UK STEEL

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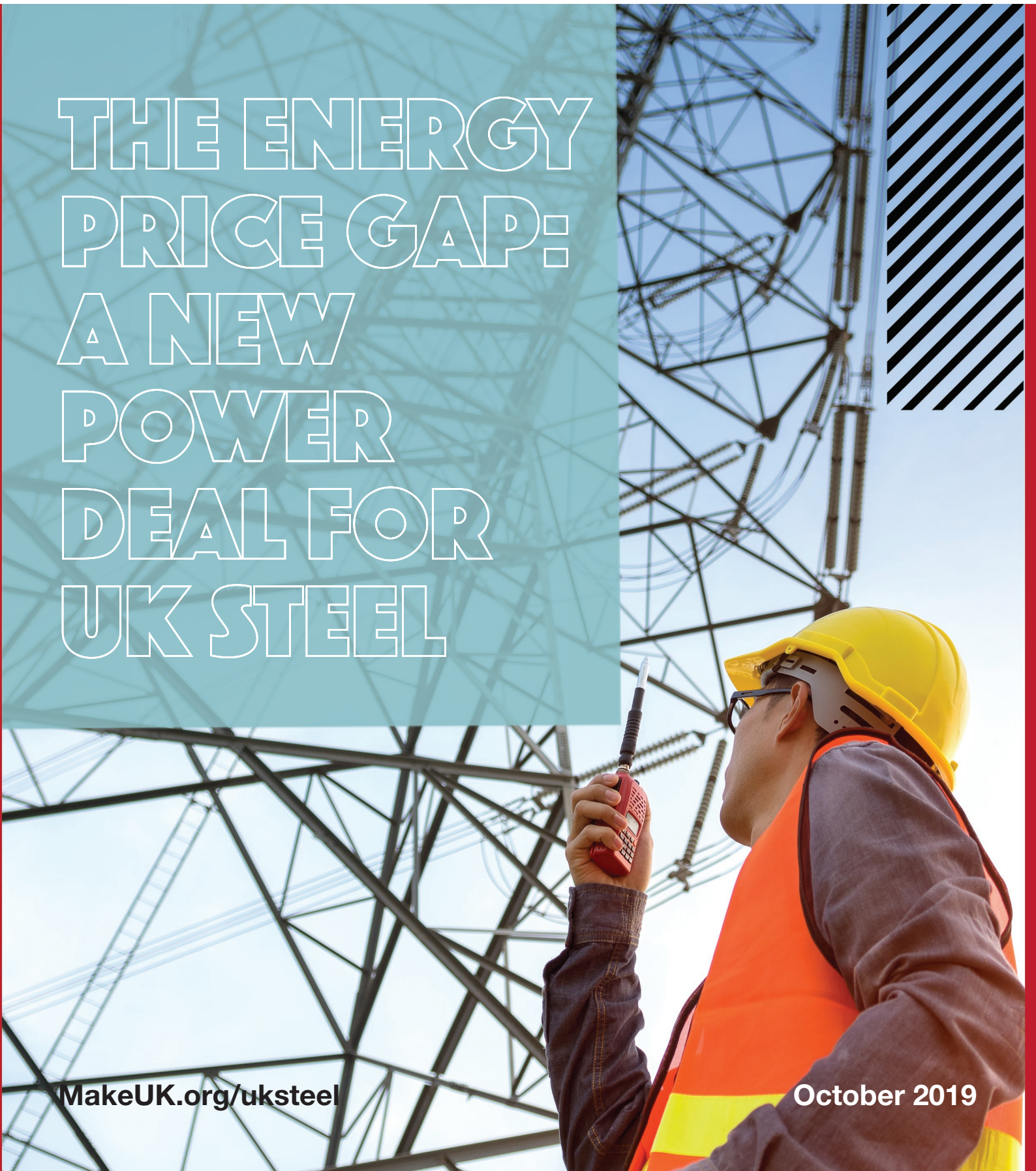
THE ENERGY PRICE GAP: A NEW POWER DEAL FOR UK STEEL



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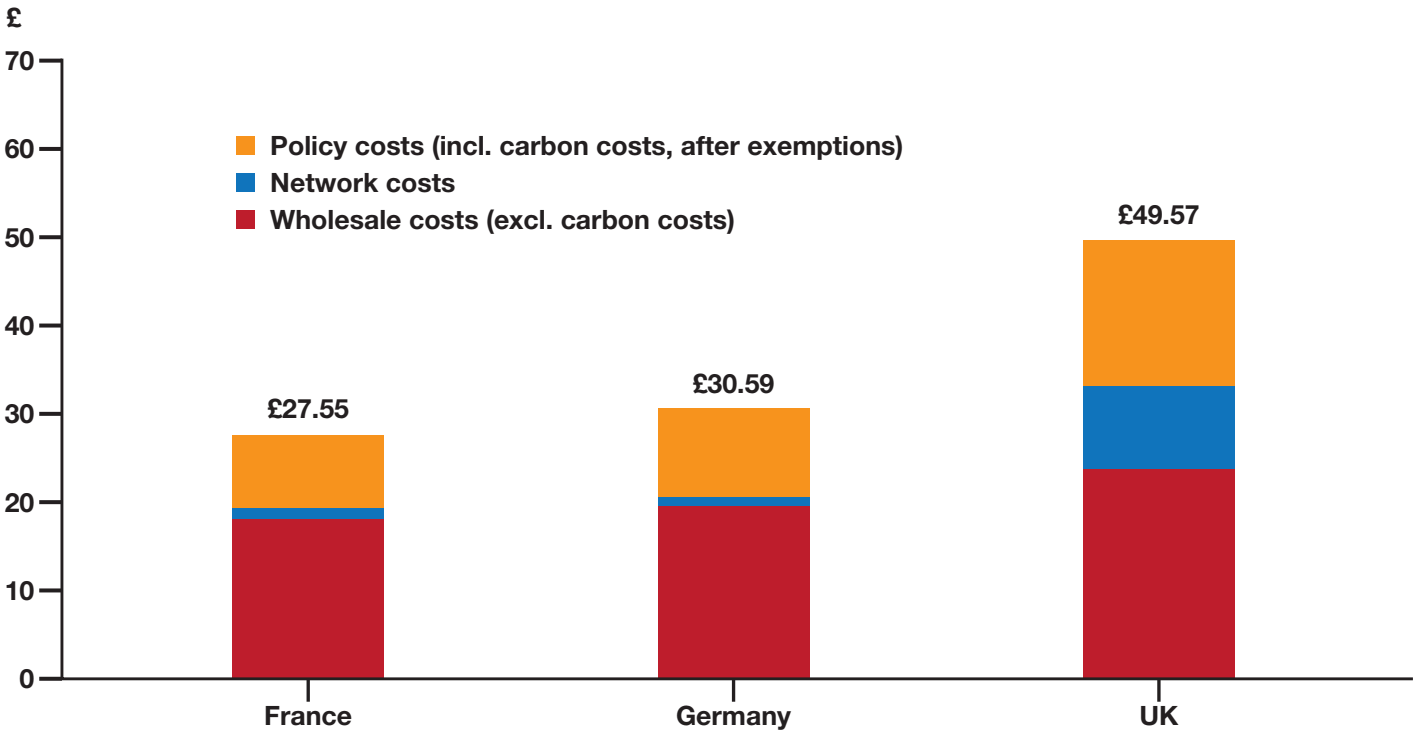
1. EXECUTIVE SUMMARY

The UK's energy intensive industries face some of the highest industrial electricity prices in Europe. This damages the steel sector's competitiveness, as it is both electro-intensive and highly exposed to international competition, meaning it cannot pass on additional costs to customers. With steel producers' direct competitiveness and levels of investment both being affected, electricity prices have become a major ongoing concern for the sector and its long-term sustainability.

In lieu of any UK Government analysis of this problem, UK Steel has conducted its own annual research investigating the prices faced by steel producers based in the UK, Germany and France. This is the fourth year in which we've conducted similar research.

Our results this year show the average electricity price UK steel producers typically face in 2019/20 is £50 per megawatt-hour (MWh) compared to the estimated German price of £31/MWh and French price of £28/MWh. UK production sites are therefore paying 62% and 80% more, respectively, than their main competitors.

Figure 1: Energy prices for steel producers in France, Germany, and the UK (2019/20)



Source: UK Steel

The price disparities equate to a total additional cost to UK steel producers of around £47 million per year compared to those in Germany. With energy being one of the sector's single largest costs, ongoing inaction from Government in this area will continue to endanger the steel industry's future and the jobs it provides.

Steel companies have committed to reinvest any savings achieved as a result of Government action on this issue back into their UK plants. Achieving parity with Germany would, therefore, deliver at least an additional £47m/year of investment in the sector, a 24% increase on current capital investment levels. Lower electricity prices would also facilitate greater inward investment from outside the UK, increasing capital investment further.

It is vital that the UK Government addresses the price disparity, levelling electricity prices in line with our EU competitors. This must include a number of strategic steps to drive down the cost of power in the UK for all consumers in the long-term. However, it is also critical that more immediate steps are taken to provide steel producers with competitively priced power in the interim; and it is these steps that form the primary focus of this report:

1. **Increase the level of renewable levy exemptions**
2. **Provide 100% compensation for the indirect costs of the Carbon Price Support**
3. **Ensure the success of post-Brexit carbon pricing and compensation for indirect costs**
4. **Provide an exemption from Capacity Market costs**
5. **Implement German/French style network cost reductions, whilst ensuring ongoing network charging review does not increase costs for steel companies**
6. **Enable the energy intensive industries to buy energy collectively**
7. **Fast-track the forthcoming Industrial Energy Transformation Fund**
8. **Include onshore wind and solar PV in CfD auctions**
9. **Track industrial energy price disparities between countries**

Through these proposals, the Government can start to enable the steel sector to compete on a level playing field internationally and support and enhance well-paid, highly skilled British jobs.

2. INTRODUCTION

The Government's own data shows[1] that the UK has the highest industrial electricity prices in the EU. UK prices for extra-large industrial users currently stand 56% above the EU average. This fact is consistently cited by all UK steel producers as harmful to their competitiveness and an impediment to investment. The reasons for this are obvious and straightforward, but are worth noting nonetheless:

- Steel production is an energy intensive process. Although energy efficiency has improved significantly over the past decades, the production of millions of tonnes of steel each year will consume vast amounts of energy, including electricity. In the UK, it is estimated that electricity costs represent up to 20% of 'conversion costs' on-site – i.e. the costs of converting the basic raw materials into steel. Indeed for some, energy represents a bigger proportion of costs even than labour.

