

CORNWALL INSIGHT

CREATING CLARITY

Insight paper

Business net zero: Making progress in a challenging economy

January 2023



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Table of Contents

Executive summary	Page 6
A challenging landscape	Page 8
Support for businesses	Page 13
The impact of the crisis on net zero	Page 17
Decarbonisation options for businesses	Page 20
The need for policy clarity	Page 24

Acknowledgements

For this report, we adopted a mixed methodology approach based on both quantitative (from Cornwall Insight and external sources) and qualitative (from in-depth interviews with the market stakeholders below) data. We would like to thank all the individuals and companies who contributed to this report for their insights, including those who wished to remain anonymous.

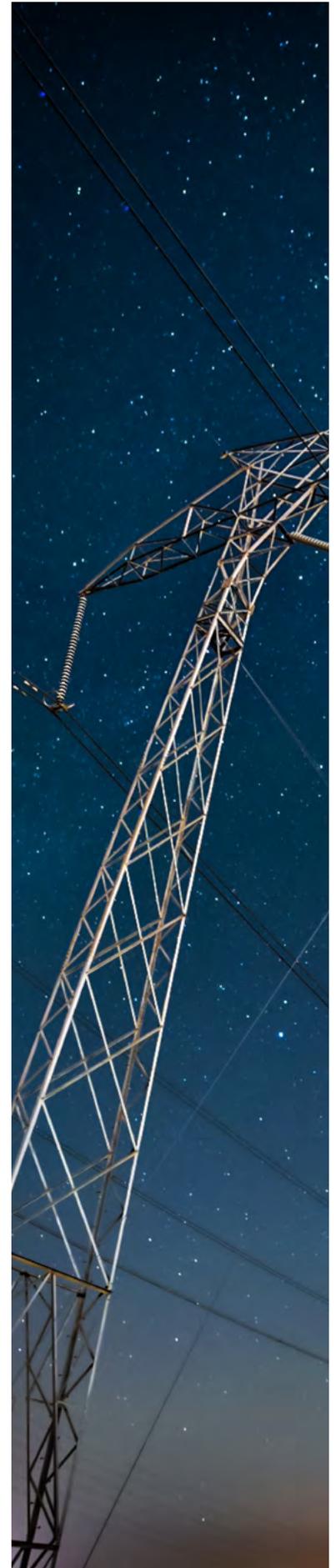
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Executive summary

With energy prices remaining significantly elevated relative to historic levels, and an increasingly challenging macroeconomic landscape, many UK businesses are struggling. However, energy cannot be looked at in isolation. In light of the financial pressures faced by enterprises from rising inflation and interest rates, tight supply chains and labour markets, alongside high energy bills, this paper investigates to what extent decarbonisation is still a priority for corporates and how progress towards net zero has been impacted by recent developments. Furthermore, the paper explores decarbonisation options for businesses and policy pathways to net zero.

Against a challenging economic backdrop, the Energy Bill Relief Scheme (EBRS) has provided welcome support for struggling businesses since it was introduced in October 2022. But with this scheme ending on 31 March 2023 and being replaced with the greatly reduced and more targeted support provided by the Energy Bill Discount Scheme (EBDS), there are concerns amongst businesses as to whether the base level of support will be sufficient. Whilst all businesses are going to be vulnerable to some extent, sectors with higher proportions of energy intensive industries (EIIs) or small and medium-sized enterprises (SMEs) are likely to be particularly susceptible to the impacts of high energy prices, but only companies within sectors defined as Energy and Trade Intensive Industries (ETIIs) are eligible for the additional targeted support under the EBDS. The EBDS, even with the reduced support level relative to the EBRS, will likely help prevent some business failures in the short term. However, it is unlikely that the EBDS will provide sufficient financial support to free up the levels of corporate capital investment needed to support net zero and environmental, social and governance (ESG) commitments.

Despite increasing financial demands, net-zero targets remain a priority for many businesses to progress decarbonisation plans to satisfy both customer and disclosure requirements. Many businesses are likely to struggle, particularly within certain sectors and geographic areas, as energy prices are set to remain high for the next few years. There are a range of options available to businesses, from understanding and then reducing their energy consumption and implementing



energy efficiency measures to investing in on-site generation or setting up corporate power purchase agreements (CPPAs), which both aid decarbonisation and help businesses manage their volatile energy costs.

Alongside the steps that businesses can take themselves, there are a range of potential policy changes that the government could implement to help protect businesses and avoid a slowdown or stalling of business decarbonisation by sending appropriate investment signals. These include:

- Boost energy efficiency and electrification – energy efficiency awareness campaigns can provide quick wins and immediate savings.
- Longer-term fiscal measures for decarbonisation progress, such as levelling policy costs to incentivise process electrification. Coupled with deterrents for carbon-intensive practices, could be used as part of a ‘carrot and stick’ approach.
- Devising a market design fit for net zero – with many ELLs reliant on mass electrification for decarbonisation, there is a clear need to reform the existing market design to maximise the efficient distribution of lower marginal cost renewable sources of power.
- Reduce energy prices – with power prices in the UK elevated compared to other global markets due to the additional levies on energy bills, the competitiveness of UK businesses is hindered. Harmonisation of levies applied to gas and electricity could help close the cost gap.
- Address grid constraints – there is a need to bring generation and storage assets onto the network as quickly and cost-effectively as possible, alongside ensuring that industries switching to electrification are able to access sufficient grid capacity to make this transition. Questions remain as to whether investment in the grid should be paid for through bills or general taxation.
- Tackle labour shortages and accelerate digitalisation – there is a severe labour shortage in the UK currently, particularly in net zero skills. Programmes designed at upskilling workforces as well as policies to enable efficient digitalisation of business operations could both help businesses in reducing costs and accelerating their net zero journey.
- Encouraging direct investment – promoting the growth of businesses and supply chains that support net zero within the UK can help increase security and reduce dependence on external markets and companies.

Overall, the need for long-term regulatory and policy clarity is widely seen as an essential prerequisite to allow businesses to address the challenges brought about by the energy crisis and to seize the opportunity unleashed by the net zero transition. A key finding of this research is that the current policy landscape does not provide corporates with enough clarity to make long-term business and investment decisions.

