and access to critical materials. From rare earths and semiconductors to battery gigafactories and energy, there is an increasing realisation that supply chains are exposed and have become overly dependent on few sources. While some of these newer industries have more hype around them today, they still depend on and are highly interlinked to the more traditional foundation industries such as steel. Traditional does not mean outdated – steel and wider manufacturing drive considerable technological advances and innovation, supporting skills and economic growth.

The UK remains the 12th largest manufacturing nation in the world, with an annual output of £217 billion. And yet it is only the 35th largest steel-producing country, dropping in its ranking from 18th over the last decade. The UK is an outlier in terms of its steel production relative to the size of its economy and relative to the size of its manufacturing base, which creates significant risks for its economic resilience. France, which is comparable to the UK in terms of GDP, population, and size of manufacturing sector, produces more than double the amount of steel. The UK's steel production has contracted at one of the fastest rates in the world over the last 50 years, second only to Venezuela. If the steel industry in the UK were to continue to contract, the UK would be unique in being by far the largest economy and steel consumer to be almost completely reliant on imports.

The UK steel sector possesses several inherent strengths in the current global landscape:

1. **Existing Production Capacity and Capability:** The UK maintains a steel production capacity with existing and new electric arc furnace (EAF) operations. This domestic production is crucial for ensuring resilient supply chains and acting independently as a sovereign nation. UK steel producers offer a wide array of steel products with different specifications.
2. **Skilled and High-Value Workforce:** The sector employs a substantial workforce, providing high-value, high-skill jobs across the UK, particularly in Wales, the Midlands, South Yorkshire, and the North East. The median wage in the steel sector significantly exceeds the national and regional averages, reflecting the skilled nature of the jobs. The industry invests in training hundreds of apprentices and employs thousands of graduates, contributing to the UK's research and innovation capacity.
3. **Contribution to the UK Economy and Balance of Trade:** The UK steel industry makes a significant direct contribution to the UK Gross Domestic Product (GDP) and supports further economic activity in its supply chains. It also contributes billions to the UK's balance of trade.
4. **High Recycling Rates and Circular Economy Potential:** Steel is endlessly recyclable without loss of properties, making it a cornerstone of the circular economy. The UK boasts high recovery and recycling rates for steel used in construction and infrastructure.
5. **Expertise in Electric Arc Furnace (EAF) Production and Green Steel Potential:** The UK has existing expertise in EAF steelmaking, a less carbon-intensive production route compared to traditional blast furnaces. With a significant domestic supply of steel scrap, the UK is well-positioned to lead the world in Net Zero steelmaking by expanding EAF capacity and utilising this resource. The transition to EAFs aligns with the UK's decarbonisation targets and offers a route to greener steel production powered by a low-carbon electricity mix.
6. **Established Supply Chains and Regional Clusters:** The UK has an existing supply chain with steel mills, fabricators, and ports located across the country, forming regional clusters of activity. This network provides a foundation for strengthening supply links and increasing domestic sourcing.
7. **Potential to Serve the Growing Offshore Wind Market:** The UK's significant offshore wind pipeline presents a substantial multi-billion-pound market for UK steel over the coming decades. UK fabricators have existing capabilities in secondary steel fabrication and fit-out for offshore wind components. The UK has existing capability and capacity to supply most of the steel requirements for rebar, tensioning strands, rolled and open sections, castings, forgings, welding materials, flux, and bolts. There is also a high capability for plate steel required for steel semi-subs, Tension Leg Platforms (TLPs), and anchors, which generally require smaller plate

dimensions. The UK has a comparative advantage in the supply and fabrication of anchors and moorings for floating offshore wind, building on its oil and gas expertise. UK producers have expertise in producing high-grade steel and technically challenging grades, which are crucial for sectors like defence, stainless steel, aerospace, critical infrastructure, and civil nuclear.

8. **Lower Carbon Footprint Compared to Global Average:** UK steel production, for both ore-based and scrap-based methods, generally has a lower carbon intensity compared to the global average, giving it a potential advantage in a carbon-conscious market.

Biggest Challenges Facing the UK Steel Sector:

1. **High Electricity Prices:** The UK steel sector faces significantly higher electricity prices compared to its main European competitors, particularly France and Germany. This price disparity, driven by a greater reliance on gas-fired power generation, limited interconnection capacity, and lower levels of state support, undermines the sector's global competitiveness, increases the risk of green investments, and hinders decarbonisation efforts, as EAF production is electricity-intensive. Wholesale electricity price uncertainty and potential price increases from proposed zonal pricing reforms add further instability.
2. **Intense Global Competition and Unfair Trade Practices:** The steel market is globally intensely competitive with thin profit margins. The UK steel sector faces significant challenges from state-subsidised excess capacity, particularly from China and increasingly from Southeast Asia and the Middle East, leading to underpriced imports and trade diversion. This oversupply depresses global steel prices, making it difficult for UK producers to compete fairly.
3. **Rising global fragmentation and protectionism:** Increasingly countries are becoming inward oriented and putting up barriers to trade. The recent US tariffs are the culmination of a trend that has been unfolding in recent years, with not only trade remedies measures sharply on the increase (e.g. EU, US, India, Brazil, South Africa, Vietnam, Malaysia, Egypt) but also MFN tariffs and import taxes on steel being put up across several countries, for example in Canada and across South America. The more markets restrict imports, the greater the trade diversion to exposed markets that do not protect themselves in the same way.
4. **Carbon Leakage Risks:** Differing carbon costs and climate regulations between the UK and other steel-producing nations create a significant risk of carbon leakage, where steel production and associated emissions shift to countries with less stringent regulations. The planned implementation of the UK Carbon Border Adjustment Mechanism (CBAM) in 2027, a year later than the EU's, exposes the UK market to trade diversion of high-emission steel. Concerns exist regarding the design and robustness of the proposed UK CBAM.
5. **High Import Penetration and Declining Domestic Market Share:** The UK experiences high import penetration for steel products, and the domestic market share has been declining. This trend is exacerbated by underpriced imports and the challenges faced by UK producers in a global market without free and fair competition.
6. **Supply Chain Vulnerabilities and Import Reliance for Specific Needs:** While the UK has a domestic steel industry, it still relies on imports for certain types of steel, in particular for our offshore wind and defence capabilities. This dependence can create vulnerabilities in supply chains at a time of increased global competition for specialised steel types and components.
7. **Competition for and Quality of Steel Scrap:** While the UK generates a significant amount of steel scrap, it currently exports a large proportion. Increased domestic and international demand for scrap due to the transition to EAF production will intensify competition for this resource, potentially driving up prices. Furthermore, the quality of domestically available scrap and the need for improved sorting and processing technologies pose challenges.
8. **Ensuring Public Procurement Supports Domestic Steel:** Despite Government efforts, ensuring that public procurement effectively prioritises and utilises UK-made steel remains a challenge. A more assertive and strategic approach to public procurement, and strong encouragement to private sector partners, is needed to maximise the benefits for the UK steel sector from publicly funded projects.
9. **Potential Trade Barriers with the European Union:** The lack of a linked Emissions Trading Scheme (ETS) between the UK and the EU, coupled with the implementation of the EU CBAM, could create trade barriers and additional costs for UK steel exports to its largest market. Divergences in carbon pricing mechanisms and CBAM implementation timelines could disadvantage UK steel producers.

10. **Impact of UK ETS Reforms:** The planned reforms to the UK ETS, including the removal of free allocations along with expected increases in carbon prices, will likely increase carbon costs for UK steel producers, further impacting their competitiveness if not addressed by effective carbon leakage protection measures.

These strengths and challenges highlight the complex and dynamic environment in which the UK steel sector operates. Addressing the challenges, particularly around energy costs, unfair competition, and carbon leakage, while leveraging the sector's strengths, will be crucial for its long-term sustainability and its ability to contribute to a resilient, low-carbon UK economy.

2. What do we need to have achieved in 5 years' time to be on track to deliver a successful and competitive steel sector in 2035, and what does this look like?

To be on track to deliver a successful and competitive UK steel sector by 2035, the Government needs to have achieved significant progress in several key areas within the next 5 years. This will lay the foundation for a thriving, decarbonised, and resilient industry. By 2035, a successful and competitive UK steel sector would likely look like this:

- Internationally competitive on cost: Industrial electricity prices aligned with or comparable to those of key European competitors like France and Germany. The sector would be operating on a level playing field regarding energy costs, allowing it to compete effectively in global markets.
- Robust trade defence: Stronger trade defence measures would be in place to adequately shield the UK from rising excess capacity, unfair trading practices and rising protectionism elsewhere. The trade remedies framework would also be reviewed to be more accessible and effective, as it is currently more restrictive than other trade remedies practices internationally. Considering the additional challenges posed by the new US trade policies, additional and urgent actions are needed.
- Protected from carbon leakage: With a fully implemented and robust Carbon Border Adjustment Mechanism (CBAM) operating in parallel with the EU's CBAM. This would ensure that imported steel faces equivalent carbon costs, creating a level playing field and preventing trade diversion. Any reduction of free allocations only occurred when the UK CBA was shown to be effective.
- A strong domestic market underpinned by public procurement with a clear and effectively implemented policy for public procurement that prioritises UK-made steel in major infrastructure and government-funded projects. Local content requirements or strong incentives for using UK steel would be embedded in contracts.
- Scrap policy supporting new EAF production: The UK scrap market is working in cooperation with the UK steel market to support the new EAF production. Increased levels of scrap are retained within the UK, and the scrap quality has risen.
- A decarbonised sector: Co-investment in Electric Arc Furnaces (EAFs) powered by a largely decarbonised electricity grid.

Specifically, within the next 5 years, the Government should aim to achieve:

- <u>Policy and Regulatory Framework:</u>
    - Achieve and maintain electricity price parity with key European competitors through increased network charge compensation (uplift to 90% exemption) and two-way CfD to provide competitive wholesale prices.
    - Replace steel safeguards with a long-term trade defence measure such as robust tariff-rate quotas. Review and reform the UK trade remedies framework to make it more accessible, quicker, and more effective for the steel industry to address unfair trade practices and overcapacity.
    - Strengthen the Public Procurement Note for Steel (PPN) to mandate consideration and justification for the non-use of UK-made steel, embed the UK Steel Digital Catalogue, and introduce clearer social and environmental value criteria that favour domestic low-carbon steel. Introduce local content requirements or strong incentives for the use of UK-made steel in strategically important sectors like energy (especially offshore wind) and defence procurement within WTO rules. It could even consider demand side measures, like a Steel Obligation, based on the Renewable Obligations template.

  - Fully implement a UK CBAM, including robust verification, export solution, strong default values, and enforcement mechanisms. Aim for mutual recognition with the EU CBAM.
  - Implement regulations to incentivise the retention and improve the quality of UK steel scrap, through restricting exports to countries with lower environmental standards, and providing incentives for domestic processing and sorting.
- Tangible Outcomes:
  - A level playing field in terms of costs and competition to underpin a thriving steel industry that will generate growth and well-paying jobs.
  - Increased domestic market share for UK steel producers in key sectors, particularly in publicly funded projects and the growing offshore wind market.
  - Increased levels of investment in the UK steel sector for modernisation, decarbonisation projects, and enhanced scrap processing capabilities.
  - A noticeable shift towards greater domestic retention and utilisation of high-quality steel scrap.

By achieving these milestones within the next 5 years, the Government will create the necessary conditions for the UK steel sector to be genuinely successful and competitive by 2035 – a sector that is decarbonised, resilient, provides high-value jobs and contributes significantly to the UK economy.

3. Which UK regions could benefit the most from the improvements in the UK steel industry, and which could feasibly capitalise on future opportunities in the sector, and why?

The steel sector plays a vital role in regional economic equality, providing well-paid, highly skilled jobs and bringing investment in Wales, the Midlands, South Yorkshire, and the North East of the UK. It is expected that these regions will also benefit from an improved business environment for the steel industry.

4. What can the steel sector do to support the wider growth objectives of the industrial strategy?

Everything in a modern economy is made of steel or made using steel. The UK steel industry is a strategic sector, central to supply chains, at the heart of Net Zero objectives and a circular economy, and key to our defence capability and wider national resilience. However, it is also essential to the Government's wider industrial strategy:

- Steel is a foundational industry, serving as a critical input across numerous downstream sectors. It plays a vital role in construction, transport, infrastructure, defence, energy, and manufacturing, amongst others[1].
- While the Industrial Strategy has identified advanced manufacturing as a key sector within the Industrial Strategy, it has left out foundation industries, such as steel, glass, chemicals, ceramics, and mineral products, which all support and are essential to advanced manufacturing. Particularly as the world becomes increasingly fragmented, it is more than ever vitally important to have strong domestic foundation industries and access to critical materials. From rare earths and semiconductors to battery gigafactories and energy, there is an increasing realisation that supply chains are exposed and have become overly dependent on few sources. While some of these newer industries have more hype around them today, they still depend on and are highly interlinked to the more traditional foundation industries such as steel. Traditional does not mean outdated – steel and broader manufacturing drive considerable technological advances and innovation, supporting skills and economic growth.
- Strengthening the UK's steel industry bolsters economic resilience and national security. Disruptions caused by the pandemic and the war in Ukraine demonstrated the importance of robust domestic supply chains. A strong domestic steel industry would shield critical sectors from global events and contribute to a more resilient economy. Without a homegrown steel industry, the UK's construction, energy, automotive, engineering and defence industries would be at the whim of global events.
- The link between economic growth and manufacturing output is well established, and steel sits at the foundation of a large proportion of manufacturing activity. Nearly every economy in the

[1] UK Steel, Why the UK need a Strong Steel Sector, 2024

G20 boasts a robust steel sector, which is a testament to the critical role it plays as the bedrock of a strong economy. Governments worldwide recognise the strategic importance of their steel industries in driving economic growth, productivity and resilience and take the necessary actions to support their domestic sectors when needed.

