Climate Action COALITION

The Electric Economy:
Creating Consensus, Communicating Change

Rt Hon Chris Skidmore OBE
Nigel Topping CMG

About

The Climate Action Coalition is a mission-driven initiative bringing together a community of public and private sector stakeholders committed to achieving our 2030 climate and nature goals. Established by Climate Action and the Rt Hon Chris Skidmore, it was launched in June 2024 by Secretary John Kerry during London Climate Action Week.

Its purpose is to facilitate collaboration to scale up real world solutions, and counter climate pessimism with practical, positive pathways to net zero.

The Coalition runs a series of online and in person events and convenes two taskforces: the Global Clean Power Taskforce and the UK Clean Power Taskforce.

The UK Clean Power Taskforce is co-chaired by Nigel Topping CMB, Chair of the UK Climate Change Committee, Co-Founder of Ambition Loop, and COP26 UN Climate Change High-Level Champion, and the Rt Hon Chris Skidmore, former UK Energy Minister and Chair of the UK Independent Net Zero Review in 2023. The Taskforce holds regular evidence sessions focusing on scaling up renewable deployment and finance in the UK.

The UK Clean Power Taskforce Report is the culmination of five roundtables held with Taskforce members in dialogue with representatives of the energy industry. The final report of the Taskforce reflects this material and draws on other publicly available sources and a new Ipsos Mori poll that the Climate Action Coalition have undertaken with Kings College London. The final report text is the work of Chris Skidmore as overall chair of the Climate Action Coalition and does not represent necessarily the views of the Taskforce members or co-chair who have acted as independent convenors.

Acknowledgements

The Taskforce would like to thank its members and speakers who participated in its roundtable evidence sessions in 2025, including:

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Net Zero Technology Centre
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Introduction

The UK has long been an international leader in climate and clean energy policy. The history of the UK's Climate Change Act, its legal commitment to reach net zero emissions by 2050, its presidency of COP26 and more recently its mission to deliver clean energy domestically by 2030 is well known. Collectively, it has ensured that the UK has already been able to reduce its emissions by over 50% on 1990 levels, half-way towards net zero. The Carbon Budget frameworks that the UK government sets to meet its emissions targets have been met. The policy mechanisms that are being developed to deliver the UK's clean power goals are, as this report highlights, extensive and are progressing at pace.

None of these significant achievements will matter, however, if at the next General Election a government is elected that decides to row back on climate commitments or undo recent clean energy policies. If recent MRP polling continues over the next several years, mindful of the fact that three years is a long time in politics, then there could be the potential that a government is formed that puts anti-climate policies and anti-renewable measures at the heart of its agenda.[1] While the majority of energy policy recommendations and commentary focus on how best to deliver the technical regulatory, financial and system-wide frameworks, it is increasingly obvious that these cannot exist in a vacuum, and that politics will come to play a role in the future of the energy transition.

Already the impact of the 'counter-transition' has been felt in the US: not only has the US now left the Paris Agreement, it has also disassociated from the UNFCCC, IRENA and IPCC, while cutting billions of dollars of investment into renewable and clean energy technologies set out in the Inflation Reduction Act. Importantly, however, despite the rhetoric of the federal government, the deployment of solar and BESS solutions across the USA continues at records not previously seen.[2] There is a distinction that seems to exist between the words and reality of populist governments, that means action often outstrips ambition. And as a new poll conducted for this report by Ipsos Mori and the Policy Institute at Kings College London demonstrates, there remains clear voter support, even amongst Reform voters, for not only cheaper power, but for that power not to come from foreign owned fossil fuels. This new research is supported by other recent polls such as YouGov, that demonstrates continued support for net zero across all voters, in spite of political posturing.

There is an opportunity to find common ground between parties on the need for cheaper, more reliable power. Energy Independence and the need to deliver reliable, predictable energy that is not reliant on foreign owned fossil fuels is a clear message that seems to have cross-party support among both Reform, Conservative and Labour voters, if not their politicians. At the next General Election approaches, and as politicians seek to prepare their future manifesto commitments for beyond 2030, the need to articulate and communicate better attuned messages on why the energy transition - to economic resilience, energy security, and long-term public prosperity - has never been more pressing.

In 2024, the Conservative Party retained its support for net zero as a manifesto commitment. This has now been abandoned. Reform UK have previously pledged to abandon net zero, with recent energy policy announcements also seeking to place a tax on renewable power generation. Yet as this reports

new research demonstrates, this positioning is not in line with the overall mood of the country, nor is it reflective of the priorities of the voters of Reform and Conservative themselves, a majority of whom support the reasons behind the energy transition, and support the measures that can deliver greater energy security and independence, economic growth and greater efficiencies, despite it being shown in polling they are not in favour of the term 'net zero'

There is a need, therefore, to reconcile the reality of what the energy transition and electrification can deliver, with voter priorities. Perhaps the single greatest issue for energy policy ahead of the General Election in 2029 will be energy prices. There is no easy solution to delivering energy price reductions: if they were easy, they would have been delivered already. But there are a range of options still open to the Government that would ensure both bills can be brought down and the cost of electricity is also reduced so that electrification can be the cost effective option for the future. This is not a new call for action, as many others have made the case persistently, but if we wish to scale up electrification, then electricity must become cheaper.

While costs are the greatest consideration that will unlock further progress on delivering the energy transition, there also remains the need to continue to make the case for why moving towards a more renewable energy system and towards an electric economy must happen. This requires a redoubling of effort towards capturing a narrative that meets people where they are: that the energy transitions priorities are not merely about emissions reduction or decarbonisation, but about making their individual lives better. This includes creating stronger and more resilient regional and local economies for the future, job creation, improvements to industry and manuafacturing and community benefits where renewable energy and electrification are part of the solution, rather than allowing false narratives and perceptions, through myths and misinformation, to take root. This requires a dual strategy of promoting the best examples of where change is delivering positive outcomes but also fighting back against falsehoods and inaccurate claims against the energy transition.

To help in part to understand where those best examples of change can come from, this report seeks to highlight areas of focus, or rather 'points of contact', where consensus across the political divides might be found in the communities of pragmatic action rather than the corridors of power.