A challenging landscape



Macroeconomic headwinds

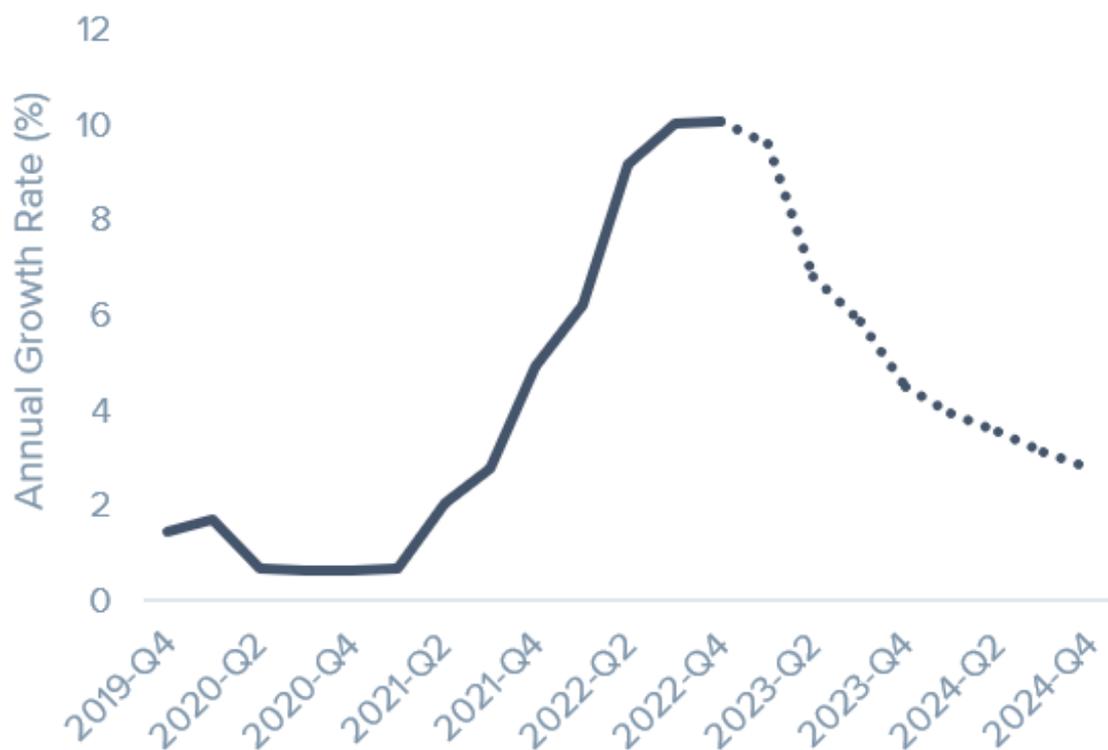
On 17 November 2022, as part of the Autumn Statement, the Chancellor of the Exchequer Jeremy Hunt announced that the UK had entered a recession, predicted by the Office for Budget Responsibility (OBR) to last for a year from Q322¹. In their November 2022 *Economic and fiscal outlook report*², published alongside the Autumn Statement, the OBR suggested that the UK's economy was following a challenging trajectory and anticipated a persistent negative output gap extending to 2027, following the 1.4% drop in gross domestic product (GDP) forecast for the start of 2023. Data released by the Office for National Statistics (ONS) on 13 January 2023 revealed that the UK's GDP is estimated to have risen by 0.1% in November 2022, following an estimated decline of 0.3% in the preceding three months³. Whilst this surprised to the upside, the figures are subject to revision, and most commentators anticipate the continuation of growth challenges into 2023.

As part of its November *Monetary Policy Report 2022*⁴, the Bank of England (BoE) reported a 10.1% rise in prices in the year leading up to September 2022, predicted to peak at around 11% in the fourth quarter of 2022. CPI inflation rose again to 10.7% in November, easing slightly in December to 10.5%, according to the ONS⁵. To tackle the surge in prices, the BoE voted to impose a contractionary monetary response, which saw the Bank Rate increase to 3.5% (from 0.1% prior to the Russian invasion of Ukraine) in order to get inflation back to its 2% target. The Monetary Policy Committee meet again in early February, and they face another decision about whether, and by how much to raise interest rates. Higher interest rates, accompanied by even higher inflation, is playing through to business investment confidence, especially within SMEs where margins are often tighter. Given their size, SMEs are more likely to borrow in order to finance project investments, instead of being able to rely on their retained earnings. The higher interest rates will make borrowing more expensive, thus putting investments at risk for these businesses.

1 [OBR](#)
2 [OBR](#)
3 [ONS](#)
4 [BoE](#)
5 [ONS](#)

High inflation rates can also pose a threat for businesses' stability as higher prices erode profit margins. According to the Organisation for Economic Cooperation and Development (OECD), UK inflation is expected to fall after a peak of in Q422⁶ but remain elevated in the quarters leading up to Q424 (Figure 1) relative to pre-Covid inflation rates⁷. For businesses, higher inflation translates to higher production costs, due to increasing market prices for the materials they require for daily operations and progression, as well as potentially higher wage costs for the labour force. If prices follow the forecast presented by OECD, then UK businesses will be required to continue to trade whilst absorbing a fall in profits, which could lead to delays in the rollout of future investment projects or pausing ongoing initiatives due to affordability issues. The ability for corporates to pass through increased costs to customers through price increases on goods and services will vary from business to business, but cannot be guaranteed, particularly with consumer spending being impacted by the rising cost of living.

Figure 1: UK CPI inflation rates



Source: [OECD](#)

Economic recovery is also likely to be hindered by falling levels of UK business capital investment (Figure 2). Business investment (using the chain volume measure⁸) has continuously fallen from 2015 onwards, with 2020 seeing the greatest year-on-year change of -11.92%. Despite an increase of investment in 2021, investment

⁶ [OECD](#)

⁷ [OBR](#)

⁸ Prices are adjusted on an annual basis to account for inflation and 'chain-linked' to create a time series.

levels remained 7.05% lower than 2015 levels, indicating business investment was already struggling before the current macroeconomic challenges. The UK has therefore entered a period of economic growth challenges with very little investment momentum, which will potentially endanger the ability to recover both productivity and competitiveness.

Figure 2: UK business investment levels from 2011 to 2021



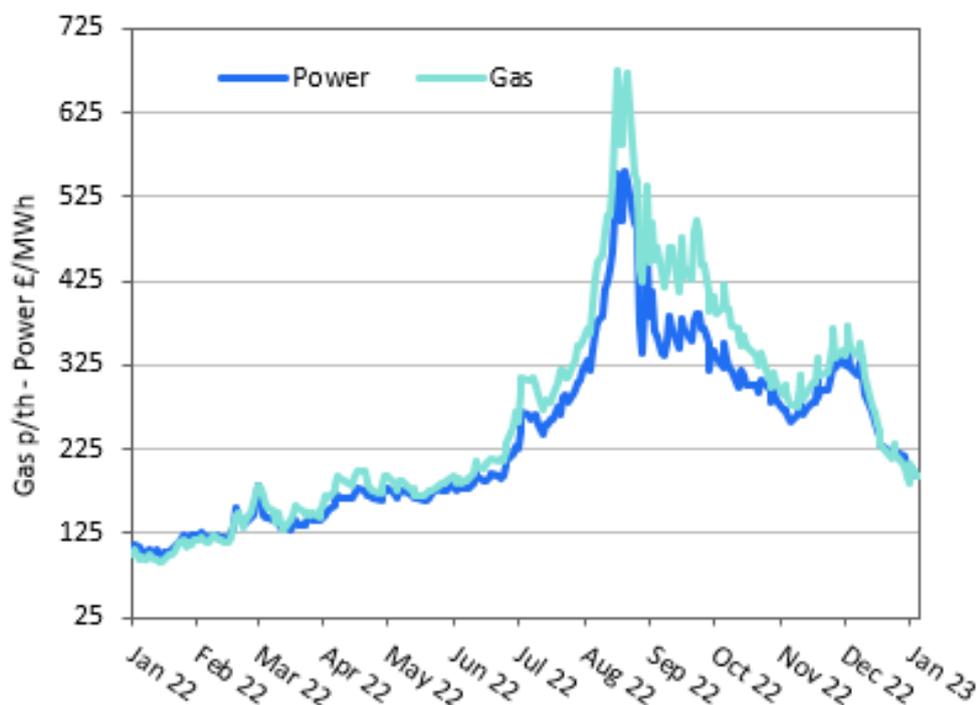
Source: [ONS](#)

