

RESEARCH REPORT

The UK's scrap gap

Assessing the options for
forging the UK steel industry's
future

October 2026

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Executive summary

The UK's steel sector through the years

- In 2025, the UK steel sector generated £1.78 billion in gross value added, supported approximately 76,000 direct and supply chain jobs, and produced 2.6 million tonnes of crude steel.
- Steel employment is geographically concentrated: Wales and Yorkshire & Humber account for 53% of direct jobs, where steel wages run 34% above regional median earnings.
- A sector-wide multiplier of £1.68 per £1 of steel demand means the consequences of further contraction, or a successful expansion, are substantially larger than the sector's 0.065% share of UK GVA suggests.
- Three structural forces have driven the UK steel industry's long-run decline, and none has been fully resolved. Chinese state-subsidised overproduction, which has grown from 13% of global output in 1995 to 54% in 2023 and created a forecast global excess capacity of 721 Mt by 2027, has chronically suppressed world steel prices in ways that no domestic policy intervention can offset. Compounding this, UK industrial electricity has been more expensive relative to European competitors, driven primarily by wholesale costs linked to gas price exposure, and post-Brexit trade friction has added further structural cost layers.
- Policy costs on UK steel producers' electricity bills have been reduced by 93% through the British Industry Supercharger and Energy Intensive Industries Compensation Scheme, bringing them broadly in line with France and below Germany. Even so, UK steel producers paid 27 to 38% (£14 to 18/MWh) more for electricity than competitors in Germany and France in 2025/26, driven by higher network charges and wholesale costs. The increase in Network Charging Compensation from 60% to 90% from April 2026 will have helped ease cost pressure, leaving a remaining disparity driven primarily by wholesale costs linked to the UK's exposure to gas prices. The recent conflict in the Middle East has raised wholesale prices and is likely to have widened this gap.

The direction of travel for UK steel

- UK steel demand is projected to grow 54% by 2050, driven by construction, offshore wind, transmission infrastructure, and automotive. Against an expected domestic production pipeline of approximately 6.7 Mt, this leaves a production shortfall of 7.3 Mt by 2050. Closing the 7.3 Mt production shortfall would require over two Port Talbots' worth of new EAF capacity and an additional 4.7 GW of energy capacity.¹

¹ Hatch, UK Steel Strategy Demand Assessment Part 2 (2026), p.75.

- UK EAF producers already carry a lower embodied carbon footprint than the global blast furnace average, a position that translates directly into a cost advantage under both the UK CBAM (launching January 2027) and EU CBAM (live from January 2026), which will progressively price embodied carbon into import costs. With renewables supplying 53% of UK electricity in 2025, rising to 65% when nuclear is included, this advantage compounds automatically as the grid decarbonises further, at no additional cost to producers.
- Green steel procurement is shifting from aspiration to condition. Automotive OEMs with UK operations, including Stellantis, BMW Group, Jaguar Land Rover and Nissan, have set targets to cut emissions across their supply chains, with Stellantis and Jaguar Land Rover committed to net zero by 2038 and 2039 respectively. As steel is a significant part of the embedded emissions in vehicles, this indicates green steel adoption in the automotive industry could be rapid.
- The UK exports approximately 8 Mt of scrap steel annually, roughly the entire feedstock a fully built-out domestic EAF sector would require. The EAF transition creates the conditions to reverse this structural value leakage.
- Investment decisions taken now will determine whether domestic producers are positioned to serve the demand surge projected for 2028 to 2031, the period in which automotive green steel targets fall due, the offshore wind procurement pipeline peaks, and the net zero infrastructure build-out accelerates. New EAF capacity takes around 18 to 30 months to build, and three to six years from investment decision to commissioning for larger projects, so that window is already closing.
- The commercial case for continued blast furnace investment in the UK is materially weakened by several converging factors. The Scunthorpe furnaces have operated with years of underinvestment and relining would require capital expenditure of hundreds of millions of pounds; Tata Steel said that sustaining its existing configuration, or further investment in the traditional heavy end, was 'not economically or environmentally viable'. Progressive phase-out of free ETS allocations from 2027 is projected to make blast furnace operators less competitive by 2035. Against this backdrop, the UK Primary Steelmaking Review concluded that EAF is the most viable decarbonised form of primary steel production for the UK context.

Comparing methods for producing steel

- EAF production costs in Western Europe are estimated to be £49 per tonne cheaper than blast furnace production. While operating economics vary materially by site, input costs, and energy configuration, the cost differential favours EAF before any carbon pricing is applied. Once UK ETS costs are added, the gap widens further.
- As the UK grid decarbonises, EAF emissions fall in line with grid carbon intensity. On an increasingly renewable grid, EAF emissions would continue to fall, which would represent a meaningful advantage under both the UK and EU carbon border adjustment mechanisms.
- The principal remaining challenge for UK EAF operators is a structural electricity cost disadvantage of approximately £7.90 per tonne relative to French competitors in 2025/26, eased somewhat by the April 2026 increase in Network Charging

Compensation, and largely driven by the UK's exposure to gas price volatility through the electricity market's marginal pricing mechanism.

- The shift toward EAF-based production is a broad international trend rather than a UK-specific transition. In 2024, EAF accounted for 97% of crude steel production in Mexico, 72% in the United States, 70% in Türkiye, and 69% in Spain, reflecting steel industries built around scrap recycling rather than integrated iron ore reduction. The EU-27 average stood at 44%. By contrast, EAF shares remain substantially lower in Germany (29%), Japan (26%), South Korea (28%), and China (10%), where older integrated capacity remains dominant.



Introduction

The UK steel industry stands at a pivotal moment. The blast furnace era that defined British steelmaking for over a century is drawing to a close, with Port Talbot's furnaces having closed in September 2024 and Scunthorpe's remaining as the last operating facility of its kind. Instead of relining these furnaces, which is costly, in their place a new generation of electric arc furnace capacity is likely to be built. A central question is how that transition can be managed in a way that captures the economic opportunity ahead, rather than being defined by disorderly closures and a widening dependence on imports.

This report, prepared by the Energy and Climate Intelligence Unit (ECIU) using CBI Economics analysis, provides an evidence-based assessment of that transition. It does not take a policy position or advocate for a particular production mix. Instead, it presents a structured analysis of where the UK steel sector stands today, how different steelmaking technologies compare on the metrics that matter most, and what the direction of travel in domestic and international markets means for the industry's competitive and strategic position.

The report draws on ONS national accounts and input-output data, published industry sources and government strategy documents. Where data constraints limit precision, assumptions are stated transparently. The objective is to provide a structured review of the industry that supports informed debate about the future of UK steel, not to resolve the policy questions that remain open. Those questions, including the appropriate level of government support, the pace of transition, and the balance between domestic capability and import reliance, are ultimately matters for policymakers, investors, and the industry itself.

The report is structured as follows:

- **Chapter 1** sets out the current economic footprint of UK steel and its industrial history.
- **Chapter 2** examines the direction of travel for the sector and the strategic implications of the transition.
- **Chapter 3** provides a structured comparison of steelmaking technologies.
- **A concluding section** draws together the key trade-offs and considerations.

1. The UK's steel sector through the years

The UK steel industry has experienced a difficult period. A sector of genuine strategic and economic significance that has been in sustained structural decline for over five decades. This chapter sets out the current economic footprint of the industry and the historical forces that have shaped it, providing the foundation for the technology and policy analysis that follows.

KEY FINDINGS

- The UK steel sector generated £1.78 billion in GVA in 2025, supported around 34,000 direct jobs, and produced 2.6 Mt of crude steel, just 0.14% of world output and a historic low.
- Steel's true economic weight is larger than its headline figures suggest: every £1 million change in demand generates £1.682 million of total economic output, with construction (50%), mechanical engineering (19%) and automotive (14%) the dominant end-use sectors.
- Employment is heavily concentrated in Wales and Yorkshire and Humber, which together account for 53% of direct steel jobs, with steel salaries 34% above regional median wages in both regions, meaning job losses carry an outsized economic impact on communities with limited replacement options.
- UK crude steel output has fallen 77% since 2014, steel GVA has declined 60% in real terms since 1990, and primary steelmaking employment, one part of the steel industry, has collapsed by 93% since 1971 from 320,000 workers to 23,000. These are not cyclical fluctuations but the cumulative result of structural decline.
- Three forces have driven that decline: Chinese state-subsidised overproduction (now 54% of global output, up from 13% in 1995) has suppressed global prices; a persistent electricity cost gap of up to 50% above European competitors has made domestic production incrementally less viable; and post-Brexit trade friction added a reported 15% increase in transport and processing costs on trade flows that remain predominantly EU-oriented (78% of exports in 2025).
- These pressures have compounded one another over time, and the sector now faces the challenge of transition from a position of structural weakness rather than strength.

1.1 The current economic footprint of the UK steel industry

Despite decades of structural decline, the UK steel industry remains a significant component of the national economy. In 2025, the sector generated £1.78 billion in gross value added (GVA), supported 34,000 direct employees and an estimated 42,000 further jobs across the supply chain, and produced 2.6 million tonnes (Mt) of crude steel.^{2 3 4} Steel workers earn a salary premium of 22% above the national median, reflecting the skilled and capital-intensive nature of the industry.⁵ The statistics below set out the headline economic indicators for the sector.

Table 1: UK steel sector at a glance, latest available year

Metric	Value	Source / Note
Gross Value Added (GVA)	£1.78bn	<i>ONS GDP output approach, 2025</i>
Direct employment	34,000	<i>UK Steel, 2026</i>
Supply chain employment	42,000	<i>UK steel, 2026</i>
Total employment (direct + indirect)	~76,000	<i>UK Steel, 2026</i>
Contribution to UK balance of trade	£2.9bn	<i>UK Steel, 2026</i>
Crude steel produced	2.6 Mt	<i>UK Steel, 2026</i>
Salary premium	+22%	<i>Above national median wage, (UK steel 2026)</i>
Share of UK GVA	0.065%	<i>Down from 0.34% in 1990</i>
Share of manufacturing GVA	0.76%	<i>Down from 1.95% in 1990</i>
Businesses in the sector	1,160	<i>ONS BASL, 2025</i>

Sources: ONS GDP output approach; UK Steel Key Statistics Guide 2026 (ISSB); ONS BASL 2025.

While the sector's share of total UK GVA has fallen sharply (from 0.34% in 1990 to just 0.065% today), this headline figure understates the industry's true economic significance. Steel's contribution to manufacturing GVA stands at 0.76% (down from 1.95% in 1990), and the sector remains a major employer in a small number of regions where few comparable alternatives exist.

2 ONS GDP Output Approach / ONS Low-Level GVA, 2025.

3 ONS Business Register and Employment Survey (BRES) 2024, via Nomis; UK Steel Key Statistics Guide 2026 (ISSB).

4 UK Steel Key Statistics Guide 2026 (International Steel Statistics Bureau, ISSB data).

5 UK Steel Key Statistics Guide 2026 (International Steel Statistics Bureau, ISSB data).

1.1.1 The multiplier effect: steel's wider economic footprint

The direct GVA and employment figures alone do not capture the full economic weight of the UK steel industry. Analysis of ONS Input-Output data reveals a substantial multiplier effect: every £1 million change in demand for steel generates £1.682 million of total output across the whole UK economy.⁶

Every £1 million of demand for steel supports £0.64 million of GVA and £0.39 million of employee compensation across the UK economy. When combined with the supply chain employment estimate of 42,000 further roles, total associated employment is around 76,000 across direct and indirect positions.

The multiplier data illustrates the two-way nature of steel's economic role. Steel is both a direct producer of value and an enabler of value creation across downstream industries. Disruption to domestic steel supply (whether through plant closures, growing import dependency, or loss of capacity) therefore carries consequences that extend well beyond the sector's own GVA and employment statistics.

The import requirement component (£0.341 million per £1 million of steel demand) reflects the extent to which UK steel production itself draws on internationally traded inputs. This dependency is relevant to assessments of supply chain resilience at a time when the UK's domestic supply share sits well below government targets.