- Steel is an intensively traded product, with 30-40% of the 1.9 billion tonnes of steel produced globally each year travelling across national borders. The UK imports some 6.6 million tonnes of steel each year, around 61% of requirements, and exports 3.5 million tonnes, around 48% of its production.

- The steel sector is one that must operate 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 lead to smaller, or even negative, profits and thus to less reinvestment. Further, high electricity prices also act as a disincentive to inward investment from international steel companies, with the UK seen as a less favourable investment location compared to other countries.

- For the foreseeable future, the UK's principal competitors are based in the EU. Around 4.5 million tonnes, or 69% of total UK imports last year, came from the EU, and the UK sent 2.6 million tonnes, 77% of its exports, across the Channel. This has increased compared to last year, largely due to the rise in global trade restrictions. Price differentials between the UK and EU competitors are therefore particularly important to the health of UK steel producers; electricity costs have become the most persistent and stark of these cost differentials in recent years. With Brexit potentially causing additional trade barriers and costs, it is more important than ever that we improve the cost base for steel producers here in the UK.

The UK's high electricity price is a major ongoing concern for the steel sector and its long-term sustainability. In lieu of any UK Government analysis of the situation in particular sectors and the causes and consequences of this, UK Steel has conducted its own research examining the prices paid by steel producers based in the UK and, where possible, by sister facilities in Germany and France. Where necessary this has been supplemented with data from other international price comparison studies. This report represents our fourth annual examination of the electricity price disparity between the UK and EU competitors.

1. BEIS, Industrial electricity prices in the EU, QEP 5.4.4, 2019

3. OVERVIEW OF THE UK STEEL SECTOR

31,900
PEOPLE DIRECTLY EMPLOYED BY THE UK STEEL INDUSTRY

52,300
FURTHER JOBS SUPPORTED IN SUPPLY CHAIN & LOCAL COMMUNITIES

£1.6bn
DIRECT CONTRIBUTION TO THE UK ECONOMY

£3.9bn
ADDITIONAL CONTRIBUTION CREATED IN SUPPLY CHAINS & LOCAL COMMUNITIES

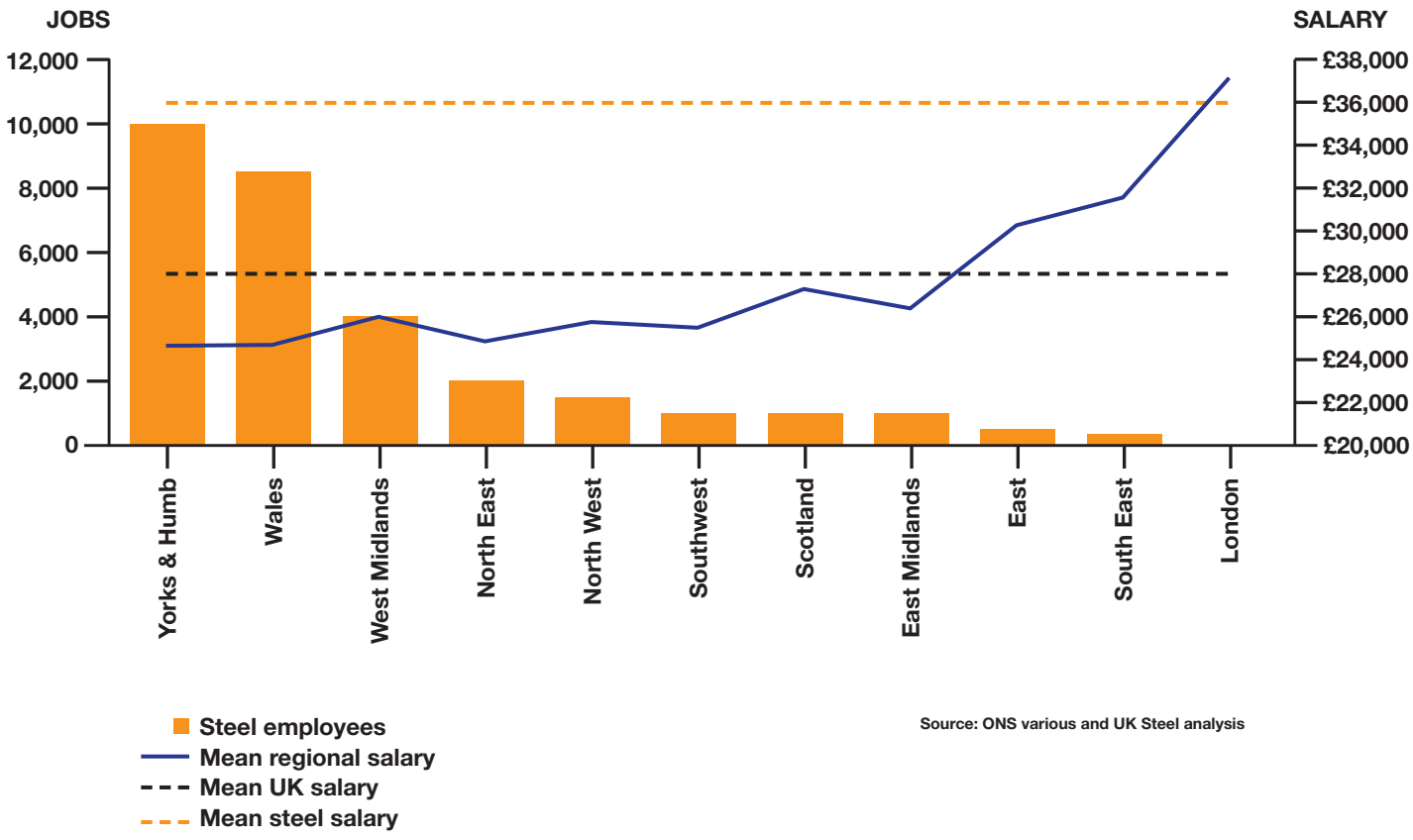
28%
AVERAGE STEEL SALARY 28%HIGHER THAN THE NATIONAL AVERAGE

46%
AVERAGE STEEL SALARY 46% HIGHER THAN THE AVERAGE IN WALES AND YORKSHIRE & HUMBERSIDE

8mt
STEEL PRODUCED A YEAR, EQUIVALENT TO 84% OF UK'S 9.4MT DIRECT ANNUAL STEEL CONSUMPTION

£3.2bn
POSITIVE CONTRIBUTION TO THE UK TRADE DEFICIT VIA EXPORTS

Figure 2: Steel employees across UK regions and sector salary



Source: ONS various and UK Steel analysis

3.1. STEEL PRODUCTION AND ENERGY COSTS

Steel production is an extremely energy intensive process. There are two principal methods of producing steel: by recycling scrap steel in an electric arc furnace (EAF - Cardiff and Sheffield), which requires extremely large amounts of electricity and more modest amounts of natural gas; or from iron ore using blast and basic oxygen furnaces at an integrated site (Port Talbot and Scunthorpe), which consume large amounts of coal, electricity, and some natural gas. Beyond the steel production itself, significant volumes of energy are used in downstream processes such as rolling, plating and drawing. Much of this will occur on the same steel site as the steel production itself, but large volumes of steel are further processed at separate locations.

The proportion of the total costs of steel production that are attributable to energy vary significantly, from site to site and from country to country. The World Steel Association has recently estimated that energy on average constitutes around 20%[2] of the cost of steel production with the split of energy consumption at an integrated site being 50% coal, 35% electricity, 5% natural gas and 5% other gases[3]. For an EAF, the figures are approximately 75% electricity and 25% natural gas[4].

It is important to point out that when the UK steel sector talks of uncompetitive energy prices it is specifically talking about electricity prices. Coal prices are set on a world market and, excluding state-subsidised supplies of coal that some steel companies may be provided with, are broadly the same everywhere. Natural gas prices do vary significantly from region to region, with very low prices in the US compared to very high ones in Japan. But with gas making up a smaller proportion of energy input of steel production, and more limited steel trade between the UK and these regions, gas price differentials do not currently play a significant role in the cost competitiveness of UK producers.

It is also worth noting that despite the commonly accepted view that the UK experiences a price advantage with the EU in relation to gas and that this helps to alleviate any cost disadvantage with regards to electricity, the data does not bear this out. Once all government interventions, such as transmission cost reductions, are taken into account, gas prices in Germany, France, Belgium and the Netherlands for large industrial consumers were all lower than in the UK for the last four years[5].

The UK Government has established a threshold for judging whether a company is ‘energy intensive’ and therefore considered eligible for relief from certain energy policy costs. This requires companies to show that their electricity costs represent at least 20% of their Gross Value Added (GVA - i.e. total economic impact in terms of profit and jobs[6]). With steel companies in the UK demonstrating electro-intensities of up to 120%[7] on this scale, it is clear the detrimental impact high electricity prices are having on profits, investment and long-term sustainability within the steel sector.