The adoption of renewable power in schools, hospitals, churches, community halls, sports and charity facilities is already reducing bills and costs, allowing for more teachers, doctors, nurses to be employed, and more money to be spent on local priorities rather than on electricity bills. These points of contact, each themselves 'little platoons' profiled here point to how a reframing of the debate, away from targets and numbers, towards real lives and real-time outcomes, can help shape a narrative of hope, and at the least ensure that the energy transition can better embed itself across the UK. By reframing the language of the energy transition and net zero around a shared narrative of hope - focused on the economic priorities of households and regions - we can both meet our climate commitments and better highlight the opportunities a new electric economy offers the UK.

CHAPTER ONE:

Beyond Clean Power - The Electric Economy

2025 was a milestone year for the UK's clean energy supply. **In 2025, renewables were the UK's largest electricity source for the first time, providing 47% of the total**. Wind power was the largest contributor making up 57.2% of its total, while the fact that 2025 was the sunniest year on record was reflected in an exceptional increase from solar power, whose contribution grew 31%. 2025 was also the UK's first full year without any coal power, following the closure of the nation's last coal plant in September 2024. For the UK to meet its ambition of clean power, however, the contribution of renewable energy will need to double over the next five years.

The UK government has made its Clean Energy Superpower Mission one of its flagship policies since it came to office in July 2024. Initially established as one of the Prime Minister's Five Missions, its 'milestone this Parliament is to secure our energy supply with home-grown, clean power', with this being defined as 'by being on track to achieving at least 95% of low carbon generation by 2030 in line with advice from the National Energy System Operator (NESO)'.[3] Following the publication of NESO's advice, the formal definition of the Clean Power 2030 target was set as:

Defining the Clean Power target

Clean Power means that by 2030, Great Britain will generate enough clean power to meet our total annual electricity demand, backed up by unabated gas supply to be used only when essential.

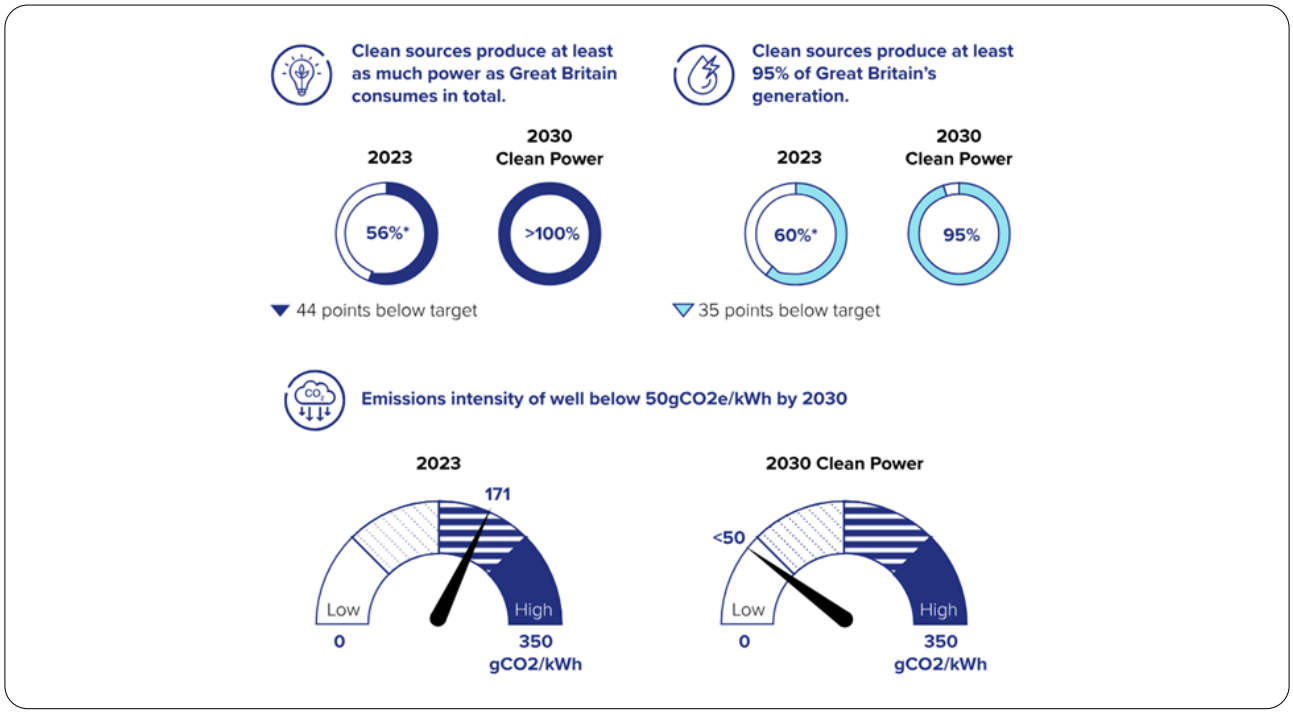
In line with independent advice from the National Energy System Operator (NESO), our clean power target means transitioning to an electricity system with the following characteristics in a typical weather year:

- Clean sources produce at least as much power as Great Britain consumes in total; and
- Clean sources produce at least 95%[4] of Great Britain's generation

We expect delivering a clean power system with these characteristics will make Great Britain a net exporter of electricity and will reduce the carbon intensity of electricity generation from 171gCO2e/kWh in 2023[5] to well below 50gCO2e/kWh in 2030, which is well within the Climate Change Committee's Carbon Budget 6 advice (see figure 1.1).