1.1.2 Steel's role in key industrial supply chains

Steel is an intermediate input embedded across the UK's most strategically significant industrial supply chains. ONS Input-Output data for 2023 identifies the motor vehicles sector as the single largest consumer of intermediate steel by value (£2,933 million in total, of which £2,751 million was sourced domestically), followed by fabricated metal products (£2,567 million), steel manufacturing itself (£1,756 million), other machinery and equipment (£1,476 million), and aircraft and spacecraft manufacturing (£1,183 million).⁷ Total intermediate steel consumption across the UK economy in 2023 stood at £13.8 billion, with domestic steel accounting for £6.5 billion and imported steel for £7.3 billion.

The high domestic sourcing share in motor vehicles manufacturing (94% domestic)

6 ONS Input-Output Supply and Use Tables 2023. These are economy-wide Type 1 multipliers reflecting both direct and indirect (supply chain) effects. The total output multiplier of 1.682 means every £1m of steel demand generates £1.682m of total economic output across all sectors.

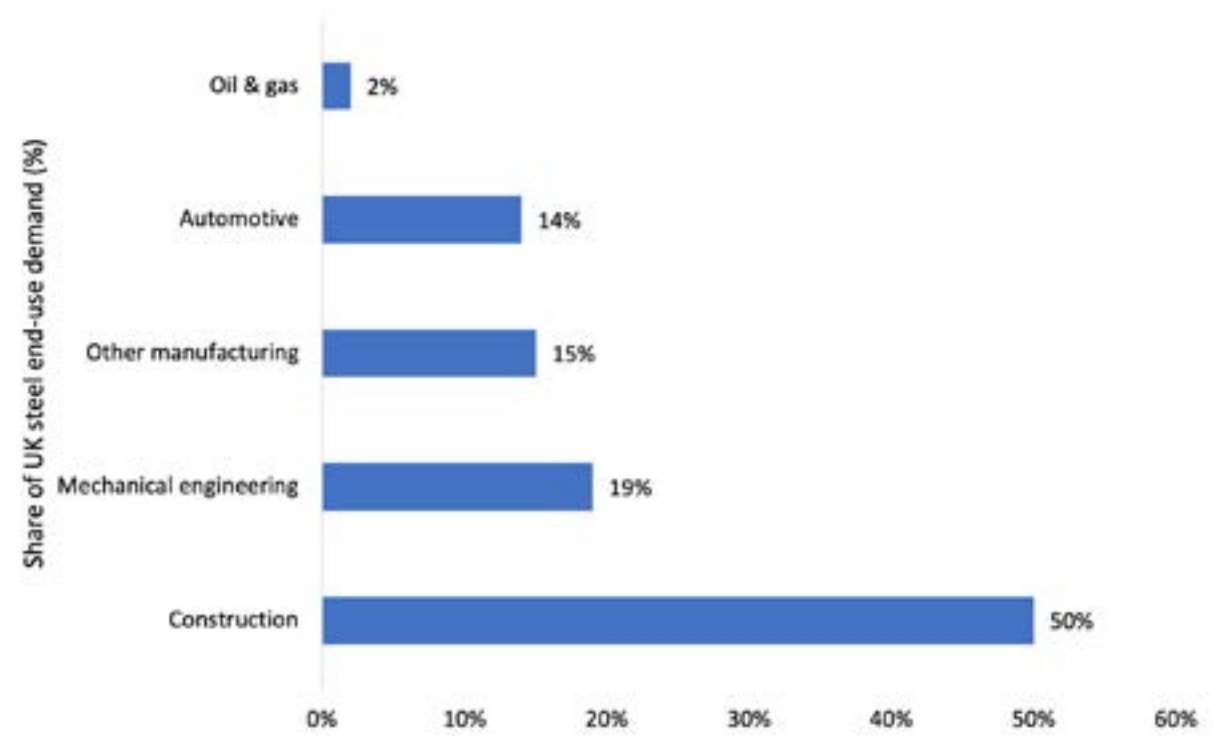
7 ONS Input-Output Supply and Use Tables 2023. Top industries by value of intermediate steel consumption, domestic and imported, 2023 (£ million). Total intermediate steel consumption UK economy 2023: £13.8bn; domestic: £6.5bn; imported: £7.3bn.

contrasts sharply with sectors such as fabricated metal products, where imported steel dominates. This variation highlights the uneven exposure of different UK industries to any further erosion of domestic production capacity and identifies the supply chains most vulnerable to disruption.

1.1.3 End-use demand: construction dominates

The sector-by-sector breakdown of steel end-use demand (the point at which finished steel is ultimately consumed) presents a different lens to the intermediate consumption picture. Construction is by far the dominant end-use sector, accounting for 50% of all UK steel demand in 2025, reflecting the structural steel requirements of housebuilding, commercial development, and infrastructure. Mechanical engineering (19%) and other manufacturing (15%) are the next largest consumers, followed by automotive (14%) and a small oil and gas segment (2%).

Figure 1: UK steel demand by end-use sector, 2025



Source: UK Steel Key Statistics Guide 2026 (UK Steel estimates).

The dominance of construction carries several important implications. First, UK steel demand is closely tied to the trajectory of domestic housebuilding and infrastructure investment, both of which are subject to material policy risk and cyclical volatility. Second, construction steel requirements are partly met by long products (sections, rebar, wire rod), which are produced in part by UK electric arc furnace (EAF) operators, meaning this segment of demand is among the most directly serviceable by existing and planned domestic capacity. Third, the government's ambition to deliver 1.5 million new homes over the current Parliament, alongside major infrastructure commitments, suggests construction steel demand may grow faster than the overall sector average over the medium term.

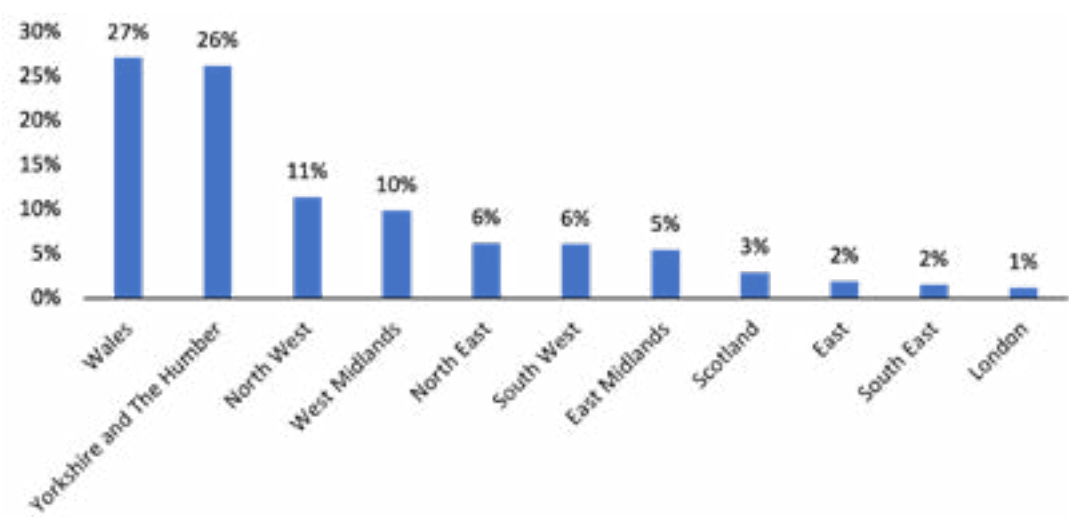
Automotive's 14% share carries strategic significance beyond its volume. Automotive original equipment manufacturers (OEMs) are among the most demanding steel customers by grade and specification, and are increasingly imposing Scope 3 emissions

requirements on their supply chains. Several major OEMs with UK manufacturing operations, including Stellantis, BMW Group, Jaguar Land Rover, and Nissan, have Scope 3 emissions targets, including net zero commitments by the late 2030s, which indicates faster green steel adoption in the sector. This creates both a near-term risk of market share loss for domestic producers unable to certify low-carbon credentials, and a medium-term opportunity for UK EAF operators whose inherently lower production emissions profile positions them to meet these requirements where blast furnace routes cannot.

1.1.4 Geographic concentration and regional labour market exposure

Steel employment in the UK is highly geographically concentrated. Wales and Yorkshire & Humber together account for 53% of all direct steel employees, a level of concentration that creates significant regional labour market exposure. In Wales, the dominance of the Port Talbot steelworks (the UK's largest integrated steel site prior to its blast furnace closure in 2024) means that a single facility accounts for the majority of the region's steel workforce.⁸ In Yorkshire & Humber, employment is spread across a broader range of sites, including Scunthorpe (British Steel), Rotherham (Speciality Steel UK), and several downstream processing facilities.

Figure 2: Regional distribution of direct steel employees, 2024.



Source: ONS Business Register and Employment Survey (BRES) via Nomis, 2024.

The regional wage premium amplifies the economic significance of this concentration. Steel salaries are 34% above regional median wages in Wales and Yorkshire & Humber, meaning that steel jobs in these regions carry a disproportionate income impact relative to replacement roles available locally.⁹

Job losses in steel cannot simply be offset by equivalent headcount growth in other sectors without accounting for the wage differential between steel employment and the alternatives available in the same labour markets.

8 ONS Business Register and Employment Survey (BRES) 2024, via Nomis.

9 UK Steel Key Statistics Guide 2026 (International Steel Statistics Bureau, ISSB data).

This dynamic is a critical factor in any assessment of transition costs. Policy interventions focused solely on headline job creation numbers, rather than quality-adjusted wage replacement, risk not fully addressing the true adjustment faced by affected communities. Both Wales and Yorkshire & Humber have historically faced structural challenges in attracting high-wage replacement employment at scale, making this a live and material risk as the sector continues its transition.

1.1.5 Current economic footprint summary

The current economic footprint of the UK steel industry presents a picture of a sector that has contracted significantly in both absolute and relative terms, but which retains a level of economic and strategic significance that its headline GVA share alone fails to convey. The combination of a meaningful output multiplier, deep embedment in key industrial supply chains, a geographically concentrated employment base with above-median wages, and exposure to sectors undergoing rapid demand growth (construction, automotive, offshore wind) means that the economic consequences of further contraction, or conversely of a successful expansion, are substantially larger than the sector's 0.065% share of UK GVA would suggest.

The 1,160 businesses that make up the UK steel sector range from large integrated producers to specialist processors and service centres.¹⁰ This diversity means that any single characterisation of "UK steel" carries risk, the economic fortunes of a specialist engineering steel producer in Rotherham, a rebar mill in Cardiff, and a tinplate operation in South Wales are linked by the common thread of steel, but driven by distinct demand conditions, cost structures, and strategic exposures. The analysis in subsequent chapters examines these distinctions in detail, setting them in the context of the technological and policy forces reshaping the industry.

1.2 The industrial history of UK steel

The UK steel industry has undergone one of the most dramatic contractions of any major industrial sector in post-war British history. Over a period spanning more than five decades, the sector has moved from being one of the foundations of the national economy to a fraction of its former scale, shaped by a combination of global market forces, structural changes in the energy and trade environment, and domestic policy choices, including decisions on industrial support, trade tariffs, and capacity management that successive governments have taken over the past five decades. Understanding this trajectory is essential context for assessing the industry's current position and the scale of the challenge and opportunity ahead.

1.2.1 A decade of accelerating output decline

Total UK crude steel output fell from 11.5 million tonnes (Mt) in 2014 to 2.6 Mt in 2025,

¹⁰ ONS Business Activity Size and Location (BASL), 2025.

a decline of 77% - reflecting the cumulative impact of Chinese state-subsidised overproduction suppressing global steel prices, that UK industrial electricity has been more expensive relative to European competitors (driven primarily by wholesale costs linked to gas price exposure), and post-Brexit trade friction rather than any single policy event.¹¹ This contraction was driven almost entirely by the collapse of blast furnace (BOF) production, which fell from 9.8 Mt to 1.6 Mt over the same period. Electric arc furnace (EAF) output, by contrast, remained comparatively stable at between 1.0 Mt and 1.7 Mt throughout, meaning EAF's share of total production grew from roughly 15% in 2014 to approximately 38% in 2025.