On 5 December 2022, the Confederation of British Industry (CBI) published key findings⁹ from its Economic Forecast highlighting the seriousness of the situation. According to CBI, productivity per worker is to remain 2% below its pre-Covid trend (considered to be weak) and 19% below its pre-financial crisis trend. With the combination of prolonged weakness in business investment and productivity, alongside the prevailing risk of recession, CBI anticipates UK's GDP levels to fall 8% below its pre-Covid trend (from 2010 to 2019), and 27% below its pre-financial crisis trend.

The energy crisis

According to the BoE, the economic crisis is the result of exposure to global market shifts, with Russia’s invasion of Ukraine being the catalyst for high and volatile energy prices. A key driver of the high energy prices facing businesses and consumers across the UK is the cessation of over 88% of Russian gas supply to Europe, alongside the subsequent increase in global competition for liquid natural gas (LNG) supplies. This major shift in European supply has caused significant rises in gas prices in many interlinked markets – like the UK – as competition for the world’s finite supply of gas heightens. In the last few months, high levels of European Union gas storage (approximately 81% as of mid January 2023¹⁰) and relatively mild weather conditions have caused a fall in wholesale gas prices (Figure 3), although they remain significantly elevated relative to historical levels, being around threefold their pre-crisis trend, and susceptible to a range of factors likely to fuel continued volatility through the end of this winter and several years into the future, as discussed in Cornwall Insight’s recent blog, *Tales of the unexpected: what’s happening with gas prices*¹¹.

Figure 3: UK gas and power prices for January 2022 to January 2023



Source: Cornwall Insight Daily Pricing Bulletin

While the economy still hasn’t fully recovered from the impacts of the Covid-19 pandemic, businesses are yet again facing uncertainty with high energy prices and reducing consumer demand volumes, accompanied by supply chain pressures.

¹⁰ [GIE](#)

¹¹ [Tales of the unexpected: what’s happening with gas prices](#)

Regarding the outlook for business energy bills, Cornwall Insight anticipates wholesale gas and electricity prices are set to remain significantly elevated compared to historic norms for the next 12 to 18 months, before gradually falling through the second half of the decade, although they will remain higher than pre-pandemic levels, as discussed in our December 2022 insight paper – *Another winter of discontent? What happens to the UK this winter, and next, if the gas taps from Russia stay turned off?*¹²

Alongside the wholesale costs of energy, Cornwall Insight's December 2022 forecasts for third party charges (TPCs), or non-commodity costs, indicate that for a typical small non-domestic consumer electricity bill TPCs are set to drop in 2023-24, due to costs and credits attached to the Contracts for Difference (CfD) scheme, before increasing out to 2026-27. For small non-domestic consumers, electricity TPCs are expected to increase from 7.55p/kWh to 9.63p/kWh between 2022-23 and 2026-27 (representing a 27.5% increase), and gas TPCs are anticipated to rise from 1.23p/kWh in 2022-23 to 1.33p/kWh in 2026-27 (a 4.3% increase), as a result of increasing climate change levy (CCL) costs. Larger non-domestic users are set to face a 28.9% increase in electricity TPCs from 2022-23 to 2026-27 as CfD costs rise, potentially reaching 7.01p/kWh from 2026. Their gas TPCs are expected to rise by 9.9%, from 0.8p/kWh in 2022-23 to 0.88p/kWh in 2026-27, triggered by rising CCL costs.

With wholesale prices forecasted to remain inflated for at least the next year, and TPCs expected to rise after 2023-24, some businesses are at great risk of facing liquidity issues. These liquidity challenges, exacerbated by a predicted fall in revenues (from weaker consumer demand and supply side shortages) for UK businesses, could trigger businesses to deviate from capital investment ventures, or in the worst-case scenario, lead them to fail and shut down as they attempt to keep up with prolonged periods of high energy bills.

The outlook on the labour market poses yet another challenge for businesses. On 24 November 2022, the CBI published data on the implications of labour shortages for UK businesses, highlighting that 75% of businesses claim to have been affected by shortages in the last 12 months, with 46% of those stating that they will struggle to meet output demands, and 26% reducing planned capital investment as a result of labour market tightness¹³.

The current supply chain restrictions are another source of worry for businesses operating within the UK. Experiencing raw material shortages results in a cap on the amount of goods produced, translating into a weaker economic output. If less is produced, less will be sold, and therefore businesses will struggle to reach optimal revenue levels, which can in part negatively influence business confidence and capital investment as their costs continue to rise. China reopening from Covid restrictions may ease some of these pressures, though it is uncertain to what extent previous supply chain patterns will be resurrected, and what trading and economic relationships will unfold, and in any event this may also create further commodity cost pressures too.

¹² [*Another winter of discontent? What happens to the UK this winter, and next, if the gas taps from Russia stay turned off?*](#)

¹³ [*CBI*](#)

Support for businesses

In September 2022, Cornwall Insight published *Weathering the Storm: Mitigating the impact of energy price hikes for businesses*¹⁴, exploring the challenges and opportunities for UK businesses faced with soaring energy costs. Whilst many of the fundamental drivers identified in this paper have remained, there have also been significant additional policy developments in the UK providing support for both households and businesses.

EBRS to EBDS

To help businesses that are struggling with the high cost of energy, the government introduced the Energy Bill Relief Scheme (EBRS)¹⁵, which will be replaced by the Energy Bill Discount Scheme (EBDS)¹⁶. The EBRS (Box 1) is providing widespread support for businesses for the six months from 1 October 2022 to 31 March 2023 before being replaced with the EBDS (Box 2), which runs for 12 months from 1 April 2023 to 31 March 2024, but provides a substantially reduced level of support relative to the EBRS. The EBDS will also provide additional support to Energy and Trade Intensive Industries (ETIIs), which are deemed to be particularly vulnerable to high energy prices¹⁷.

Box 1: What is the Energy Bill Relief Scheme?