The Department of Energy Security and Net Zero has moved at pace to set out both a clear plan and timeline for the delivery of the 2030 mission. In addition to its Clean Power Mission, the government has also stated that it intends to legislate for an Energy Independence Act. An Energy Independence Bill has not yet been formally introduced to Parliament, but it appears to have been referenced in the Labour government's first King's Speech that stated "Legislation will be brought forward to help the country achieve energy independence and unlock investment in energy infrastructure." The 'Energy Independence Bill' is also referenced in the latest job description for the Minister of State for Energy.[6] There is therefore an opportunity for forthcoming legislation to deliver legislative reform needed to reduce energy costs at the same time as deliver energy independence. This will be vital for the future, since at present, the UK's dependency on foreign owned oil and gas place it in a vulnerable position, exposed to future price shocks beyond its control. This can only be solved through an expansion of renewable and nuclear energy. According to official projections, the UK's reliance on imported gas is set to rise from 55% today to more than two-thirds dependent by 2030, and over 90% dependent on gas imports by 2050. Official data shows that by 2027, however, UK gas production is set to fall short of what is needed just to heat our homes, which currently accounts for 38% of UK gas use. In just two years' time, more than

FIGURE 1.1
Metrics



two-thirds of the UK's gas needs will be dependent on imports. Even if new fields are approved, it would not be enough to reverse the trend and the UK would still be almost entirely (94%) reliant on imports by 2050. Even if the UK took the drastic step of only supplying its national needs, the trend data shows that at current levels of UK demand, existing fields hold just over three years of gas. New fields would add less than half a year. For wider industry and the UK economy, it is therefore vital to transition away from its dependency upon gas to create an electric economy, one which can be more energy independent.

The Director of Mission Control, Chris Stark, has spoken about transforming the UK into an electrostate. Chris Stark told the Clean Power Taskforce that -

"The central core approach that we need to take is electrification. That will do probably 60-70% of the decarbonisation that we need to do as an economy over the next 20 years or so. Therefore, starting with cleaning up the supply of power, and doing that in an imaginative creative way, is a really sensible thing to do. The other reason it's a really sensible thing to do is that the real mission probably comes after 2030. So if we run at this really hard we'll be match fit for where we need to be after 2030, when the big challenge comes, which is that as a country, we will probably double the demand for electricity to allow us to decarbonise all these end uses and make more efficient use of our energy system more generally."

The Electric Opportunity

Becoming a wider Electric Economy will have significant benefits, not merely in terms of reducing emissions and dependency upon foreign owned fossil fuels, but also delivering both greater efficiencies, and ultimately cost reductions. Already the electrification of transport through EVs and heat through the adoption of heat pumps is having a significant impact. Analysis from think-tank Ember shows that the growth of electric vehicles and heat pumps reduced oil and gas consumption in the UK last year by the equivalent of 14 million barrels of oil, or what the UK imports in a two week span. Yet these technologies are also delivering more for less. Electric cars use less than a third of the energy needed by petrol cars, and heat pumps use four times less fossil fuels than a gas boiler. This means that consumers purchase less energy to drive the same distance or to heat their homes, and reduces reliance on fossil fuel imports.[7]

While the UK reached an important milestone in ensuring that over half of its overall power generation came from renewable sources in 2025, the reality is that the UK remains far off track from having an economy that is powered by electricity. While that 20% of energy in power has been dramatically decarbonised, the reality is that the share of primary energy consumption in all other areas of the UK economy, for instance in buildings, transport, industrial manufacturing and energy intensive

FIGURE 1.2
Share of primary energy consumption from fossil fuels
Measured as a percentage of primary energy, using the substitution method