The pace of decline accelerated markedly after 2022. The Russia-Ukraine war drove a sharp spike in UK energy costs that year, compressing margins for energy-intensive producers. More significantly, the curtailment and planned closure of Port Talbot's blast furnaces, which were approaching the end of their operational lifespan and would have required substantial capital reinvestment to continue operating, drove the sharpest single-year drop in the data. The 2023 total was further depressed by an unplanned shutdown of British Steel's blast furnace from July to December. By 2025, UK steel production had reached its lowest level in the modern era, representing approximately 0.14% of global output.

Figure 3: UK crude steel output 2014 to 2025 (million tonnes)



Source: UK Steel Key Statistics Guide 2026 (ISSB data)

The ten-year output chart reveals two structurally distinct stories within the same industry. UK BOF production represents a sector in distress: its decline is structural, reflecting end-of-life assets and the economics of blast furnace operation at diminishing scale. UK EAF production tells a more resilient story, with output broadly maintained throughout the period and its share of the total now above the global average of around 30%. This divergence is central to understanding the industry's future, and is examined in detail in Chapter 3.

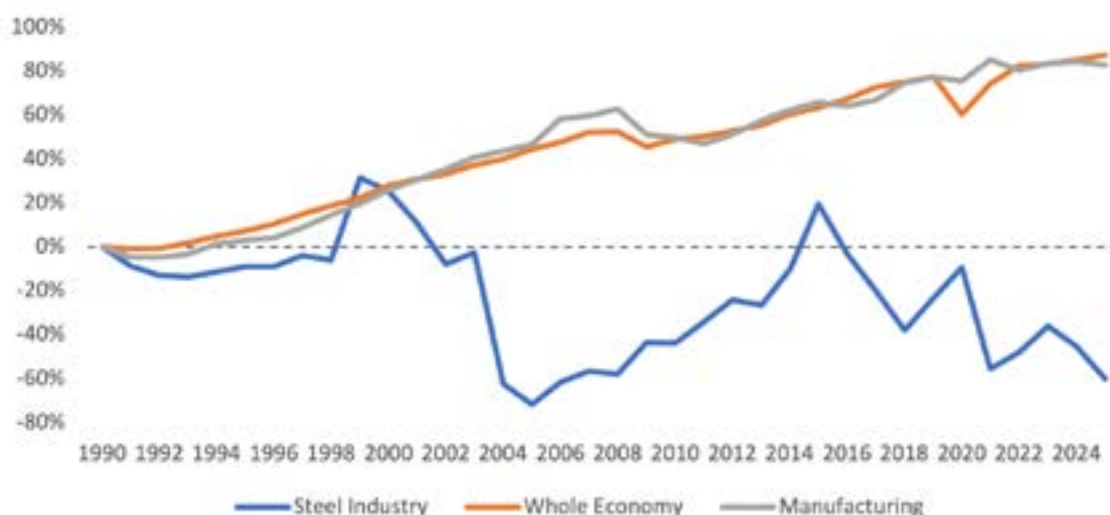
11 UK Steel Key Statistics Guide 2026 (ISSB data)

1.2.2 Long-run decline in economic value

The output decline of the past decade sits within a longer arc of structural contraction that stretches back to at least 1990. Analysis of ONS low-level GDP data shows that steel GVA has declined by approximately 60% in real terms between 1990 and 2025, while the wider UK economy grew by approximately 87% over the same period.¹² This represents a divergence of nearly 150 percentage points between the steel sector and the economy it serves. Importantly, even broader manufacturing output grew by 83% since 1990, meaning steel has significantly underperformed not just services-led growth but its own industrial peers.

This divergence is not primarily a story of cyclical downturns from which the sector subsequently recovered. Steel GVA has been highly volatile since 1990, but the long-run trend is one of decline; by 2025 it was around 60% below its 1990 level in real terms. The implication is that the forces bearing on the sector are structural rather than cyclical, and that a return to historical output and GVA levels would require a fundamental change in the conditions facing the industry rather than simply a recovery in the broader economic cycle.

Figure 4: Change in real economic value since 1990, 1990 to 2025



Source: Derived from ONS low-level GDP data

The contrast with manufacturing overall is particularly telling. Manufacturing has faced many of the same globalisation pressures, offshoring trends, and cost challenges as steel. That it has nevertheless grown by over 80% in real terms since 1990 while steel declined by 60% points to factors specific to the steel sector rather than to manufacturing.

¹² Derived from ONS low-level GDP data.

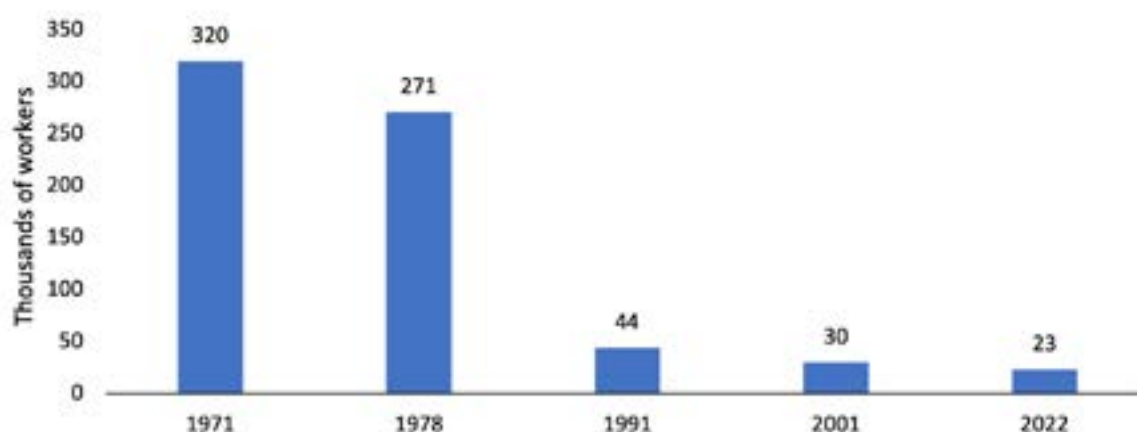
1.2.3 The collapse of steel employment

No single metric captures the human scale of the UK steel industry's long-run decline more starkly than employment. In 1971, the industry employed 320,000 workers in primary steelmaking alone. By 2022, that figure had fallen to 23,000, a reduction of 93%.¹³

Using a narrow industry definition that covers primary steelmaking only, and excluding downstream processing in order to ensure like-for-like comparability across the multiple datasets and sources spanning 1971 to 2022, the employment series reveals a pattern of severe and sustained contraction with no sustained recovery.

The most dramatic decline occurred between 1978 and 1991, when employment fell from 271,000 to 44,000, a reduction of 84% in just thirteen years. This period encompassed the privatisation of British Steel in 1988, the rationalisation of the nationalised industry in the early 1980s, and the broader programme of industrial restructuring that characterised UK economic policy during that decade. The scale and speed of this contraction was without parallel in any comparable industrial sector in the UK economy..

Figure 5: UK steel workforce 1971-2022 (thousands, primary steelmaking only)



Source: House of Commons Library CBP-7317, April 2025. Note: data points are not evenly spaced; years selected to capture the sharpest periods of decline.

The geographic concentration of this employment loss compounds its economic impact. As set out, steel salaries carry a significant premium above regional median wages in Wales and Yorkshire and Humber, the two regions most heavily exposed to steel employment. The consequence is that each job lost in steel represents a larger-than-average income shock to local labour markets that have limited capacity to absorb it through alternative employment of comparable wage quality.

¹³ House of Commons Library CBP-7317, April 2025 (ONS Census of Employment 1971-78; ONS Annual Employment Survey 1991; ONS Annual Business Inquiry 2001). A narrow industry definition is used, covering primary steelmaking only and excluding downstream processing, to ensure comparability across multiple datasets spanning 1971 to 2022.

1.2.4 Three structural drivers of long-run decline

The decline does not reflect a single cause but the successive accumulation of structural pressures over five decades. In the 1970s and 1980s, the primary challenge was domestic: overcapacity and the permanent loss of employment at scale. From the 1990s onwards, Chinese state-subsidised overproduction began suppressing global steel prices, eroding the margins available to higher-cost producers including the UK. By the mid-2010s, an electricity cost disadvantage had emerged as an additional competitive penalty, peaking at up to 50% above French and German prices in 2022-23 following the energy price shock triggered by Russia's invasion of Ukraine, before policy interventions, drawing on approaches already in place in France and Germany, began to narrow the gap. Most recently, the UK's exit from the EU single market added Brexit-related trade friction onto a sector. Today, the structural pressures that have shaped the UK steel industry's long-run decline have not been resolved.

Chinese overproduction and global oversupply

The most significant global structural shift of the past three decades has been China's emergence as the dominant force in world steel production. China's share of global steel output grew from 13% in 1995 to 54% in 2023.¹⁴ This expansion was driven not by equivalent growth in domestic demand but by state-subsidised capacity expansion that created a chronic global surplus. The resulting downward pressure on steel prices eroded the margins of producers in higher-cost markets, including the UK, and made sustained investment in domestic capacity increasingly difficult to justify on purely commercial grounds.

Global excess capacity is forecast to reach 721 Mt by 2027, equivalent to 13% more than total OECD production capacity.¹⁵ The OECD Global Forum on Steel Excess Capacity has documented the extent to which government subsidies have sustained this overcapacity, but coordinated international action to address it has remained limited. For UK producers competing in global markets, the structural price suppression from Chinese overproduction has represented a persistent headwind that domestic policy has been largely unable to offset.

A persistent electricity cost disadvantage

Steel production, particularly via the electric arc furnace route, is highly electricity intensive. The UK's disadvantage in industrial electricity pricing has therefore been a direct competitive penalty for domestic producers for over a decade. According to UK Steel, UK steel producers paid 27 to 38% (£14 to 18/MWh) more for electricity than competitors in Germany and France in 2025/26.¹⁶ Against France, the gap was almost 40%, costing the sector around £41 million in 2025/26 alone. UK Steel estimates the

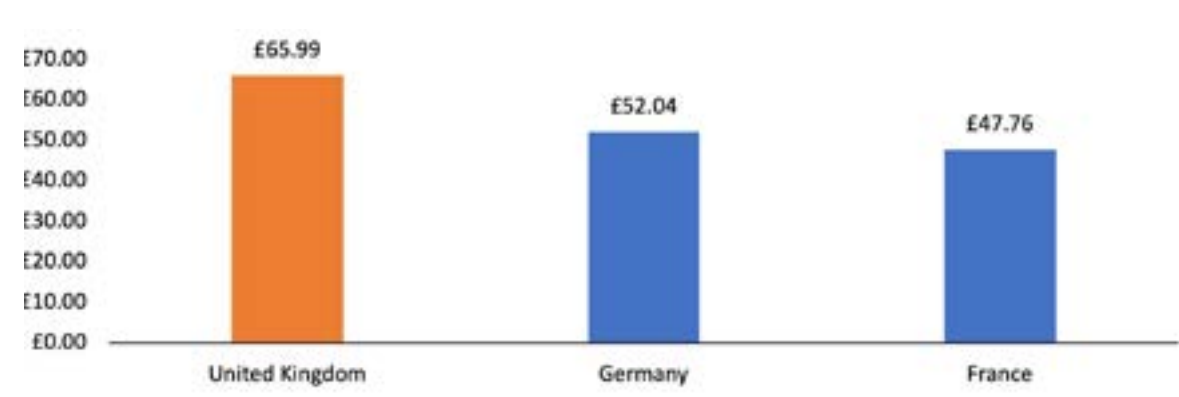
14 World Steel Association, World Steel in Figures 2024, 'Steel production and use: geographical distribution, 2013 and 2023' (worldsteel.org, June 2024)

15 UK Steel Strategy (March 2026)

16 UK Steel, "Steel must wait until 2027 for £14.5 million power price savings" (October 2025)

cumulative penalty relative to French and German competitors at £848 million since 2017/18.