The EBRS for Great Britain (GB) and, separately, for Northern Ireland was introduced on 21 September 2022 and came into force on 1 October 2022. It aims to relieve some of the financial strain caused by high energy bills by discounting electricity and gas unit rates for most non-domestic energy consumers across GB and Northern Ireland.

For GB consumers on fixed contracts (signed after 1 December 2021), the discount received will be reflective of the difference between the government supported price (£211/MWh for electricity and £75/MWh for gas) and the wholesale price for the day the contract was agreed. A similar process will apply for GB consumers on variable, deemed, or 'other' contracts with the discount reflecting the difference between the government supported price and the relevant wholesale price, up to a maximum discount of £345/MWh for electricity and £91/MWh for gas.

¹⁴ [Weathering the Storm: Mitigating the impact of energy price hikes for businesses](#)

¹⁵ [GOV.UK](#)

¹⁶ [GOV.UK](#)

¹⁷ [GOV.UK](#)

Box 2: What is the Energy Bill Discount Scheme?

The EBDS was introduced on 9 January 2023 and comes into force on 1 April 2023. The eligibility will be the same as for the preceding EBRS but the level of support provided will be reduced.

Eligible non-domestic consumers for whom the wholesale prices associated with their contract exceed price thresholds of £302/MWh for electricity and £107/MWh for gas will receive a discount of up to £19.61/MWh for electricity and £6.97/MWh for gas. To protect non-domestic consumers considered particularly vulnerable to high energy prices businesses defined as ETIIs are subject to wholesale price thresholds set at £185/MWh for electricity and £99/MWh for gas, with maximum discounts of up to £89/MWh for electricity and £40/MWh for gas available. For ETIIs, the additional support will only be available for 70% of energy consumption, the other 30% consumption will be supported equivalent to other non-domestic consumers.

Whilst the EBRS has undeniably had some positive impacts, in survey results released by the ONS on 14 November 2022, it was made clear that it has had limited impact on business sentiment thus far. In September 2022, prior to the announcement of the EBRS, 23% of businesses cited energy costs as their primary concern, and by November 2022 this figure had only dropped to 22%¹⁸. Business energy costs are of particular concern in the food and drinks service sector, where, in October 2022, 38% cited them as their most pressing concern, and in November 2022 this had risen to 58%¹⁹. Furthermore, the 2023 Executive Survey released by Make UK and PwC on 6 January 2023 revealed that only 34% of manufacturing leaders believed that bills are “reasonably reduced” under the EBRS²⁰. Similarly, a survey of SMEs, published by the British Chamber of Commerce (BCC) on 13 November 2022²¹, found that 37% of SMEs are struggling to pay their energy bills even with the EBRS in place. There were substantial concerns about the end of EBRS support from 1 April 2022 and the desire for more clarity on which sectors and businesses would be considered ‘vulnerable’ and receive targeted support going forward. With the announcement of the EBDS on 9 January 2023 the government has alleviated some concerns, and exacerbated others.

The enhanced length of the EBDS, 12 months in comparison to the six months of the EBRS is a beneficial change that reduces much of the uncertainty for businesses and makes long-term planning on energy bills easier for both corporates and suppliers. However, as indicated in Figure 4, the widespread support offered under the EBDS is substantially reduced compared to the EBRS and therefore it is likely that many businesses are going to face more energy bill pain. This reduction in support was widely anticipated and somewhat inevitable, with the six months of EBRS support estimated to cost the government £18.4bn, whereas the 12 months of EBDS support is estimated to cost only £5.5bn.

¹⁸ [ONS](#)

¹⁹ [ONS](#)

²⁰ [Make UK](#)

²¹ [BBC](#)

Figure 4: Key features of the EBRS, EBDS, and EBDS for ETIIs.

	Energy Bill Relief Scheme	Energy Bill Discount Scheme	Energy Bill Discount Scheme for ETIIs
Estimated cost to government	£18.4bn	£2.2bn	£3.3bn
Duration of support	6 months	12 months	12 months
Start and end dates	1 Oct 22 – 31 Mar 23	1 Apr 23 – 31 Mar 24	1 Apr 23 – 31 Mar 24
Type of support	Cap on wholesale unit rates via a 'government supported price'	Discount on unit rates above wholesale price threshold	Discount on unit rates above wholesale price threshold
Maximum discount available	None for those on fixed contracts. For those on variable, deemed, and all other contracts: £345/MWh for electricity, £91/MWh for gas	£19.61/MWh for electricity, £6.97/MWh for gas	£89/MWh for electricity, £40/MWh for gas
Eligibility	Most businesses, charities, and the public sector receiving their energy from a licensed supplier and paying more than the government supported price	Most businesses, charities, and the public sector receiving their energy from a licensed supplier and paying more than the price threshold	Businesses in eligible sectors ²² receiving their energy from a licensed supplier and paying more than the price threshold
Application process	Automatic for all non-domestic consumers	Automatic for all non-domestic consumers	Eligible consumers will need to apply for the additional support

Source: Cornwall Insight

Unlike the EBRS, where equivalent support was offered across all non-domestic consumers, the EBDS will offer a differential and higher level of support for ETIIs (Figure 5). In order to receive the additional support for ETIIs, a business must be within an eligible sector, defined as the sectors that fall into both the top 20% of sectors by energy intensity and the top 40% of sectors by trade intensity²³. This additional support will be beneficial in protecting businesses in some of the most vulnerable sectors. However, there remains a range of sectors that are particularly vulnerable to high energy prices, e.g., hospitality and automotives, that will not be eligible for the ETII support.

The Social Market Foundation think tank calculates that in the domestic sector the transition to more targeted support for vulnerable consumers will still leave 4.5mn

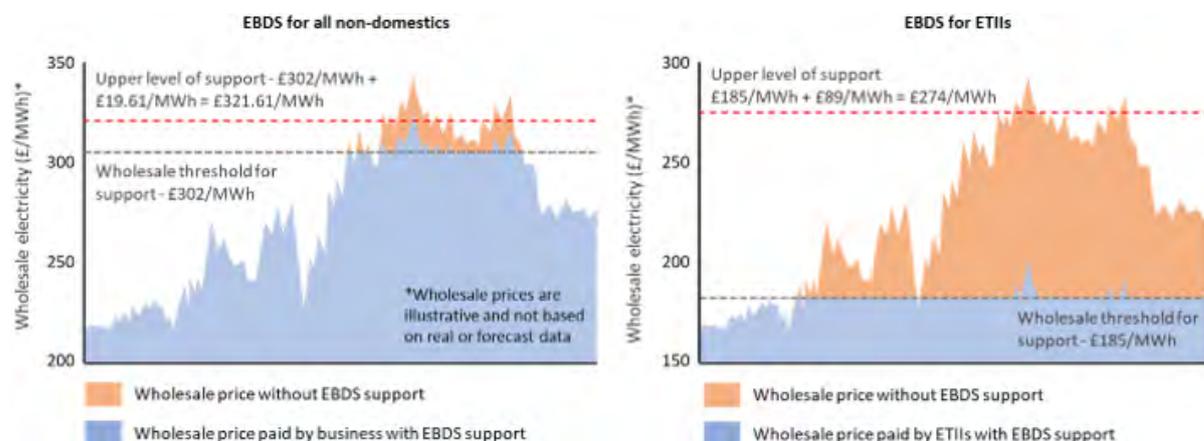
²² [GOV.UK](https://www.gov.uk)

²³ [GOV.UK](https://www.gov.uk)

households in fuel poverty that will not be eligible for this additional support²⁴. Drawing parallels with the domestic market, it is therefore likely that there will be many vulnerable businesses that are not considered as ETILs, and risk being left without adequate support under the EBDS.