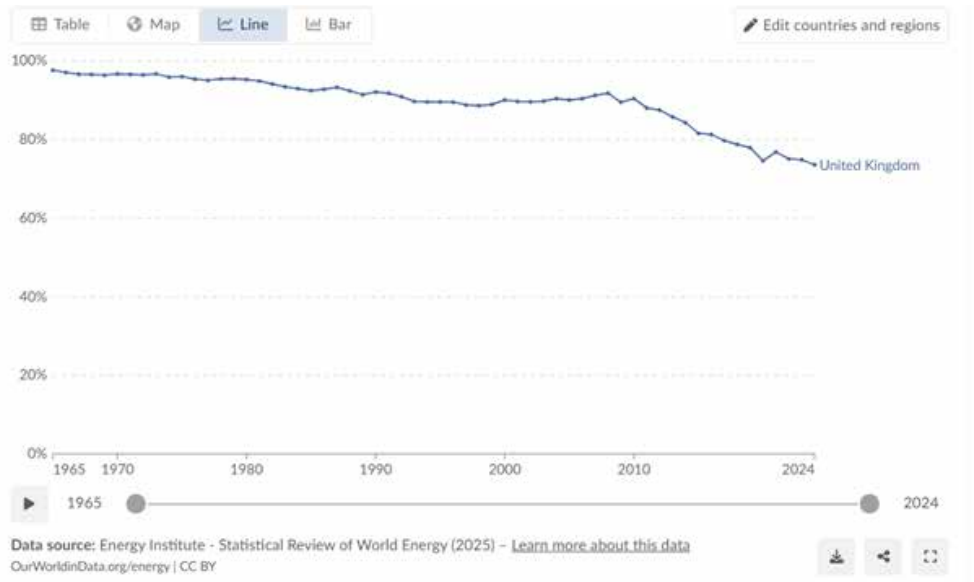


FIGURE 1.3
Many countries are building renewables; few an electrostate

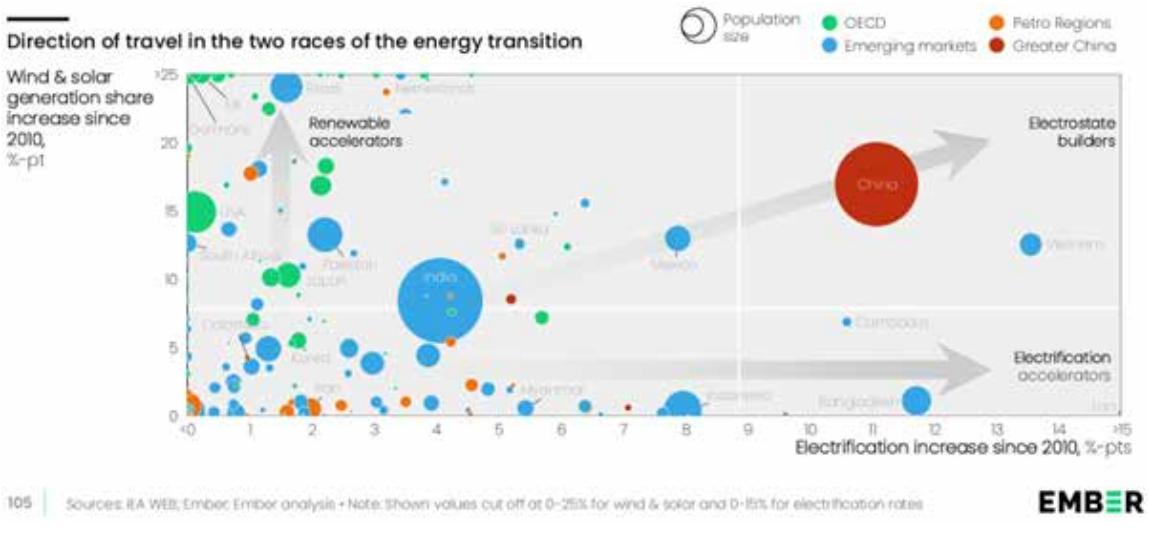
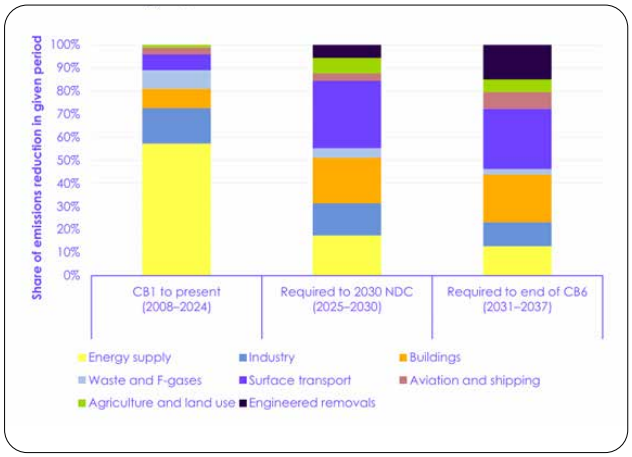


FIGURE 1.4
Distribution of past emissions reductions and future emissions savings by sector



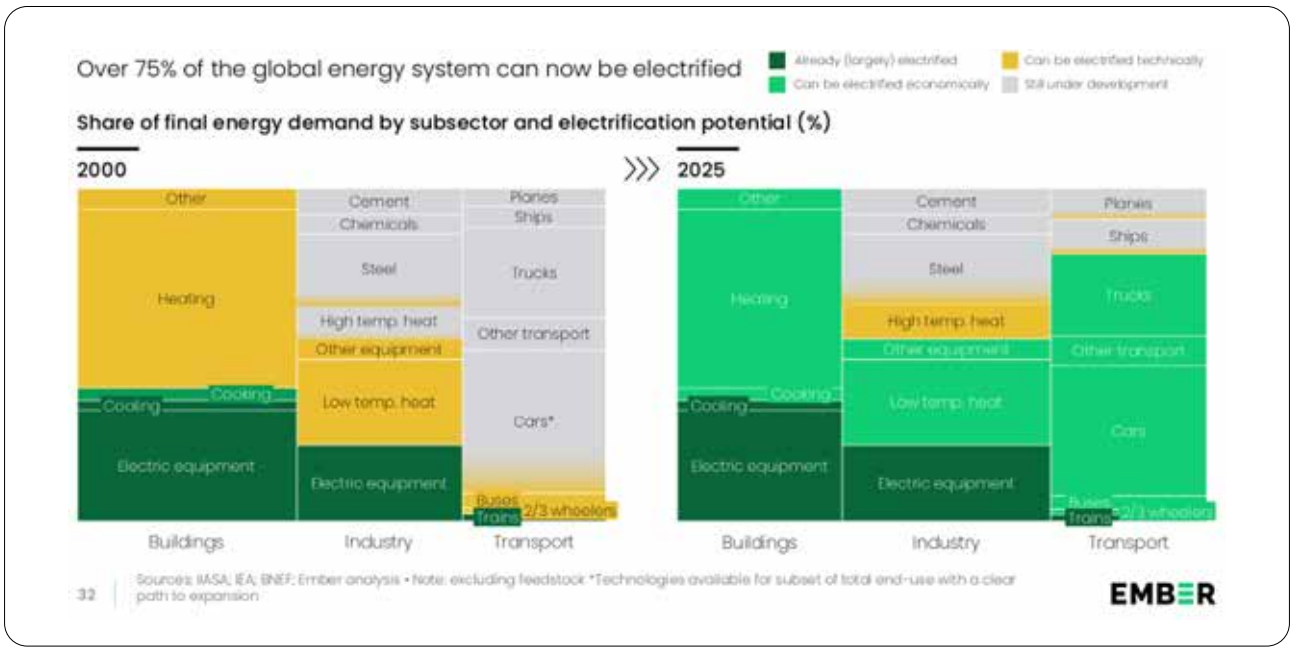
industries remains heavily reliant on fossil fuels. While this has fallen from 91% in 2009, to just below 74% in 2025, to be a true Electric Economy, this is now where energy reform needs to focus (see figure 1.2).

In contrast, China is not only decarbonising its electricity supply, it has sought also to electrify its energy use. The graph from Ember's The Electrotech Revolution highlights the contrast in policy approach (see figure 1.3).

Wider electrification across all sectors, rather than a focus on the power sector is also needed if the UK is to meet its emissions targets. As the The Committee on Climate Change (CCC) have noted, over half of all emissions reductions to date have come from the decarbonisation of electricity; however now is the time to switch gear towards wider decarbonisation through the electrification of all sectors. As the CCC stated in their 2025 Progress Report, 'Over 80% of the required emissions savings between now and 2030 need to come from sectors other than energy supply … The majority of this required reduction in emissions comes from the electrification of key technologies, including in surface transport, buildings, and industry. Surface transport alone contributes almost 30% of the emissions reduction required during this period'.[8]

Ember has said that, the move towards wider electrification will also enable countries to remove their reliance on foreign owned fossil fuels and have greater energy independence: '80% of the world lives in fossil fuel importing countries, with over 50 countries importing more than half[9] their primary energy as fossil fuels. In contrast, 92% of countries have renewables potential over ten times their current demand. Replacing imported fossil fuels using three key levers—EVs, heat pumps and renewables—can cut net fossil fuel imports[10] by 70%, saving $1.3 trillion globally each year'. For