Figure 6: Electricity price for steel producers 2025/26 (£/MWh, including all exemptions and compensations)



Source: UK Steel, Key Statistics Guide 2026

The gap matters most for EAF-based production, and will become more significant as the UK steel industry completes its transition away from blast furnaces. A predominantly BOF-based sector could absorb relatively high electricity costs, because blast furnaces are not primarily electricity users. At the standard EAF energy intensity of 0.435 MWh per tonne of crude steel, the 2025/26 gap is equivalent to a cost disadvantage of around £7.90 per tonne relative to French producers and £6.10 per tonne relative to German producers,¹⁷ before any other operating cost differences are considered.

UK Steel identifies three components of the gap:

- Policy costs have been largely addressed. The British Industry Supercharger and the Energy Intensive Industries Compensation Scheme have cut policy costs on steel producers' electricity bills by 93%, bringing them broadly in line with France and below Germany.
- Network charges remained higher. In 2025/26 UK steelmakers faced network charges of £8.5/MWh, compared with £2.56/MWh in Germany and £0.85/MWh in France. From April 2026 the government increased Network Charging Compensation from 60% to 90%. UK Steel estimates this will reduce prices by around £6.50/MWh and bring network and policy costs in line with European competitors, although the compensation is paid a year in arrears, from 2027,¹⁸ The uplift will therefore have helped to ease cost pressure on steelmakers.
- Wholesale costs are the primary driver. UK Steel identifies higher wholesale prices, linked to the UK's reliance on gas-fired power generation, as the main source of the remaining gap.¹⁹

17 0.435 MWh/t (UK Steel Strategy Annex B) × £18.23/MWh = £7.93/t; × £13.95/MWh = £6.07/t.

18 UK Steel, "Steel must wait until 2027 for £14.5 million power price savings" (October 2025)

19 UK Steel (October 2025).

The remaining gap primarily reflects the unresolved wholesale cost component, which existing support does not address. Because the wholesale price is primarily determined by gas prices, the size of the gap can change substantially within a single year. The rise in wholesale gas prices following the Middle East conflict is likely to have added to cost pressure since UK Steel's assessment. Addressing electricity costs remains a precondition for the long-run viability of the post-transition industry, not a problem that has been fully solved. As renewable capacity continues to expand, the wholesale cost pressure that drives the residual gap is expected to ease over time as renewables shift older, less efficient gas plants off the system.

Brexit trade friction with the EU

The UK's exit from the EU single market introduced a third layer of structural cost for the steel sector. Tata Steel reported a 15% increase in transport and processing costs attributable to Brexit-related trade friction.²⁰ The materiality of this figure reflects the extent to which UK steel trade remains oriented towards the EU. In 2025, 78% of UK finished steel exports went to the EU and 64% of finished steel imports came from the EU (by volume).²¹ The additional logistical complexity and cost created by regulatory divergence, customs procedures, and rules of origin requirements has therefore affected the majority of the sector's trade flows.

The trade friction effect interacts with the ongoing UK-EU CBAM and ETS linkage question, and with the uncertainty created by US tariff policy following the imposition of 25% steel tariffs in 2025, in ways that will shape the sector's competitive position into the 2030s. While the US accounts for a relatively small share of UK steel exports, the tariff environment adds a further layer of trade uncertainty at a moment when the sector is already navigating significant structural change. These dynamics are not examined in detail here, but they form part of the structural backdrop against which the UK steel industry's historical decline and prospective transition must be understood.

1.2.5 Historical decline summary

The UK steel industry's history since 1971 is, in aggregate, a story of sustained contraction driven by forces operating across different timescales and through different channels. The immediate cause of the sharpest employment losses in the 1980s was domestic restructuring and the rationalisation of the nationalised industry. The longer-run cause of the continued output and GVA decline since 1990 has been a combination of global price suppression from Chinese overcapacity, a structural electricity cost disadvantage, driven by wholesale costs, that has made UK production incrementally less competitive with each passing year, and post-Brexit trade friction with the sector's most important market.

These forces are not independent, each has compounded the others. Chinese overproduction suppressed the prices that might otherwise have justified investment to address the energy cost gap. The energy cost gap reduced margins to the point where

20 Tata Steel UK Limited, Annual Report and Accounts 2020-21. The report states that Brexit has added approximately 15% to transport and processing costs and describes this as "an ongoing challenge".

21 UK Steel Key Statistics Guide 2026 (ISSB)

plants could not accumulate the capital reserves needed to fund technology transitions. Brexit friction added costs precisely at the moment when margins were already under the most severe pressure. The result is a sector that arrived at 2025 producing just 2.6 Mt of crude steel, at a historic low of 0.14% of world output, with its largest primary steelmaking site having just completed the closure of its blast furnaces.

This is the baseline from which the UK steel industry's potential transition and expansion must be assessed. Chapters 2 and 3 examine the technology options available for that transition and the direction of travel in domestic and international markets that will determine whether the scale of the opportunity is sufficient to reverse the long-run trajectory of decline.



2. The direction of travel for UK steel

The UK steel industry is in the middle of a technology transition that will be largely complete within this decade. This chapter sets out the structural shifts underway, the demand outlook, the feedstock position, the investment committed to date, the risks of delay, and an assessment of the international landscape.

KEY FINDINGS

- UK steel demand is projected to grow by 54% from 9.1 Mt in 2025 to 14.0 Mt in 2050, driven by construction, offshore wind, electric vehicles and grid infrastructure. Against expected domestic production of 6.7 Mt post-transition, the supply gap represents a cumulative market opportunity of £93 billion. Over two Port Talbots' worth of new EAF capacity will be needed to close the production gap and meet 2050 UK steel demand.
- The UK generates 10-11 Mt of scrap annually but uses less than 25% domestically, exporting approximately 8 Mt. The EAF transition could increase domestic scrap demand threefold by 2040, transforming a structural value leakage into a domestic competitive asset.
- Green steel procurement is shifting from aspiration to condition. Major automotive OEMs have set targets to cut emissions across their supply chains, with Stellantis and Jaguar Land Rover committed to net zero by 2038 and 2039 respectively. As steel is a significant part of the embedded emissions in vehicles, this indicates green steel adoption in the automotive industry could be rapid.
- As the UK grid decarbonises, EAF-based production carries a structural emissions advantage that compounds over time without additional cost to producers. EAF Scope 2 emissions fall as renewable capacity expands, with 53% of UK electricity already from renewable sources in 2025, this advantage is already material under both the UK CBAM and EU CBAM.
- The window for a managed transition is narrowing. New EAF capacity takes three to six years from investment decision to commissioning, meaning investment decisions taken in 2026-2027 determine competitive capability for 2028-2031, the period in which the demand surge from offshore wind, grid infrastructure and automotive green steel requirements will be at its peak.

2.1 Five structural shifts defining the sector

The UK steel industry is being shaped by five structural shifts that together define the direction of travel for the next decade and beyond.²² The first is the end of the blast furnace era. Port Talbot's blast furnaces closed in September 2024; Scunthorpe's remain the UK's last operating BF facility, with the government having intervened through the Steel Industry (Special Measures) Act 2025 to prevent premature uncontrolled closure. British Steel was brought into public ownership in July 2026, and in September 2026 the government announced that it will work towards the public acquisition of Speciality Steel UK. The Scunthorpe furnaces have suffered years of underinvestment and continue to face health and safety and maintenance problems, with the NAO noting that production has consistently fallen short of targets.²³ In addition, the UK Primary Steelmaking Review has concluded that EAF is the most viable decarbonised form of primary steel production.

The second shift is the emergence of EAF as the primary route for new UK steelmaking capacity. Tata's Port Talbot EAF (3.2 Mt, due online in 2027/28), British Steel's proposed transition to one EAF at Scunthorpe and one at Teesside (timelines unconfirmed), 7 Steel's operational Cardiff facility (1.2 Mt, 98% scrap, with a £30 million hydrogen-ready furnace being installed in one of its rolling mills as part of a £100 million investment programme announced in May 2026), and Marcegaglia's Sheffield expansion (stainless, scheduled for commissioning mid-2026) collectively represent a pipeline that will shift the UK from 38% EAF share today to between 75% and 85% once Port Talbot comes online, moving substantially above the current global average of approximately 30%

The third is the scale of the domestic supply gap, a cumulative market opportunity of £93 billion between 2025 and 2050 across sections, plates, strip and specialist steel that is currently being met by imports. The fourth is the speed at which green steel is becoming a procurement condition, driven by customer Scope 3 commitments, CBAM mechanisms and public procurement rules. The fifth is the tightening of the trade environment, with a 50% out-of-quota tariff replacing the safeguard measure from July 2026 and the UK CBAM launching in January 2027.

2.2 Demand outlook

Hatch's demand assessment for the Department for Business and Trade projects UK steel demand growing from 9.1 Mt in 2025 to 14.0 Mt in 2050, an increase of 54% at an average annual growth rate of 1.7%.²⁴ The growth is driven principally by four sectors. Construction, already 50% of UK steel end-use, will benefit from the government's 1.5 million home housebuilding target and a substantial infrastructure pipeline. Offshore wind is expected to require 26.1 Mt of plate steel between 2025 and 2050 if its supply chain were fully localised, contributing to a £22 billion cumulative market gap in plate, with

22 UK Steel Strategy (March 2026); Hatch UK Steel Strategy Demand Assessment (2025).

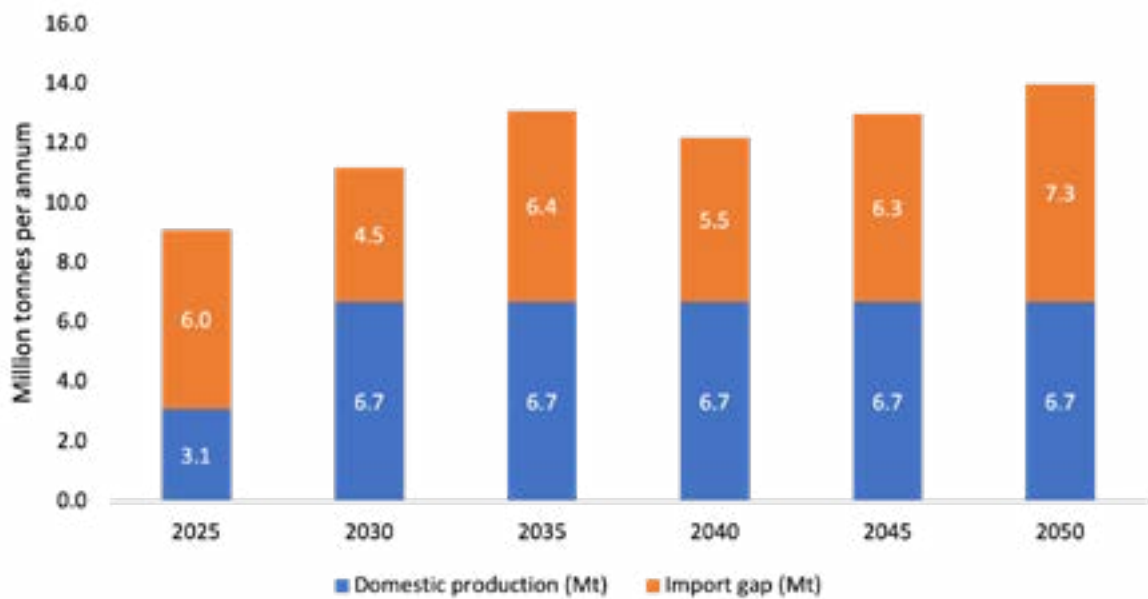
23 NAO, Investigation into the government's intervention in British Steel's Scunthorpe site (March 2026)

24 Hatch / UK Steel Strategy Demand Assessment (2025). The 14.0 Mt figure represents the status quo localisation scenario; the 100% localisation scenario reaches 15.4 Mt by 2050. Average annual demand growth of 1.7% is the Hatch/DBT central projection.

tower structures, monopile foundations and transition pieces among the key products. Transmission and distribution infrastructure for the energy transition represents a high-growth segment, with a 12% average annual growth rate projected by Hatch. Automotive demand is expected to grow at approximately 2% per annum as EV production in the UK expands.

