

UK STEEL – SUBMISSION TO CAPACITY MARKET CONSULTATION

Date: 29 June 2023

To: energyintensiveindustries@beis.gov.uk

About UK Steel

UK Steel, a division of Make UK, is the trade association for the UK steel industry. It represents all the country's steelmakers and a large number of downstream steel processors. For the purpose of this consultation, it represents energy consumers.

Submission to the consultation on the Capacity Market

1. Do you have views on whether the proposed process will deliver on the intent of the policy?

We strongly support and agree with the proposal to introduce a full exemption for the Capacity Market levy for eligible EIs.

UK Steel has previously demonstrated that the average electricity price UK steel producers typically face is significantly higher compared to the estimated German and French prices. The price disparity was historically around £20/MWh, meaning that UK steelmakers faced electricity prices 50-80% higher than their continental competitors, but the Russia-driven energy crisis started in 2021 has since increased this disparity to £30-£90/MWh.

High electricity prices are consistently cited as harmful to the steel industry's ability to decarbonise its production, a major impediment to investment, and harmful to its immediate market competitiveness. The reasons for this are worth noting:

- Steel production and processing is an energy-intensive process, and the production of millions of tonnes of steel each year consumes vast amounts of energy. For the most electro-intensive producers, electricity represents approximately 20% of converting globally priced raw materials into finished steel products for consumers prior to the increase in energy prices in 2021.
- Steel is an intensively traded product, with some 25% of all steel produced globally being exported. These figures are significantly higher outside of China, with the UK importing 60% of its requirements and exporting around 45% of production. The UK's main competitors are based in the EU, where most imported steel is produced and where most exported steel is going, making price differentials between the UK and EU competitors particularly important.
- The steel sector operates on relatively thin margins. Whilst there are increasingly specialised and high-value steels being produced, market requirements and economies of scale mean that the vast majority of steel made even in developed economies is commoditised and available from a broad range of sources. There is, therefore, intense competition, which keeps steel prices and margins low.
- High electricity prices generally reduce profit margins and thus lead to less reinvestment. Further, high electricity prices also act as a disincentive to investment from international steel companies, with the UK seen as a less favourable investment location than other countries.
- This electricity price disparity is a major barrier to meeting the Net Zero target since all options for decarbonising steel production, from CCS to hydrogen, to electric arc production, lead to significantly increased electricity consumption. Steel plant investment goes to the most cost-competitive regions, which will increasingly be those with internationally competitive power prices. In the case of switching to hydrogen-based production, for a comparably sized sector, this would cost almost £300m more to run in the UK than in Germany just in terms of electricity prices (at a price disparity of £32/MWh). Equally, if all UK production were to convert to electric arc furnaces using scrap steel, the sector would face higher electricity costs of £200m (at a price disparity of £32/MWh). With the annual capital investment of the UK sector averaging £200 million, the current viability of a Net Zero steel sector in the UK is seriously questionable without action on electricity prices.

Persistent cost disadvantages in the UK lead to underinvestment, which in turn leads to further erosion of competitiveness. Over the past six years, the disparity has cost the UK sector the equivalent of 30% of the sector's capital investment. The electricity price gap greatly impacts long-term investment. All the major steel producers in the UK are part of multi-national companies with facilities in the EU and four

also operating outside the EU. In this context, the cost competitiveness of each particular market is crucial to attracting investment.

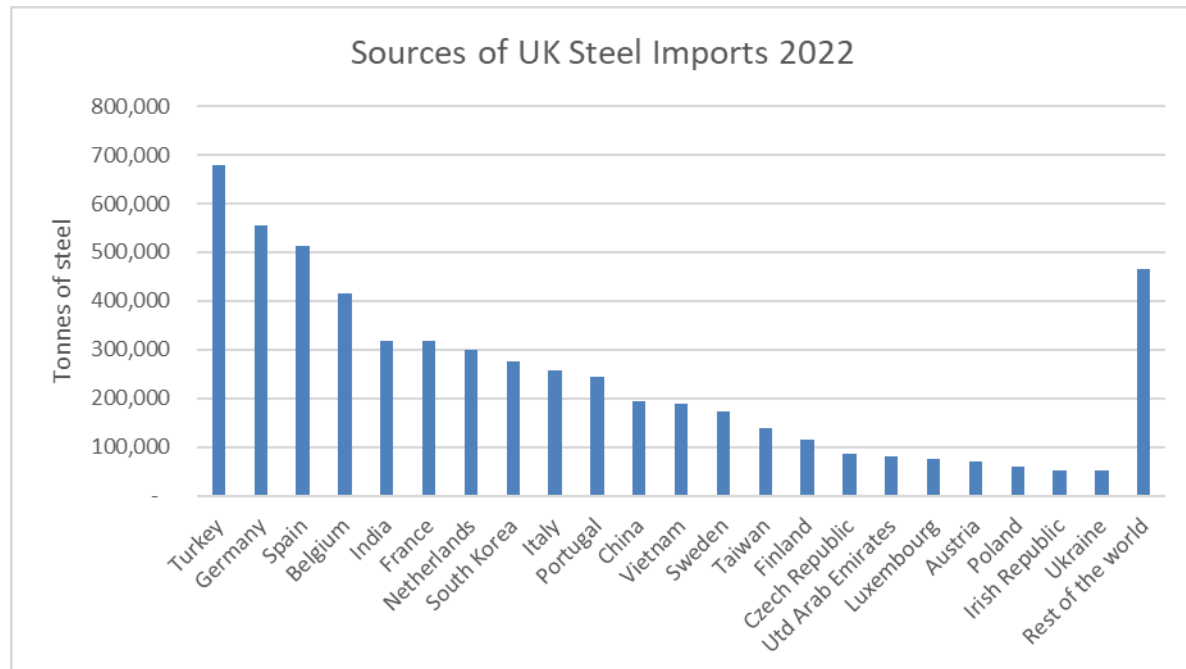
Before the recent increase in energy prices, for the most electro-intensive producers, electricity represented approximately 20% of converting globally priced raw materials into finished steel products for consumers, and energy costs were even higher than Labour costs. After the rise in energy costs, energy is now the biggest cost for some steel producers. Steel companies in the UK have also demonstrated that electricity costs represent up to 120% of their Gross Value Added (GVA, i.e., total economic impact in terms of profit and jobs)¹.