FIGURE 1.5
The electrification ceiling is high and rising

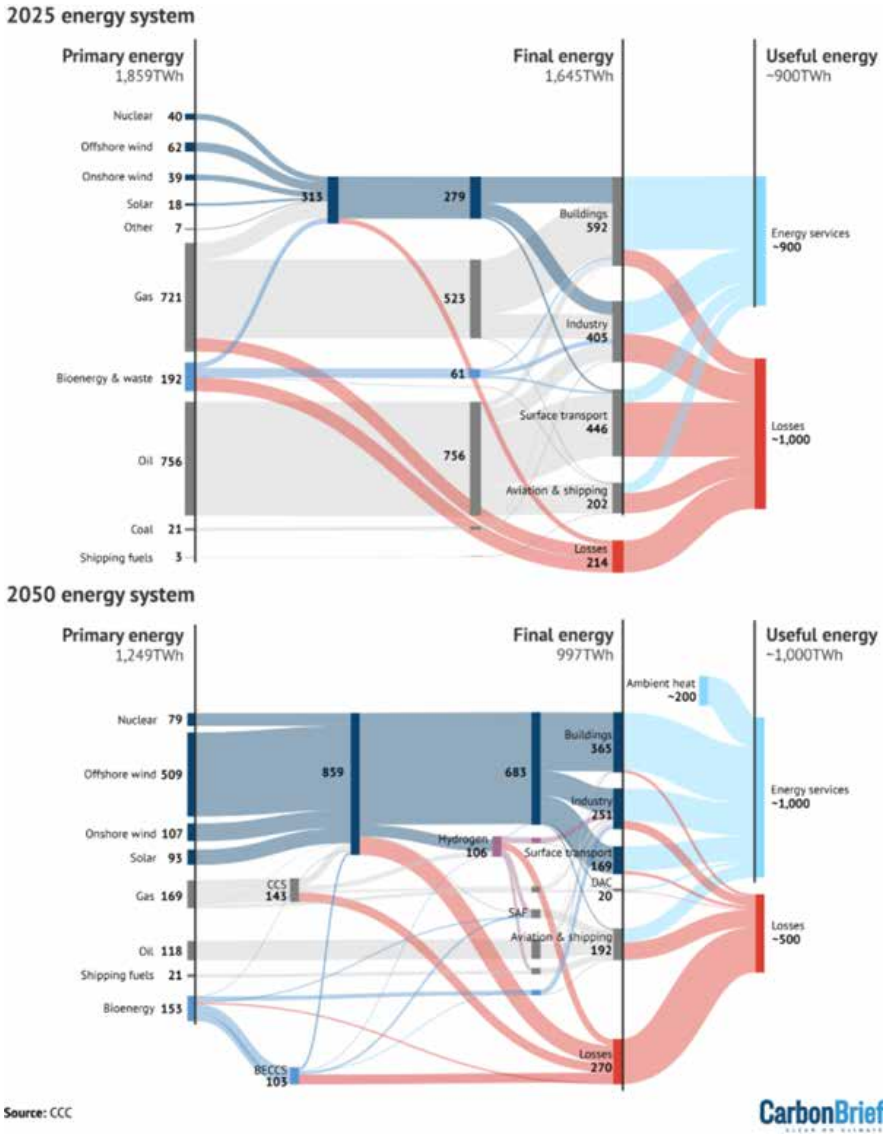


households in the UK, a reduced reliance on gas reduces its vulnerability on price shocks caused by international markets or crises. CCC CEO Emma Pinchbeck told Parliament that 'in 2050 a household with electric technologies—an electric heating system and an electric vehicle—is 15 times less exposed than a household still dependent on fossil fuels, should there be another gas price spike'.[11]

Electrification of the wider economy will also be essential if we are to make future emissions savings to meet carbon budgets that have been set for the 2030s. Whereas in the past, decarbonising the power contributed to over half of emissions reductions, the CCC have highlighted that future emissions must come from other sectors, including surface transport, buildings, industry and agriculture (see figure 1.4).

Already the electrification of both transport and heat is beginning to have a significant impact on the UK's pathway to becoming an electric economy. The

FIGURE 1.6
Electrification will power UK's shift to net-zero and cut waste
Energy flows through the UK economy, terawatt hours



uptake of EVs is already having a significant impact on emissions reduction. As the CCC stated in their 2025 Progress Report, 'The emissions savings from petrol or diesel vehicles being replaced by EVs are now having a measurable and rapidly growing effect on overall emissions savings. Approximately half the emissions savings from EVs in 2024 were due to new vehicles registered in the previous two years. If the compound annual average growth rate seen since 2022 continues, the emissions savings from EVs will increase significantly by 2030'.[12]

Yet while EVs and heat pumps can be core technologies to transform the UK's dependency on fossil fuels, the impact of technological change, innovation and the rise of optimisation has now made the electrification of more sectors possible compared to 25 years ago (see figure 1.5).

As technologies have developed to enable further electrification, the CCC have made it clear that, in comparison to their advice for the sixth carbon budget, which offered five different routes towards net-zero, the CCC now offers a single balanced pathway built around clean power, stating that 'In many key areas, the best way forward is now clear. Electrification and low-carbon electricity supply make up the largest share of emissions reductions in our pathway'. This in turn will lead to an energy system that is more efficient and wastes less overall energy (see figure 1.6).

Rising Demand

The consequence of the electric revolution that we are living in will be that demand for electricity will continue to rise. The adoption of EVs and heat pumps will not only dramatically reduce demand for fossil fuels, it will propel the need for electrons. There are now around 1.8m EVs[13] on the UK's roads and another 1m plug-in hybrids. Of this total, some 0.6m new EVs and plug-in hybrids were bought in 2025 alone[14]. In addition, around 100,000 heat pumps[15] are being installed each year. Sales of both technologies are rising fast. Estimates from the NESO "future energy scenarios"[16] point to an additional 2.0TWh of demand from new EVs in 2025, compared with 2024. They also suggest that newly installed heat pumps added around 0.2TWh of additional demand, while data centres added 0.4TWh. By 2030, NESO's scenarios suggest that electricity use for these three sources alone will rise by around 30TWh, equivalent to around 10% of total demand in 2025. Peak demand from residential EVs and heat pumps in 2040 is expected to reach up to 26.5GW, according to National Grid ESO's 2022 Future Energy Scenarios (FES). This is greater than the peak demand of all households in 2022. [17] With almost 100 new data centres planned by 2030, the UK faces its fastest-ever period of digital construction. Schneider forecasts data centres could add up to 71TWh of additional demand over the next 25 years. [18]

CHAPTER TWO:

Public Attitudes and Rebuilding Consensus

Each Summer, as part of DESNZ Public Attitudes survey, questions are asked about attitudes towards Net Zero in terms of anticipated impact on the UK economy, and perceived confidence in ability to meet the Net Zero target. These questions were also accompanied by the text:

And now thinking again about the UK government's aim to reduce UK greenhouse gas emissions to Net Zero by 2050 to tackle climate change. This will involve large changes to the way we produce and use energy in homes, businesses and transport.