- The UK's steel industry contributes significantly to the economy and supports high-paying jobs, particularly in regions outside London and the South East. The £1.8bn direct and £2.4bn indirect contribution to GVA and, finally, £3.4bn contribution to the balance of trade demonstrate its economic importance. Prioritising steel aligns with the government's objective of improving regional economic equality.
- Steel is also crucial for achieving the UK's net-zero targets. It is a key material in renewable energy technologies and infrastructure and, therefore, plays a central role in decarbonising other sectors. The UK steel industry is committed to reducing its own emissions and achieving net-zero production, while the sector has committed to 80% carbon reduction by 2035.
- The UK has unique strengths in steel scrap, renewable energy, and innovation, which positions it to become a leader in green steelmaking. The UK generates significant amounts of steel scrap, a vital resource for low-carbon production methods, and has an abundance of renewable energy, which combined enhances the potential for green steelmaking.

5. What are the main financing gaps in the UK steel market?

While there are several financing gaps in the UK steel industry, the main barrier to the sector's success is the poor business environment (driven by uncompetitive electricity prices, global trade framework, poor public procurement, etc.). However, some noticeable financing gaps include:

- Energy Efficiency Upgrades: Investments in energy efficiency measures that could reduce operating costs and emissions often have long payback periods, making the business case challenging without financial support.
- Decarbonisation Investments: Significant capital expenditure is needed for the transition to low-carbon production methods like Electric Arc Furnaces (EAFs). Existing profit margins are thin, making it difficult for companies to fund these large-scale investments independently.
- Scrap Processing Infrastructure: Investment is needed to improve scrap sorting, segregation, and processing technologies to increase the availability of high-quality scrap required for EAF production and to recover valuable materials.
- Research and Development (R&D): Funding for innovation in green steel technologies, energy efficiency, improved scrap processing, and new product development is limited. The loss of access to the EU Research Fund for Coal and Steel has created a key funding gap that has not been fully replaced.
- Supply Chain Development: Investment is required across the steel supply chain, including primary fabrication capabilities needed for sectors like offshore wind, to ensure that domestically produced steel can be effectively utilised.

However, as emphasised above, while these are notable gaps, the key challenges lie in the policy barriers, such as power prices, trade policies, scrap policies, CBAM, etc.

6. What funding or financing mechanisms are required to fill these gaps and support investment in the UK? What evidence do you have to support your answer, and does the funding mechanism required change depending on the type of investment?

-

7. How important is funding or financing for supporting investment in the UK, as compared to changes to the policy environment?

While direct funding and financing are very important and welcome to incentivise new investment in the UK steel industry, the policy environment is more important in determining whether investment is placed in the UK. Funding provides the means to invest, while the policy environment creates the right conditions and reduces the risks associated with those investments. For example, the National Wealth Fund might offer financing for a new EAF, but its long-term profitability and competitiveness will depend on policies that address electricity prices and carbon leakage, and shield from unfair trade. Similarly, a strong "Buy British" procurement policy will only be effective if UK steel producers have the capacity and cost-competitiveness (supported by both funding and favourable policies) to meet the demand.

Therefore, a successful strategy for the UK steel sector requires a coordinated and mutually reinforcing approach where government funding and financing initiatives are strategically aligned with policy changes that create a level playing field, encourage decarbonisation, and provide market security.

8. What is your view of the future of the UK's steel needs? What developments could increase or decrease future demand by sector and product?
The Government's housebuilding, infrastructure and defence programmes will all require substantial amounts of steel, while the Government's growth agenda should also drive private consumption.

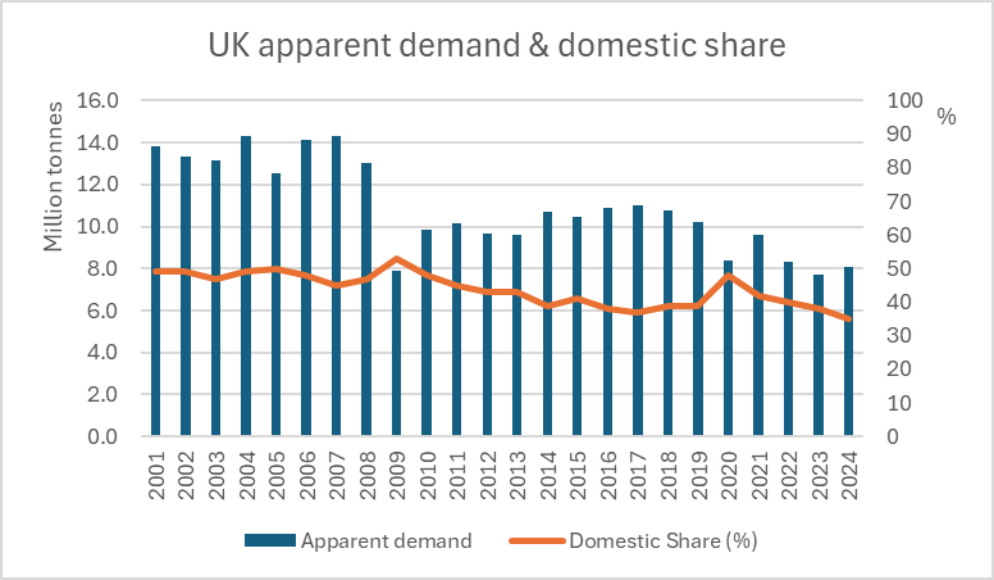
Over the next decade, figures show a steel order book spend worth an estimated £4.3bn in public procurement alone. However, the data for previous years shows that only 66% of government-purchased steel is produced in the UK, with a third being imported steel, costing over £1.5bn of taxpayer's money. If this trend continues for the next 10 years, the UK steel sector supply chain will potentially miss out on at least £2bn of cumulative direct and indirect GVA. Furthermore, the public procurement steel order book is currently incomplete, with no detailed mentions of steel requirements for offshore wind, solar, carbon capture & storage, or hydrogen, so the true government future steel requirements are likely to be significantly higher.

As highlighted above, these figures come from public procurement alone. The steel needs of the private sector are significantly higher, and in a free-market economy it is more difficult for the government to mandate private companies to use steel made in the UK. A wider culture shift, with an appreciate of the social, GVA and environmental benefits of using domestically produced steel products needs to be engendered, especially in large tier 1 contractors, and the government has an educational role to play in this.

As well as contributing to our renewable energy and carbon-capture infrastructure, steel made in UK electric arc furnaces has significant carbon footprint advantages over imported steel. One of the largest opportunities lies in clean energy and, more specifically, offshore wind development, as highlighted by an independent study from LumenEE, commissioned by UK Steel. This "Bill of Works" study shows that the UK's offshore wind pipeline, the second largest in the world, will require up to 25 million tonnes (Mt) of steel by 2050. This represents a potential £21 billion market for UK steel over the coming decades. This research shows the British steel sector can already supply up to 13 million of the 25 million tonnes of steel needed for offshore wind over 25 years – and with targeted investments in casting and milling capacity, we could provide up to 86% of plate capacity in coming years.

While the long-term prospects for steel demand are ones of considerable growth, economic headwinds in recent years have seen steel demand contract in the UK. UK steel demand has dropped by 25% since 2018. Several end-use sectors such as automotive have suffered output declines, some of which are structural. Construction, which accounts for more than half of UK steel demand has also suffered, particularly in the last three years. Overall, steel demand has not recovered to pre-pandemic levels. In order to reap the benefits of the expected medium to long-term growth in demand, it is important to support downstream value chains and demand creation in the near-term as well. This should not just be limited to what the industrial strategy sees as growth sectors, but also traditional sectors that underpin a significant portion of steel demand.

9. What are the main barriers to sourcing steel requirements from UK producers (for example: capability, price, service)?
A more direct approach to supporting domestic sourcing of steel is critical, as the share of UK-made steel being utilised for our domestic needs continues to decline year on-year. This is the result of underpriced imports, which benefit from lower electricity costs, market-distorting subsidies, and other unfair competitive advantages. In 2024, we only supplied 35% of our own steel needs, down from 42% in 2021 – a precipitous decline which needs to be reversed if we are to maintain a viable steel industry and associated supply chain. While procurement is a vital tool, other policy challenges, such as competitive industrial energy prices, must be tackled as well to provide a level playing field for the steel industry.



Source: ISSB, HMRC

10. In addition to current and ongoing work, such as the Procurement Act, how can UK government ensure procurement policies, or procurement within government supported projects, promote the use of UK-made steel across the whole supply chain? How does this differ if steel is embedded in other products?

The Steel Strategy should have procurement reform front and centre, directing UK-made steel into our infrastructure projects, from defence to the rapid expansion of housebuilding and the built environment and significant growth in clean energy projects. If steel is being made in the UK, supported by investment by the UK Government, it stands to reason those public projects—funded by the public purse—are incentivised to use this steel.

In order to increase demand, UK Steel has proposed several key policy changes to drive domestic uptake of British-made steel:

- Public Procurement Contracts: The UK Government should use the contribution our steel industry makes to national security to mandate or incentivise the use of UK-made steel, where possible, for projects of energy, defence, and related infrastructure via domestic content stipulations in contracts where public funding or subsidy is involved utilising World Trade Organisation (WTO) opt-outs.
- Contracts for Difference (CfDs): In future auctions, the Government should evaluate the bidders' contributions to sustainability, resilience, and local content, with these criteria applying to at least 30% of the volume auctioned annually, as the EU is currently implementing without challenge in its Net Zero Industry Act.
- Nationally Significant Infrastructure Projects: These should be required to adhere fully to the Procurement Policy Note for Steel and, given their criticality for our economy, be subject to local content requirements of not below 30%
- Procurement Policy Note for Steel (PPN): The existing PPN should be strengthened to require developers and public bodies to justify why they did not use UK-made steel, if it was available, and require a mandatory consultation of the forthcoming UK Steel Digital Catalogue.
- Investment in steel supply chains: A public-private partnership should drive investment into steel supply chains, which will attract inward investment, create jobs, drive economic growth, and ensure the UK develops resilient supply chains in the face of uncertain geopolitics.
- Some have suggested that the Government could consider demand side measures, like a Steel Obligation, based on the Renewable Obligations template.

11. How can UK government and the UK's steel sector promote the use of UK-made steel in the private sectors that use large quantities of steel?

A greater awareness of the types of steel produced in the UK will be critical for the private sector in order to increase demand. Too often, steel producers hear from private companies that they 'did not

know' a certain product was made domestically, or producers are engaged too late in procurement decisions to demonstrate their capability and capacity.

Government-supported promotion of the forthcoming Steel Digital Catalogue to major private sector procurers of steel will be vital to increase this awareness, as well as facilitation of early engagement opportunities and stipulating a preference for domestic steel where available further down the contracting chain, as companies such as Heathrow are preparing to do, will also help build culture change in the private sector.

12. What evidence can you share to highlight the planning, grid and site availability challenges outlined in this section?

We welcome the focus on planning, grid connections, and site availability. These have acted as brakes on investment in the UK, often slowing down or even jeopardising projects. One of the key challenges is the complexity of grid connections. The UK steel sector currently consumes around 2.3 terawatt hours of electricity annually, equivalent to approximately 800,000 households. This demand is expected to double as the industry moves towards EAFs. However, the current system is congested, leading to long lead times—often up to 10 years—for new connections or upgrades. Moreover, companies are frequently required to connect at points 10-20 kilometres away due to local capacity constraints, adding further cost and complexity.

The financial burden associated with grid connections is another critical issue. Initial quotes for connections often differ significantly from final costs due to global supply chain pressures and rising grid connection demand. The requirement for demand users, such as steel plants, to securitise their investment further exacerbates the financial strain. Unlike renewable generation assets, where securitisation requirements decrease over time, demand users face increasing obligations, tying up capital that could be better used for investment in production and decarbonisation efforts.

Connection queue reforms aimed at eliminating speculative applications have been welcomed by UK Steel. The backlog of applications affects not only steel but also other industrial users. The extensive delays in securing connections risk deterring investment in UK steel production and pushing projects abroad where infrastructure constraints are less severe.

Standardisation of grid connection processes could help reduce barriers for smaller businesses and low-voltage connections. However, EAF connections are highly bespoke, meaning that standardisation is limited in its applicability for these connections.

Crucially, while overall UK network costs are broadly comparable to those in France and Germany, the way these costs are distributed places UK steel producers at a disadvantage. Electro-intensive industries in Germany and France benefit from network charge exemptions of up to 90%, whereas the UK has only recently introduced a 60% exemption (the Network Charging Compensation). As a result, UK steelmakers face network charges that are three to ten times higher than their European competitors, undermining their global competitiveness.