Against this demand trajectory, the expected domestic production pipeline reaches approximately 6.7 Mt in steady-state post-transition, leaving a gap of 7.3 Mt by 2050 under status quo localisation assumptions. The gap is, in a meaningful sense, the central policy and commercial question for UK steel. It represents steel that will be consumed in the UK economy regardless of whether it is produced domestically or imported. The cumulative value of that demand between 2025 and 2050 is £223 billion at status quo localisation rates, rising to £248 billion under a 100% localisation scenario (these figures represent the size of the overall market rather than the value of domestic production alone).²⁵ The government's stated objective is to return domestic supply to 40-50% of demand (from 30% today), which would imply domestic production of 5.6-7.0 Mt against 2050 demand, a target broadly consistent with the expected pipeline assuming it is fully delivered and retained. Based on these Hatch forecasts, to close the import gap entirely by 2050 over two Port Talbots' worth of additional EAF capacity would need to be built..

Figure 7: UK steel demand outlook 2025-2050 (million tonnes)



Source: Hatch / UK Steel Strategy Demand Assessment (2025); UK Steel Strategy March 2026

The demand outlook also carries a significant green steel dimension. The government's ambition is for 90% or more of UK steel demand to be supplied as green steel by 2050. EU CBAM (live from January 2026) and UK CBAM (launching January 2027) will progressively price high-emission imports, creating a structural tailwind for low-carbon domestic production. The Clean Industry Bonus for offshore wind Contracts for Difference from 2026 allows developers to include UK steel manufacturers and creates a green

25 Hatch / UK Steel Strategy Demand Assessment Parts 1 and 2 (2026). Cumulative market values at basic prices 2025-2050.

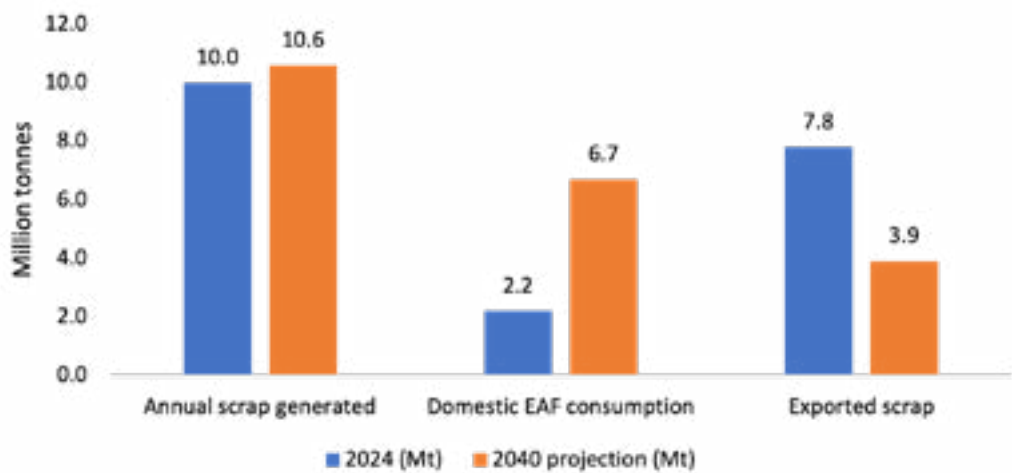
procurement premium. The Embodied Emissions Reporting Framework, consulted on in 2025, is moving the construction sector towards mandatory green steel standards.

The sectors driving projected demand growth are broadly serviceable by EAF-based production. Construction steel, offshore wind structures, and transmission infrastructure all fall within the core product range of the confirmed UK EAF pipeline. Automotive advanced high-strength steels require DRI supplementation to meet the most demanding surface quality specifications but are increasingly produced via EAF internationally, as demonstrated by US Steel's Big River Steel facility. The partial exception is grain-oriented electrical steel for transformers and grid infrastructure and would require either DRI addition or imported slab for downstream rolling. No domestic DRI production facility is currently in the confirmed UK investment pipeline, though DRI and hot-briquetted iron can be procured on the open market and charged into existing EAFs as a nearer-term solution.

2.3 Scrap feedstock

The UK's scrap position represents a structural feedstock advantage that is not fully reflected in current domestic utilisation rates. The UK generates 10-11 Mt of steel scrap annually but currently uses less than 25% domestically, exporting approximately 8 Mt per year.²⁶ This is approximately the entire feedstock that a fully built-out UK EAF sector would require. The UK currently exports a raw material and re-imports it as a higher-value finished product, which represents a structural value leakage that the EAF transition helps create the conditions to reverse.

Figure 8: UK steel scrap, generation, domestic use and exports (Mt, 2024 and 2040 projection)



Source: UK Steel Strategy Demand Assessment Part 2 (Hatch, 2026)

²⁶ UK Steel Strategy (March 2026); UK Steel Key Statistics 2025 (ISSB); HC Deb 23 January 2024; UK Steel Strategy Demand Assessment Part 2 (Hatch, 2026). The 8 Mt export figure is the approximate residual after domestic EAF consumption of ~2.2 Mt from 10-11 Mt generated.

Hatch projects that the EAF transition will increase domestic scrap demand approximately threefold by 2040, to around 6.7 Mt, as the expected pipeline facilities reach full output. This will still leave a substantial domestic export surplus, but will dramatically reduce the proportion of UK-generated scrap being shipped overseas. The Steel Strategy committed to forming a cross-government scrap working group (DBT, DEFRA, DESNZ) by May 2026, with a mandate covering regulatory conditions, market structure, and measures to improve domestic scrap flows including exploring the reduction of vehicle exports.

The feedstock picture has a quality dimension as well as a quantity one. Demand for low-copper, high-quality scrap will rise sevenfold to eightfold as EAFs come online, reflecting the more demanding quality requirements of flat product grades. Current scrap sorting and processing infrastructure, and existing regulations governing end-of-life vehicles, may constrain the availability of the right grades of scrap in the volumes required. This represents a supply chain investment opportunity in its own right; upgrading domestic scrap sorting, processing, and grading infrastructure to meet the quality specifications of a predominantly EAF-based sector would create new industrial capacity and jobs in the recycling and metals processing sector, complementing rather than competing with the steelmaking transition itself.

2.4 Green steel procurement

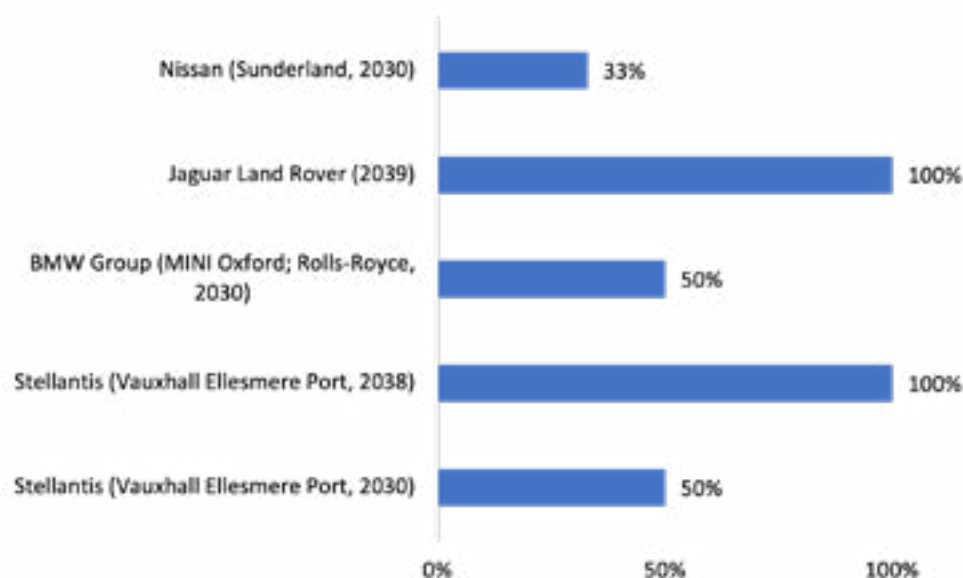
UK steel producers face a concrete and near-term commercial risk. Major industrial customers are hardening their procurement requirements in ways that favour low-carbon supply, and domestic producers unable to meet those specifications risk losing established supply relationships to imported alternatives. The mechanism driving this shift is the embedding of green steel requirements into customer Scope 3 emissions targets, which are reinforced by investor expectations and EU regulatory obligations including the Corporate Sustainability Reporting Directive. For UK EAF operators, whose production emissions profile is inherently lower than blast furnace routes, this creates both an immediate competitive advantage over higher-emission suppliers and a medium-term opportunity for differentiated pricing as carbon border adjustment mechanisms progressively price embodied emissions into import costs.

In the automotive sector, which represents 14% of UK steel demand and is the largest intermediate consumer of domestically produced steel, the four major OEMs with UK manufacturing operations have set targets to cut emissions across their supply chains: Stellantis (Vauxhall) by 50% by 2030 and to net zero by 2038; BMW Group (MINI and Rolls-Royce) by 50% by 2030; Jaguar Land Rover to net zero by 2039; and Nissan (Sunderland) by 33% by 2030.²⁷ Interim targets can be met partly through the shift to electric vehicles, but as steel is a significant part of the embedded emissions in vehicles, the net zero commitments by the late 2030s imply a largely decarbonised steel supply. For UK steel

²⁷ Hatch, UK Steel Strategy Demand Assessment Part 1 (2025), p.61, which identifies these as interim Scope 3 emissions targets; company disclosures, including Stellantis Form 20-F (2024) and Jaguar Land Rover's Reimagine strategy. These are emissions targets covering OEMs' supply chains rather than steel procurement commitments; specific verification mechanisms vary by OEM.

producers, these targets signal growing demand for certified low-carbon steel. Producers unable to demonstrate low-carbon credentials by the late 2030s risk losing supply relationships to imported green steel from EAF producers in markets that transitioned earlier, and procurement chains may be difficult to recover once they have shifted.

Figure 9: Automotive OEM Scope 3 emissions targets (UK manufacturing operations)



Source: Hatch, UK Steel Strategy Demand Assessment Part 1 (2025)

In construction, which represents 50% of UK steel demand, Hatch's construction pathway for the UK Steel Strategy, based on the non-residential emissions reductions advised in the Climate Change Committee's Seventh Carbon Budget, implies green steel adoption of 29% by 2030, rising to 97% by 2050.²⁸

Current public procurement policy creates a preference for UK steel but cannot guarantee domestic sourcing where domestic capability does not yet exist. Procurement Policy Note 022, issued in June 2025, requires all central government departments and their agencies to consult UK Steel's Digital Catalogue before making design and procurement decisions, creating a structured obligation to consider UK supply first. In practice, however, the low-carbon specifications that public contracts are increasingly requiring, particularly for construction and infrastructure, may outpace what UK producers can currently certify, meaning the preference potentially goes unexercised precisely in the segments where green steel demand is growing fastest.

The offshore wind sector illustrates both the scale of the commercial opportunity and the risk of losing it by default. Only 2% of the steel in offshore wind towers and other components used in UK projects is currently manufactured domestically, with most imported from EU-based OEMs, against a total market of 26.1 Mt needed between 2025 and 2050.²⁹ The low domestic share reflects both a historical lack of UK capacity in the specialist heavy plate grades that offshore structures require, and the loss of Port

²⁸ Hatch, UK Steel Strategy Demand Assessment Part 1 (2025), pp.58–60.

²⁹ Hatch, UK Steel Strategy Demand Assessment Part 1 (2025), p.49.

Talbot's blast furnaces as the primary domestic source of flat-rolled heavy plate. The Clean Industry Bonus for offshore wind CfDs from 2026 creates a financial incentive for developers to include UK steel, but this incentive can only be exercised where UK producers can supply the relevant grades at competitive quality and price.

2.5 Government investment and the policy framework

The government has committed approximately £2.5 billion in direct support to rebuild and modernise UK steel, alongside broader clean energy and advanced manufacturing programmes through the National Wealth Fund (£5.8 billion) and the GBE Offshore Wind Supply Chain Fund (£300 million).³⁰ The largest single commitment is the £500 million grant to Tata Steel for the Port Talbot EAF transformation, part of a £1.25 billion total project. Sheffield Forgemasters has received over £420 million including a new machine shop for the AUKUS submarine programme, cementing its role as the government's designated sovereign defence asset.