Questions on these topics were asked in two parts: firstly, people were asked to consider the short-term impacts of Net Zero (1-2 years); and secondly, people were asked to consider the longer-term impacts (10 years or more). In Summer 2025, similar to previous summer waves, the expected impact of Net Zero on the UK economy was more likely to be negative (41%) than positive (22%) in the short term. However, in the longer term, expectations remained more positive (49%) than negative (22%). The proportion expecting a negative impact had, however, increased since Summer 2024 in both the short term (41% up from 37%) and the long term (22% up from 20%). Conversely, there were reduced expectations of a positive impact in the long term (49% down from 54% in Summer 2024) (See figure 2.1).

FIGURE 2.1
Expected impact of UK's transition to Net Zero on UK economy (% based on all people), Summer 2023, 2024 and 2025

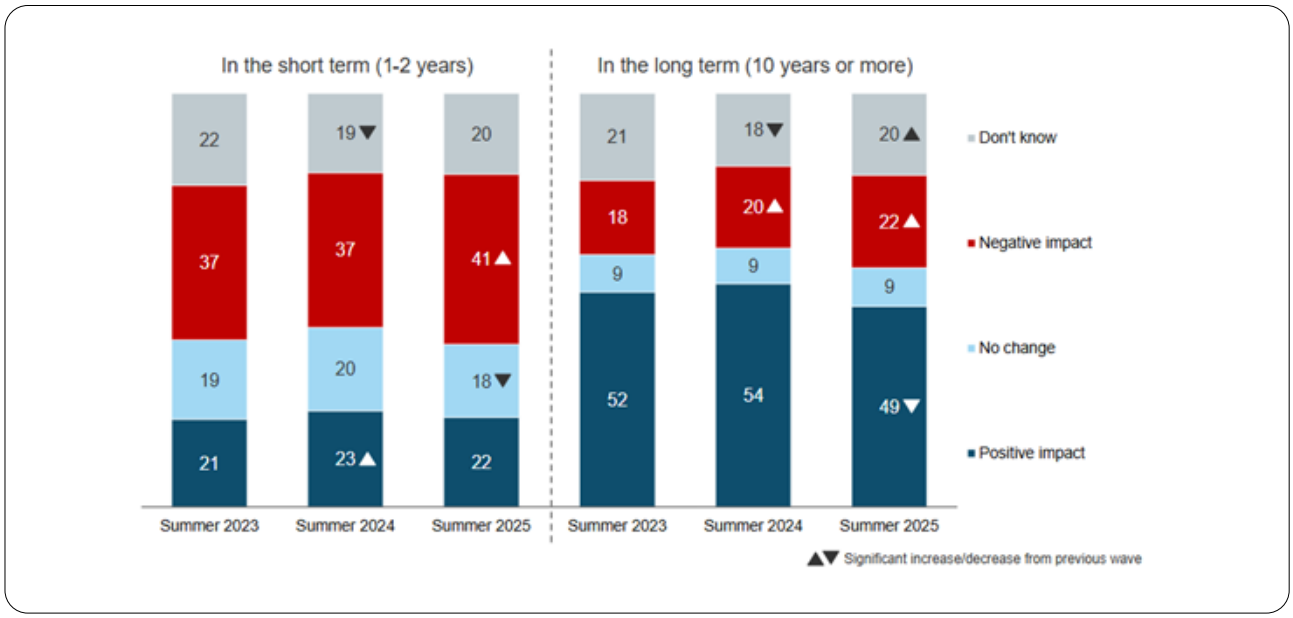
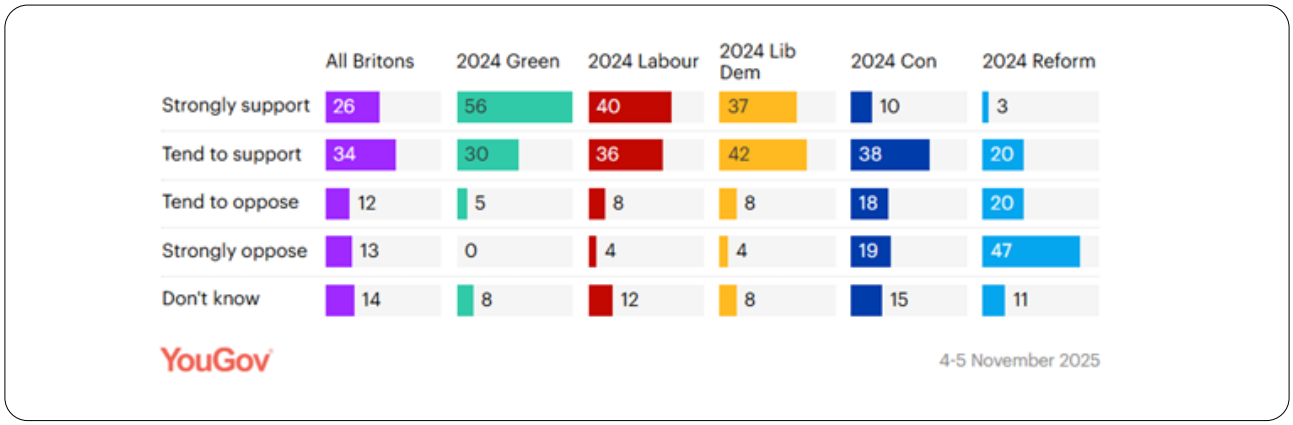