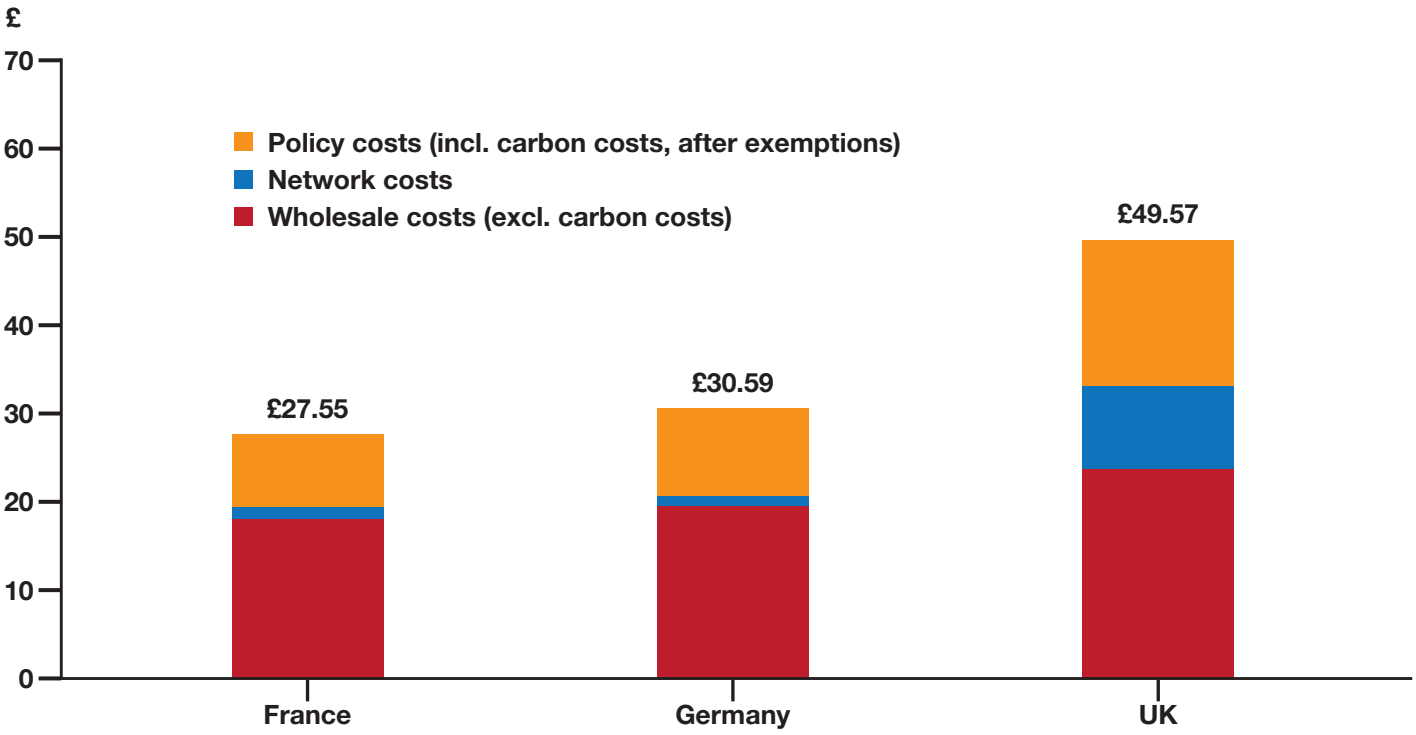
2. World Steel Association (2015) Energy use in the steel industry
3. World Steel Association (2015) Energy use in the steel industry
4. UK Steel Climate Change Agreement data
5. CREG/PWC (2019), A European comparison of electricity and gas prices for large industrial electricity consumers
6. GVA classified as Earnings (Before Interest, Taxation, Depreciation and Amortisation) plus all employee costs
7. As demonstrated through applications to UK’s “Compensation for the indirect costs of the Renewables Obligation and Feed-in-Tariffs” scheme.

4. PRICE DISPARITY

Although other governments conduct detailed analysis of energy price disparities on a regular basis, the UK Government has not done so since 2012. Instead, it relies on highly aggregated data collated at EU level that is an inaccurate reflection of the experience of UK steelmakers. This is the fourth year UK Steel has published an analysis of the electricity price disparity showing the higher prices steelmakers pay in the UK.

The average price faced by UK steelmakers for 2019/20 is £50/MWh compared to the estimated German price of £31/MWh. This indicates a price disparity of 62% – or a UK surcharge of £19/MWh. The disparity with French prices for 2019/20 is higher at £22/MWh, or 80%.

Figure 3: Energy prices for steel producers in France, Germany, and the UK (2019/20)[8]

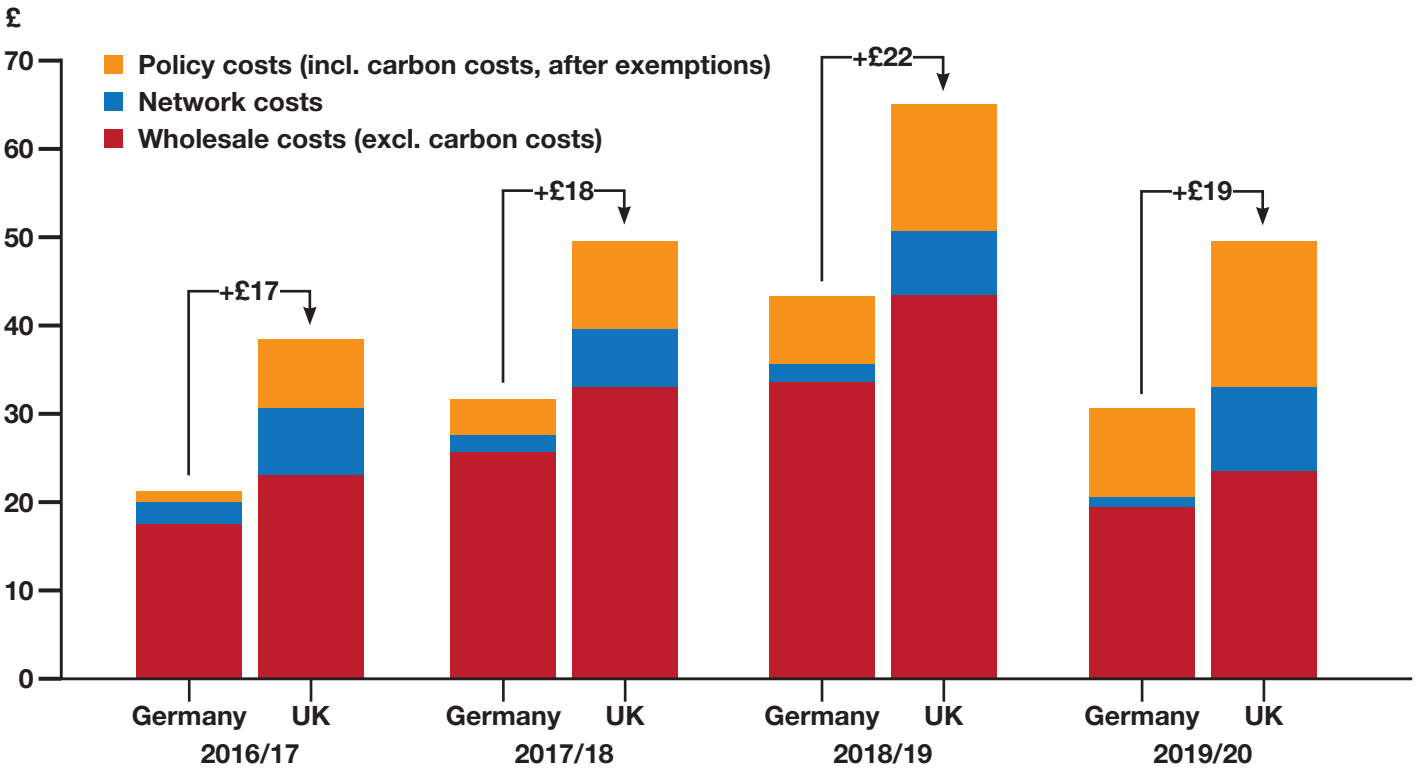


Source: UK Steel

8. It should be noted that in both cases the carbon costs from the EU Emissions Trading System (ETS) and Carbon Price Support (CPS) have been deducted from the wholesale costs and added to the policy costs (including appropriate compensations) to better reflect the true nature of the policy costs.

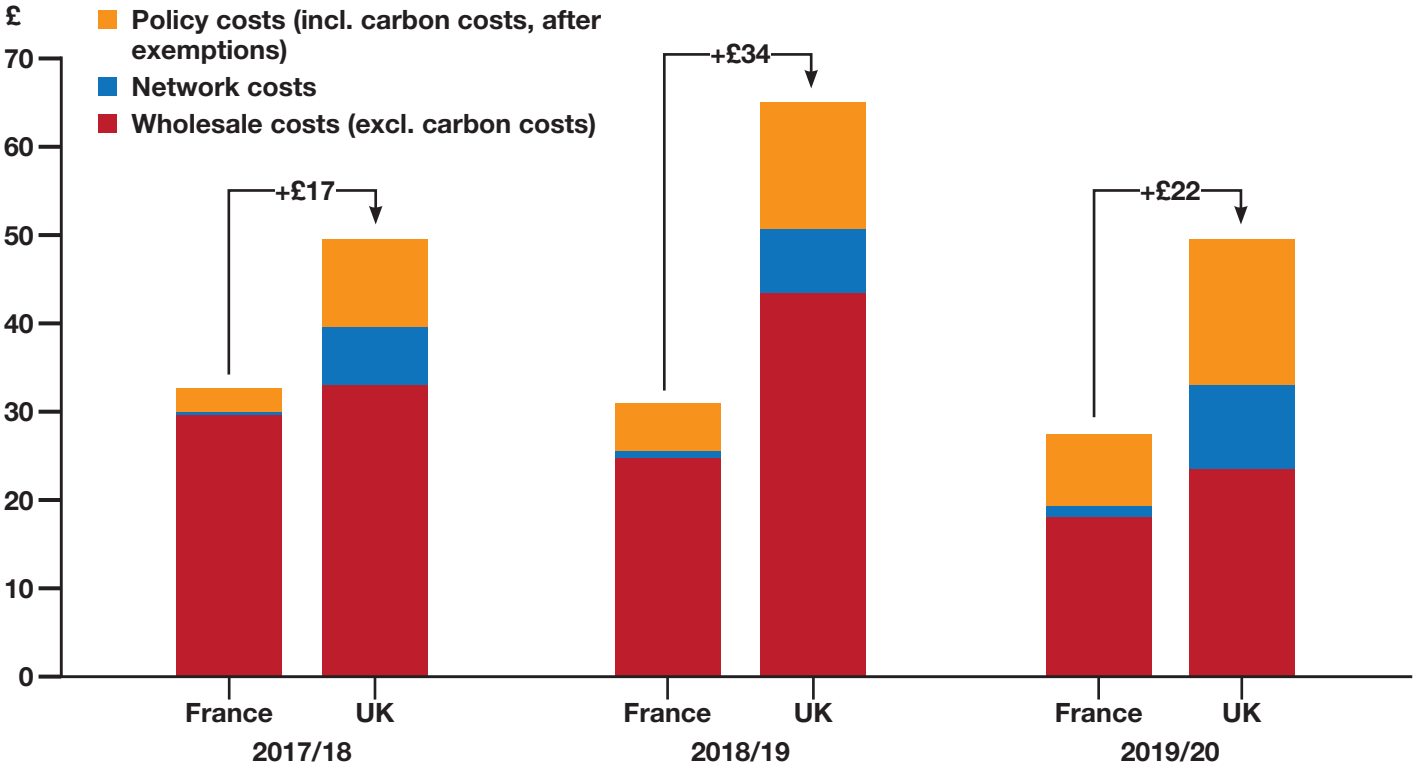
As illustrated in figure 4, overall electricity prices have decreased compared to last year in both the UK and Germany. However, the disparity in price still persists, indeed there has been no overall improvement in the last four years.