To address these challenges, we welcome the announced reforms to reduce connection lead times but would urge improving cost transparency and an increase in the Network Charging Compensation to march what is provided in France and Germany. Without these measures, the risk remains that essential steel industry investments will be delayed or relocated, jeopardising the sector's ability to decarbonise and remain globally competitive.

13. What UK government policy solutions could best address challenges related to planning, grid and site availability for steel sector investments?

The grid connection reforms are welcome steps towards addressing these challenges, as grid connection delays have been a major challenge for some steel producers as they explore investment in the UK. However, it is worth emphasising that while grid connection delays have been an issue, the much larger challenge is the network charges and, thereby, industrial electricity prices. Most of the major steel producers in the UK are part of multi-national companies with facilities in the EU and four also operating outside the EU. From this perspective, the cost competitiveness of each particular market

is crucial to attracting investment. Persistent cost disadvantages in the UK lead to underinvestment, which in turn leads to further erosion of competitiveness.

Since the financial year 2017/18, the industry has paid £807 million more for electricity than competitors in France and £697 million more than steelmakers in Germany, which could have been used for CAPEX investments instead. To place this in context, the average annual capital investment in the UK sector is around £200 million.

14. What actions should UK government take to encourage more domestic processing of end-of-life vehicles, or encourage stronger circularity of domestic scrap flows, either within the scrap industry or within vertically integrated steel businesses?
The UK produces approximately 10-11Mt of scrap steel each year. 80% of this is exported mostly to developing countries for sorting and recycling back into new steel products that may then be shipped back, with additional carbon footprint to the UK. The main recipients of UK scrap are Türkiye, followed by Egypt, India, Bangladesh, and Pakistan.

Whilst all countries export and import scrap steel, the UK is unusual in using so little of its own material domestically and consequently exporting such large quantities. The UK is the world's second-largest exporter of scrap in absolute terms and the largest exporter of scrap on a per capita basis. The UK risks stripping itself of a vital resource at a time of rising domestic demand with the recently announced planned investments in new EAF production. A policy environment supportive of securing supplies needs to be put in place and aligned with the timeline of the sector's decarbonisation while considering the implications of global trends.

The UK Waste Shipment Regulation should be amended to only allow exports of scrap to countries that can demonstrate their ability to treat waste sustainably via third-party audits. In the EU, OECD countries were considered to meet the environmental criteria, but they may also have to demonstrate this through audits. Currently, 60% of UK scrap exports go to non-OECD countries, equivalent to almost 5Mt. It is likely that not all of this volume would be barred from being exported as some of these countries may have the ability or enough of an incentive to comply with the environmental standards required – particularly if this gives them access to EU scrap as well.

If all non-OECD countries are able to comply, then there would be no restrictions at all. In this sense, this is purely an environmental measure, not a trade measure. The EU system offers a clear template for the UK to follow, helping ensure that steel scrap is not exported to countries unable to process it in an environmentally sustainable and safe manner – ensuring the UK meets its Basel Convention and domestic commitments to not push our carbon reduction and waste processing commitments abroad.

15. How important is innovation in developing new processing systems, extracting residuals or designing more tolerant steel products?
-

16. Which international markets do you see as having the greatest opportunity for UK steel exports?
Over 70% of the UK's steel exports go to the EU (80% if we include non-EU Europe). The second most important export market is the US – while it does not account for substantial volumes (5-6% of total exports), these are high-value exports representing around 10% of the UK's steel exports in value terms. As this will differ by company, for some suppliers, the US accounts for up to 25% of their sales. Türkiye is also a significant export market by volume (8%) but lower value than the US.

It is clear that the EU, the US, and, to an extent, Türkiye are so dominant as export destinations that other export markets pale in comparison (1% or less of exports). Of course, as above, for certain companies, there might be other export markets that are of relevance, and although they are small in volume, these can be high-value markets where there are opportunities. These include Canada, Brazil, Mexico, Japan, South Korea, Egypt, South Africa, and the GCC.

17. What are the most significant barriers to exporting for businesses in the steel sector, and how can UK government support businesses to overcome these (including through financing for UK exporters)?

The main barriers are cost competitiveness and protectionism in several export markets. UK producers face much higher energy costs than the rest of the world, and this is key to their export competitiveness, given that energy is the largest individual contributor to their total production cost. In addition, UK exporters are faced with carbon costs, which steelmakers in most other countries outside of the EU do not. While they currently do not fully bear this cost, the introduction of CBAM will eventually bring in a phase-out of free allocations. However, CBAM does not currently include a mechanism to address export competitiveness, and without it, UK steelmakers will face an additional cost to most of their competitors in export markets.

UK producers are, therefore, at an immediate disadvantage in export markets from a cost competitiveness point of view, and this is even more challenging in the context of an oversupplied global market where prices are being driven down. Just looking at exports out of China alone, these totalled 117 million tonnes in 2024 for semi-finished and finished steel, an increase of 25% on year and an all-time high. At the same time, the value of these exports is plummeting – according to the Chinese Iron and Steel Association, the aggregate profit made by its member steel mills in 2024 fell by 50.3%.

Meanwhile, overcapacity and oversupply have been triggering a rise in trade defence measures and protectionist responses around the world. The most prominent example is Section 232 tariffs in the US, which have been in place since 2018. Even after a deal was struck giving UK suppliers the ability to export tariff-free under quotas, this still represented a constraint as tariff-free exports could only be limited in volume and based on historical export levels. If, for example, export opportunities did emerge, which for some products they did, UK producers could not benefit from any new demand from customers while also servicing existing customers.

Other than the US, UK exporters have also faced steel safeguards since 2021 when exporting to the EU, and mixed with the Brexit transition and the pandemic, there was certainly an impact on some EU trade flows. South Africa has also started applying safeguards on certain steel products, and India is looking to do the same. More widely, many countries still apply MFN tariffs on steel, and in recent years, many countries have built up their own steel capacities, notably in Southeast Asia, North Africa, and the Middle East.

Increasingly, export opportunities are more likely to emerge for specialist material that does not compete on a cost basis. However, a steel sector is not sustainable on specialist, niche products alone. Steelmaking is a highly capital-intensive process and requires economies of scale to be profitable. Typically, a facility would need a capacity utilisation rate of above 75% to sustain a healthy business. This means that you need to balance volume and value – so it is important to be able to carry out some larger volume and lower value sales in addition to the high-value sales, which will typically be in lower volumes. The larger producers will also have multiple product lines of types of steel that are interrelated in terms of their production process, and the production economics of the plant will depend on the aggregate performance of these products, not just the top end of the value chain.

It is, therefore, challenging for the Government to support export growth in this context and market environment. While there is a role for export finance, there must also be a realisation that growth for the sector is unlikely to come from significant export growth. This only increases the importance of the domestic market. Growing that UK demand and making the most of it for UK suppliers is within the Government's gift and must be a key part of the Steel Strategy, alongside ensuring robust trade defences. Public procurement has a key role to play in offsetting the impact of global trade distortions and unfair competition at a time when barriers to trade globally are only going up, and export opportunities are becoming increasingly limited.

18. What do you want to see in terms of long-term trade protection against overcapacity for the steel sector, and how should the UK respond to any impacts from other nations' responses?

More and more nations are taking action to protect their steel sectors against overcapacity and trade diversion, meaning that a UK market with weak or no protections would be gravely exposed. This would also directly undermine the objectives of the Steel Strategy.

There are already concerns that the UK's steel safeguards do not offer adequate protection, given that quotas have been liberalised by 22% since their introduction, while UK demand has contracted by 16%. This gives the opportunity for underpriced imports to continue to claim UK market share, which is already at an unsustainably low level for UK suppliers of 30% from 45% just two years ago. There are WTO limitations on restricting existing safeguards, but in any event, these expire in June 2026. It is imperative that the UK Government introduces measures to replace steel safeguards, certainly by their expiration date, but preferably well before that.

Global excess capacity is set to reach 630 million tonnes by 2026, and all the reasons why safeguards were first introduced are not only still in place but, in fact, have gotten worse. The introduction of additional US tariffs on steel has only intensified the need that already existed for strong trade protections for the UK. The introduction of the UK's CBAM a year later than the EU brings an added layer of heightened risk of trade diversion. It should be clear that the oversized quotas of the steel safeguards will likely not be up to the task and, therefore, the UK Government should aim for the beginning of 2026 for introducing new trade protections that can either replace (for example, if they are new more restrictive quotas) or run in parallel to UK safeguards (for example if they are temporary tariffs).

Ultimately, we do not see tariffs as a long-term solution to this issue. Tariffs are a blunt tool and could be counterproductive as they could damage downstream sectors, and it is essential that we grow, not further hollow out, UK supply chains. Given that, at this stage, we supply well below half of the UK market, we are also realistic that the UK simply does have to import some material. However, putting constraints on these imports in the form of tariff-rate quotas, as long as these are appropriately sized, would offer a balanced way to shield from trade diversion. Tariffs could also have a role to play as an emergency temporary measure and a stabilising mechanism (also depending on other countries' actions) until a well-thought-out quota mechanism is put in place. UK Steel has been working with DBT on this for some time and will continue working closely together on the design of this mechanism.

The main advantages of a TRQ system are that they have minimal inflationary impact, allow for stable market supply from third countries, and minimise retaliation concerns. Indeed, the EU is likely to introduce a similar system to replace its own safeguards. The US has been operating TRQs until recently, and it is something that can be agreed to be mutually acceptable. Furthermore, if other countries were to also adopt this approach, this would not be a concern for the UK – it could, in fact, be desirable as it would help address the endless displacement of material from various countries as a result of diverted trade.

However, TRQs do not prevent imports from arriving in the UK at low prices. There will be a continued role for anti-dumping and anti-subsidy measures to help address that where possible, but it will also be essential that trade defence tools are complemented by wider policy tools to be most effective. These include a robust CBAM and a more proactive public procurement policy.

Overall, trade is a fast-moving and quickly changing space, and the UK Government must be ready to respond quickly and decisively. Trade defence must be an absolutely core component of the Steel Strategy, as without it, the Strategy cannot succeed. It would be a waste of time and taxpayers' money to put in all that effort and investment in rebuilding the UK steel sector, only to then let it be undercut by cheap imports that will depress margins, claim more and more market share, and ultimately make our businesses unviable.

19. Are there particular steel products, originating from particular countries, that are of concern to the UK steel industry, and how, if at all, are these expected to change in the next 5 and 10 years?

Commodity products (i.e., non-specialists) are the most widely traded products and the ones that tend to compete primarily on price. These include flat products like hot-rolled coil and its derivatives (e.g. coated) and long products such as rebar, wire rod, merchant bar and sections. That said, the extent of overcapacity, subsidies and distortions across products is such that all products are exposed. Furthermore, certain products, which one might not consider "commodity", such as rail or tinplate, are core product lines for the companies that produce them, and therefore, it would be of great concern if

they had no protection. Protecting some products and not others also incentivises imports to simply shift to a different part of the value chain that will still impact producers' bottom line.

Therefore, all products that are currently covered by steel safeguards, in addition to bright bar and wire not currently part of the UK measure, should be considered high risk. Even with safeguards in place, several products have seen their import share in the UK increase substantially, allowed by the significant quota liberalisation against the reduction in demand.

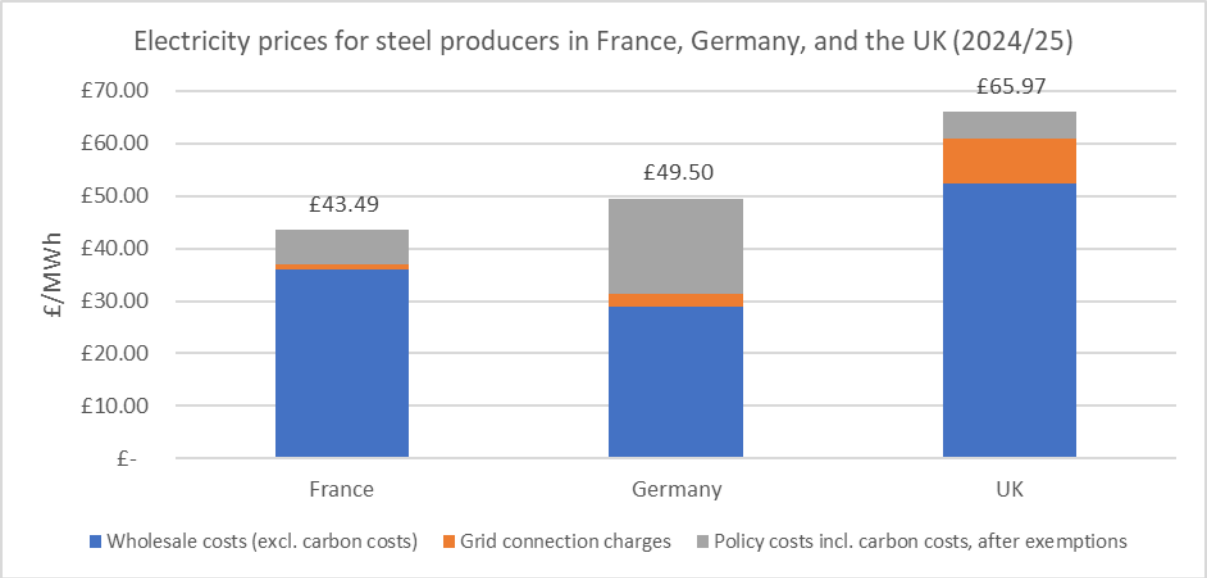
The safeguard for cold-rolled flat products (category 2) has now been revoked due to lower UK supply, while stainless products are mainly export-oriented as there is no longer a domestic downstream sector so we would deem these as relatively lower risk.