In response to the announcement of the EBDS, Brigitte Amoruso, Senior Climate Change, Energy & Environment policy specialist at the manufacturers' organisation Make UK, stated that "it is a welcome move that the Government has recognised the need for ongoing support for Britain's manufacturing sector to protect the thousands of jobs across the UK". However, Brigitte Amoruso added that "it is important to remember that Britain's manufacturers are already sitting at a major disadvantage to their major European competitors who are being shielded by more extensive and generous energy support schemes and UK companies risk being undercut across the board if the right support is not there". This latter point was further emphasised by Frank Askov, Energy & Climate Change Policy Manager at trade body UK Steel, who highlighted that the German Government guarantees an electricity price of €130/MWh throughout 2023, and the EBDS for ETILs only discounts electricity prices above £185/MWh, leaving UK steel producers paying ~63% more for power than German steel producers in 2023.

Figure 5: Schematic of how EBDS support will operate for all non-domestics and for ETILs



Source: Cornwall Insight

The financial pressures faced by businesses, both from high energy costs and the challenging macroeconomic environment detailed in the section on "A *challenging environment*", could negatively impact upon businesses willingness and ability to invest capital. This fall in investment may contribute to the economic slowdown that economists expect the UK to experience and is also likely to impact on business decarbonisation efforts and the UK's transition to net zero, with the possibility of the 2030 power sector decarbonisation target therefore being placed at risk.

The impact of the crisis on net zero



Prior to the onset of the Covid-19 pandemic in 2020, the UK was able to make firm progress towards the attainment of its ambitious net zero targets, with businesses playing a vital role. Impacts of the pandemic, however, significantly impacted the economic landscape of the UK, making capital harder to attain and forcing businesses to reconsider their strategic priorities. For many, this saw net zero ambitions become neither affordable nor strategically viable.

Despite some recovery over the course of 2021, the residual impacts of Covid-19 remained with the onset of the energy crisis only promising to introduce further tumult. Now in a market with higher financing costs, wholesale energy price volatility, and tight labour markets and supply chain cost pressure, then an even tougher investment landscape for businesses emerges across the UK. As the energy crisis spiralled throughout 2022, with wholesale gas and electricity prices rising to unprecedented historical highs net zero ambitions have been at ever-increasing risk.

Change in net zero strategies

In the last 12 months a general trend has emerged surrounding net zero and its position within the strategic priorities of UK businesses. Prior to the energy crisis, most businesses have become more aware of net zero and its importance, with many putting plans and strategies in place for both the short and long-term. Brigitte Amoruso (Make UK) highlighted that she has observed a marked change in attitudes towards net zero over the past couple of years; “we went from no one really understanding net zero and what needed to be done to everyone getting on board”. This was supported by a Make UK report, published in July 2021, which found that 77% of businesses in the manufacturing sector intended to set net zero targets by mid-2023²⁵. However, due to the then-enduring impacts of Covid-19, only 20% of surveyed businesses were able to make significant progress towards implementation. Anthony Ainsworth, Chief Operating Officer at npower Business Solutions, stated that “most businesses we have talked to have said that they’re really committed to net zero by 2050 and think it’s achievable, but right now it probably needs some life breathed into it”. If the current economic crisis

²⁵ [Make UK](#)

results in businesses reducing or ceasing progress towards net zero goals, then there is a risk that any momentum gathered over the past few years will be lost and 2030 and 2050 targets will be missed.

For most businesses, net zero remains a strategic priority, but there is increasing focus on the other financial pressures, with energy moving up the agenda for many businesses and now receiving ‘C-Suite’ attention. Martin Beckford, Group Energy Reduction Project Manager at Fox’s Burton’s Companies, confirmed that they have seen energy move from “a low to mid-level position” within their business and daily operations to a top priority. For many businesses, a lack of available capital as both energy and supply chain costs continue to grow, amidst the ongoing economic challenges makes it difficult, both economically, commercially and ethically, to pass additional costs onto consumers. As such, long-term investments with long-term payback periods that typify some net zero changes are neither attractive nor economically feasible for many businesses right now.

Geographical differences

Not all businesses have experienced the crisis in the same way as regional and sectoral differences have given way to disproportionate impacts, with some being hit harder than others. Whilst it is clear that the entire country is struggling due to the energy crisis, there are some geographical differences, with Brigitte Amoruso (Make UK) suggesting that generally businesses in the southern regions have – so far – been more “buoyant” than those elsewhere in the country, and that the West Midlands is one of the most energy exposed manufacturing regions of the UK so particularly vulnerable to an energy crisis (Box 3). The southern region benefits mainly from lower concentrations of the most vulnerable businesses and sectors, particularly heavy industry. Thus, the opposite is true for those areas of the country with the largest concentration of businesses and industrial clusters; according to Rohit Moudgil, Head of the Manufacturing & Industrials Sector at HSBC UK, “the north is hit harder comparatively” for exactly these reasons. However, despite the disproportionate geographical impacts of the energy crisis, net zero ambitions have remained largely consistent across the UK.

Box 3: Manufacturers in the West Midlands

Despite being important to the supply chains of many vital industries – automobile and aerospace in particular – the small-scale of most operations makes it difficult to retain capital and maintain competition. Furthermore, these businesses are not clustered like their northern counterparts, making it harder to adopt collective solutions and lobby for government assistance.

Sectoral differences

At the sector level, the differing impact of the crisis was most apparent when looking at the scale of a business' energy consumption. Perhaps unsurprisingly, it is the heaviest consumers of energy who have been hit hardest by rising energy prices. Businesses across ELLs like steel-making and the chemical sector, alongside food manufacturers and large retailers, have all reported significant increases in their energy bills over the course of the crisis. Resultingly, Anthony Ainsworth of npower Business Solutions has held "intense discussions and interactions with really large [energy] users" who are looking to better understand their energy consumption and begin taking steps to reduce or supplement it. These discussions are often driven by economics rather than net zero aspirations but present the opportunity to make gains on both. Frank Aaskov (UK Steel) stated that "either by 2050 there will be a decarbonised steel sector in the UK or there won't be one at all" suggesting that ambitions remain high despite the impacts of the crisis, and that net zero ambitions are crucial to the long-term survival of many ELLs. Aaskov further highlighted that the UK's steel sector – alongside those dependent upon it – are concerned that without significant government support, net zero will not be attainable by 2050, thus forcing them to relocate overseas where carbon emissions policy is less stringent.