Figure 4: Electricity prices for the UK and German Steel producers 2016/17 to 2019/20



Source: UK Steel

Figure 5: Electricity prices for the UK and French Steel producers 2017/18 to 2019/20



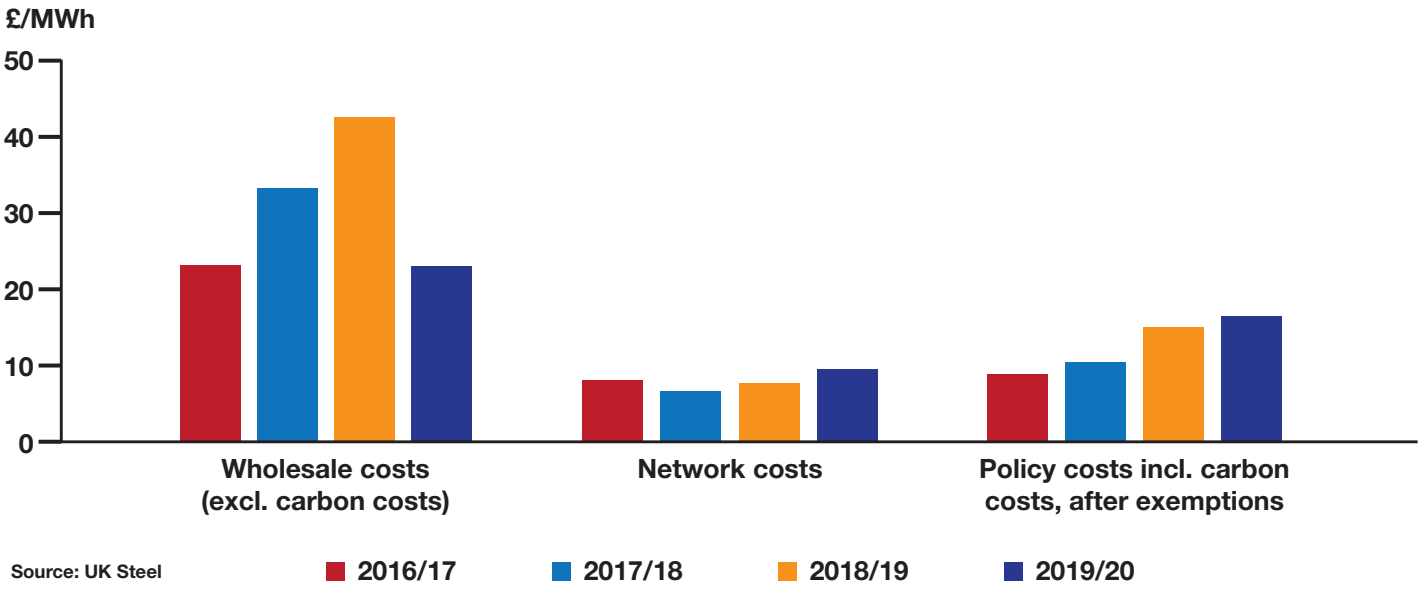
Source: UK Steel

There has been a decrease in the price disparity this year, most notably in comparison to France, and this is solely due to changes in the wholesale cost. While the UK wholesale cost has decreased by 45%, both network and policy costs have increased (see figure 6). We have seen similar changes in wholesale costs in Germany (43% decrease). Wholesale prices available to French producers have remained unchanged as the ARENH price remained below that of the prevailing French wholesale price. The reduction in the electricity price disparity is therefore not down to any changes in UK policy. On the contrary, the price elements dictated by UK Government policy have increased (network and renewables costs) and the price elements dictated by the market (wholesale costs) have decreased. This shows that despite a significant decline in wholesale energy cost, UK steel producers are still facing a very large difference in energy prices.

The ARENH tariff

The ARENH (Accès régulé à l'énergie nucléaire historique) tariff is based on the right that entitles industry to purchase electricity from nuclear generator EDF at a regulated price, in volumes determined by the French energy regulator, CRE . This rate is set in advance. French steel producers may alternatively be on a long-term tariff, usually with EDF, for their energy supply instead, which could be more favourable.

Figure 6: Changes in different elements of energy prices faced by the UK steel sector



4.1. CAUSES OF DISPARITY

There are several underlying factors which contribute to the price disparities with France and Germany that are worth highlighting.

4.1.1. WHOLESALE COSTS

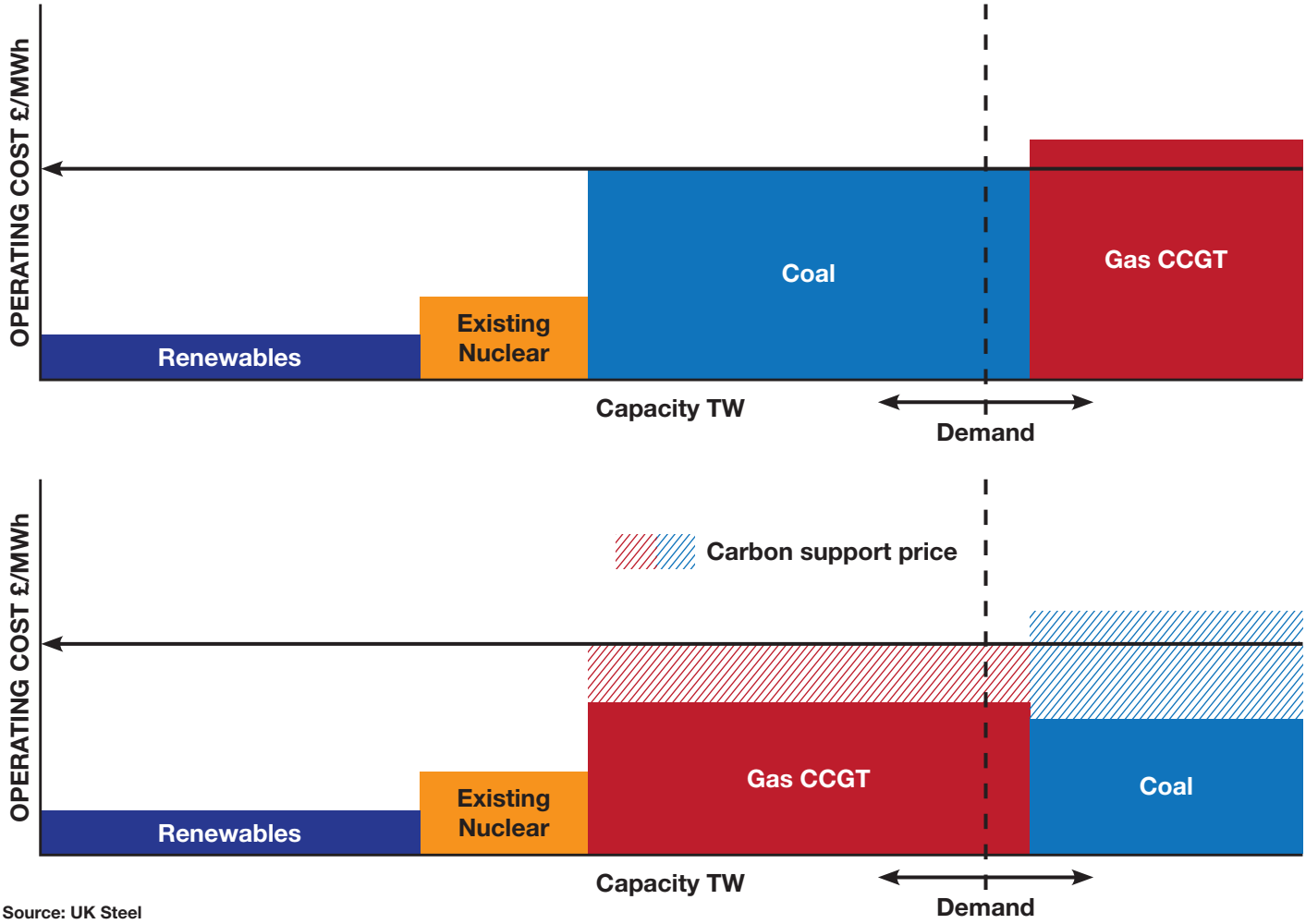
UK wholesale power prices have long been higher than in Germany and France. This is largely due to the different fuel mixes in France and Germany, driven to a significant degree by government policy. France has a higher proportion of old nuclear power (underpinning the ARENH rate discussed above) than the UK, and Germany remains heavily reliant on coal and lignite compared to the gas-

dependent UK. Discounting the carbon costs, German wholesale prices this year are in the region of £19/MWh compared to £24/MWh for the UK, whilst French steel plants continue to draw on the £18/MWh ARENH price.

The UK's higher reliance on gas, as opposed to cheaper coal, is driven by the UK's unilaterally imposed Carbon Price Support – an additional 'top-up' carbon tax over and above the prevailing EU carbon price which currently almost doubles the price of carbon in the UK compared to the rest of the EU. This increases the UK wholesale costs in two ways: by directly adding to the costs of producing carbon-based power and subsequently by forcing the use of the more expensive fuel gas over coal. The power price is determined by the "merit order" – the sequence in which power stations contribute power to the market. The market determines that the cheapest mix of power available at any given time will be used to meet demand – the very cheapest plants will be called upon first, with progressively more expensive plants added to mix until demand is met. The last, and most expensive plant required to meet demand sets the wholesale price paid to all generators in a market.

As illustrated by figure 7, where supply and demand dynamics set the price for every hour, with a lower operating price, coal is often the marginal supply in Germany and it determines the clearing price – i.e. wholesale price ultimately paid by consumers. The UK's introduction of the Carbon Price Support has made the typically more expensive combined cycle gas plant cheaper than coal-fired power stations, due to their lower carbon intensity. This has altered where coal and gas sit in the merit order within the UK and ultimately increased the UK's wholesale prices.

Figure 7: Merit order curve, theoretical German and UK wholesale markets respectively



Source: UK Steel

Steelmakers are partially compensated for the costs of the Carbon Support Price passed through in power prices (the diagonal pattern in figure 7), but not for the costs resulting from the change in the merit order induced by the carbon price. Whilst the UK is entirely correct to have been at the vanguard of the move to phase out coal, the UK's approach should be contrasted with that now being developed by Germany. The UK has opted for a tax based approach, significantly increasing electricity costs and passing them all on to consumers. Germany has developed a regulated approach that will minimise wholesale cost increases and provide up to €2 billion a year in compensation payments to consumers (including energy intensive industry) for price increases that are experienced[9].

The UK separation from mainland Europe means it also has a low level of interconnection compared to its European neighbours[10], constraining our ability to import low-cost electricity. The UK's 4GW of interconnectors is equivalent to 4.5% of domestic generation capacity[11], compared to 10% for France and Germany. Several new interconnectors are currently being built and in the planning stage, this will ultimately help to reduce UK wholesale prices but it will of course take considerable time. The UK Government has also excluded some of the cheapest renewable energy technologies, such as onshore wind and solar PV, from its Contracts for Difference (CfDs) auctions, reducing the ability of the cheapest new renewables installations to bring down policy and wholesale costs.