High-risk countries based on historical UK trends include China, Vietnam, South Korea, Türkiye, India, UAE, Oman, Algeria, and Bahrain. Other countries with significant/excess production capacity and a tendency to sell at low/dumped prices include Brazil, Egypt, Indonesia (driven by vast Chinese investments), Taiwan, Japan, Russia (if UK sanctions are removed) and in some cases also EU countries (e.g. Germany, France, Spain, Italy).

20. How do electricity prices impact your business and investment decisions?
Uncompetitive electricity prices are the biggest and largest barrier to the steel industry's competitiveness, profitability, growth, and ability to attract investment. Steel production is very energy-intensive, and the price of electricity is a fundamental and unavoidable input cost for steelmakers, alongside raw materials like steel scrap, iron ore, and coking coal. UK industrial electricity prices have been significantly higher than prices in France and Germany for the past decade, and the high electricity prices have harmed the UK steel industry's ability to invest and are detrimental to its immediate market competitiveness. As steel producers' electricity costs are up to 180% of their GVA (i.e., total economic impact in terms of profit and jobs), there is a clear detrimental impact of high electricity prices on profits, investment, and long-term sustainability within the steel sector.

The steel sector operates on relatively thin margins. Whilst specialised and high-value steels are being produced, market requirements and economies of scale mean that the vast majority of steel made even in developed economies is commoditised and available from a broad range of sources. There is intense competition, which keeps steel prices and margins low. Higher electricity prices generally reduce profit margins and thus lead to less reinvestment.

UK Steel found that UK steel producers are paying up to £22 per megawatt-hour (MWh) more for electricity than their French and German competitors. Specifically, UK Steel's analysis finds that UK steel producers typically face an average electricity price in 2024/25 of £66/MWh compared to the estimated German price of £50/MWh and French price of £43/MWh. This means UK steelmakers pay up to 50% more than their main competitors.



With higher electricity prices and thus higher input costs, the steel manufacturers' international competitiveness is greatly affected. As outlined above, the steel industry is incredibly trade-intensive, and many steel grades are commodity-like products, where competition is fierce and margins low. Raw materials such as scrap, iron ore, and coal are sold in global markets, with trivial differences in the price of iron ore or scrap across the world. National and regional variations in costs will lead to competitiveness issues. As UK steel producers compete internationally, they are unable to pass on any additional costs over and above those faced by their competitors. A consistently higher electricity price will, therefore, impact their ability to compete and diminish profitability.

The power price disparities identified in this report translate into a total additional cost to UK steel producers of around £37 million for the financial year 2024/25 compared to those in Germany.

While a number of factors affect competitiveness and overall profitability, including other raw materials, electricity is a crucial input cost. The uncompetitive electricity prices since the early 2010s have contributed to the steady decline in UK steel production. Production has declined for both BF-BOF and EAF steel production, with the latter being particularly electro-intensive and now producing less than half of what was produced in 2010. Even since the steel crisis in 2016, EAF steelmaking has declined, strongly suggesting that high, uncompetitive power prices have impacted the competitiveness of the UK steel industry.

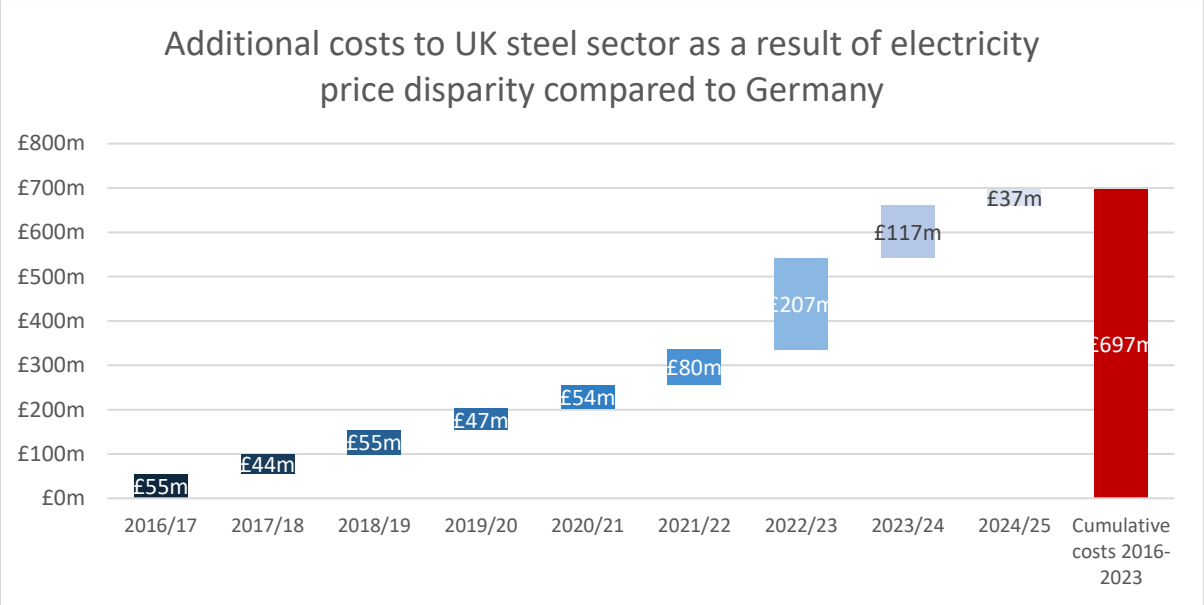
With four of the six steelmakers already operating electric arc furnaces (EAFs) in the UK and both blast furnace operators publishing plans for switching to EAFs, the whole UK steel industry will soon be completely electrified. This will secure the future of steelmaking in the sites previously producing steel via BOF and bring in substantial private investment. The switch to EAF will likely result in the UK's total territorial greenhouse gas (GHG) emissions decreasing by over 2%, a considerable reduction as a result of only two industrial sites undergoing a green transition.

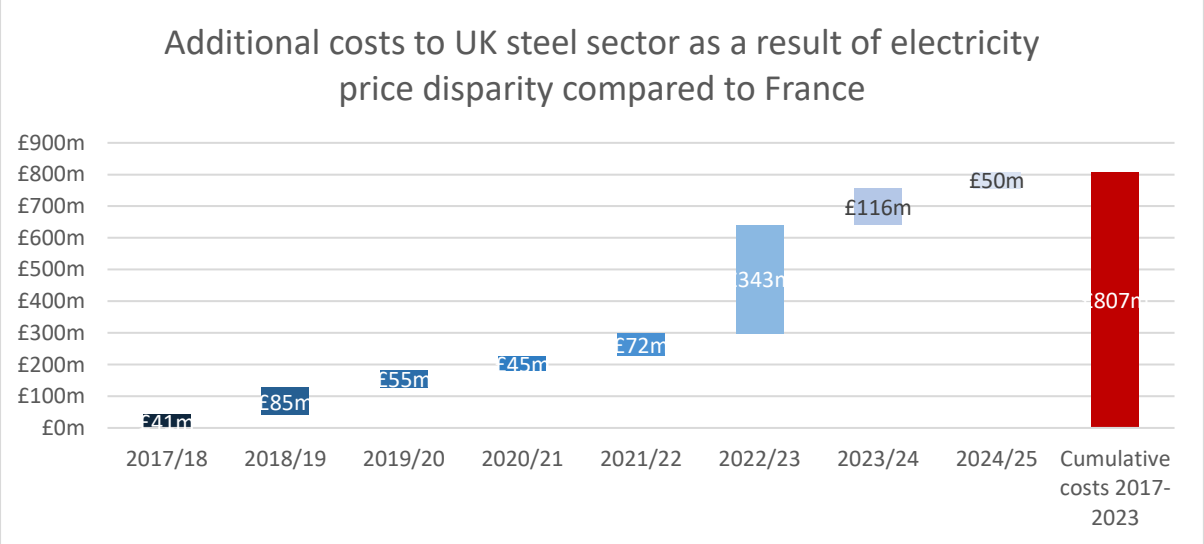
EAF steel production currently emits up to six times less GHG emissions than BF-BOF production, with the opportunity to further reduce emissions as the grid decarbonises and hydrogen becomes available to replace natural gas in downstream facilities. However, the switch to EAFs will more than double the industry's electricity consumption, and the individual sites switching will increase their use by five times. Competitive electricity prices will, therefore, be paramount to the success of the decarbonisation of the steel industry. To ensure the decarbonised steel industry will thrive, industrial electricity prices must be brought down to levels similar to France and Germany, as the electro-intensive nature of EAF means that higher UK electricity prices increase operation costs. With the current price disparity of £16.47/MWh between the UK and Germany, it would cost £91 million more to operate an electrified steel sector in the UK than a comparably sized sector in Germany. Further action on electricity prices is therefore

needed to make a success of the switch to EAF, increase the profitability of UK steelmaking, and improve the industry's competitiveness.

Most of the major steel producers in the UK are part of multi-national companies with facilities in the EU and four also operating outside the EU. From this perspective, the cost competitiveness of each particular market is crucial to attracting investment. Persistent cost disadvantages in the UK lead to underinvestment, which in turn leads to further erosion of competitiveness.

Since the financial year 2017/18, the industry has paid £807 million more for electricity than competitors in France and £697 million more than steelmakers in Germany, which could have been used for CAPEX investments instead. To place this in context, the average annual capital investment in the UK sector is around £200 million.





Addressing the uncompetitive industrial electricity prices should be the first action within the Steel Strategy due to the substantial impact higher power prices have on the industry's competitiveness, profitability, ability to attract investment, growth, and decarbonise. It is the fundamental factor in the current poor business environment for the steel industry. Without tackling the electricity price disparity, the Government will not realise its vision of having "a thriving and competitive steel industry, which in turn will contribute to wider economic growth and high-quality jobs".

21. What interventions and examples of international best practice to support businesses on energy, would you recommend in order to increase investment and growth, including those across the steel supply chain? For example, is there a certain electricity price level by a certain date that would incentivise investment?

UK Steel's analysis shows that the electricity price disparity between the UK, France, and Germany is caused by two factors for EIIs: higher wholesale prices and lower network charges compensation. The previous Government introduced the British Industry Supercharger, which lowered a number of policy costs on electricity bills and introduced the Network Charges Compensation (NCC) scheme. Before the previous government intervened, UK policy costs were 50-100% higher than in Germany or France and were a primary driver of the electricity price disparity. After the implementation of the Supercharger policy package, this has now been eliminated as a contributor to the difference in power prices and has been a crucial step towards parity of prices. Instead, higher wholesale prices are responsible for three-quarters of the price disparity, while higher network charges are responsible for the remaining quarter of the disparity. As such, we have focused our recommendations on addressing these two elements of electricity prices.

Many governments across the world have created supportive business environments for their steel industries through competitive electricity prices. Power prices in the USA, India, and China, for example, are substantially lower than UK prices. However, European Governments have also introduced and implemented some of the best practice policies for exempting, compensating, and supporting its electro-intensive industries. The recommendations below are inspired by these policies and would increase investment and growth throughout the steel supply chain if implemented. Finally, it should be noted that it is the relative price difference that negatively impacts the UK steel industry's competitiveness, i.e. higher prices than its close and global competitors, rather than an absolute electricity price. It is, therefore, imperative to implement the recommendations below as soon as possible to create a supportive business framework to incentivise investment.

<u>Wholesale price</u>

UK Steel commissioned the independent consultancy Baringa to assess how best to reduce wholesale electricity prices for the steel industry[2]. This report found that UK producers face electricity costs up to 50% higher than those in France and Germany. This undermines the sector's global competitiveness, increases risk in green investments, and reduces its ability to support the UK's economic and climate objectives.

While wholesale prices may fall in the 2030s, there is a high degree of uncertainty in future wholesale prices, and the steel industry currently has no protection against possible price spikes. The European steel industry operates in a very trade-intensive market with average profit margins typically between 6%-10%. Baringa's modelling projects a potential baseload average price spread between its core future market scenarios of around £20/MWh in 2030 and £30/MWh in 2035 in GB, potentially impacting 2–3% of an electric arc furnace's annual revenue, assuming 500,000 tonnes of annual output and a 2024 steel price of $660/tonne. A negative impact on revenue of 2–3% could lead to unsustainable margins and further loss of market share. This could mean a swing of $12 – $18 per tonne, based on 500 kWh of electricity used per tonne.