Table 2: Government investment commitments in UK steel (as at March 2026)

Investment / Programme	Amount	Type	Notes
Tata Steel Port Talbot EAF transformation	£500m	Grant	Part of £1.25bn total; £750m from Tata Steel
Sheffield Forgemasters expansion	£420m+	Grant / public investment	Includes machine shop for AUKUS submarine programme; sovereign defence asset.
National Wealth Fund (clean energy and advanced manufacturing)	£5.8bn	Patient capital	Broader mandate including steel; clean energy and advanced manufacturing
GBE Offshore Wind Supply Chain Fund	£300m	Supply chain fund	Critical components including UK steel for offshore wind
Marcegaglia Stainless Sheffield EAF	£50m	Private investment	New EAF at Sheffield, 2026; stainless steel specialist
Total government commitment to UK steel	£2.5bn	Direct commitment	Support, rebuild and modernise UK steel (UK Steel Strategy, March 2026)

Source: UK Steel Strategy, March 2026.

The strategic aim underpinning these commitments is to return domestic supply to 40-50% of demand from its current 30%, with all growth in green EAF-based production.

³⁰ UK Steel Strategy, March 2026. The £2.5bn figure covers direct government commitment to support, rebuild and modernise UK steel. The National Wealth Fund (£5.8bn) and GBE Offshore Wind Supply Chain Fund (£300m) are separate programmes with broader mandates that include steel.

On the trade side, the new steel trade measure from July 2026 replaces the expired safeguard with tighter quota volumes, a 50% out-of-quota tariff applying to all origins including FTA partners, and an Article 28 WTO process to raise the UK's bound steel tariff ceiling. UK-EU ETS linkage negotiations, agreed in principle at the May 2025 Leaders' Summit, would create mutual CBAM exemptions that protect the 78% of UK steel exports that go to EU markets from EU CBAM charges.

2.6 The costs of delay

The financial position of the UK's remaining blast furnace operator makes the cost of delayed transition concrete. British Steel's 2023 statutory accounts show revenues of £1.26 billion and a pre-tax loss of £231 million, including £33 million of asset impairments. Debt outstanding stood at £736 million, mostly loans from Jingye or associated companies, almost two thirds of which was payable within one year. The auditors qualified their opinion over inventory records and reported a material uncertainty over the company's ability to continue as a going concern, noting that it required further parent funding with no legally binding agreements in place. In March 2025, British Steel said it was losing around £700,000 a day.³¹

The commercial case for continued blast furnace investment in the UK is materially weakened by the trajectory of ETS cost escalation alone. According to UK Steel, BF-BOF ETS costs could see a sevenfold increase driven by the progressive phase-out of free ETS allocations over nine years from 2027.³² For any operator already facing structural operating losses, an additional cost burden of this scale over a nine-year period makes the investment case for continued blast furnace operation increasingly difficult to justify on commercial grounds. These projections should not be treated as a forecast of costs that will be incurred, the UK's confirmed transition trajectory makes it unlikely that any blast furnace will still be operating by 2035, but they illustrate why the economics of continued primary steelmaking via the blast furnace route are deteriorating, independent of any other operational or market pressures.

The transition window is also time-constrained in a way that makes delay structurally costly. New EAF capacity requires between 36 and 72 months from investment decision to commissioning. Investment decisions taken in 2026-2027 determine competitive capability for 2028-2031, the period in which the first wave of automotive green steel targets falls due, the offshore wind procurement pipeline is at peak volume, and the transmission and distribution build-out accelerates. Capacity commissioned after this window misses the demand surge it was designed to serve. The sunk cost trap works in both directions, continued investment in ageing blast furnace infrastructure delays the transition without resolving the underlying viability question, while inaction on new EAF

31 British Steel Limited, accounts to 31 December 2023 (Companies House no. 12303256); British Steel press release, 27 March 2025.

32 UK Steel CBAM Briefing, February 2026. ETS cost projections assume progressive phase-out of free allocations over nine years from 2027 and UK Steel's assumptions of a free allocation benchmark of 1.53 tCO₂ per tonne, a carbon price rising from £44 to £75/tCO₂ by 2027, and a 2.5% reduction in free allocation from 2027. Actual costs will depend on the ETS price trajectory and the pace of free allocation reduction.

investment forfeits the demand opportunity to imports that will be progressively harder to displace once procurement chains have shifted.

2.7 Direction of travel: summary

The direction of travel for UK steel is broadly clear. Blast furnace production is ending, EAF capacity is being built to replace it, and demand is growing in precisely the sectors where green, EAF-produced steel is most competitive. The evidence examined in this chapter indicates that the conditions for a viable EAF-based domestic steel sector are present: projected demand growth, an available feedstock surplus, proven technology, and a grid decarbonisation trajectory that provides a structural emissions advantage over time.

What is not resolved is whether the transition will be managed or disorderly. The BF investment dilemma, the tightening procurement window, the feedstock quality challenge, the electricity cost disadvantage, and the design weaknesses in the UK CBAM regime identified by UK Steel are each individually manageable. Together, and given the compressed timescales involved, they constitute a material risk that the opportunity is ceded to imports by default rather than seized by design. The analysis in this report suggests the conditions for a successful transition exist; whether the investment decisions, regulatory reforms and procurement mechanisms required to realise them are put in place in the available window is the central question for UK industrial policy over the next two to three years.



3. Comparing methods for producing steel

This chapter compares the three principal steelmaking routes across the dimensions that matter most to the UK's industrial and policy context, examining the relative strengths and limitations of each route, and what the evidence suggests about their respective roles in the UK context.

KEY FINDINGS

- A new scrap-EAF costs US\$200-500/t of installed capacity and commissions in 18-30 months, compared with US\$1,000-1,200/t and 4-6 years for a new integrated BF-BOF plant, around 40 to 55% of the capital of an equivalent BF-BOF plant and less than half the build time.
- EAF production costs in Western Europe are estimated to be £49 per tonne cheaper than blast furnace production. While operating economics vary materially by site, input costs, and energy configuration, the cost differential favours EAF before any carbon pricing is applied. Once UK ETS costs are added, the gap widens further.
- The grade gap between routes is a decreasingly meaningful barrier to transition. Tata Steel UK states that EAF technology can already make around 90% of the grades of steel that blast furnaces can.
- The shift to EAF-based production carries a structural change in workforce composition as well as size. EAF facilities deliver higher labour productivity per worker than integrated BF-BOF operations, and the roles involved carry higher average skill content. The near-term consequence is a reduction in total site headcount at conversion facilities, illustrated by the approximately 2,800 redundancies announced across Tata Steel UK, mostly at Port Talbot. The longer-run workforce implications depend materially on whether the additional EAF capacity required to close the identified 7.3 Mt supply gap is built, which could help offset productivity-driven headcount reductions through increased total production volume.
- The UK's grid decarbonisation trajectory is a structural competitive advantage for EAF-based production. As the carbon intensity of electricity falls, EAF emissions fall with it at no additional cost, while BF-BOF's process emissions floor remains fixed.

Three primary routes exist for producing steel at industrial scale: the blast furnace basic oxygen furnace route (BF-BOF), the scrap-based electric arc furnace route (scrap-EAF), and the direct reduced iron electric arc furnace route (DRI-EAF). Each involves fundamentally different input materials, energy sources, capital requirements, emissions profiles and product capabilities. This chapter compares the three routes across the dimensions most relevant to the UK's industrial and policy context: capital cost and build time, operating economics and carbon pricing exposure, emissions intensity, product grade capability, and labour productivity.

The comparison matters because the UK steel industry is in the process of completing a transition away from BF-BOF and towards EAF-based production. Port Talbot's blast furnaces closed in September 2024; Scunthorpe's remain the UK's last operating BF facility. Both facilities needed significant investment to re-line the existing blast furnaces, with investors seemingly unwilling to invest. Tata Steel stated that sustaining its existing blast furnace configuration at Port Talbot, or further investment in the traditional heavy end, was 'not economically or environmentally viable'.³³ The government's stated long-term objective for Scunthorpe is EAF transition rather than extended blast furnace operation, and the furnaces have suffered years of underinvestment with production consistently falling short of targets, as reported by the NAO. The UK Primary Steelmaking Review concluded that EAF is the most viable decarbonised form of primary steel production for the UK context.³⁴ Understanding the relative strengths and limitations of each route is therefore not an abstract exercise but a practical foundation for investment decisions, procurement strategies, and policy design.

3.1 Capital cost and build time

The UK's confirmed EAF investment at Port Talbot demonstrates that scrap-based electric arc furnace steelmaking is substantially cheaper and faster to build than integrated blast furnace production, with direct implications for the pace and viability of the UK's steelmaking transition.

Tata Steel's Port Talbot EAF, at a total project cost of £1.25 billion for approximately 3.2 million tonnes of annual capacity, implies a capital cost of around £390 per tonne of installed capacity.³⁵ Construction began in July 2025 and the furnace is scheduled to commission by the end of 2027, a build period of approximately 24 to 30 months from investment decision to first output.³⁶ Sheffield Forgemasters, the UK government's designated sovereign defence steelmaker, has received over £420 million in investment

33 Tata Steel, Closure of Blast Furnace 4 but green steel project will ensure next generation of steelmaking, September 2024.

34 UK Primary Steelmaking Review (2025), as cited in UK Steel Strategy March 2026

35 UK Steel Strategy, March 2026; Neath Port Talbot Council planning approval, February 2025. The £1.25 billion total project cost comprises a £500 million UK government grant and a £750 million Tata Steel contribution. Capacity of approximately 3.2 Mt per annum per UK Steel Strategy; NPT Council approval document states 3.0 Mt. The £390/t figure is derived as £1.25bn divided by 3.2 Mt.

36 Tata Steel UK, Green Steel Future project page ([tatasteeluk.com](https://www.tatasteeluk.com))

to expand its EAF-based forging capacity for the AUKUS submarine programme and other defence applications.³⁷ Port Talbot provides the most reliable UK-specific reference point for EAF capital economics.

Existing UK projects provide a strong domestic reference point, but direct comparison with international figures requires care. The UK costs reflect brownfield conversions, while most published international benchmarks relate to greenfield construction on unencumbered sites in lower-cost jurisdictions. Brownfield conversion involves construction within an operating steelwork on constrained industrial land, significant grid reinforcement costs to supply very high electricity loads, and legacy infrastructure removal, all of which add cost that a greenfield site does not carry.

With that caveat in mind, the table below sets out the indicative capital cost ranges and build timelines across the three principal steelmaking routes, drawing on published international analyses.

Table 3: Indicative capital costs and build timelines by steelmaking route

Investment / Programme	Amount	Build timeline	Type
Scrap-EAF (green-field, international)	US\$200–500/t	18 to 30 months	Range across multiple geographies; lower end reflects India and lower-cost construction environments
Scrap-EAF (brown-field UK, confirmed)	~£390/t	24 to 30 months	Port Talbot actual project costs
DRI-EAF (green-field, international)	US\$700–1,200/t	Unsourced	DIW Berlin (2024); €600–1,000/t converted at prevailing rate
BF-BOF (green-field, international)	US\$1,000–1,500/t	48 to 72 months	Steelonthenet; IIT Bombay/Reclimatize (2026)

Sources: IIT Bombay/Reclimatize (April 2026); steelonthenet.com (2025); DIW Berlin Discussion Paper 2082 (2024); UK Steel Strategy (March 2026); NPT Council planning approval (February 2025). International figures are indicative ranges for greenfield construction and should not be applied directly to UK brownfield projects.

The central comparison the table illustrates is not the absolute figures but the relative order of magnitude, EAF requires around 40 to 55% of the capital of a new BF-BOF plant, and commissions in roughly half the time. In the UK brownfield context, the confirmed project data suggests EAF costs are running towards the upper end of the international greenfield range, reflecting the specific realities of building within operating UK steelworks.

No equivalent UK-specific cost data exists for BF-BOF or DRI-EAF, as no such projects are under consideration in the current investment environment. While 7 Steel's hydrogen-ready rolling mill furnace at Cardiff is a significant step toward lower-emission steel production, it is a fuel-switching project rather than a DRI facility.