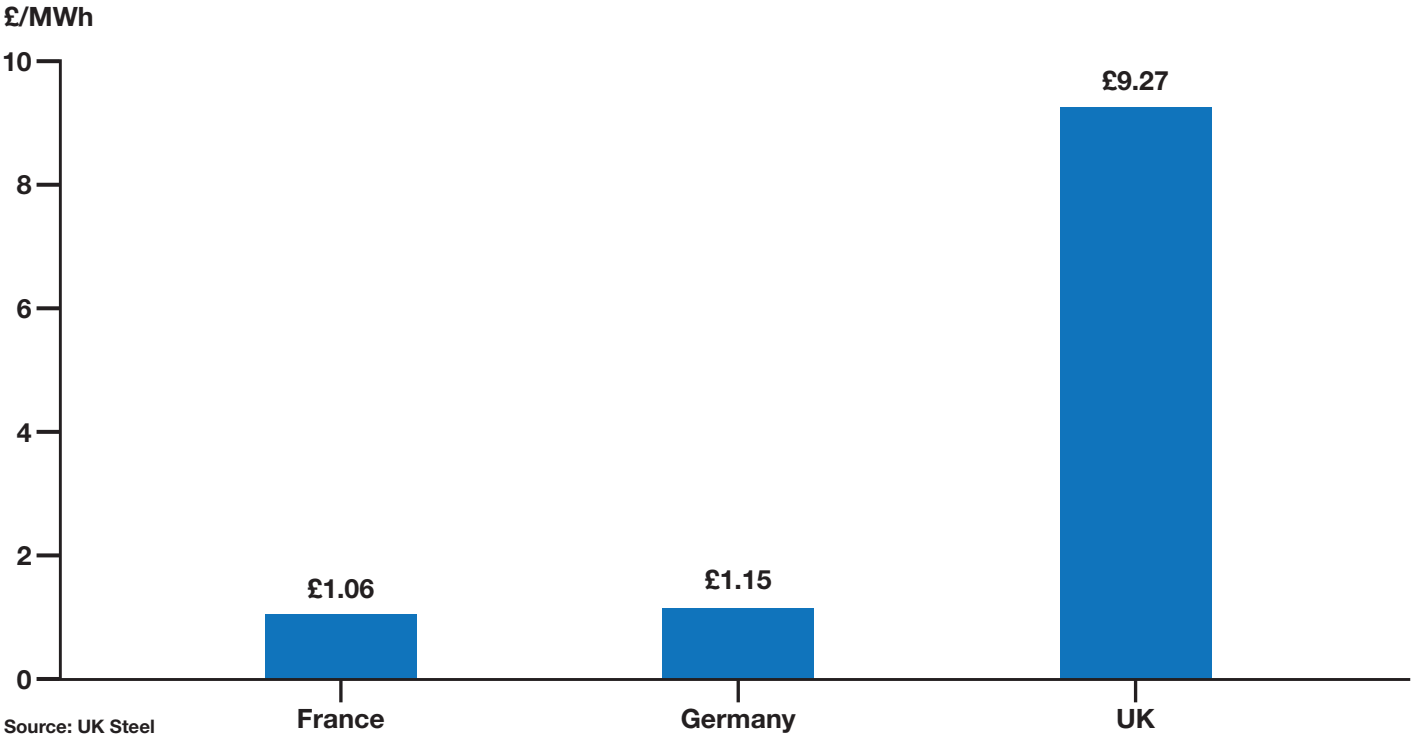
Finally, the UK electricity market has few contracts with a duration beyond a couple of years ahead, which increases exposure to volatile energy prices. In Germany and France, some of the power generators contract considerably further ahead with their consumers. Unlike the UK approach of promoting competition between industries, a large French industrial group (Exeltium) has negotiated a shared 24-year power contract with EDF, reducing prices substantially.

9. E3G (2019), The German Coal Commission – A Role Model for Transformative Change?, https://www.e3g.org/docs/E3G_2019_Briefing_German_Coal_Commission.pdf
10. Grubb, M., & Drummond, P. (2018). UK Industrial Electricity Prices: Competitiveness in a low carbon world. UCL Institute of Sustainable Resources, https://www.ucl.ac.uk/bartlett/sustainable/sites/bartlett/files/uk_industrial_electricity_prices_-_competitiveness_in_a_low_carbon_world.pdf
11. Ibid. In 2016, the UK had over 60GW of 'firm' generating capacity.
12. Ibid.

4.1.2. NETWORK COSTS

Total network costs are similar in the UK, France, and Germany at around €33–36/MWh. However, industrial consumers pay a higher proportion in the UK, whereas France and Germany reduce network costs for industry[12]. French and German steel sites studied have transportation prices at around £1/MWh compared to £9/MWh in the UK. To be clear, the overall system costs for the electricity network in France and Germany are similar to costs in the UK. The problem does therefore not lie with a more or less expensive electricity network, but how these costs are allocated to consumers.

Figure 8: Network costs faced by steel producers



Source: UK Steel

4.1.3. POLICY COSTS

Policy costs, including levies to pay for renewables schemes like the CfD, the costs of the Capacity Market, and carbon costs, are also a big part of the disparity in electricity prices. Gross UK policy costs are £61/MWh, reduced by exemptions and compensations to £17/MWh. This is significantly higher than the £10/MWh paid by steel companies in Germany and £8/MWh in France once compensations and exemptions are accounted for.

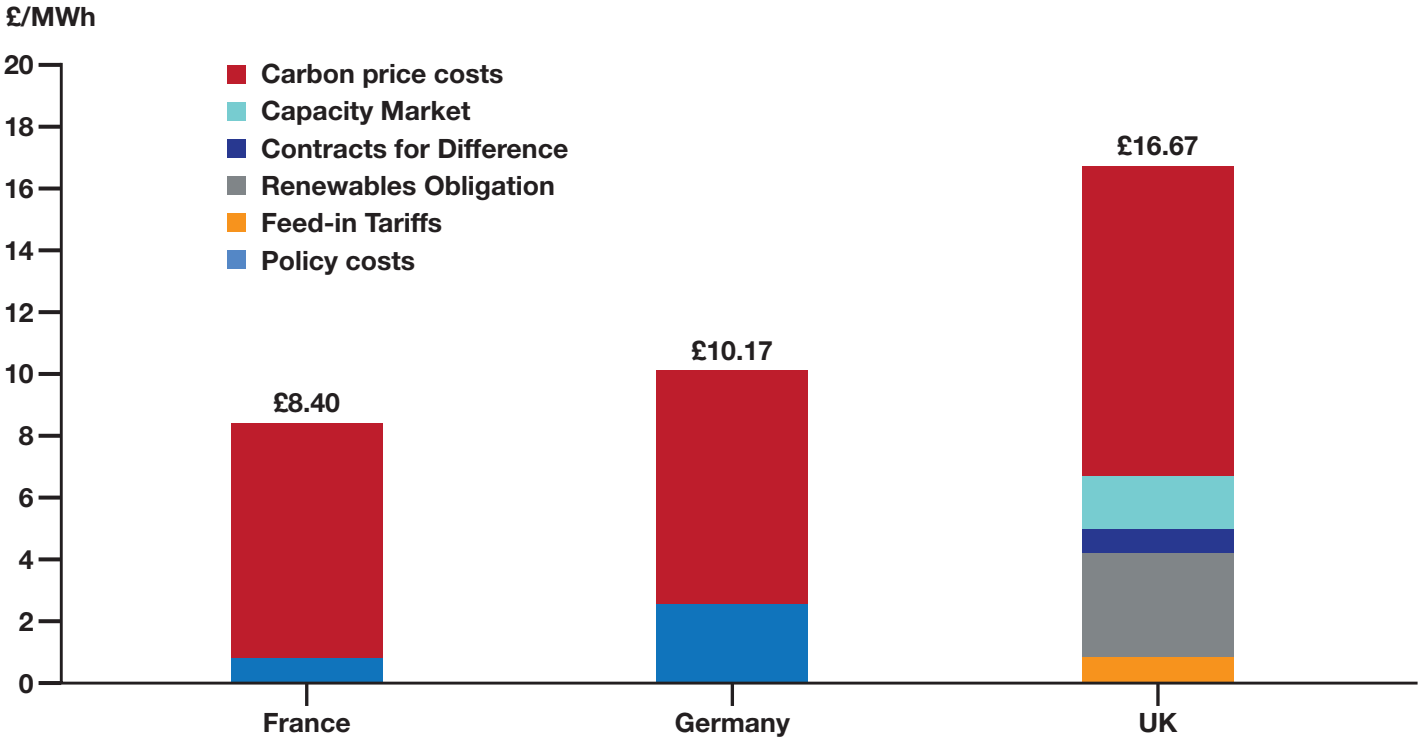
German consumers overall pay more to support the decarbonisation costs of its electricity sector than the UK as its legacy renewable programmes have a higher cost. However, the German Government has decided to keep energy costs competitive for the most energy intensive industries, recognising the other benefits they provide to the economy. Renewables levies are therefore capped at the equivalent of 0.5% of GVA so those qualifying companies are typically accessing up to a 95% exemption from renewable energy costs. UK steel companies meanwhile get a maximum exemption of 85%. Renewables costs (after exemption) for steel companies examined in Germany are around £3/MWh compared to £5/MWh in the UK. The UK Government consulted in autumn 2018 on further exempting energy intensive industries from renewables levies but only considered expanding the exemptions to a wider pool of companies, and did not consider increasing the degree of exemption available. However, the Government has now published its decision to not implement any significant changes to the regime.

12. Ibid.

One of the other key differences between the UK and France/Germany is Carbon Price Support (CPS) which contributes £4/MWh to the disparity, even after the carbon price compensation for which some energy intensive industries are eligible. This is in addition to its impact on setting the marginal supply as explained in section 4.1.1. The CPS is a UK-only top up to the EU ETS carbon price and is currently set at £18/tonne of CO_2, failing to reflect a sharp rise in recent ETS prices. This means residual carbon costs after compensation in France and in Germany are currently around £7.5/MWh compared to £10/MWh in the UK.

On top of this are UK-only Capacity Market charges of around £1.5/MWh for which there is no exemption or compensation available[13]. One way of reducing this policy cost would be to provide an exemption as the Polish Government now intends toprovide an 85% exemption to EIIs from the Polish Capacity Market charges, which is currently subject of a notification procedure before the European Commission before being implemented ahead of the introduction of the capacity fee in October 2020[14].