Unlike the UK, many steel-producing countries have mechanisms to protect energy-intensive industries (EIIs) from wholesale price volatility. As such, the UK stands out by not having implemented a wholesale price mechanism for its EIIs:

[2] UK Steel and Baringa (2025), *Achieving Wholesale UK Steel and Baringa Energy Price Parity for UK Steel*, https://www.uksteel.org/versions/2/wizard/modules/fileManager/downloadDigitalFile.php?url=https%3A%2F%2Ffiles.cdn-files-a.com%2Fuploads%2F8346772%2Fnormal_67d43adab24d1.pdf

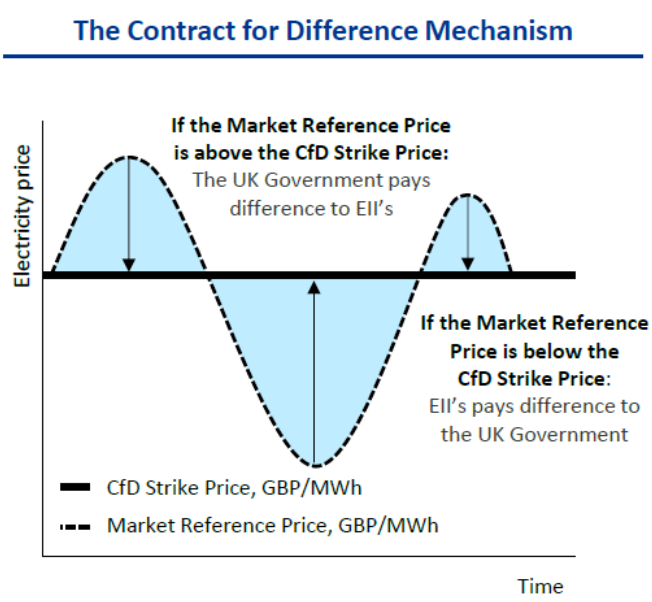
	France		Italy		Spain	UAE
Wholesale price support mechanism	ARENH	ARENH replacement	Virtual Interconnectors	Energy Release 2.0	Electro-intensive Statute	National Strategy for Industry and Advanced Technology
Description	Up to the end of 2025, EIIs can buy a share of nuclear production at 42 €/MWh (EDF must sell c.100 TWh per year at this price).	From 2026, a new mechanism will be introduced, which taxes EDF's profits from power generation above a certain level, with the taxes passed back to consumers via a rebate. This is effectively a windfall tax which protects consumers against wholesale price spikes.	Italian energy companies can receive power outside Italy and match the volume in Italy without physically moving it (i.e. without the need for an interconnector), giving EIIs access to lower prices of neighbouring markets.	Italian Government to underwrite a Contract for Difference (CfD) for companies with at least 1GWh annual demand at a fixed price of EUR 65/MWh (roughly 50% of current wholesale prices) for 36 months. Companies must commit to investing in new renewable energy plants.	Facilitates and incentivises purchase of renewable power via long-term PPAs, which can reduce costs. PPA procurement is further supported by FERGEI - a scheme through which the Spanish Government covers credit risk associated with the PPAs.	Strategy includes energy tariff reduction for EIIs. Lower tariffs (with discounts of 10-26%, according to the Head of the Major Industrial Initiative Committee) are offered to industrial companies with a monthly consumption that exceeds 10 GWh.
Applicability to the GB energy market	There is no state-owned power generation in the UK, so the Government cannot mandate generators to sell a proportion of their power at a discount.	Again, this is easier in France because EDF is state-owned. In the UK this would amount to a permanent windfall tax on private companies.	Transitional scheme while new physical interconnection capacity is being built.	This is highly applicable to the UK market and is similar to our recommendation for a UK Government-backed CfD.	Potentially applicable in the GB market, although longer time to market and lower price flexibility make corporate PPAs unattractive for the steel sector.	This is a top-line price subsidy as opposed to specifically tackling wholesale prices.

In the report, Baringa assessed the above options' applicability to the UK market and suitability for EIIs with the analysis below:

	Two-way Contract for Difference (CfD) with the Government	**Private sector Corporate PPA**	**Onsite or private-wire renewables and storage**	**EII-specific DSR scheme**
Description	Insulates the sector from wholesale price volatility via a financial contract with the Government for a fixed price of wholesale electricity – the price is set to achieve wholesale price parity with the lowest cost European steel competitor.	A contract for fixed price wholesale power between an EII body and private wholesale power generators. The fixed price would limit wholesale price volatility but would be set by the market.	Capital investment in onsite renewable and/or storage assets at steel production plant. Self-generation would reduce exposure to wholesale prices.	A flexibility market which would see the EII sector remunerated for not consuming electricity during high demand or high price periods. This would provide an additional revenue
Would it achieve the objective of ensuring wholesale price parity with European steel producers?	**Yes** – the price could be set at regular intervals by a government body to achieve this objective.	**No** – the price would be set by private companies, without the flexibility for price adjustments. The credit positions of steel producers have also put upwards pressure on CPPA price offers.	**No** – could reduce wholesale price exposure and potentially lead to savings, the economics of these projects are weaker given the lower retail electricity price faced by EIIs versus other sectors.	**No** – the value of this revenue stream is unlikely to be at the level required to offset higher GB wholesale prices. It is also unlikely to benefit the whole sector.
Capital requirement	**None** – financial contract for fixed power price	**None** – financial contract for fixed power price	**Yes** – significant amounts of capital required for infrastructure investment	**Maybe** – some additional controls may be required to enable flexibility
Time to implement	**Short** – could be implemented within existing CfD regulatory framework	**Long** – extensive and expensive procurement process required	**Long** – time required to develop and construct physical assets	**Mid** – a few years for existing EAF, fully applicable once new EAF are operational
Technical and operational feasibility	**Highly feasible** – no technical requirements	**Highly feasible** – no technical requirements	**Highly constrained** – coupling renewables with EAFs is challenging	**More investigation required** – to assess feasibility at what price point
Cost to consumers	**c.£0.17/MWh p.a.** – example based on French price parity analysis (p.14)	**None** – private sector contract	**None** – private sector contract	**More investigation required** – to assess feasibility at what price point
Overall assessment	**We believe this is the optimal solution because it can be implemented quickly within the current LCCC framework and would be highly flexible.**	**We do not believe corporate PPAs are a good option for the steel industry, primarily due to lower flexibility, time to market, and credit requirements.**	**Business case is unlikely to be attractive, would require a significant capital investment and would have a longer time to market.**	**Would only be feasible at certain sites and would not meet the requirement to protect the whole sector (should be considered in addition to CfD).**

As described in the table above, Baringa finds that the two-way CfD model is the optimal solution because it can be implemented quickly within the current LCCC framework and would be highly flexible.

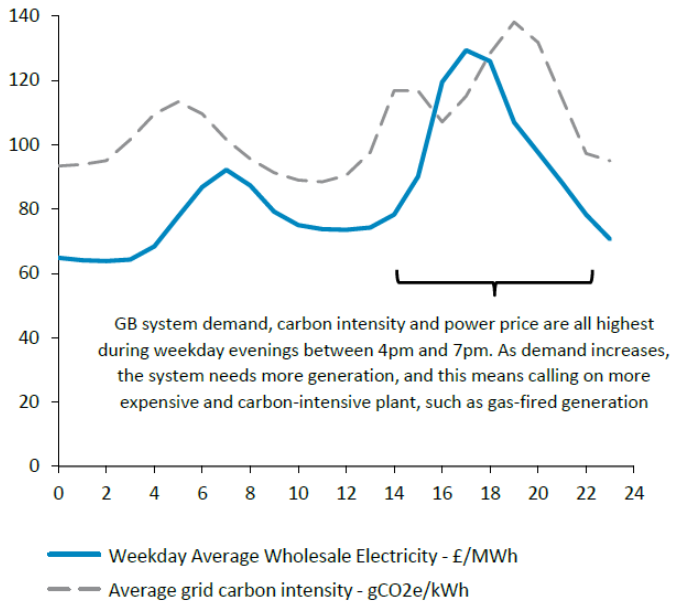
The two-way Contract for Difference (CfD) aims to reduce the steel industry's exposure to wholesale electricity prices by providing it with a fixed price for wholesale electricity and to achieve wholesale electricity price parity with its lowest-price European competitor. It will work such that when the wholesale market price is above the strike price, the steel industry shall receive a payment from the UK Government, possibly via the existing Low Carbon Contracts Company, for the delta between that price and the agreed strike price, ensuring the steel sector pays the fixed price and is protected from price volatility. Vice-versa, when the market price is below the strike price, the steel sector shall pay back the delta. The strike price could be set at regular intervals to reflect changes in wholesale electricity prices and provide the steel sector with much-needed protection from price volatility. The calculation could be an ex-post reconciliation, calculated at the end of each regulatory period. The benefit of this mechanism would be:



- Ensures price competitiveness for UK steel producers.
- Stable and predictable, enabling long-term planning and investment in green technologies.
- Shared risk and reward.
- Aligns with climate and government growth goals.
- It can be designed to include price signals to incentivise peak load shifting.

This approach would index the UK wholesale electricity price to the lowest-cost European competitor, ensuring a level playing field for the UK steel sector. For illustration, the strike price is set to achieve parity with France, which is projected to have the lowest prices among assessed competitors. Actual strike prices should reflect broader market dynamics to ensure global competitiveness. Between 2026 and 2031, GB wholesale prices are projected to be 4.7 £/MWh higher than France, but they are projected to fall below both France and Germany thereafter. Under a two-way CfD, the Government would compensate the energy-intensive industries (EIIs) for the price difference when GB prices are higher and recover the difference when GB prices are lower, creating price parity. Using projected EII demand1, the net cost to consumers is estimated at £51m annually between 2026–2030 (equivalent to 0.17 £/MWh on bills – although likely about half of this, see below) and an average net benefit of £13m to the consumer annually between 2031–2035.

Hourly Average Wholesale Price and Grid Carbon Intensity in 2025[1]



By designing the CfD so that it gives the steel sector some exposure to price or carbon signals, we can ensure that it provides the appropriate incentives for low-carbon steel producers to operate EAFs flexibly to minimise wholesale electricity costs and carbon emissions and ensure alignment with the UK's climate targets. To illustrate the maximum potential wholesale market savings from flexible operation of EAFs, a scenario was modelled that saw EAFs fully avoid peak periods while keeping the total annual load constant. This resulted in wholesale energy cost savings to consumers of between £20m and £30m in 2030. It also resulted in carbon savings of around 40 KtCO2e. Beyond these savings, the flexible EAF operation can help balance the grid, support the integration of renewable energy by reducing reliance on fossil-fuel-based peaking plants, and contribute to lowering the overall carbon intensity of electricity supply. There could also be significant savings for the consumer in funding the cost of the Capacity Market if the 2-way CfD did not apply during peak hours, incentivising reduced production when carbon levels and prices were at their highest. As such, the cost of the two-way CfD would be significantly less when taking into account the whole system benefits.

To address this, the UK Government should consider:

- Launching a consultation on the CfD mechanism to gather industry and stakeholder input.
- Setting an initial CfD strike price ahead of a pilot scheme launch in early 2026.
- Exploring complementary measures, such as incentivising onsite renewables and energy storage, to further reduce costs and emissions.

The proposed CfD is a practical and future-focused solution to support the UK steel sector and drive its green transition. Without decisive action, the UK risks falling behind in the global steel market, with long-term consequences for economic growth and climate goals. The full details of this proposal are available in the report, which has been shared with the Government separately and is available on UK Steel's website[3]. The Government is strongly encouraged to adopt the two-way CfD model for the steel industry to provide it with industrial electricity prices similar to those of its closest key competitors.

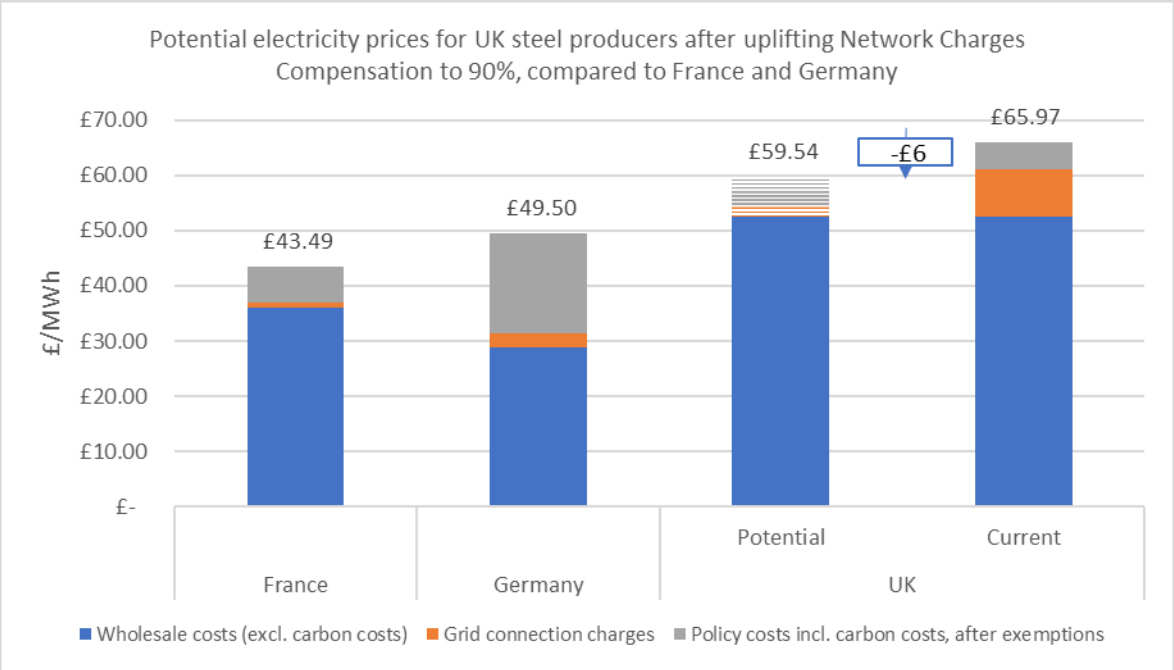
Network charges

The previous Government's British Industry Supercharger policy package took effect in April 2024 to reduce electricity prices for energy-intensive industries like steelmakers. It increased exemptions from policy costs, such as Contracts for Difference, Renewable Obligations, Feed-in Tariffs, and Capacity Market levies, and, from April 2025, provided 60% compensation for network charges.