The build time differential carries strategic significance that is independent of where

³⁷ UK Steel Strategy, March 2026. The £420 million figure represents the additional investment announced in June 2025 under the Strategic Defence Review.

within these ranges UK-specific costs ultimately fall. An EAF can move from investment decision to first steel in under three years; a new integrated BF-BOF plant requires a minimum four to six years, and in practice significantly longer when site preparation, regulatory approvals, and supply chain procurement are included.

The timeline has practical consequences for any assessment of BF-BOF as a route to meeting near-term demand growth. A plant committed today could not realistically generate output until the mid-2030s at the earliest. By that point, the first wave of green steel procurement conditions is likely to have already taken effect, ETS free allocations for blast furnace operators will have been substantially phased out, and the domestic EAF capacity currently under construction will have been operational for the better part of a decade. These are not arguments against BF-BOF in principle, but they are material considerations for any investor or policymaker assessing whether new blast furnace capacity represents a viable response to the demand opportunity.

3.2 Production costs and carbon pricing exposure

The production costs of steelmaking before carbon pricing are more closely competitive between routes than the capital cost differential suggests. Analysis from TransitionZero of plant-level production cost data, updated to 2025 values, shows global average production costs of approximately £468 per tonne for BF-BOF and £456 per tonne for EAF, a spread of only around £12 per tonne in EAF's favour.³⁸ The Western European picture, which is the most relevant comparator for UK producers, shows higher absolute costs for both routes at approximately £605 per tonne for BF-BOF and £556 per tonne for EAF, with the gap between the two routes widening to approximately £49 per tonne before carbon is priced in.

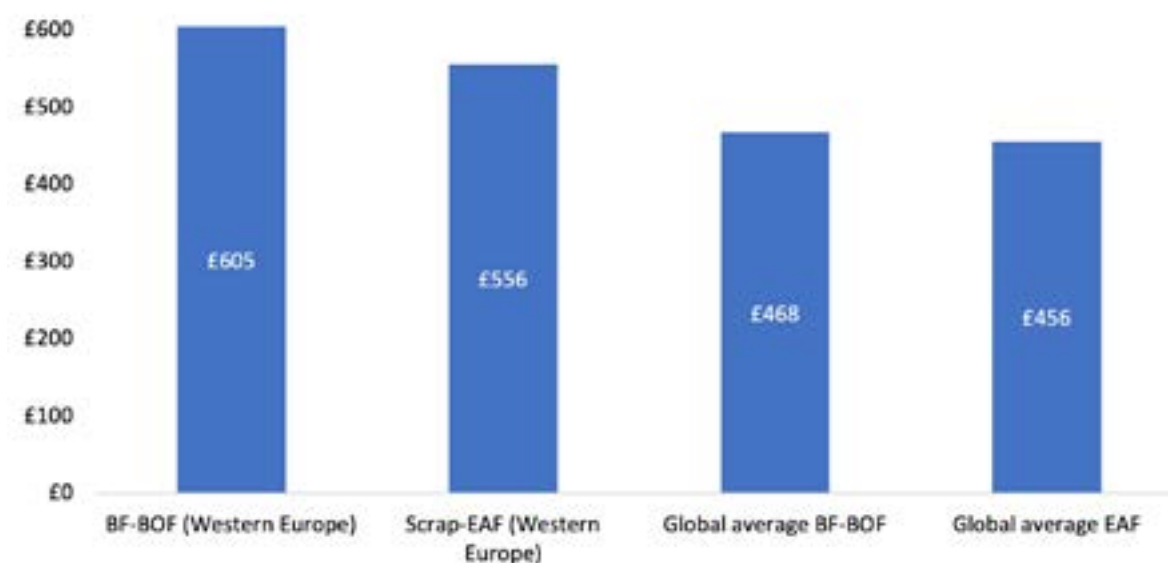
Carbon pricing adds a further dimension to the operating cost comparison. Applying UK Steel's modelling assumptions to the global average BF-BOF emissions intensity of 2.34 tCO₂ per tonne of crude steel implies a net UK ETS cost, after free allocation, of around £36 per tonne in 2025, rising to around £64 per tonne in 2027 as free allocation is progressively withdrawn.³⁹ By 2027 this is more than twice the electricity cost (approximately £29/t) of producing a tonne of EAF steel at UK Steel's 2025/26 prices.⁴⁰ Adding this carbon cost to the Western European BF-BOF operating cost base implies a total post-carbon cost materially higher than EAF in the same geography, a gap that will widen as free ETS allocations for blast furnace operators are progressively phased out from 2027.

38 CBI Economics analysis of TransitionZero and Global Efficiency Intelligence, Global Steel Cost Tracker (March 2022 release; 2021 plant-level costs), adjusted to 2025 prices using the US BLS producer price index for steel mill products (WPU1017) and converted at GBP/USD 1.319. Global averages cover 272 BF-BOF and 202 EAF plants; Western Europe averages cover 8 BF-BOF and 6 EAF plants. The UK is not included in the dataset. Results are indicative.

39 $2.34 - 1.53 \times £44 = £35.64/\text{t}$ (2025); $(2.34 - 1.53 \times 0.975) \times £75 = £63.62/\text{t}$ (2027); UK Steel CBAM Briefing (February 2026); worldsteel (2.34 tCO₂/t).

40 $0.435 \text{ MWh/t} \times £65.99/\text{MWh}$ (UK Steel Key Statistics Guide 2026) = £28.71/t.

Figure 10: Production cost by technology type (£ per tonne)



Source: CBI Economics analysis of TransitionZero and Global Efficiency Intelligence, Global Steel Cost Tracker (March 2022 release; 2021 plant-level costs), adjusted to 2025 prices

A further structural cost not captured in global averages applies specifically to UK EAF operators. UK electricity prices for steel producers remain higher than those of European competitors, notwithstanding recent reductions delivered through the British Industry Supercharger and the Energy Intensive Industries Compensation Scheme. The UK Steel Strategy notes that these schemes have together reduced electricity prices for steel producers from an average of £168 per MWh to £86 per MWh, cutting EAF production costs by approximately £40 per tonne of crude steel. Even so, UK steel producers paid 27–38% more for electricity than competitors in Germany and France in 2025/26, as set out in section 1.2.4. With policy costs substantially addressed and the April 2026 increase in Network Charging Compensation reducing network charges, the remaining gap is increasingly driven by wholesale electricity costs.

3.3 Emissions intensity and the decarbonisation trajectory

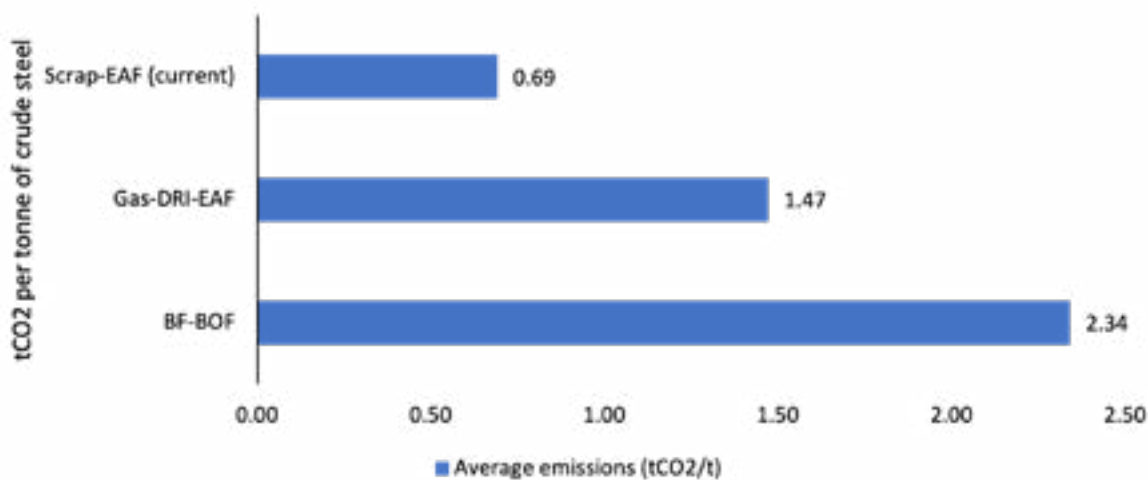
The emissions differential between production routes has direct commercial consequences under the carbon border adjustment mechanisms now taking effect. UK EAF steel, produced on a grid where renewables supplied 53%, rising to 65% when including nuclear, of electricity in 2025, already carries a lower embodied carbon footprint than the global BF-BOF average of 2.34 tCO₂ per tonne of crude steel.⁴¹ Against scrap-EAF's global average of 0.69 tCO₂/t, this differential translates into a material cost advantage under both the UK CBAM (launching January 2027) and EU CBAM (live from

⁴¹ Worldsteel, *Sustainability Indicators* (2025). Individual plant performance varies significantly from these averages depending on energy mix, plant age, and configuration.

January 2026), which will progressively price that gap into import costs.⁴²

This advantage compounds automatically as the UK grid decarbonises further. EAF's Scope 2 emissions are primarily determined by the carbon intensity of the electricity consumed, meaning that as renewable capacity expands, the embodied carbon of domestically produced EAF steel falls at no additional cost to the producer. Blast furnace production faces no equivalent dynamic. Its process emissions have a hard floor set by the chemistry of iron ore reduction with carbon, which cannot be removed through energy efficiency or operational improvement alone, and which becomes an increasing commercial liability as carbon pricing tightens and customer procurement conditions harden.

Figure 11: CO2 intensity by production route: Scope 1+2 (tCO2/t crude steel, 2024)



Source: worldsteel Sustainability Indicators 2025 and CBI Economics (2026)

BF-BOF faces the opposite dynamic. Its process emissions have a hard floor set by the chemistry of iron ore reduction with carbon. This floor cannot be removed through energy efficiency, input substitution, or operational improvement alone. Achieving near-zero BF-BOF emissions requires either carbon capture, utilisation and storage (CCUS), at significant additional cost and with no commercially proven large-scale deployment in steelmaking anywhere in the world, or the substitution of green hydrogen for carbon as the reducing agent, which requires DRI technology and substantial hydrogen supply infrastructure. Both pathways remain at an early stage of commercial development at UK scale, with no confirmed projects in the current investment pipeline.

The practical implication is that UK EAF producers are already better positioned than most international competitors on embodied carbon, and that position will strengthen as the clean power transition progresses. Under both CBAM regimes, this translates into a structural cost disadvantage for higher-emission imports relative to domestically produced EAF steel - a competitive dynamic that does not require any further policy intervention to materialise, only the continuation of the grid decarbonisation trajectory already underway.

42 worldsteel Sustainability Indicators 2025. Individual plant performance varies significantly from these averages depending on energy mix, plant age, and configuration.

3.4 Product grade capability

A significant historical objection to EAF-based production has been its inability to produce the full range of steel grades, particularly the flat-rolled, surface-critical products required by automotive and packaging customers. BF-BOF remains the benchmark for the complete grade spectrum, including ultra-low-carbon flat products, packaging tinplate, and grain-oriented electrical steels. The objection has, however, diminished substantially as EAF technology and scrap quality management have improved.

Tata Steel UK states that EAF technology can already make around 90% of the grades of steel that blast furnaces can, and that adding direct reduced iron, hot-briquetted iron or pig iron to the scrap charge would enable the most demanding products.⁴³ Tata Steel estimates that its new Port Talbot EAF will supply approximately 90% of the products previously made by its blast furnaces and Sheffield Forgemasters, the UK's designated sovereign defence steelmaker, already produces specialist forgings for nuclear and defence applications via EAF.

Importantly, DRI supplementation does not require a fully integrated DRI plant to be built alongside the EAF from the outset. HBI and DRI can be procured on the open market and charged into an existing EAF, meaning the grade ceiling can be raised incrementally as customer requirements evolve and domestic DRI production capacity develops.