Figure 9: Policy Costs



Source: UK Steel

13. The capacity market is currently suspended at the time of publication, but a resolution is expected and the £2/MWh is therefore included in the report.
14. The Polish relief is designed in a manner analogic to RES surcharge reduction, already effective in Poland, where 20% relief is offer to consumers with an electro-intensity between 3-20%, 40% relief for electro-intensity between 20-40%, and 85% for electro-intensity above 40%.

4.2. FUTURE CONCERNS

Critically there are a number of future issues that may further exacerbate the electricity price gap between the UK and France/Germany: the Network Charging Reforms and Future Carbon Costs.

4.2.1. NETWORK CHARGING REFORMS

Ofgem is currently carrying out two reviews into the future distribution of network costs: The Targeted Charging Review (TCR) and the Access and Forward-Looking Charging Review (AFLCR). The TCR, the more advanced of the two, is looking at how the costs of the existing electricity network are shared between consumers, while the AFLCR is looking at the rights to access the electricity network and how charges can impact future costs on the network. The current TCR proposals would impose significant cost increases for steel manufacturers, which would add considerably to the existing disparity created by network charging exemptions in France and Germany. Very little consideration has been given to the impact on energy intensive manufacturers from the regulators and often no proper cost details are released to allow the industry to fully assess the effects of the proposals. The AFLCR is still underway and no cost data has been released at the point of writing.

4.2.2. FUTURE CARBON PRICING

If the UK leaves the EU without a withdrawal agreement, the Government will introduce a carbon tax of £16 to replace the EU ETS. There is a risk that the rate of this will deviate from the EU ETS over time, imposing additional costs on UK generators that will be passed on to steel producers. With the UK Government having legislated a new emissions target of Net-Zero greenhouse gases by 2050, the price of carbon, and thereby energy costs, will likely rise.

4.2.3. OTHER GOVERNMENT REFORMS

Various reforms and programmes have been announced by the Government since last year's report, including new potential Carbon Capture Utilisation and Storage (CCUS) business models, heat decarbonisation, and SME energy efficiency programmes. These programmes need significant funding to achieve their aims and their funding, although not clarified for all, may come from added costs to energy bills. The need for CCUS is most likely going to increase to achieve the Government's Net-Zero greenhouse gas emission target, and the cost to finance it will also likely swell. Any additional cost added to the price faced by the steel sector will further damage its competitiveness.

5. EFFECT OF PRICE DISPARITY ON UK SECTOR

5.1. INTERNATIONAL COMPETITIVENESS

The most immediate concern of the UK's high electricity prices is the impact on the steel manufacturers' international competitiveness. Raw materials such as iron ore and coal are sold in international markets, and there will, therefore, be little difference in the price of iron ore used in France and the UK. It is where there are national and regional variations in costs that competitiveness issues arise. As outlined above, electricity costs can represent up to 120% of UK steel producers' GVA and around 20% of their conversion costs[15]. As they are competing in an international market, they are unable to pass on any additional costs over and above those faced by their competitors. A consistently higher energy price, therefore, impacts their ability to compete and diminishes their profitability. The disparities identified here translate into a total additional cost to UK steel producers compared to those in Germany of around £47 million per year[16].

It should, of course, be noted that other important factors also negatively influence the competitive position of UK steel producers such as high business rates, a lack of strategic thinking on public procurement, and of course the host of trade barriers for UK exports that Brexit is already presenting.

5.2. INVESTMENT

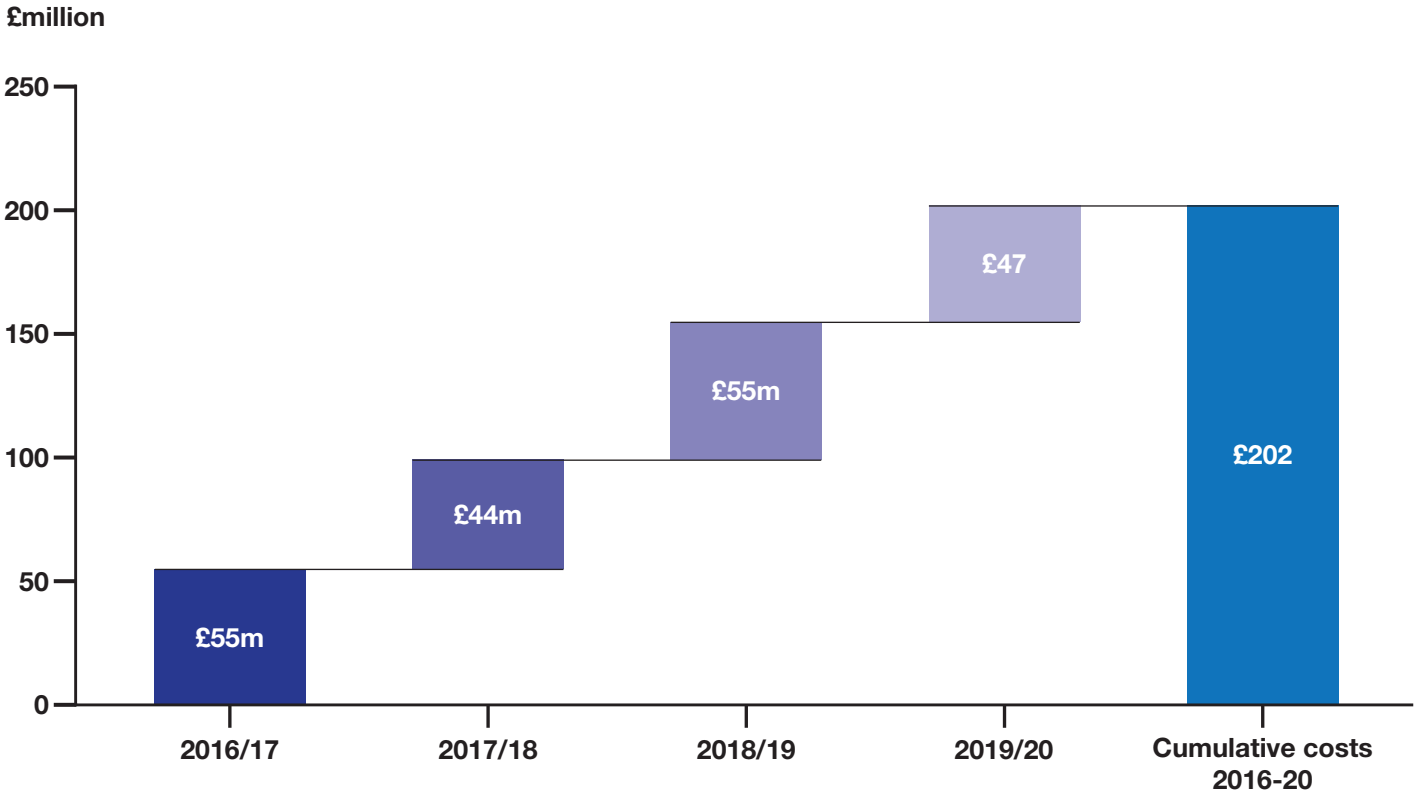
Besides the impact on direct competition, the more insidious impact is on long-term investment. All of the major steel producers in the UK are part of multi-national companies with facilities elsewhere in the EU and three also operating outside the EU. In this context, the cost competitiveness of each particular market is crucial to attracting investment. Persistent cost disadvantages in the UK lead to underinvestment which in turn leads to further erosion of competitiveness. This is compounded by the lack of action from the UK government to address the disparity, making substantial investments here even less attractive.

The issue of underinvestment resulting from the UK's high electricity prices has become increasingly apparent over the course of the last two years, during which the UK's six steel producers have come together to develop a Sector Deal proposal to feed into the Government's Industrial Strategy. Delivering the proposals as a whole would see much-needed capital investment in the sector increase by 50% per year, R&D funding increase by a potential 75% and steelmaking capacity increase by 30%. However, the CEOs of all the steelmakers made it clear during discussions that this investment and expansion was reliant, in the first instance, on a Government commitment to deliver competitive electricity prices in the near and long-term.

Over the past four years, the industry has paid £202m more for their energy than their competitors in Germany and, over the past three years, £182m more than steelmakers in France. The UK steel sector's annual capital investment is £200m.

15. Conversion costs are a manufacturer's production costs other than the cost of a product's direct materials and includes labour costs.
16. Electricity Consumption figure updated from ISSB. 2017 steel sector consumption of imported electricity was 2.5TWh.

Figure 10: Additional costs to UK steel sector as a result of electricity price disparity compared to Germany



Source: UK Steel

Considering electricity prices in isolation, all of the UK steel producers made a firm and direct commitment to Government last year that all savings on electricity costs resulting from Government action would be reinvested in the UK. Based on the analysis of this report, delivering cost parity with Germany would deliver a £47 million a year investment over and above business as usual: this represents a 24% increase in annual capital investment. With this clear-cut commitment from the sector, it is more obvious than ever the investment the steel industry is missing out on as a result of UK Government inaction on electricity prices.

5.2.1. INVESTMENT IN DECARBONISATION OF STEEL

The UK Government has amended the Climate Change Act 2008 to introduce a Net-Zero target for greenhouse gas emissions in the UK by 2050, which requires significant changes to UK industrial processes, including steel. Options for decarbonising the steelmaking process include fuel switching (e.g. hydrogen), CCUS, and electrification. All these options, but in particularly electrification and hydrogen steelmaking, leads to increased electricity consumption. A systemically higher electricity price would be a substantial barrier to any investment in decarbonisation options, as this would further worsen the industry's ability to compete with European and global steelmakers. Lower industrial energy prices is thus a basic necessity for the industry to be able to start decarbonising its production and therefore play an integral part in helping UK Government meet its 2050 target.

6. OPTIONS FOR LOWERING THE PRICE DISPARITY

The Conservative Party committed in its 2017 Manifesto to deliver the lowest energy costs in Europe for both domestic and industrial consumers. A few months later, the Industrial Strategy promised to make the UK the best place to start and grow a business, and subsequently, the Industrial Energy Transformation Fund and the Clean Steel Fund were announced. These two funds are very important and highly welcomed by the industry. But they do not alter the short term concerns around electricity prices and operating costs. Steel companies outside the UK are making similar investment in energy efficiency but also have the major benefit of lower electricity costs. As noted above, a competitive cost base on electricity would facilitate millions in new investments, many of them in energy efficiency and decarbonisation measures. This should be the first port of call for Government actions to support the steel sector. Leaving the EU could provide an opportunity to review the energy price frameworks to provide energy intensive industries the best platform to grow and thrive.