Raw materials such as iron ore and coal are sold in global markets, and there will, therefore, be minor differences in the price of iron ore used by steel producers in the UK, France, or India. It is where there are national and regional variations in costs that competitiveness issues arise. A consistently higher electricity price, therefore, impacts their ability to compete and diminishes their profitability.

Trade intensity

Steel is a global commodity, intensively traded across borders. 25% of all steel produced is traded internationally; this climbs to over 40% in markets outside of China, whilst the UK exports 45% of its steel production and imports over 60% of its direct requirements (i.e., not including steel in products). UK steel import penetration (i.e., the percentage of steel demand supplied by imports) has climbed from around 12% in the 1970s to 63% in 2021 due to a rapid increase in global trade, the removal of tariffs on steel products amongst developed nations, manufacturing supply chain integration across the EU, and a gradual decline in the UK’s overall steel production capacity.

The UK imports its steel from an increasingly wide range of countries. Whilst the vast majority come from the EU, mainly due to geographic proximity and integrated supply chains, countries such as Turkey, India, Vietnam, South Korea, Taiwan, and China are all major exporters to the UK now – each supplying over 100,000 tonnes a year and with Turkey providing as much as 680,000 tonnes in 2022 – 12% of imports.



Note: Tonnes of steel. Source: International Steel Statistics Bureau.

Recouping costs brought on by levies, like the Capacity Market levy, requires either price increases, where customers may instead turn to imported products or a reduced profit margin. When building a business case for investment in clean steel production, steel producers must remain internationally competitive. UK steel producers export over 40% of their products to markets worldwide and can only continue to do so whilst they remain competitive.

¹ UK Steel Climate Change Agreement data

Carbon leakage

The trade intensity and electro-intensity both contribute to the industry's exposure to carbon leakage. Furthermore, the HM Treasury's Net Zero Review², which analysed the risk of carbon leakage to different industries, showed that the basic metal sector (dominated by the steel sector) had one of the highest trade openness at 72%, combined with the highest carbon intensity (CO₂ tonne/\$m), and the third-highest proportion of CO₂ from domestic sources. The report showed that the steel sector's gross output was the most reactive to high carbon pricing among all industries.

Table 2.B: Carbon intensity for UK manufacturing sectors, and the illustrative cost of carbon pricing

Sector	Overall trade openness ¹⁹	UK-sourced carbon intensity ²⁰ (CO ₂ tonne/\$ million)	Proportion of CO ₂ from domestic sources	Illustrative cost of UK carbon pricing (% of gross output)		
				\$50/tonne	\$75/tonne	\$100/tonne
Computers & electronics	78%	71	41%	0.4%	0.5%	0.7%
Textiles and apparel	76%	125	63%	0.6%	0.9%	1.2%
Mining & energy extraction	75%	381	90%	1.9%	2.9%	3.8%
Basic metals	72%	790	80%	3.9%	5.9%	7.9%
Other transport equipment	72%	76	37%	0.4%	0.6%	0.8%
Chemicals & pharmaceuticals	70%	121	59%	0.6%	0.9%	1.2%
Motor vehicles	69%	96	43%	0.5%	0.7%	1.0%
Electrical equipment	69%	90	36%	0.4%	0.7%	0.9%
Machinery and equipment	67%	118	46%	0.6%	0.9%	1.2%
Other manufacturing	54%	170	69%	0.8%	1.3%	1.7%
Refineries	52%	681	83%	3.4%	5.1%	6.8%
Rubber and plastics	51%	300	76%	1.5%	2.3%	3.0%
Wood products	35%	122	55%	0.6%	0.9%	1.2%
Fabricated metals	34%	112	49%	0.6%	0.8%	1.1%
Mining of non-energy products	32%	176	73%	0.9%	1.3%	1.8%
Non-metallic minerals	30%	417	81%	2.1%	3.1%	4.2%
Paper	28%	157	66%	0.8%	1.2%	1.6%