UK Steel estimates the Supercharger to save steel producers between £23-£29/MWh, while the Government has estimated the savings to be £24-£31/MWh. As a result, the disparity has been more than halved, which is widely applauded by the steel industry. However, UK steel producers are still facing much higher electricity prices than their French and German competitors, and further action is needed to reduce prices.

[3] UK Steel and Baringa (2025), *Achieving Wholesale UK Steel and Baringa Energy Price Parity for UK Steel*, https://www.uksteel.org/versions/2/wizard/modules/fileManager/downloadDigitalFile.php?url=https%3A%2F%2Ffiles.cdn-files-a.com%2Fuploads%2F8346772%2Fnormal_67d43adab24d1.pdf

When the Government consulted on the Network Charges Compensation (NCC), it initially considered a 90% compensation level, which would be in line with what is provided in France and Germany. As illustrated below, matching German and French network exemptions would reduce electricity prices by a further £6.43/MWh, reducing the price disparity between the UK and France to £16/MWh and £10/MWh compared to Germany.

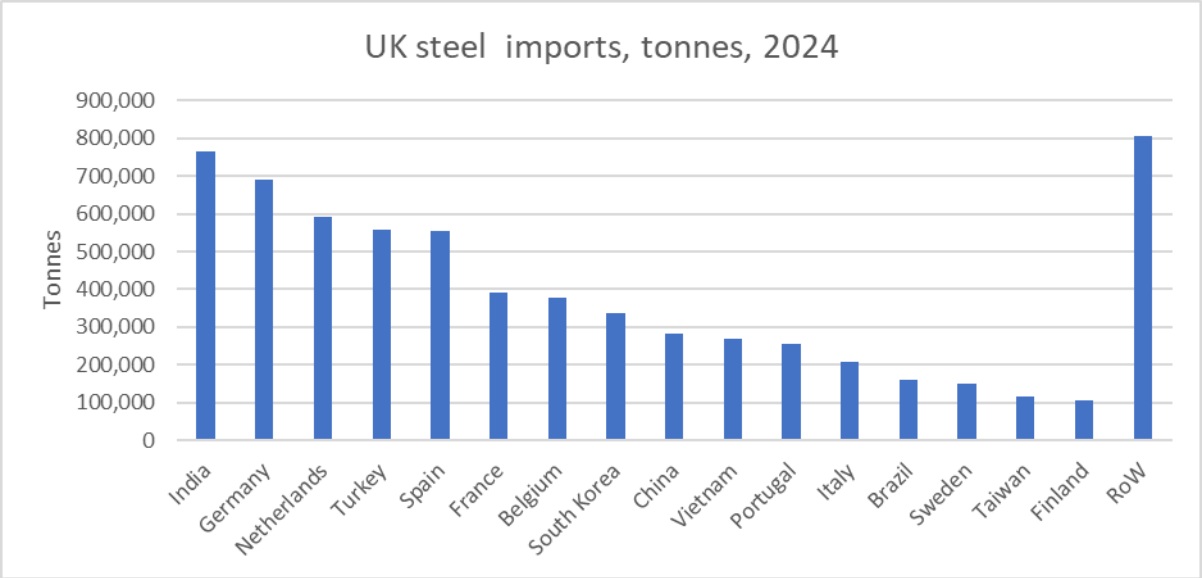


The Government is strongly encouraged to increase the Network Charging Compensation from 60% to 90% to match what is provided in France and Germany, and this is a necessary step towards competitive electricity prices. Without equal network charges compensation levels, the UK steel industry will continue to operate in an uncompetitive business environment.

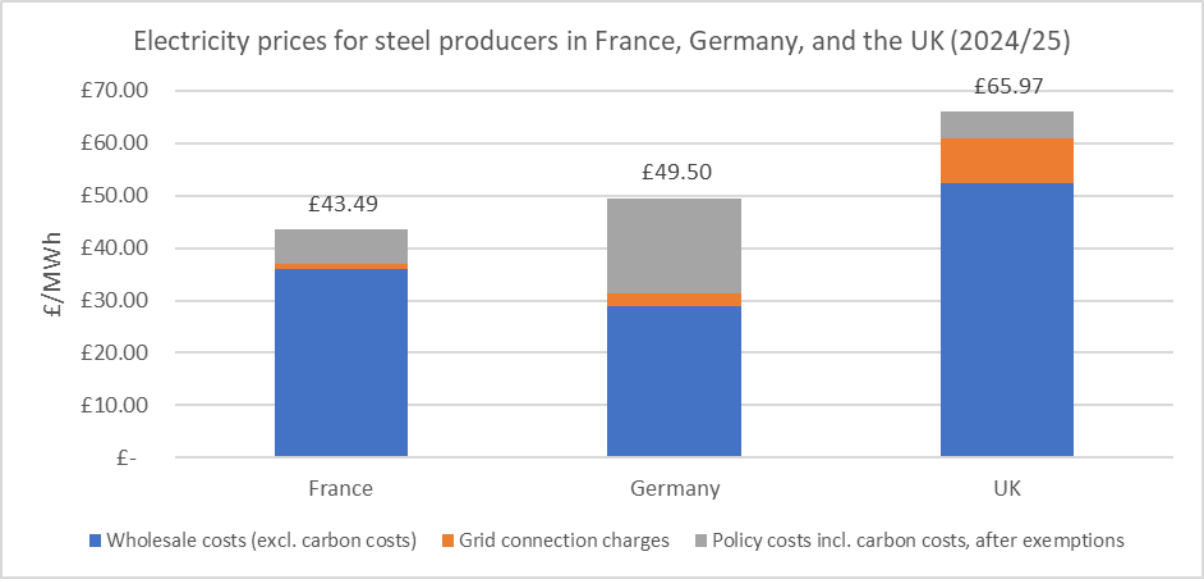
With the two proposals, two-way CfD and higher network charges compensation, UK Steel has provided the Government with answers to how it delivers parity of prices and finally eliminates the price disparity. Not only would this significantly improve the industry's commercial position, but it would also greatly improve its ability to attract inward investment and enable further decarbonisation of the steelmaking processes.

22. Which countries are your key competitors in and what electricity prices do you expect to see there in the future?

As outlined above, the steel market is highly trade-intensive, with competitors in Europe, the Middle East, East Asia, and South America. The chart below shows the country of origin for the steel imports in 2024, with each country listed exporting over 100,000 tonnes to the UK.



While we do not have electricity price data for each of the 16 jurisdictions listed in the chart above, UK Steel publishes an annual report which benchmarks the electricity prices in the UK, France, and Germany. When taking account of the EII exemption and compensation schemes, UK Steel's analysis finds that UK steel producers typically face an average electricity price in 2024/25 of £66/MWh compared to the estimated German price of £50/MWh and French price of £43/MWh. This means UK steelmakers pay up to 50% more than their main competitors.



UK Steel does not have comprehensive data for industrial electricity prices for other markets, but when looking at other key markets like the US, Sweden, and India, wholesale electricity prices (excluding policy costs, network charges, and Government interventions) are expected to be substantially lower than UK prices over the next decade. Both US and Indian power prices are projected to be half of UK prices. Further details are available in UK Steel's report on wholesale electricity prices, which has been shared with the Government separately and is available on UK Steel's website[4].

[4] UK Steel and Baringa (2025), *Achieving Wholesale UK Steel and Baringa Energy Price Parity for UK Steel*, https://www.uksteel.org/versions/2/wizard/modules/fileManager/downloadDigitalFile.php?url=https%3A%2F%2Ffiles.cdn-files-a.com%2Fuploads%2F8346772%2Fnormal_67d43adab24d1.pdf

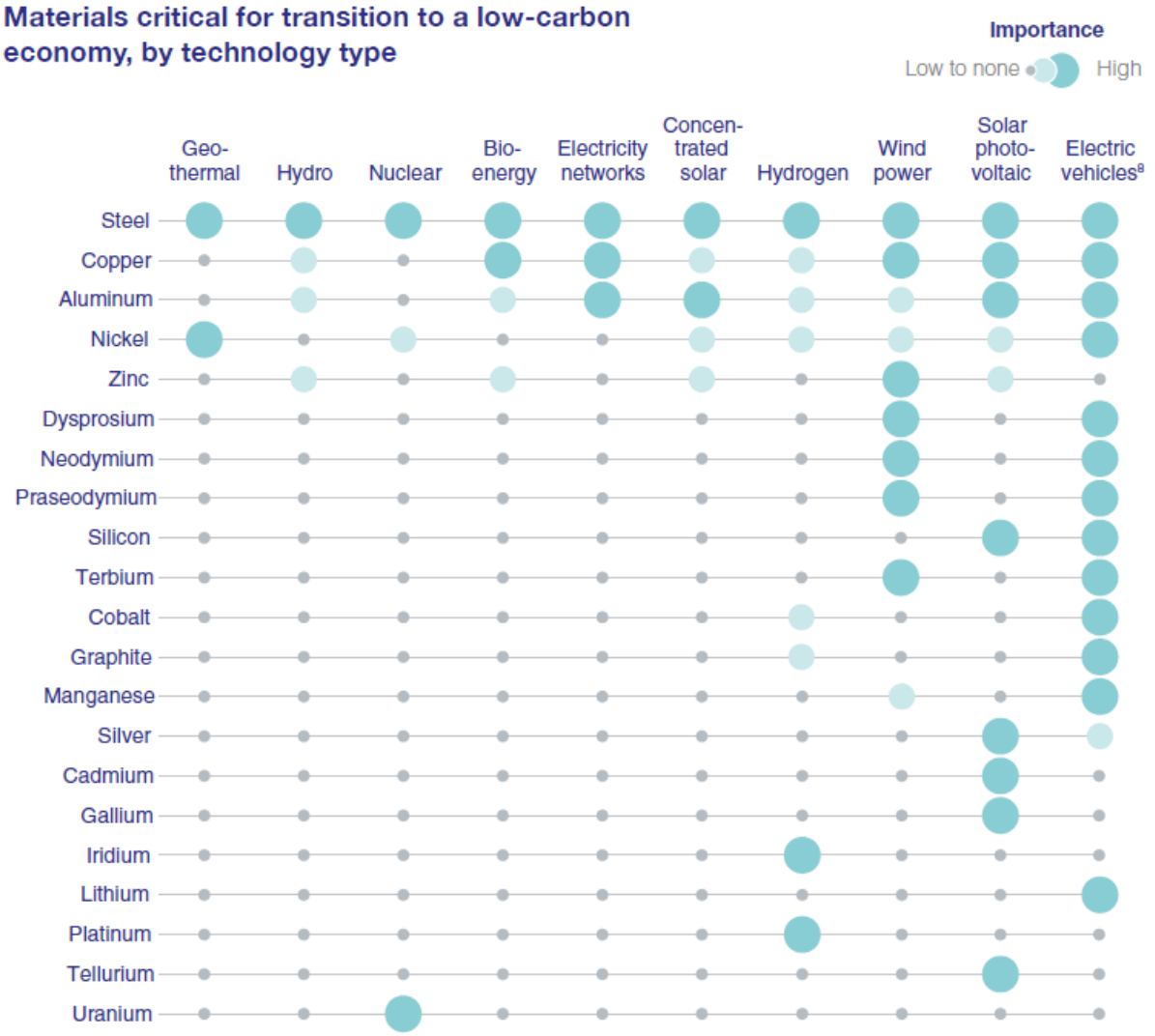
In short, the steel industry is incredibly competitive and trade-intensive, and key competitors are therefore spread across the world. While electricity prices of the nearest competitors in Germany and France are crucial, industrial power prices in South Korea, India, the US, and the Middle East are incredibly impactful in determining the UK steel sector's competitiveness.

23. What are the biggest opportunities for decarbonisation in steel?
Steel is central to meeting the UK's decarbonisation objectives, from reducing the emissions of the material itself to its use in energy infrastructure and technologies that will enable a Net Zero economy. A meaningful decarbonisation strategy must clearly focus on consumption emissions, not just emissions from steel produced domestically. UK steel production accounts for just 20% of the total 29 million tCO2 associated with the UK's annual steel consumption. The UK must take responsibility for these emissions rather than meet decarbonisation objectives by offshoring industry.

Increased reliance on steel imports could lead to higher emissions if imported steel is produced in a more carbon-intensive steel plant. Global carbon intensity varies from 0.29-3.38 tonnes of CO2 per tonne of crude steel, depending on plant efficiency and production method, with the weighted average being 1.85tCO2/tCS in 2018. UK steel production sites are less carbon-intensive than the global average for both blast furnace and electric arc furnace steelmaking, and therefore, import increases will likely lead to a rise in UK greenhouse gas emissions. Higher imports of finished steel products also increase transport-related emissions – for example, shipping a tonne of product from China results in an estimated 0.3 tonnes of CO2.