UK Steel urges the Government to commit to taking quick action to eliminate the electricity price disparity, thereby helping ensure the future viability of the sector and securing the jobs of thousands of employees. This should include reviewing which technologies are able to bid in forthcoming CfD auctions in order to support more cost-effective renewable energy technologies, exempting industry from any further renewable or low-carbon energy levies, facilitating cross-border contracting, and increasing the number of interconnectors. It is particularly dispiriting to see the results of the Government's own Cost of Energy Review dismissed by the previous Secretary of State[17] when the Review itself put forward key recommendations to lower electricity prices for EIIs.

There are a number of options for how the costs of eliminating the electricity price disparity could be paid for – much could socialised and paid for in compensation schemes from HMT, whilst other costs may have to be distributed amongst other energy consumers. Importantly, the costs are not significant. Even if the Government chose to place all costs on other energy consumers, something we do not propose, we estimate that the cost would add just 28p per year to the average household bill. The Government needs to look beyond black and white arguments around the cost to other consumers of taking action and consider the wider economic case for supporting the steel sector in this manner. As stated above, action on electricity will demonstrably lead to a significant increase in investment, capacity and jobs within the steel sector, delivering benefits to the wider manufacturing sector and the UK economy. As such we firmly believe there is a strong and logical argument for taking action.

All of our proposals have been implemented elsewhere in Europe to strengthen the competitiveness of energy intensive industries, and there are, therefore, no regulatory barriers to implementing them in the UK. Should the UK leave the EU without a withdrawal agreement in a 'no deal' scenario, then it would be possible to go beyond the proposals below.

17. Greg Clark, November 2018, Speech on The End of the Energy Trilemma

6.1. OUR RECOMMENDATIONS

1

Increase the level of renewable levy exemptions: The costs of supporting renewable energy generation are expected to increase in the coming years, from £10.6bn in 2019/20 to £13.1bn in 2023/24[18]. EU state aid guidelines on relief to industry from the costs of renewables state that companies must pay at least 0.5% of their GVA. The UK, for reasons of administrative simplicity, chose instead to only provide relief at 85% aid intensity. However elsewhere, such as Germany, companies achieving the necessary electro-intensity thresholds are able to access the higher level of relief – paying a maximum of 0.5% of their GVA (average over three years). We estimate that introducing a similar approach in the UK could reduce electricity costs for the steel sector by an average of £2.5/MWh or £6.2 million in total.

2

Provide 100% compensation for the indirect costs of the Carbon Price Support: EU ETS prices have risen significantly, pushing the UK's Total Carbon Price up above £35/tCO_2. This is damaging in itself, but even more so considering industrial consumers in the rest of the EU are not paying the CPS or any equivalent. Once the UK has left the EU, additional compensation should be provided to the steel industry for the Carbon Price Support and would cost around £10.5m. Moreover, it should be remembered that not all steel processes, or steel suppliers, are currently in receipt of compensation due to EU methodology, and further changes could be considered here.

3

Ensure the success of post-Brexit carbon pricing and compensation for indirect costs: In the case of a 'No Deal' Brexit, Government has outlined plans to introduce a carbon tax from November 2019. There is a concern that the EU ETS price could drop below this when the UK exits the EU ETS market, leaving UK electricity suppliers and their customers paying much higher prices than their EU counterparts As the UK is leaving the European Union, the Government must take urgent action to bring the Total Carbon Price (the combination of the EU ETS plus Carbon Price Support) back to the £25/tCO_2 level it said it would aim for in its 2017 Autumn Budget, which would match current EU ETS levels.

4

Provide an exemption from Capacity Market costs: The Capacity Market is another policy cost arising from decarbonisation. As such, the Government should provide an exemption from its costs. As previously mentioned, this is planned for implementation in Poland, where an 85% exemption will be provided. This would lower the average electricity price for steel producers by about £1.5/MWh[19].

5

Implement German/French style network cost reductions, whilst ensuring ongoing network charging review does not increase costs for steel companies: In the context of Ofgem's Target Charging Review and Access and Forward-Looking Charging Review, solutions must be found that, at the very least, do not further increase network costs for steel companies. The reviews have not sufficiently focused on how to reduce costs for the energy intensive consumers. There is therefore reason to consider changing Ofgem's terms of reference to ensure that it actively needs to work to lower the energy costs for EIIs. We would urge the Government and Ofgem to move to a model similar to Germany in which all three elements of network charging (transmission, distribution and balancing) are bundled together and 90% exemption is provided. This would lower the average electricity price for steel producers by £8/MWh.

18. Office for Budget Responsibility, Environmental levies in Table 4.12, Economic and fiscal outlook March 2019.
19. Assuming the electricity intensive industry uses roughly 20TWh, which is equivalent to 6% of the UK total electricity use; the capacity market costs £400m in 2017/18, which would make the costs to EIIs roughly £24m. As the Capacity Market was suspended during 2018/19, similar figures will be used. This would likely be much less as the EIIs change their consumption behaviour to minimise capacity market charges. If the £24m were to be spread across the remaining consumers, it would lead to a costs of £0.000076 per kWh (£24m / (total UK power consumption (£336TWh – 20TWh)). An average household consumes 3100kWh according to Ofgem's Typical Domestic Consumption Values, which would equate to £0.24 for 100% exemption.

6 **Enable the energy intensive industries to buy energy collectively:** The UK Government could enable energy intensive industries to collectively negotiate lower energy prices and it could be considered whether to allow the steel sector to buy electricity at a regulated price from old nuclear plants with no ongoing debt obligations similar to the French ARENH tariff.

7 **Fast-track the forthcoming Industrial Energy Transformation Fund:** In the 2018 Autumn Budget, the Government announced the Industrial Energy Transformation Fund to support industrial energy efficiency and decarbonisation projects. The steel industry has identified a host of energy efficiency projects, which could collectively save 356GWh and 125,183t CO_2e per year. However, despite being announced in November 2018, it has still not been formally consulted upon. The further it gets delayed, the less useful it will be to the steel sector, as there will less time to implement the large, cost-effective, impactful projects. The implementation of the IETF should be fast-tracked so that it is open for applications in mid-2020. It should also be ensured that it remains an industry and manufacturers scheme and is not opened up to wider businesses.

8 **Include onshore wind and solar PV in CfD auctions:** Supporting the development of renewables through the energy bills has increased the electricity prices faced by the steel sector. The steel sector should be exempted from this cost to protect the industry from carbon leakage. But should the renewable levy exemptions not be increased as recommended in this report, the costs of the ongoing support should be minimised as much as possible. Onshore wind and solar PV are currently the lowest-cost forms of low-carbon generation, with the levelised costs of onshore wind having decreased by a third and solar levelised costs almost halved between 2013 and 2016[20]. CfD contracts should thus also be offered to mature renewables such as onshore wind and solar PV rather than exclude them and increase the cost of the CfD programme.

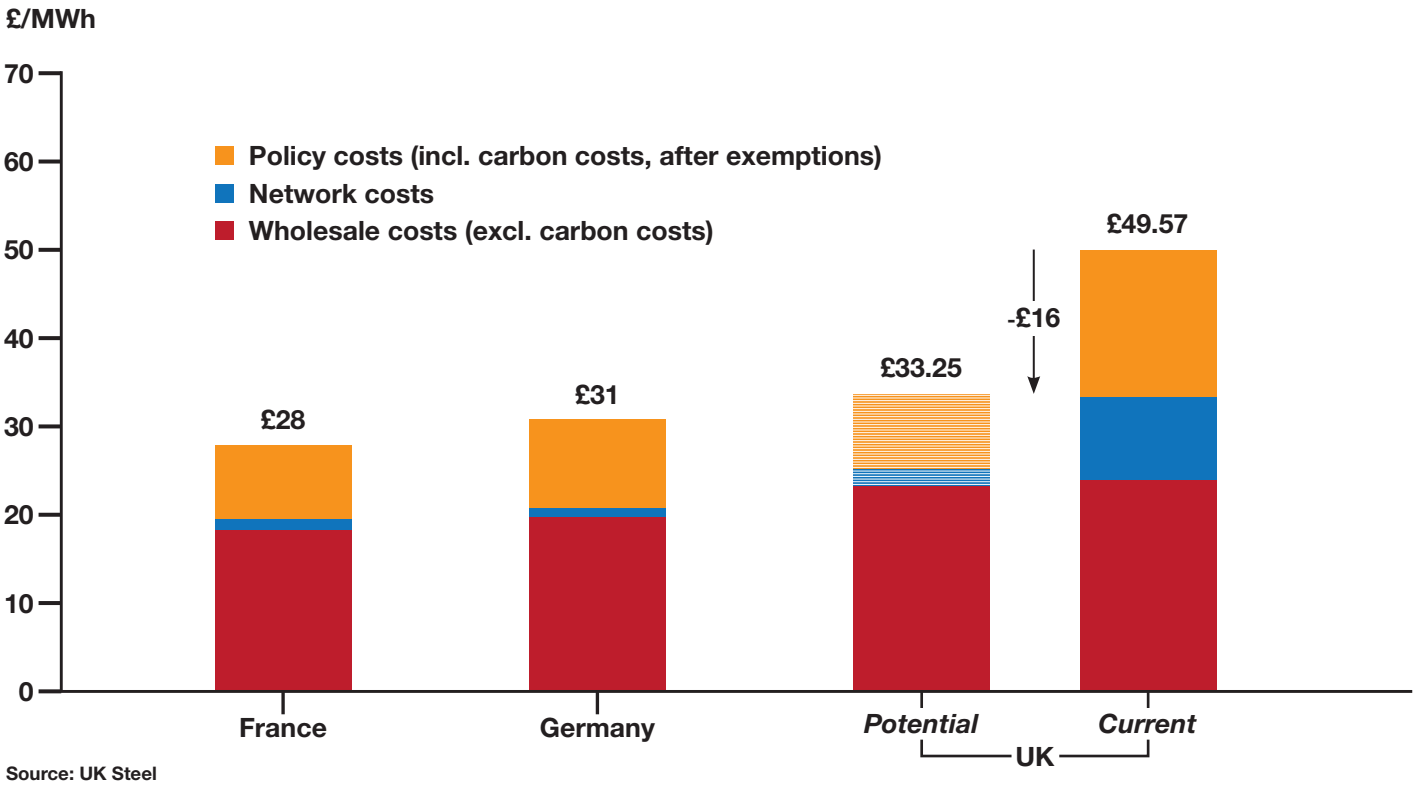
9 **Track industrial energy price disparities between countries:** Government should track the disparity in industrial energy prices between the UK and other key competitors and reasons for the disparities, to enable more informed policymaking. An update should be published every year alongside an Annual Energy Policy Statement giving a unified view for investors from Government and the regulator on the future of energy policy. The Belgian Government currently publishes an annual review of the impact of energy costs for energy-intensive, trade-exposed industries, headed up by the Commission for Electricity and Gas Regulation (CREG) and PwC.