Source: OECD, HM Treasury calculations

Similarly, the steel sector was singled out as having a high proportion of demand covered by imports (60%+ import penetration) and a high proportion of production exported (an average of 45% of production is exported). Finally, the UK basic metals sector has significantly lower CO₂ intensity

² HM Treasury (2021), Policy paper, Net Zero Review Final Report, <https://www.gov.uk/government/publications/net-zero-review-final-report>

embodied in export than non-OECD countries and somewhat lower than OECD countries. The report concludes:

“In summary, this analysis suggests that some UK manufacturing sectors have substantially lower emissions intensities compared to some trading partners. Many of these sectors are also relatively open from a trade perspective. However, when different levels of carbon price are applied to sectoral emissions intensities, the impacts look relatively low for most sectors. The main exceptions are basic metals, refineries and non-metallic minerals.”

This outlines the obvious risk of carbon leakage, which should justify introducing the Capacity Market exemption. With substantially higher electricity prices, the steel sector is at a clear competitive disadvantage, risking emissions associated with UK steel production being moved to other jurisdictions with lower or no ambitions on climate change mitigation.

Net Zero

UK Steel has published a roadmap³ for how the industry could substantially lower emissions by 2035, in line with the Climate Change Committee's recommendations. One of the main challenges identified within the Net Zero report is uncompetitive electricity. The Government's Net-Zero target will require fundamental changes to steel production in the UK and will necessitate substantial investment in new processes and equipment over the next dozen years. To meet this ambition, the steel companies will need to invest in new production methods, which all increase the sector's electricity consumption. There are broadly three routes to reduce emissions for integrated steelmaking substantially: Carbon Capture and Storage (CCS), Electric Arc Furnaces (EAF), and hydrogen-based steelmaking.

The sector consumes 2.5TWh of grid electricity each year, the equivalent of 800,000 houses. With a sectoral switch to EAFs, the consumption would more than double to 5.5TWh and increase by five times for the affected sites. Hydrogen-based steel production would increase the entire sector's electricity demand to over 8.3TWh (assuming blue hydrogen is produced offsite via natural gas steam reforming), which would more than triple the whole sector's consumption but increase the demand of the affected sites by almost nine times. Finally, CCS experiences significant energy losses when capturing emissions, leading to much higher electricity consumption.

With the 2021/22 price disparity of £32/MWh, it would cost £200m more to operate an electrified steel sector in the UK than in Germany or £300m more to run a hydrogen-based steel sector. The price disparity has since grown, increasing these costs further. As such, it would be challenging to see investment in decarbonisation in the UK over its key European competitors. Instead, investment would flow towards the most cost-competitive market.

It is more apparent than ever that if the UK wishes to maintain steel production in this country and provide the right environment for it to decarbonise, it must urgently tackle this problem and provide competitive electricity prices. We, therefore, support the proposed process of providing full exemption from the Capacity Market levy through the same process as the current renewable exemption scheme.

2. Do you have views on creating a Capacity Market exemption which uses a similar structure as appropriate to the existing EII exemption scheme?

We agree that the Government should use a similar structure as the existing EII exemption scheme for the CM exemption scheme. Industry, Government, and energy suppliers are already familiar with the scheme mechanism and understand how it operates. Adopting a similar structure reduces administrative burdens and would make it quicker to implement.

3. Are there aspects of the existing EII exemption scheme that you consider are not appropriate for the proposed Capacity Market exemption?

We urge the Government to review eligibility for the exemption scheme as soon as possible after this consultation has concluded. The current scheme eligibility rules exclude significant parts of the downstream steel sector, such as forging and coating, which is an integral part of the industry. Their competitiveness is also significantly impacted by the charges to fund renewable schemes, and the

³ UK Steel (2022), Net Zero Steel: A Vision for the Future of UK Steel Production, <https://www.makeuk.org/about/uk-steel/net-zero-steel---a-vision-for-the-future-of-uk-steel-production>

Government should consult on increasing eligibility for the scheme by including additional SIC/NACE codes in the eligible sector list.

4. Do you perceive these proposals to cause any unintended consequences to the running of the Capacity Market?

No. The impact on the Capacity Market will be minimal, as the costs avoided by eligible companies will be redistributed to other users.

5. Do you have views on the impact on supplier credit cover requirements and how these will change as a result of the policy?

We do not foresee this to be a crucial issue which should prevent the Government from proceeding with the CM exemption scheme.

For further information, contact:

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