The UK steel sector is committed to investing and reducing its emissions by 2035 and achieving Net Zero steel production by 2050, if matched by government support and an improved business environment. The UK sector could be the first globally to achieve this at a sector level, but this requires several parameters to be in place to enable a competitive business landscape. These include competitive industrial electricity prices, a carbon border adjustment mechanism, improved scrap utilisation and quality, technology development, green public procurement, and robust trade defence. With a well-designed and executed strategy, there is a real opportunity to lead the world in green steelmaking and build the foundations of a truly circular economy where the materials from each building, each car, and each wind turbine are recovered at the end of their life cycle and turned into a new product. Green steel will be key to reducing the embedded carbon in buildings and infrastructure, cars, ships, planes, appliances, and a wide range of equipment.

The role of steel in a low-carbon economy goes beyond being an infinitely recyclable Net Zero material. Steel is also critical to all low-emission energy sources and every single technology required for a Net Zero future. Steel is essential for all sources of renewable energy. Around 80% of a wind turbine is made of steel, from the foundation to the tower, gears, and casings. Steel is used as a base for solar panels and in heat pumps, tanks, and heat exchangers. It is also used to reinforce concrete dams for hydroelectric power. It is the main component of a tidal turbine in tidal energy systems and is used to fabricate wave energy devices. Steel is important for hydrogen infrastructure and nuclear small modular reactors, as well as the production and distribution of electricity. This includes power plants, generators, transformers, power distribution pylons and cables. Steel also plays a key role in green modes of transport, such as electric vehicles and rail.



Source: Critical raw materials for strategic technologies and sectors in the EU, A foresight study, European Commission, Mar 9, 2020; The role of critical minerals in clean energy transitions, IEA, May 2021; McKinsey analysis

There are multiple opportunities for the UK steel industry in decarbonising its production processes:

- Transition to Electric Arc Furnaces (EAFs) and Increased Use of Steel Scrap: The full switch to EAFs, which primarily use recycled steel scrap, will significantly lower direct carbon emissions. The lower emissions from EAFs are further enhanced as the national electricity grid decarbonises, reducing indirect emissions associated with electricity consumption. The UK is already a leader in renewable energy, particularly offshore wind, which can power these EAFs with low-carbon electricity.
- Utilising UK Scrap Resources: The UK is in a prime position to lead green steelmaking due to its abundance of steel scrap, producing around 10-11 million tonnes each year. Increasing the utilisation of this domestic scrap resource in EAFs can significantly reduce the reliance on carbon-intensive primary production. Currently, a significant portion (around 80%) of UK steel scrap is exported, representing a missed opportunity for domestic low-carbon steel production. Increased scrap utilisation aligns with circular economy principles, reducing the need for virgin raw materials and the associated environmental impacts. Steel's infinite recyclability makes scrap a strategic raw material for Net Zero steel production.
- Creating a Strong Market for Low-Carbon Steel: Implementing a UK CBAM is crucial for creating a level playing field between domestically produced steel, which faces carbon costs (e.g., through the UK Emissions Trading Scheme), and imported steel from countries with lower or no carbon pricing. A well-designed CBAM can prevent carbon leakage, where domestic

production is displaced by imports from less regulated regions, and incentivise global decarbonisation. Leveraging the power of public procurement to mandate or incentivise the use of UK-made, low-carbon steel in publicly funded infrastructure projects (e.g., offshore wind, defence, transport) can create a significant demand for green steel and support domestic producers. Strengthening the existing Procurement Policy Note for Steel to require justification for not using UK steel and mandating consultation of a UK Steel Digital Catalogue are potential steps. Implementing local content targets for publicly funded projects, particularly in critical sectors, is also recommended.

- Fostering Innovation and Research & Development (R&D): Significant investment in R&D is essential for innovative EAF processes. Leveraging the UK's world-class research and innovation community through collaborations between industry, academia, and research and technology organisations (RTOs) is vital for accelerating the development and deployment of green steel technologies.

As such, the biggest opportunities for decarbonisation in the steel industry lie in a multi-faceted approach that includes the transition to EAFs and maximising the use of domestic scrap, improving energy efficiency across the board, creating a robust market for low-carbon steel through mechanisms like CBAM and green public procurement, and fostering innovation and R&D. Capitalising on the UK's strengths in scrap availability, renewable energy, and existing industrial expertise will be crucial for successfully navigating this transition and establishing the UK as a leader in green steel production.

However, there are also many risks and threats to the UK steel sector as it decarbonises:

- Industrial electricity prices: One of the most significant risks is the economic impact of high and volatile industrial electricity prices compared to European competitors. UK steel producers face electricity costs up to 50% higher than those in France and Germany, driven by a heavy reliance on gas-fired power generation, limited interconnection capacity, and lower levels of state support for energy-intensive industries. This price disparity undermines the sector's global competitiveness and increases the risk associated with green investments, particularly the transition to Electric Arc Furnaces (EAFs), which are significantly more electro-intensive than traditional blast furnaces. The transition to EAFs, while reducing overall emissions, will more than double the industry's electricity consumption and increase costs. Without addressing this price disparity, decarbonisation efforts could become prohibitively expensive, leading to underinvestment and a further erosion of competitiveness. The potential move to zonal pricing in the wholesale market could exacerbate this issue by increasing prices in areas where steel production is located.
- Carbon leakage: Another critical risk is carbon leakage and trade diversion. As the UK implements carbon pricing mechanisms like the UK Emissions Trading Scheme (ETS), domestic steel producers face costs that many international competitors do not. This creates a risk of carbon leakage, where production and associated emissions move to countries with less stringent climate regulations. The implementation of the EU Carbon Border Adjustment Mechanism (CBAM) in 2026, a year before the proposed UK CBAM, presents a significant risk of trade diversion. High-emission steel that can no longer be exported to the EU due to CBAM costs could be diverted to the UK market, undercutting domestic producers and undermining decarbonisation efforts. Even a small diversion could significantly increase UK imports and harm the domestic industry. Furthermore, UK Steel has significant concerns regarding the effectiveness of the UK CBAM in preventing carbon leakage, circumvention, and fraud.
- Global excess capacity: There are risks associated with the scale of global excess steel production capacity. This overcapacity creates distortions in the global steel market, leading to unfair competition and trade diversion, as outlined above. As existing trade safeguards for the UK steel sector are set to expire, the industry will be more vulnerable to the impacts of this excess capacity. This external pressure could undermine the viability of domestic steel producers and their ability to invest in decarbonisation, regardless of domestic policy efforts.

24. How important is buying 'green' or low CO2 steel to you or your customers right now? How important will it be in the future?

Currently, the importance of buying 'green' or low CO2 steel in the steel market is limited by the fact that the majority of customers do not primarily base their purchasing decisions on the carbon footprint of the steel. There is not a widespread willingness in the market to pay a premium for low-CO2 steel.

As a whole, the market is not yet willing to pay an added cost for steel produced with lower emissions. Although some companies have publicly declared their intentions to buy higher-cost, lower-carbon steel, these represent exemptions to the general rule. The absence of a global carbon price applied equally to all producers means that additional costs incurred by producing low-carbon steel cannot easily be passed on to consumers without risking a loss of market share to cheaper, high-carbon imports.

However, the Government can drive this market through green public procurement. The UK Government, as a significant single purchaser and consumer of steel, has a powerful tool at its disposal to start creating a market for low-carbon steel through its own purchases and by influencing behaviour in the private sector. UK Steel has put forward recommendations to strengthen guidance on steel procurement to better deliver against climate change objectives, such as explicitly requiring suppliers to public projects to provide the origin of their steel and taking a balanced scorecard approach that considers emissions related to production and transportation. Furthermore, the implementation of policies like a Carbon Border Adjustment Mechanism (CBAM) is intended to create a level playing field by ensuring that imported steel faces similar carbon costs to domestically produced steel. This will reduce the risk of carbon leakage and incentivise the consumption of lower-carbon steel. Product standards that stipulate a maximum GHG footprint for steel sold in the UK could also be used to drive demand for green steel once low-emission production is more established. Finally, steel is essential for the technologies and infrastructure required for a Net Zero future, including wind turbines, solar panels, electric vehicles, and hydrogen infrastructure. As these sectors grow, the demand for steel with a lower embedded carbon footprint will increase if the Government improves the associated procurement policies. This could lead to consumers and businesses in these sectors facing pressure to reduce their overall carbon footprint, extending to the materials they use.

25. Are there any measures government should explore, beyond the planned and existing ones outlined above, to reduce the risks of carbon leakage for the UK steel industry?
There are several measures the UK Government could explore, beyond the planned and existing ones, to further reduce the risks of carbon leakage for the UK steel industry. These measures aim to strengthen the existing framework, address gaps, and proactively prepare for future challenges.

<u>Enhancing the Design and Scope of the UK Carbon Border Adjustment Mechanism (CBAM):</u>
While the UK Government has committed to implementing a CBAM, there are several areas where its design could be enhanced to provide more robust carbon leakage protection:

- *Default values*: If importers cannot provide emission data for the products they wish to import, the Government will provide default values based on a global average value. As emissions from steel varies substantially (0.3 - 3.7 tonnes of CO2 per tonne of crude steel (tCO2/tCS)), basing the default values on the average of 1.85tCO2/tCS will provide a substantial discount to the highest emitting steel producers, which will only pay CBAM carbon costs for c. 1.85tCO2/tCS instead of 3.7tCO2/tCS. HMT is thus proposing to favour the most carbon-intensive global steel producers by allowing them to under-declare their emissions and carbon costs at the border. In contrast, the EU is only proposing to allow importers to use default values for 20% of their imports. The Government is urged to define default value methodology and apply a markup to any default values to avoid rewarding the highest-emission steel.
- *Exports*: The UK CBAM does not address exports. When carbon pricing is applied to UK steelmakers, it reduces the industry's competitiveness in export markets. While this has been considered as part of the free allocation review, we do not believe the proposals are sufficient.
- *Robustness tests*: CBAM policies are untested and have not been implemented anywhere yet, so it is unclear how they will work, how easy they will be to circumvent, or how widespread fraud will be. Robustness tests should be built into the UK CBAM to ensure the CBAM works as intended. This would include regular evaluations of the policy and backup policy if proven ineffective, such as increasing free UK ETS allowances. In contrast, the EU Commission is required to report on the application and functioning of the CBAM every two years. The Government is urged to reconsider how it evaluates the CBAM and its contingency plans.
- *Minimum registration threshold*: The CBAM will only apply if companies import more than £50,000 within 12 months, resulting in 80% of businesses avoiding facing any CBAM costs. The EU CBAM threshold is c.£25,000, and HMT is urged to reconsider the minimum registration threshold.

- *Auditing*: The Government intends to limit the requirements to provide high-level emissions data and leave the auditing and verification to the independent verifier contracted by the installation. The steel industry has expressed deep concerns about the risk of circumvention and fraud.
- *Linking*: The UK and EU both have similarly designed emission trading schemes that place carbon costs on industry, which both the UK and EU CBAM costs are based upon. If these two carbon schemes are linked, meaning that a UK ETS carbon allowance can be used in the EU ETS and vice versa, then carbon prices would converge. It would ensure industries in both jurisdictions faced similar carbon pricing and remove any barriers to trade. In particular, this would help smaller businesses which are less acquainted with carbon reporting. In negotiations with the EU, linking of ETS schemes should be prioritised.
- *Scope*: The UK has only committed to applying its CBAM to the aluminium, cement, fertilisers, hydrogen, and iron and steel sectors. In contrast, the EU has now confirmed it will consider expanding the EU CBAM to downstream products to prevent circumvention, where steel-containing cars and white goods avoid CBAM costs. We urge the Government to outline how it will consider the inclusion of additional sectors within CBAM.
- *Accelerating the Implementation Timeline*: The current plan is for the UK CBAM to come into effect in 2027. However, the EU CBAM will be fully implemented by 2026. This one-year gap creates a significant risk of high-emission steel being diverted away from the EU market and flooding into the less protected UK market in 2026. The government should urgently explore mitigating actions, such as mandatory reporting ahead of the CBAM introduction and other trade measures. This would provide a more seamless transition and prevent the UK from becoming a dumping ground for carbon-intensive steel.

<u>Addressing Electricity Price Disparities More Aggressively:</u>
The high cost of electricity in the UK compared to European competitors remains a significant barrier to the competitiveness of the UK steel industry and can indirectly contribute to carbon leakage by making domestic production less viable. Beyond current measures, the government could explore:

- *Full Network Charge Exemptions:* Fully aligning with Germany and France by implementing a 90% exemption on all elements of network charging would reduce electricity costs for energy-intensive industries like steel.
- *Targeted Wholesale Market Interventions:* Implementing a two-way CfD to create a stable and predictable electricity price for the steel sector, insulating it from the fluctuations of the wholesale market and eliminating any disparity in prices between the UK and its closest competitors.