For smaller consumers the issue of costly bills persists, but with different impacts. Typically, many SMEs have less access to capital and often operate on slim profit margins – the food and drinks service and hospitality sectors being prime examples. As such, any rise in costs can be debilitating and, in most cases, will force businesses to pass additional costs onto their customers. With the entire nation in a period of economic growth challenges, this is particularly damaging as many businesses will not be able to retain lower, more competitive, prices while customers lack the ability to pay. Without significant and maintained support from the government, many businesses will continue to struggle as energy prices are set to remain high for the next few years.

Decarbonisation options for businesses



Whilst net zero remains a priority, it is clear that the pressures from soaring energy prices, the challenging macroeconomic situation, and difficulties accessing supply chains and labour are causing net zero ambitions to be pushed down the list of strategic priorities or deferred into the future. In this context, what are the options available for businesses to continue making progress on decarbonisation and the transition to net zero here and now?

Energy consumption and efficiency

Anthony Ainsworth (npower Business Solutions) highlighted that in order for a business to identify and take steps to decarbonise they “first need to understand their energy consumption” and get to grips with “what energy is being used where”. Once a business understands their consumption there are a range of potential measures to help decarbonise. These range from short-term easier to implement measures around energy efficiency and reducing consumption to longer-term investments in on-site generation and CPPAs.

In the first instance, businesses can look to reduce energy consumption, which both helps in decarbonisation and saves money on energy bills. Heating and lighting are two major areas where businesses can often make immediate reductions in energy consumption, both through cutting down any extraneous usage and by investing in energy efficiency measures. Brigitte Amoruso (Make UK) mentioned that manufacturing companies are increasingly changing their working patterns, working five days a week instead of seven and doing more work at night when energy tariffs are cheaper, as well paying more attention to lighting, water, heating and machinery use to identify areas for savings. Anthony Ainsworth (npower Business Solutions) added that for businesses that have yet to tackle their consumption, “they could save 25 to 30% of their power consumption by actively taking some energy efficiency measures”.

Energy efficiency measures can vary from relatively small changes such as installing light-emitting diode (LED) lighting, or fixing air conditioning ducts to larger scale changes such as installing heat pumps or solar panels, or electrifying equipment that previously ran off natural gas. HSBC UK’s Rohit Moudgil highlighted that rather than investing in

a “single ‘big-bang’ project, businesses could look to make incremental improvements at this current time where they are having to manage cost and resources”. For EITs, the Industrial Energy Transformation Fund²⁶, a £315mn fund launched in 2018 and available until 2027 designed to help businesses with high energy usage cut both their energy bills and carbon emissions, can help provide the capital to invest in energy efficiency and low-carbon technologies and make the larger energy efficiency changes financially viable. With such high energy prices there is an additional business case for investing in energy efficiency and reducing energy bills, alongside net zero ambitions.

For energy intensive sectors and businesses, the electrification of heavy machinery and processes that run off fossil fuels, the use of alternative fuels (e.g., low-carbon hydrogen), or the implementation of carbon capture utilisation and storage (CCUS) are large scale measures that can help substantially reduce their carbon emissions, whilst also potentially providing cost savings. However, in July 2022 a report by UK Steel²⁷ identified that the current high cost of electricity in the UK is a substantial barrier to all these options, with an electric arc furnace requiring three times more energy than a blast furnace for the same steel output. High electricity prices result in high operating costs for the new equipment, which combined with the capital costs of making the switch, substantially reduce the business case at a time when finances are stretched thin. Making the switch to electrically powered machinery or alternative fuels is not only costly and time consuming, but Martin Beckford (Fox’s Burton’s Companies) mentions that it can also come with a high level of complexity and present challenges in delivering the best end-product (Box 4). Furthermore, touted natural gas alternatives such as low-carbon hydrogen are still in the early stages of commercial development and are not yet available or ready to be implemented on a large industrial scale. This presents a major challenge for both energy cost savings and achieving net zero.

On-site generation and private wire

As discussed in Cornwall Insight’s report, *A corporate’s guide to decarbonising power*²⁸, published in July 2022, investing in renewable on-site generation or private wire is a valuable opportunity for businesses to both decarbonise and to reduce their energy bills by reducing dependence on more expensive grid-sourced power. High energy prices at present have strengthened the business case for on-site renewable generation, with “some big projects seeing payback within six months” according to Make UK’s Brigitte Amoruso, and this is resulting in a surging demand amongst businesses for this carbon reduction solution. The business case is further supported by the potential returns that can be made by businesses selling excess energy they generate on-site back to the grid at peak times, with HSBC UK’s Rohit Moudgil noting that companies that invested in on-site generation previously are now “reaping the benefits” and are able to free up more capital to “focus on addressing the other financial challenges”. Brigitte Amoruso (Make UK) adds that for tenanted buildings, where landlords were traditionally reluctant to allow on-site generation developments, there is now an increasing acknowledgement that on-site generation can help improve building ratings, and landlords are therefore more open to it.

²⁶ [GOV.UK](https://www.gov.uk/government/news/industrial-energy-transformation-fund)

²⁷ [Make UK](https://www.makeuk.com/)

²⁸ [A corporate’s guide to decarbonising power](https://www.makeuk.com/)

Box 4: Case study – How the Cookie Crumbles: Fox's Burton's Companies & Fuel Switching

For many businesses dependent on the use of natural gas and associated machinery for the creation of their products, the implementation of alternative fuel sources is a key option for decarbonisation. In particular, the potential for low-carbon hydrogen – whether derived from fossil fuels with added CCUS, renewables, or nuclear energy – to replace natural gas is raised. Martin Beckford of Fox's Burton's Companies explained the challenges their business could face when attempting to use low-carbon hydrogen to decarbonise their operations. Traditionally, Fox's Burton's Companies have used gas-powered ovens to bake their biscuits. In some cases, these ovens have been in use for 40 years and have posed no technical issues. Nonetheless, reaching net zero will require the ovens to operate on a less emission-heavy fuel. Lack of knowledge and uncertainty regarding supply and use of hydrogen as a potential avenue for doing so presents a range of possible technical, economic, and quality issues. Due to the lack of research and development for hydrogen use in baking – and in ovens more generally – it is unclear how it could actually be used to create their products using existing recipes and processes. This lack of information also brought into question the ability for current ovens to be retrofitted for hydrogen use:

- Suitability of existing internal gas distribution piping and adequate management of safety hazards
- Was it possible to fit a new hydrogen burner onto an existing oven?
- Would it result in a different flame temperature and process revalidation?