FIGURE 2.2
60% of Britons support net zero
To what extent do you support or oppose the government's commitment to cutting carbon emissions to net zero by 2050? %



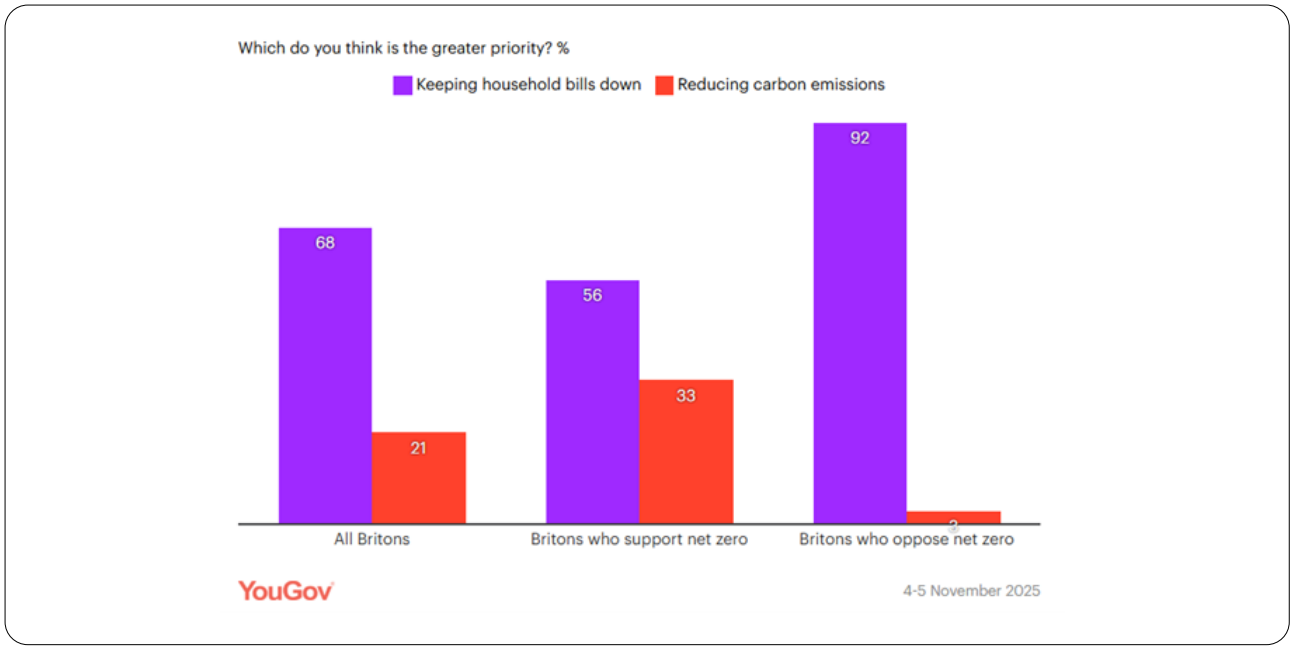
Polling by YouGov in November 2025 nevertheless showed that there is still strong public support for net zero (see figure 2.2).

When framed as being a question of supporting 'net zero', there is clear polarisation between parties: 86% of Green party voters, 76% of Labour voters and 79% of Lib Dem voters strongly support or tend to support net zero, while this drops to 48% for Conservative voters and 23% for Reform voters. Strong support for net zero is backed by only 10% of Conservative voters, and 3% of Reform voters, while 47% of Reform voters strongly oppose net zero. Net zero as a term has now been weaponised by Reform politicians such as Richard Tice, who refers to the term as 'stupid net zero'.

A recent YouGov poll conducted in August 2025 found that even amongst Reform and Conservative voters, there was particular support for green industries when framed against a need to develop a UK industrial strategy that grounded jobs and skills onshore. 50% of Reform voters supported 'increasing government investment in UK wind turbine manufacturing', while 38% opposed: for Conservative voters, 69% were in support and 20% opposed. When it came to 'requring the renewable industry to use more UK made components', 81% of Reform voters were in support, and 82% of Conservative voters, while 62% of Reform voters and 85% of Conservative voters supported 'expanding training and job opportunities for young people and workers in green industries, such as offshore wind', a statement opposed by just 21% of Reform voters and 5% of Conservatives. [19] A poll of 6,000 voters conducted by SSE in 2023 also found that there was wide support to speed up the transition to a cleaner energy system to reduce dependence on imported fossil fuels. 83% of people thought that building more energy infrastructure to reduce dependence on imported fossil fuels is important to the future of Britain, while 78% of people believed the Russian invasion of Ukraine has shown that we need to speed up the transition to clean energy so we can generate more of our energy at home. 73% of people supported bringing forward more investment in our electricity grids and 69% of voters believe that investment should be made ahead of need. At the time, 43% of voters would be less likely to vote for a candidate opposing local energy investment; compared to just 19% of respondents who would be more likely to vote for a candidate opposing investment.[20]

Reform politicians, while vocally opposing net zero, have at the same time been promoting the economic investment that can come from the energy transition. Dame Andrea Jenkyns was elected Mayor of Greater Lincolnshire in 2025, responsible for the Humber region, which has a-third[21] of the UK's offshore wind capacity, generates roughly 17 percent[22] of the country's electricity. At UKReiif 2025, Jenkyns sought to promote as head of the authority 17 local projects, including the Humber Freeport, which an official press release from the Greater Lincolnshire Combined County Authority described[23] as "a leading offshore wind and renewables hub".[24] Polling by Focaldata for the Energy and Climate Intelligence Unit (ECIU) conducted the week of the local elections has found that more than half (54%) of voters who

FIGURE 2.3
While 60% of Britons support net zero, the majority say that the cost of living is a greater priority than reducing carbon emissions



planned to vote for Reform UK in the local elections on 1st May support "policies to stop climate change and put in place targets accordingly to keep the UK on track".[25] As Professor Lorraine Whitmarsh from the University of Bath recently told the Energy Security and Net Zero Select Committee:

"What is quite striking, though, from all of the polling across the political spectrum, is that there is a surprising amount of agreement even among Reform voters, across the political spectrum, for what is sitting beneath net zero. Net zero itself is certainly a polarising term, but even the majority of Reform voters support renewable energy. They even support renewable energy in their area, including grid upgrades. Certainly if you look at other issues—clean air and safe streets and recycling and so on—across the political spectrum there is strong agreement for that. Our polling shows that one of the most popular green policies is insulating homes, getting warmer insulated homes, with almost 80% of the public supporting that. That is across the political spectrum. We have more commonality than we have disagreement."