<u>Free allocations review</u>
The UK ETS Authority has proposed to reduce free allocation for sectors covered by the UK CBAM and rely solely on the UK CBAM for carbon leakage protection. This is an incredibly risky strategy, considering that the CBAM is an untested and unproven policy which has never been implemented anywhere in the world. As such, the policy's effectiveness is unknown, and it would be imprudent to rely exclusively on this policy. The steel industry is therefore advocating that free allocations should be maintained until the UK CBAM is proven effective, as reducing free allocations prematurely could increase compliance costs and deindustrialisation risks.

The UK CBAM should be fully operational and tested before free allocations are reduced, and a two-year delay in phasing down free allocations is recommended to allow for an evaluation of CBAM's impact on imports, emissions, and competitiveness. The effectiveness of the UK CBAM includes the following:

- Covering a broader range of products to prevent circumvention.
- Applying stricter default emissions values to avoid giving an advantage to high-emission importers.
- Including regular policy reviews and fraud prevention mechanisms.
- Addressing export leakage by ensuring UK producers are not disadvantaged in international markets. This could include exempting emissions associated with exports from ETS costs or allocating additional free allowances for export production.

Finally, it is recommended that the Government prepare contingency plans for a potential CBAM failure. If CBAM does not sufficiently mitigate carbon leakage, the Government should be prepared to adjust policies, including reinstating free allocations.

26. How can UK government encourage innovation in the steel sector, enhance collaboration and increase investment in RDI?

National innovation centres could be a great way foster innovation and support collaboration and investment in RDI, in areas such as decarbonisation, new product development, modern methods of construction, digital passports and scrap. For example, in relation to decarbonisation, there are further areas to reduce emissions beyond the transition to EAFs, such as the use of hydrogen to replace gas for heating purposes.

On scrap, more work remains to be done to improve the sorting, segregation, and separation of scrap, principally to remove the physical contamination from other non-ferrous items and to ensure the best value retention. The poor-quality scrap reduces productivity and increases costs and emissions. While there are pioneering projects underway to improve this, additional funding could improve processing and grade identification. UK Research and Investment has already provided £3.4 million to support the RECTIFI project at Swansea University. A new ringfenced pot of R&D funding, potentially provided by an extended Industrial Decarbonisation Challenge, should include support for removing problematic elements from the scrap pool and new casting technologies, which could produce higher-quality products from less controlled steel compositions.

27. Which areas and types of innovation are most likely to produce a successful and competitive UK steel sector? Could such impacts be achieved in both the short or long term?

A successful and competitive UK steel sector will be driven by innovation across several key areas and types, with impacts achievable in both the short and long term.

<u>Short-Term Innovation Impacts (within the next 5-10 years):</u>

1. Energy Efficiency Improvements: Implementing readily available energy efficiency technologies and optimising existing processes in EAF steelmaking can yield short-term gains in competitiveness. This includes heat recovery systems, improved insulation, efficient furnace operation, and digital monitoring and control.
    - Impact: Reduced energy consumption lowers operational costs, making UK steel producers more competitive.
2. Enhanced Scrap Processing and Utilisation: Innovation in scrap sorting, segregation, and processing techniques offers significant short-term potential. The UK generates a substantial amount of steel scrap but currently exports a large proportion of it. Investment in and development of advanced sorting technologies, including AI-driven analysis and improved physical separation methods, can lead to higher-quality scrap with reduced residual elements. This improved feedstock will enhance the efficiency and product range of existing Electric Arc Furnaces (EAFs), which already have a lower carbon footprint than traditional blast furnaces.
    - Impact: Increased domestic utilisation of high-quality scrap will reduce reliance on imported raw materials and lower the carbon intensity of UK steel production in the short term. It can also unlock valuable materials like copper and manganese contained within scrap, aligning with critical mineral strategies. Furthermore, improved scrap quality can enable EAFs to produce a wider range of steel grades, increasing their competitiveness. Initiatives like the RECTIFI and i-SPACE projects demonstrate the potential of such innovation.

<u>Long-Term Innovation Impacts (beyond 10 years):</u>

1. Development of Advanced Steel Grades and Products: Continuous innovation in material science to develop new high-strength, lightweight steels and steels with enhanced properties for specific applications, particularly in the green economy (e.g., advanced electrical steels for wind turbines and EVs, lightweight steels for automotive), will be critical for long-term competitiveness.
    - Impact: These advanced materials can command higher value in the market and enable downstream industries to improve the efficiency and performance of their products. Collaboration between steel producers, research institutions, and end-users is vital to identify market needs and drive innovation in this area.

2. Circular Economy Innovations: Beyond improving scrap processing, longer-term innovation should focus on designing steel products for easier disassembly, reuse, and remanufacturing at the end of their life. This requires collaboration across the value chain and the development of material passports and traceability systems.
    - Impact: Fostering a more circular economy for steel can reduce demand for primary steel production, conserve resources, and lower overall carbon emissions in the long run. It can also create new business opportunities in the reuse and remanufacturing sectors.

A successful and competitive UK steel sector will be underpinned by sustained innovation across the entire value chain. Short-term gains can be achieved through optimising existing processes, improving scrap utilisation, digitalisation, and adopting advanced manufacturing techniques. Longer-term innovations could include advancements in steel grades and circular economy innovations.

28. What skills does the industry need today and how are they likely to change over the next 10 years?

The UK steel industry today relies on a workforce with a strong foundation in traditional steelmaking processes, encompassing both integrated blast furnace operations and electric arc furnace (EAF) production. This includes skilled roles in areas such as:

- Melting and Refining: Expertise in operating and maintaining furnaces, controlling the chemical composition of steel, and refining processes.
- Casting: Skills in continuous casting operations to produce semi-finished steel products like slabs, blooms, and billets.
- Rolling and Forming: Operation of rolling mills and other forming equipment to produce finished steel products (e.g., sections, bars, plates, coils, tubes).
- Maintenance and Engineering: Mechanical, electrical, and process engineers are crucial for maintaining plant equipment, ensuring operational efficiency, and implementing process improvements.
- Quality Control: Technicians and metallurgists responsible for testing and ensuring the quality and specifications of steel products.
- Research and Development: Scientists and engineers involved in developing new steel grades, improving production processes, and exploring innovative technologies.
- Supply Chain Management: Professionals managing the procurement of raw materials (iron ore, scrap, coal, energy), logistics, and distribution of finished products.
- Management and Leadership: Individuals responsible for overseeing operations, strategy development, and business management.

The UK steel sector also supports a significant number of jobs that require specialised skills, as highlighted by the median steel sector salary being considerably higher than the national and regional averages. Many of these roles require technical qualifications, with a notable proportion of the workforce educated to graduate and postgraduate levels. Apprenticeships currently serve as a key route for developing skilled tradespeople within the industry.

The skills landscape of the UK steel industry is poised for some transformation over the next 10 years, driven primarily by the need to decarbonise steel production and the adoption of new technologies. The industry's commitment to Net Zero targets by 2050 and potentially near-zero emissions from ore-based steelmaking by 2035 necessitates a shift towards greener production methods. This transition will reshape the demand for specific skills and create new requirements in the following areas:

1. Electric Arc Furnace (EAF) Technologies: With the planned investments by Tata Steel to transition to EAF-based steelmaking (and British Steel having published similar plans), there will be a surge in demand for skills related to:
    - Advanced EAF operation and control systems.
    - Electrical engineering expertise for high-power electrical systems.
    - Energy management and optimisation within EAF processes.
    - Maintenance of EAF-specific equipment.

    - Understanding the nuances of producing a wider range of steel grades using EAFs, including managing residual elements through feedstock control and innovative melting techniques.
2. Advanced Manufacturing and Joining Technologies: To enhance efficiency and enable the use of a wider range of domestically produced steel, skills in advanced welding and joining techniques like laser and vacuum welding will be crucial.
3. Digitalisation and Automation: The increasing integration of digital technologies, artificial intelligence (AI), and automation across steel plants will require a workforce skilled in:
    - Data analytics and interpretation for process optimisation.
    - Robotics and automated systems operation and maintenance.
    - Cybersecurity to protect industrial control systems.
    - Digital modelling and simulation for process design and improvement.
4. Scrap Processing and Circular Economy: As the reliance on scrap steel increases, advanced skills in scrap sorting, characterisation, and processing technologies could be vital. This includes expertise in:
    - Advanced sorting techniques, potentially leveraging AI, and machine learning.
    - Material characterisation and analysis to assess scrap quality and composition.
    - Processing technologies to remove contaminants and upgrade lower-quality scrap.
    - Principles of circular economy and designing steel products for recyclability and reuse.
5. Sustainability and Environmental Management: A heightened focus on environmental performance and regulations will necessitate professionals with expertise in:
    - Environmental impact assessments and management systems.
    - Carbon accounting and reporting.
    - Waste management and resource efficiency.
    - Understanding and complying with evolving environmental regulations.

Meeting these evolving skills needs will require a concerted effort involving industry, educational institutions, and the Government. Investment in training programmes, upskilling initiatives for the existing workforce, and attracting new talent with these emerging skill sets will be critical for the UK steel industry to thrive in a low-carbon future.

29. What are the biggest barriers to attracting and retaining talent in the steel sector?

Several significant barriers exist when it comes to attracting and retaining talent within the steel industry:

- The geographical location of steel plants can present both an opportunity and a challenge for talent attraction and retention. Steel production has historically been concentrated in specific regions of the UK, often linked to historical access to raw materials. While this concentration supports local economies and communities, it can also limit the overall talent pool accessible to employers. Attracting individuals from other parts of the country may require incentives for relocation, and retaining local talent might be influenced by the availability of opportunities and quality of life in those specific regions. Furthermore, if younger generations are more inclined to live in larger urban centres, the more rural or industrial locations of some steel plants could be a deterrent.
- Competitiveness of compensation and benefits plays a crucial role in attracting and retaining skilled individuals. While the median steel sector salary is higher than national and regional averages, this may not translate into specialised and highly-skilled positions, especially when compared to potentially other rapidly growing sectors.
- Perception: Another hurdle is the historically perceived image of the steel industry. Traditional steelmaking, often associated with heavy manual labour, environmentally intensive processes, and older technologies, can struggle to appeal to younger generations entering the workforce today. Many graduates and early-career professionals are increasingly drawn to sectors perceived as being greener, more technologically advanced, and offering a different work environment. This perception can create an initial barrier to attracting talent, as individuals may not readily consider the steel industry as a desirable career path, overlooking the increasing role of technology and its crucial part in the UK's decarbonisation journey. A potential barrier could be a lack of widespread awareness of the modern realities of the steel industry. The industry is increasingly high-tech, playing a vital role in a sustainable future and offering diverse career opportunities.

- New technology: The ongoing transition to new, greener steelmaking technologies presents a significant challenge in terms of skills and workforce adaptation. This technological shift necessitates a workforce equipped with new and evolving skill sets in areas such as advanced electrical engineering, automation, data analytics, hydrogen handling, and environmental management. The current workforce, while possessing valuable expertise in existing methods, may require significant upskilling and reskilling to operate and maintain these new technologies effectively.

30. What support could UK government provide, or work with devolved governments to provide, the steel sector to best develop our skilled workforce? Is the steel industry able to train in the UK or should the skills needed be imported?

The UK government, working in collaboration with devolved administrations, could support the steel sector in developing the skilled workforce necessary for its future success. This could include:

- Apprenticeship schemes: Increasing the number and quality of apprenticeships in the steel sector is vital for attracting young talent and providing them with the foundational skills needed for a long-term career. Government incentives, such as grants or subsidies to employers taking on apprentices, could encourage greater participation.
- Graduate training programmes: Similar to apprenticeships, government support for graduate schemes within steel companies can attract highly educated individuals and provide them with structured development pathways into technical and leadership roles. Funding could help companies design and deliver comprehensive graduate programmes that include exposure to research and development, innovation, and sustainable practices.
- Upskilling and reskilling programmes for the existing workforce: As the industry adopts new technologies, significant investment will be required to upskill the current workforce. Government funding could support the development and delivery of training courses, workshops, and certifications in areas such as advanced electrical engineering, automation, data analytics, and hydrogen safety and handling. This support could be channelled through partnerships with further and higher education institutions or specialist training providers.
- Development of digital skills: The modern steel industry increasingly relies on digital technologies for process optimisation, data analysis, and automation.
- Industry placements and internships: Encouraging and supporting steel companies to offer high-quality industry placements and internships to students can provide invaluable practical experience and help attract graduates into the sector. Government funding or accreditation schemes could incentivise these opportunities.
- Research and development partnerships: Supporting collaborative research and development projects between steel companies and universities can not only drive innovation but also provide opportunities for postgraduate training and the development of highly specialised skills in areas critical to the sector's future, such as low-carbon steelmaking technologies.
- Engagement with schools and careers advisors: Providing information and resources to schools and careers advisors to raise awareness among young people about career pathways in the steel sector.

The UK steel industry has an existing foundation for domestic training through apprenticeships, graduate schemes, and ongoing professional development, and steel producers are actively involved in training and skills development. Furthermore, the UK boasts research and innovation expertise within universities and research organisations that can support the development of specialised skills. While the lack of skills is a challenge for the steel industry, it is not in the top five major issues facing the sector. So, while Government support could be welcomed, action on industrial electricity prices, trade framework, carbon leakage, procurement, and scrap would be more urgent.

For further information, contact:
Frank Aaskov, Director, Energy & Climate Change Policy, 07872 190965, faaskov@makeuk.org