Real-world evidence confirms that the grade gap need not be a barrier to serving demanding customers. US Steel's Big River Steel facility in Arkansas produces advanced high-strength steels (AHSS) for the automotive sector via EAF. Sheffield Forgemasters supplies defence, nuclear, and aerospace forgings via EAF today. UK Steel notes that "EAFs can produce a vast range of steel products, even some previously only produced by integrated blast furnaces".⁴⁴

The residual approximately 10% of grades that remain more challenging for EAF production principally comprises ultra-low-carbon flat products for tinplate, used in food and beverage packaging, aerosol containers, and automotive filters; and grain-oriented electrical steels. The latter is particularly relevant in the current policy context given the UK's grid infrastructure build-out depends on grain-oriented electrical steel, and domestic EV manufacturing on non-oriented electrical steel. Neither application is defence-critical in the way that naval forgings or armour plate are, but both are directly relevant to the energy transition supply chain. As noted above, this gap is addressable through DRI or HBI supplementation, or through continued imports of slab for downstream processing at UK rolling mills.

43 Tata Steel/HC Deb 23 January 2024 (c267) via CBP-7317 p.52 for the 90% figure. UK Steel/ECIU Steel Strategy and EAFs Briefing 2026 for the broader grade range claim. UK Primary Steelmaking Review 2025; worldsteel; SteelWatch 2025.

44 Big River Steel: UK Steel, as cited in ECIU EAFs Briefing (2026). Sheffield Forgemasters: UK Steel Strategy (March 2026).

3.5 Labour productivity and workforce implications

EAFs are less capital and labour intensive to run than integrated BF-BOF mills, reflecting EAF's single-furnace architecture compared with BF-BOF's multi-stage process chain spanning ironmaking, steelmaking, casting and rolling.⁴⁵ The consequence is higher labour productivity per worker. EAF facilities produce more steel per employee, and the roles involved, principally in electrical engineering, process control, and metallurgy, typically carry higher skill content than the average BF-BOF workforce.

The near-term consequence of this productivity differential is a reduction in total site headcount during conversion, and that human cost should not be understated. The Port Talbot transition illustrates the trade-off; approximately 2,800 redundancies were announced across Tata Steel UK, mostly at Port Talbot, with 5,000 jobs secured across Tata Steel UK post-transition. For workers and families in communities that have already absorbed decades of employment decline in primary steelmaking, this represents a further and deeply significant loss, regardless of the longer-run economic case for transition.

The longer-run picture is nonetheless more positive than the near-term headcount reduction suggests. An EAF-based sector should generate more GVA per employee than its blast furnace predecessor, and the roles it creates are concentrated in technical disciplines, principally electrical engineering, process control, and metallurgy, that carry different labour market characteristics to the roles they replace. Policy support for workforce reskilling, supply chain development, and community investment is a necessary complement to the technology transition particularly given the geographic concentration of affected workers in Wales and Yorkshire and Humber, where alternative high-wage employment is more limited.

3.6 International crude steel production mix

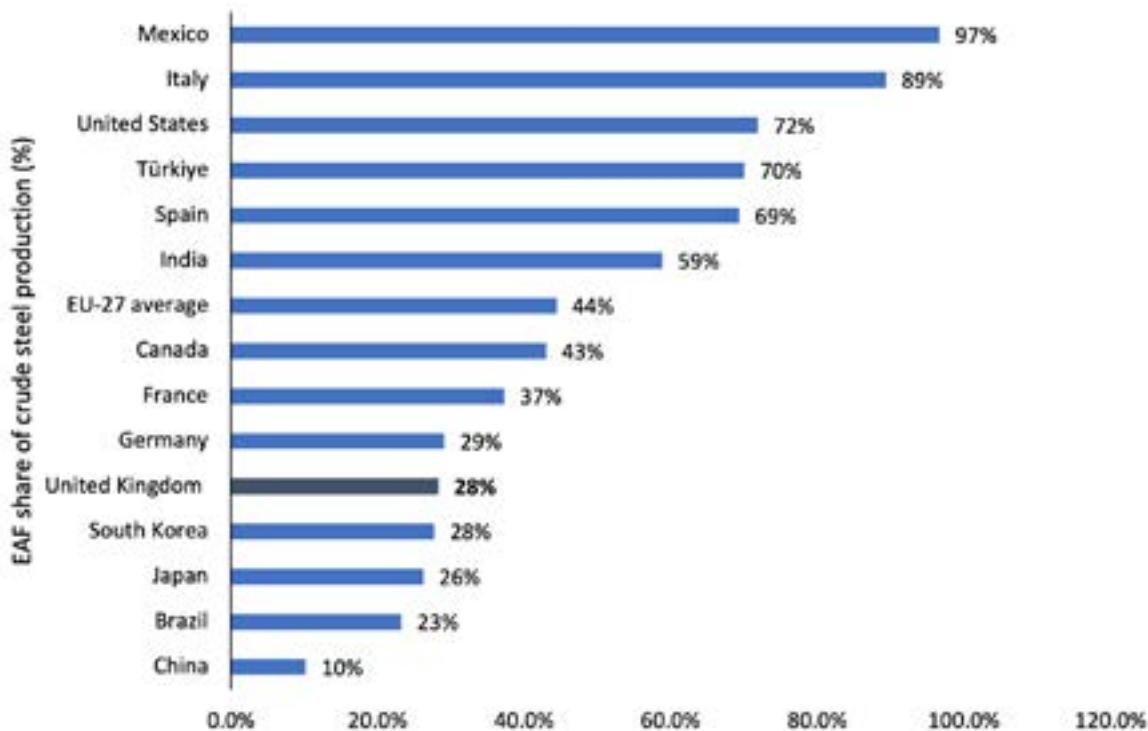
Steel is produced commercially via two primary routes at significant scale: the blast furnace basic oxygen furnace route (BF-BOF) and the electric arc furnace route (EAF). DRI-EAF, which uses direct reduced iron as a feedstock in place of or alongside scrap, represents a third and growing route, but is not captured separately in the international production data analysed below. The balance between these two routes varies substantially by country, reflecting differences in industrial history, raw material endowments, energy costs, and the age of existing capital stock.

In 2024, global crude steel production totalled 1,885 Mt, of which 70% was produced via

⁴⁵ UK Steel Strategy (March 2026).

BF-BOF and 29% via EAF.⁴⁶

Figure 12: EAF share of crude steel production by selected country, 2024 (%)



Source: worldsteel, 'World Steel in Figures 2025', (June 2025)

The country-level data divides broadly into three groups. The first comprises countries that are predominantly or entirely EAF-based. Mexico produced 97% of its steel via EAF in 2024, Italy 89%, the United States 72%, Türkiye 70%, and Spain 69%. These countries have over time built steel industries oriented around scrap recycling rather than integrated iron ore reduction. India, at 59% EAF, falls into this group on a production basis, though its industry structure is more complex given the significant role of induction furnace capacity alongside conventional EAF.

The second group comprises countries with a substantial but not dominant EAF presence. The EU-27 recorded an EAF share of 44% in 2024, with Canada at 43% and France at 37%. These economies operate a mixed technology base reflecting both older integrated capacity and more recent EAF investment.

46 All country-level production figures in this section are drawn from a single primary source: the World Steel Association, World Steel in Figures 2025 (data finalised 4 June 2025), specifically the "Crude steel production by process 2024" table on page 9. Readers should note that some figures in this section may differ marginally from others cited elsewhere in this report, which draw on additional sources including UK Steel Key Statistics 2025 and CBP-7317. These differences reflect the use of different reporting methodologies, reference years, and industry definitions across sources rather than any inconsistency in the analysis. Where worldsteel figures are used in this section, they are the primary source and should be treated as such.

The third group comprises countries where BF-BOF production is heavily dominant. Germany recorded an EAF share of 29% in 2024, with South Korea at 28%, Japan at 26%, Brazil at 23%, and China at just 10% despite producing over 1,000 Mt of crude steel in 2024.

The UK's current position, at 28% EAF in 2024, per worldsteel data, places it within this third group. UK Steel data show this rose to around 38% in 2025 as blast furnace output fell further. Once the expected investment pipeline is operational, it is estimated the UK's EAF share will rise to approximately 75-85%, placing it broadly alongside the United States and Türkiye and substantially above Germany, Japan, and South Korea.

It is worth noting that EAF share is not a direct measure of environmental performance or competitiveness. A high EAF share in a high-carbon electricity grid can produce a higher emissions intensity than a lower EAF share in a lower-carbon grid, and a high EAF share does not in itself imply a particular level of output or market competitiveness. The relationship between production mix, emissions profile, and commercial position is examined in sections 3.2 and 3.3 of this report.

3.7 Technology comparison summary

Assessed across the dimensions examined in this chapter, scrap-EAF compares more favourably than BF-BOF for new UK steelmaking capacity across most dimensions in the current policy and market environment. It is substantially cheaper and faster to build, cost-competitive and even more so once carbon pricing is applied, capable of producing the large majority of required grades, and positioned to benefit from the UK's grid decarbonisation trajectory in a way that BF-BOF cannot without CCUS deployment, which remains commercially unproven at scale.

DRI-EAF offers a pathway to the remaining grade gap and a route to near-zero emissions that does not depend solely on grid electricity, but at meaningfully higher capital cost and with a dependency on natural gas supply that introduces its own strategic exposure. The UK Primary Steelmaking Review identifies DRI as the most viable future primary iron route for cases where virgin iron units are required, with a longer-term ambition to transition from natural gas to green hydrogen as that supply chain develops.

The international picture provides useful context for what the UK's post-transition production profile would represent globally. At an estimated EAF share of approximately 75-85% once the expected pipeline is operational, the UK would sit broadly alongside the United States and Türkiye, and substantially above Germany, Japan, and South Korea, placing it among the most EAF-intensive major steel-producing economies in the world.

The technology comparison also clarifies the UK's current competitive position in green steel and how it is likely to develop through this decade. With renewables supplying 53%, rising to 65% when nuclear is included, of UK electricity in 2025 and a Clean Power 2030 trajectory in place, a predominantly EAF-based UK sector would produce steel with an embodied carbon footprint materially below both the global average and most competitor markets. This represents a measurable competitive advantage under both the UK and EU CBAM regimes and for customers with supply chain emissions targets, the scale of which will be determined by how carbon pricing and procurement conditions develop over the coming years.

Conclusion

The UK steel industry is in the middle of a transition that is both unavoidable and, if managed well, an opportunity. The evidence presented in this report points to a sector that retains genuine economic weight, sits at the heart of strategically important supply chains, and stands at the threshold of a technology shift whose economic consequences will be shaped by the investment, regulatory, and procurement decisions taken over the next several years.

The economic evidence points in a consistent direction. Even before carbon pricing, Western Europe cost data suggests scrap-based EAF production compares favourably to blast furnace steelmaking: it is faster and cheaper to build, and it is well-placed to benefit from the UK's grid decarbonisation trajectory as renewable capacity expands. The grade capability gap that once constrained EAF's market has narrowed substantially and is not an obstacle to transition for the large majority of products. The UK's domestic scrap surplus, currently largely exported, represents a feedstock resource that the EAF transition creates the conditions to retain.

The demand outlook is relevant context for assessing the scale of the capacity gap. UK steel consumption is projected to grow 54% by 2050, driven by construction, offshore wind, transmission infrastructure, and automotive. The expected domestic production pipeline falls 7.3 Mt short of that demand, representing a cumulative market opportunity of around £93 billion between now and 2050 that will be met by imports unless domestic capacity is built. Analysis estimates that closing that gap, in its entirety, would require over two Port Talbots' worth of new EAF capacity, making the scale and timing of the required investment concrete.

The analysis also identifies the conditions under which that investment case holds. A residual electricity cost disadvantage of approximately £6.10 per tonne relative to German competitors and £7.90 per tonne relative to French competitors remained in 2025/26, driven by higher network charges and wholesale electricity costs. The April 2026 increase in Network Charging Compensation will have eased this, leaving the remaining gap concentrated in wholesale costs. To the extent that wholesale costs fall as the clean power transition progresses, the electricity cost disadvantage narrows.

The direction of travel is broadly clear. Whether it leads to a competitive, well-capitalised domestic steel sector or to a narrower, more import-dependent one will be shaped by how the investment, regulatory, and procurement conditions identified in this report develop over the next several years. The analysis suggests the economic foundations for a positive outcome are present. The degree to which they are realised remains an open question.