The general lack of awareness within the industry of how the fuel would actually function led Fox's Burton's Companies to make the decision to withhold considering hydrogen for now.

The largest obstacle to installing on-site generation is the capital required, with many SMEs less likely to be able to access sufficient capital to invest in it as a solution. Other than the capital requirements for on-site generation, the other main limitation is having access to adequate space.

Private wire, where the generation assets are located on separate, but proximal, land to the business, and power is delivered through dedicated infrastructure, could provide a solution to larger businesses that do not have the right facilities on their own sites for installing generation. However, Martin Beckford (Fox's Burton's Companies) states that whilst behind-the-meter generation can provide a valuable opportunity to decarbonise and help support electrification of industrial processes, businesses are also concerned that future regulatory changes could add large non-commodity charges to behind-the-meter generation and damage the business case for it. For both on-site generation and private wire, Rohit Moudgil (HSBC UK) highlights that businesses have highlighted supply chain issues resulting in long lead times to get generation assets installed, e.g., six months for solar panels, which is a long time for businesses to wait in the current energy crisis.

Corporate power purchase agreements

CPPAs offer another way for businesses to decarbonise their energy supply, with a contract signed between a business and a renewable energy generator, and ‘sleeved’ by a supplier. CPPAs come with little or no upfront capital costs and can provide long term security and price certainty for businesses, with contract durations usually between five and ten years. However, agreeing a CPPA contract with the generator can often be a long and complex process, with companies potentially struggling for months to agree terms. Additionally, Martin Beckford (Fox’s Burton’s Companies) highlights that whilst access to a fixed energy price is “beneficial from a budgeting point of view” it is difficult for businesses to know whether the “price is good value for future years”. Beckford adds that there is an additional complexity for businesses funded by private equity investors: with the strategic investment horizons for private equity usually on the scale of less than five years, investors are less likely to want a long-term contract signed that could complicate any future sale of the company.

SMEs have traditionally found it harder to access CPPAs due to their lower energy usage, thus offering less off-take for the generator, and the stringent credit rating requirements. However, with the increasing demand for CPPAs there is more potential for aggregate CPPAs where multiple smaller companies combine and off-take energy as part of the same CPPA, as well as digital ‘matchmaker’ platforms that bring together businesses and energy generators to try and match up supply and demand, as well as providing standardised contracts and contract templates to speed up and simplify negotiations.

For larger EILs, many renewable CPPAs don’t provide sufficient electricity, or enough stability of supply according to Arjan Geveke, Director at the Energy Intensive Users Group (EIUG). Geveke adds that there is increasing interest from these companies about “nuclear PPAs” i.e., CPPAs with small modular nuclear reactors (SMRs) that can provide more electricity and heat than other CPPAs. However, there remain substantial questions around costs, payback periods, safety arrangements, and which sectors SMRs could provide a viable route to decarbonisation.

The need for policy clarity



While in recent months the public debate understandably focused on the cost of energy for domestic consumers, there is a widespread perception that the concerns of businesses have been mainly left in the background. According to npower Business Solutions' Anthony Ainsworth, "homes and domestics seem to grab all the headlines when it comes to the cost of energy and the state of the housing stock that we have." The same kind of publicity is now needed around the needs of businesses, with a focus on tackling energy consumption inefficiencies and promoting policies conducive to net zero. Similar sentiments were also echoed in *Mission Zero: Independent Review of Net Zero*²⁹, an extensive review of the government's net zero strategy, published by BEIS and Chris Skidmore MP on 13 January 2023. Throughout the review, it is made clear that UK businesses need to be shown more attention by the government, highlighting their need for greater clarity and certainty if they are to effectively plan for the future and succeed in their net zero transition³⁰.

Policy pathways to business net zero

A key finding of our research is that the current policy landscape does not provide companies with enough clarity to make long-term business decisions. Uncertainty hinders businesses' ability to prioritise investment in areas such as energy efficiency and on-site generation, which would lower corporate energy bills while boosting net zero strategies. Since net zero is a 2050 objective with long-term milestones, it is essential to devise policies that go beyond the terms of single cabinets or parliaments. Hence, energy policy should be disentangled from the electoral cycle, and focused on ensuring the long-term decarbonisation of the system, while ensuring affordability and security of supply. *Mission Zero* also indicates the need for such disentanglement, stating that "UK business[es] require the stability that a long-term, well-designed, and well implemented policy framework can provide."³¹

²⁹ [GOV.UK](#)

³⁰ [GOV.UK](#)

³¹ [GOV.UK](#)

“The government needs to get cracking on its strategies [*Net Zero Strategy: Build Back Greener*³² and *Industrial Decarbonisation Strategy*³³] – even if they have holes, they are still a very good start,” said Make UK’s Brigitte Amoruso. There is a general need for regulatory and policy clarity when it comes to energy policy, “in order to plan ahead effectively and make the right decisions, both environmentally and economically. For many businesses, the materiality of the latter consideration can dominate choices,” according to Fox’s Burton’s Companies’ Martin Beckford.

Although EILs have special needs that need to be acknowledged under the current circumstances, long-term solutions need to be aimed at all corporates, large and small. The policy pathways highlighted below could support businesses in their long-term energy planning and boost the UK’s national competitiveness.

1) Boost energy efficiency and electrification of businesses

As discussed in the section on “*Decarbonisation options for businesses*”, it is crucial to ensure that businesses are energy efficient as a key step towards decarbonisation. Quick wins can be made through an awareness campaign about energy efficiency aimed at businesses, similar to the “It all adds up” energy saving campaign for households launched by the Government in December 2022³⁴. Furthermore, a ‘carrot and stick’ approach could be devised, providing more fiscal incentives for businesses to adopt energy efficiency as well as on-site generation solutions, while discouraging carbon-intensive practices. Such a system of incentives and deterrents is particularly relevant at present to encourage businesses to keep making progress through their decarbonisation journey, despite the challenging macroeconomic circumstances.

2) Devise a market design fit for net zero

The current energy market design needs to be updated to reflect net zero priorities. The Review of Electricity Market Arrangements (REMA) is currently underway (Box 5) and is essential to ensure that adequate long-term solutions are developed. For the manufacturing sector, decarbonisation is mainly going to rely on electrification, at least until significant nuclear and low-carbon hydrogen capacity is operational. However, electricity is still so expensive that mass electrification with the current wholesale prices will be challenging. Hence, according to EIUG’s Arjan Geveke, the priority is splitting the market by decoupling electricity prices from natural gas prices. On the other hand, there is a degree of scepticism around nodal pricing, which could be too complex to implement and could hinder current investments in the grid. Overall, there is a need to accelerate REMA, as suitable energy market design solutions are needed as soon as possible. Echoing this, Mission Zero stressed the need to “deliver REMA as a priority”, citing its ability to “unlock the benefits of renewables, reward flexibility, maintain security of supply” and allow for the scaling up of electricity sector investment.³⁵

³² [GOV.UK](#)

³³ [GOV.UK](#)

³⁴ [GOV.UK](#)

³⁵ [GOV.UK](#)

Box 5: Review of Electricity Market Arrangements

REMA looks to resolve and attend to inefficiencies which have been identified within the UK energy markets. The review was announced in the British Energy Security Strategy in April 2022, while the relevant consultation was launched in July 2022 and closed in October 2022. In terms of scope, REMA considers options for reform to non-retail aspects of electricity markets. It aims to take a closer look into the structures which facilitate the balancing of supply and demand of electricity, and the policies that are meant to incentivise investments in the assets that generate or use electricity. More specifically, the scope of REMA includes the balancing mechanism, ancillary services, the current CfD scheme, and the Capacity Market (CM). The review's scope will not include non-electricity markets (such as hydrogen, gas, and carbon), retail markets, incentives for new technologies, interconnectors, and large-scale nuclear investment.