20. The CCC 2019, Reducing UK emissions – 2019 Progress Report to Parliament

6.2. IMPLEMENTING PROPOSALS

As illustrated in figure 11, it is possible to assess the impact of implementing the first five proposals, whereas the remaining proposals are less certain to calculate. If these five proposals were implemented, the electricity price disparity would be reduced by £16.32/MWh or 86% of the price disparity between Germany and the UK.

Figure 11: Potential electricity prices for UK steel producers, compared to France and Germany.

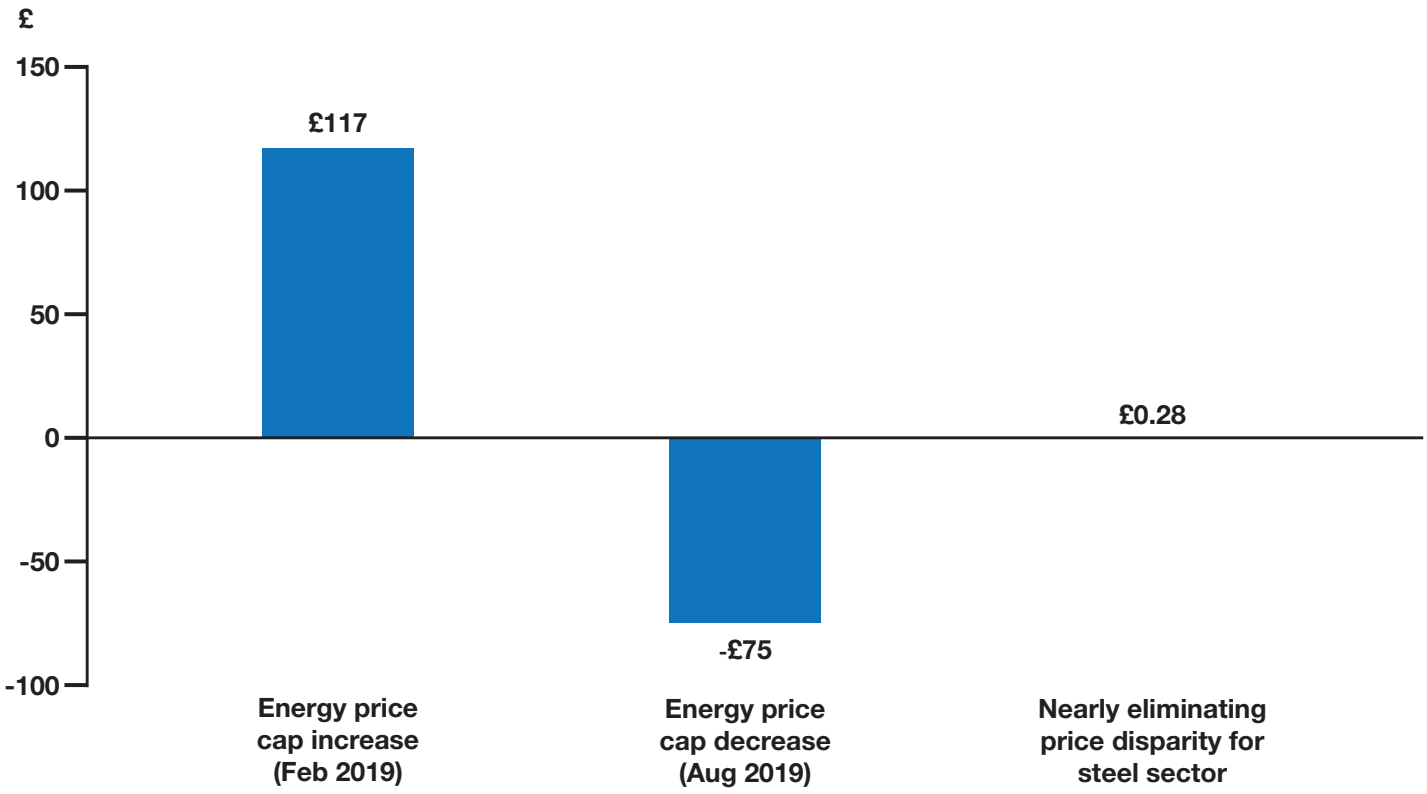


Source: UK Steel

These costs should be socialised and paid for by HM Treasury, which is the approach Germany will be taking in terms of maintaining competitive costs for industry whilst phasing out coal. Should the Government decide that it is not a priority for taxpayers then, and only then, should consideration be given to spreading the costs through all other consumers. If these costs were redistributed to the rest of the market, a household with a low average electricity consumption would only face an increase in their annual energy bill of £0.17, with a household with medium average consumption facing an increase of £0.28, and high consuming household £0.41 per year[21]. This is assuming that the costs were redistributed equally to the rest of the market, however, there are options for allocating these costs differently to avoid negative impacts on inequality. The biggest changes in energy bills for consumers are usually caused by fluctuations in wholesale costs. The decrease of £75 in the energy caps announced in early August 2019 was more or less entirely down to lower wholesale costs[22], and in February 2019, 63% of the £117 increase in the energy price caps were due to higher wholesale energy costs[23]. Spreading costs to ensure the steel sector's competitiveness would, therefore, be negligible compared to any changes in the wholesale market. However, it should again be stated that these costs should be socialised and paid for by HM Treasury as in Germany, rather than redistributed to the rest of the energy market.

21. If the cost of the proposals £40m were to be spread across the remaining consumers, it would lead to a costs of £0.00016 per kWh (£55m / (total UK power consumption (336TWh – 2.5TWh)). An average household consumes 3100kWh according to Ofgem's Typical Domestic Consumption Values, which would equate to £0.28
22. Ofgem (Aug 2019), Energy caps to fall this winter due to lower wholesale costs, 7th August 2019, Press Release, https://www.ofgem.gov.uk/publications-and-updates/energy-caps-fall-winter-due-lower-wholesale-costs
23. Ofgem (Feb 2019), Energy price caps update: A guide for elected representatives and stakeholders, https://www.ofgem.gov.uk/publications-and-updates/energy-price-caps-update-guide-elected-representatives-and-stakeholders

Figure 12: Impact of reducing price disparity for the steel sector, relative to energy price cap changes, if redistributed via energy market rather than socialised



Source: UK Steel

Finally, it is worth considering what the alternative is to providing a competitive business landscape for the steel industry. The high electricity price disparity continues to threaten the existence of the UK steel industry, and without the steel industry, policy and network costs current borne by steel producers would have to be paid by commercial and domestic consumers. If the steel industry was not operating in the UK, the average domestic consumer bill would increase by £0.36. The cost of competitive energy prices is therefore marginal, considering that it secures a thriving steel industry, which provides 32,000 high-paying jobs and £1.6 billion direct contribution to UK GDP amongst other numerous benefits.

7. METHODOLOGY

This UK Steel research is based primarily on the electricity prices faced by typical UK steel producers based in the UK and their sister facilities in Germany and France. Where necessary, this has been supplemented by data from international price comparison studies such as the PWC/CREG report referred to above. The intention is to provide a much-needed sector-specific view with input from steel companies actually operating in those countries examined. Importantly, this analysis also takes into account all exemptions and compensations that are available to those companies and therefore provides the most accurate and up-to-date picture possible.

UK wholesale prices have been constructed by using the four monthly average spot prices (from April to July) and average forecasted price for the following eight months, based on published reference data. German wholesale prices are based on a similar methodology, and the ARENH tariff is used as the basis for the French wholesale prices. The policy prices for the Renewables Obligation, Feed-in Tariffs, and Contracts for Difference are based on average reported prices from UK steelmakers and exemptions have been applied. The Capacity Market prices are also based on the average prices per MWh for steel producers over the past year. UK network prices are similarly based on the average prices steel producers face, including balancing, distribution, connection, and transmission costs (assuming consumption during one Triad at 70% capacity). The French and German policy and network prices are based on the average reported prices reported by steel producers. This includes the CPSE, Contribution tarifaire d'acheminement (CTA), CHP, StromNEV, Offshore, EEG-Umlage, Stromsteuer, and Konzessionsabgabe / Concession Fee. The exchange rate used is €1:£0.881 based on the exchange rate between 1st April to 31st July 2019. The EU ETS prices are based on the average price for April to July 2019 and the forecasted price for the following eight months. Compensation has been applied to this and, in the UK's case, the CPS. In all countries, we assume compensation provides 60% relief; based on the assumption of plants being at 80% of the electricity consumption efficiency benchmark and compensation provided at 75% aid intensity in 2019.

Any demand side response income or revenue from embedded benefits has been excluded from this analysis in all countries.

8. UK STEEL

UK Steel is the trade association for the UK steel sector. As the voice of the steel industry, we interface with government and parliament – in both London and Brussels – to influence policy so that it underpins, rather than undermines, the long-term success of our sector.

Membership of UK Steel is open to all UK-based companies and organisations involved in the production of steel and downstream processes.

9. ANNEX

		Details	Current cost to industry	New cost to industry	Total cost*	Total cost (all EIIs)
1	Increase the level of renewable levy exemptions and merge levies	As per German proposal	£5.16/MWh	£2.67/MWh	£6,236,088	£49,888,700
2	Reduce the level of Carbon Price Support	Provide compensation for steel industry for CPS	£4.18/MWh	£0/MWh	£10,440,000 w	£83,520,000
3	Ensure the success of post-Brexit carbon pricing					
4	Exemption from Capacity Market costs	85% exemption as in Poland	£1.53/MWh	£0.23/MWh	£2,529,762	£20,238,095
5	Ensure network charging review will not increase costs for steel companies	90% exemption from transmission, distribution, & balancing cost as in Germany	£9.27/MWh	£0.93/MWh	£20,864,447	£166,915,575
6	Allow the steel sector to buy energy collectively					
7	Fast-track the forthcoming energy efficiency fund					
8	Include onshore wind and solar PV in CfD auctions					
9	Track industrial energy price disparities between countries					
	Total		**£20.14/MWh**	**£3.82/MWh**	**£40,070,296***	**£320,562,370.44**
	Total reductions to steel companies' bills				**£16.32/MWh**	

*The actual cost will likely be much less as not all steelmakers and supply chain will be eligible.

UK Steel is the trade association for the UK steel industry and champions the country's steel manufacturers.

We represent the sector's interests to government and promote our innovative, vibrant and dynamic industry to the public.

Together, we build the future of the UK steel industry.

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