For additional detail see our insight paper, [Unlocking REMA](#), or visit our [What is REMA? portal](#).

3) Reduce energy prices to make UK businesses more competitive

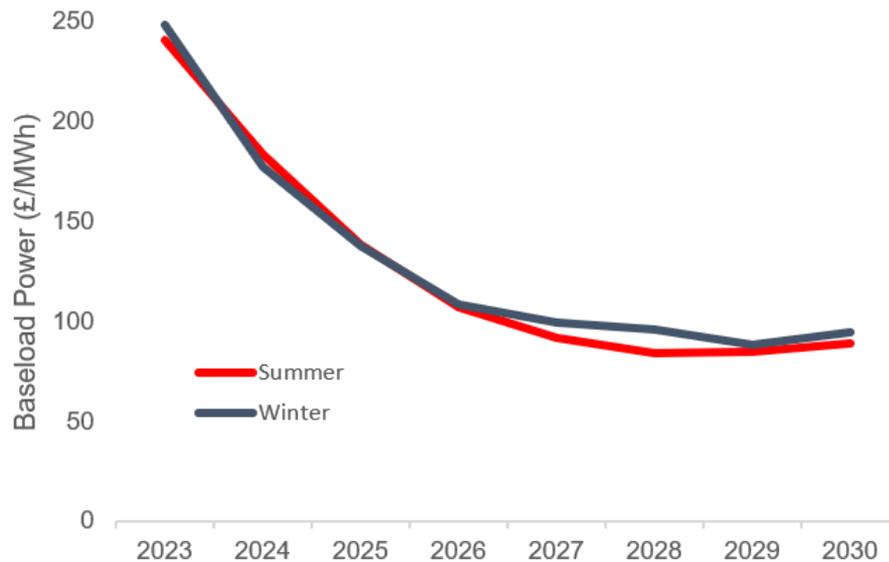
Electricity prices are set to remain substantially elevated relative to historic levels throughout the next year, with a return to pre-pandemic levels unlikely until the end of the decade, according to Q422 modelling by Cornwall Insight (Figure 6). High electricity prices relative to other global markets, particularly the EU, are hindering the competitiveness of the UK's industries, making British products more expensive. Hence, drastically reducing electricity prices is crucial to allowing deeper electrification. In this context, levies on energy prices risk further hindering the competitiveness of EILs as well as exacerbating fuel poverty when costs are passed on to consumers. Alternatively, these costs could be moved to general taxation to avoid aggravating the energy crisis for both domestic and non-domestic consumers. This is consistent with the findings of *Mission Zero*, which highlighted a need to "rebalance" or "shift" the various taxes and policy costs levied on energy bills – e.g. onto fossil fuel usage or the public budget – in order to reduce costs for consumers and stimulate investment in low-carbon electricity generation³⁶.

4) Address grid constraints to unleash the electrification potential

As the UK transitions towards net zero, increasing volumes of electricity generation and storage need to be connected to the transmission networks. However, the cost and time required to establish grid connections are becoming major obstacles for bringing more renewable generation and storage online. Likewise, companies aiming to set up electric vehicle charging infrastructure are often faced with exorbitant connection

costs due to the cost to grid of building the necessary infrastructure. Thus, there is an urgent need to tackle grid constraints that hinder the electrification of industries. Even when companies have capital available, businesses still need to negotiate increases in capacity and secure grid connections, which can take years. An upgraded and smarter grid is thus seen as a priority. Although there remains a question of how investment in grid infrastructure will be paid for, should it be through bills or through general taxation?

Figure 6: Forecasted UK seasonal baseload power prices from 2023 to 2030



Source: Cornwall Insight Benchmark Power Curve

5) Tackle the net zero labour shortage and accelerate digitalisation

The UK currently suffers from a labour shortage, which is particularly evident with regards to net zero skills. When it comes to developing technologies such as heat pumps, relevant technical competencies are often lacking within the country. Businesses would benefit from programmes to upskill the workforce so to ensure the right capabilities are available, especially for SMEs. Policymakers can play a role in helping businesses to accelerate the digitalisation of their operations as well as administrative functions to compensate for the labour shortage. Digitalisation could also support energy efficiency strategies and demand response services, reducing costs and aiding the net zero transition.

Upcoming research initiatives by Cornwall Insight will delve deeper into the solutions highlighted above.

Key sources:

[Demystifying net zero](#) | [Make UK, July 2021](#)

[Unlocking the Skills Needed for a Digital and Green Future](#) | [Make UK, October 2021](#)

[UK Manufacturers are leading the charge in green revolution](#) | [Make UK, May 2022](#)

[Decarbonising Manufacturing: Challenges and Opportunities](#) | [Make UK, July 2022](#)

[Net Zero Steel: A Vision for the Future of UK Steel Production](#) | [UK Steel, July 2022](#)

[Manufacturing Outlook Report Q4 2022](#) | [Make UK-BDO, December 2022](#)

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[Bad debt and energy suppliers: A systemic risk?](#)

[Co-location, co-location, co-location](#)

[Counting the costs: Forecasting the financial impacts of the Energy Price Guarantee on the UK government](#)

[Unlocking REMA](#)

[Weathering the storm: Mitigating the impact of energy price hikes for businesses](#)

[Battery-as-a-Service: an underexplored opportunity?](#)

[A corporate's guide to decarbonising power](#)

[The UK and the energy transition. Leading the way?](#)

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Energy net zero forum

Our 'Energy net zero forum' (formally known as our Net zero business forum) offers members the opportunity to benefit from our expertise and insight on energy policy, regulation and markets. This online, bi-monthly forum provides insight and analysis for business and public sector organisations looking to decarbonise their power, heat and transport needs.

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- A flexible agenda where you can submit suggestions for us to cover in more detail
- Opportunity to talk to our experts and discuss issues and concerns
- Access to presentation information and a dedicated monthly Energy net zero report

For further information about the Energy net zero forum, please get in touch with Ben Reade.



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