Attempting to understand how to rebuild consensus for the energy transition is now critical. Costs and energy prices, related to the cost of living, will be central to this.

There can be no denying the fact that when it comes to the energy transition, energy prices and the cost of living are essential to winning the argument. As a recent YouGov poll has shown, while 47% of net zero supporters say that spending on climate change is a priority and should be significantly increased (compared to 28% who disagree), a wider majority of net zero supporters saying that keeping household bills down (56%) is a greater priority than reducing carbon emissions (33%) (See figure 2.3).

The debate around costs also brings consensus between voters, in particular around energy prices. New polling research, commissioned for this report together with Ipsos Mori and The Policy Institute at King's College London, highlights that from a weighted poll of 1083 adults aged 18-75, there is overwhelming concern about future energy prices (80% concerned) and 76% concerned for the energy costs of their own household. There was also a larger number concerned about the UK's reliance on foreign owned fossil fuels (64%) highlighting the fact that after energy prices, energy security was the next greatest concern, followed by energy efficiency (though at 57%, compared with 76% concerned about current energy costs for their household, this highlights the need to strengthen narratives between energy efficiency measures and bill savings). It seems that energy security is best supported when framed as energy

independence, with the UK being able to generate its own energy as a key component of energy security, compared to actual resilience of the energy system- where only 34% were concerned about the risk of power cuts, and 60% not at all concerned.

The polling survey also investigated responses weighted by voting preference at the 2024 General Election. These findings highlighted that, despite the increasing polarisation on energy and climate policy, there was greater consensus among voters of different parties. While the concerns of Labour voters compared to Reform and Conservative voters are predictably opposed over the environmental impact of energy use, with 59% of Labour voters being very or fairly concerned, compared to 58% of Reform voters and 60% of Conservative voters who were not very or at all concerned, there remain a significant proportion of Reform voters- 40%- who are concerned about the environmental impact of their energy use. This stands in stark contrast with the political messaging from the political leaders of both Reform and the Conservatives who have now committed to abolishing the UK's net zero target, and repealing the Climate Change Act.

Far greater consensus and common ground can be established in concerns over future energy price increases or fluctuations. The memories of the gas price spikes in 2022 after Russia's invasion of Ukraine, which meant that taxpayers spent more than £78 billion across 2022–23 and 2023–24 to protect people against unaffordable gas price spikes remain strong.[26]

These concerns are commonly shared across all three parties, with Reform voters being marginally more concerned (85%) compared with Labour voters (81%). At the same time, 65% of Reform voters are concerned or very concerned about the UK's reliance on foreign owned fossil fuels.

Support for Renewables

The DESNZ Public Attitudes Tracker latest publication in October 2025 highlights that when it comes to renewables more broadly, overall support for the use of renewable energy such as wind power, solar energy and biomass to provide electricity, fuel and heat was 80% (unchanged from Spring 2025). This has declined from 87% in Autumn 2021. In particular, strong support for renewable energy has declined from 54% in Autumn 2021 to 46% in Summer 2025. While opposition remains low, it has increased slightly over time from 1% in Autumn 2021 to 4% in Summer 2025.[27]

FIGURE 2.4
When it comes to the UK's energy concerns, the public are most worried about future and current costs, though majorities are also concerned about the country's reliance on foreign-owned fossil fuels and the energy efficiency of their homes
To what extent, if at all, are you concerned about the following

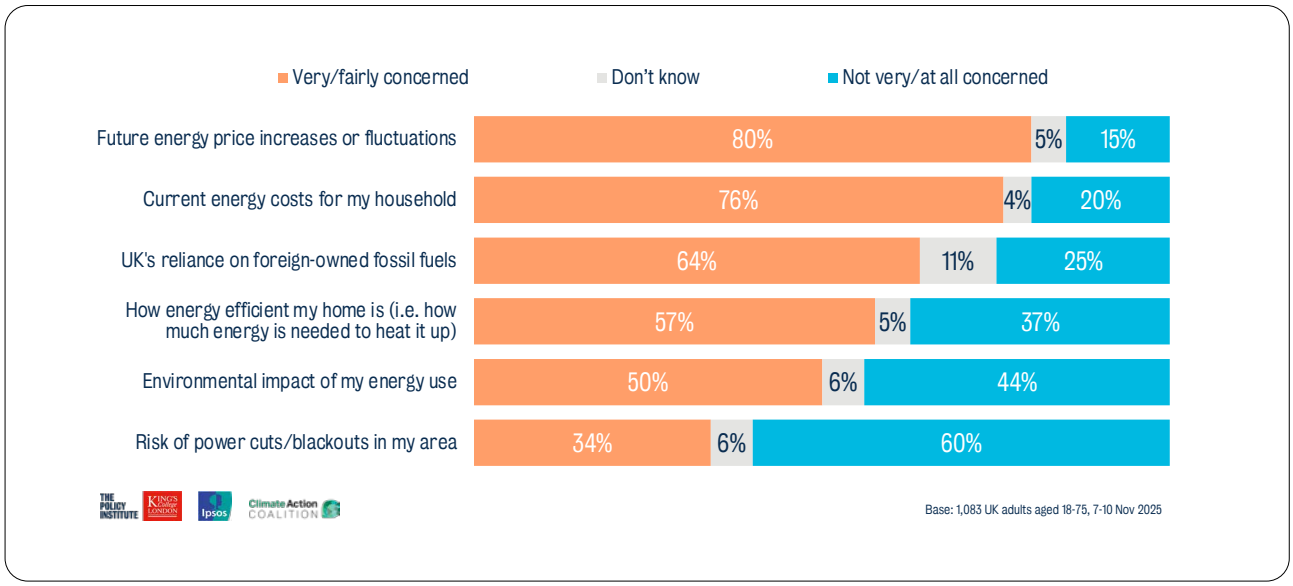
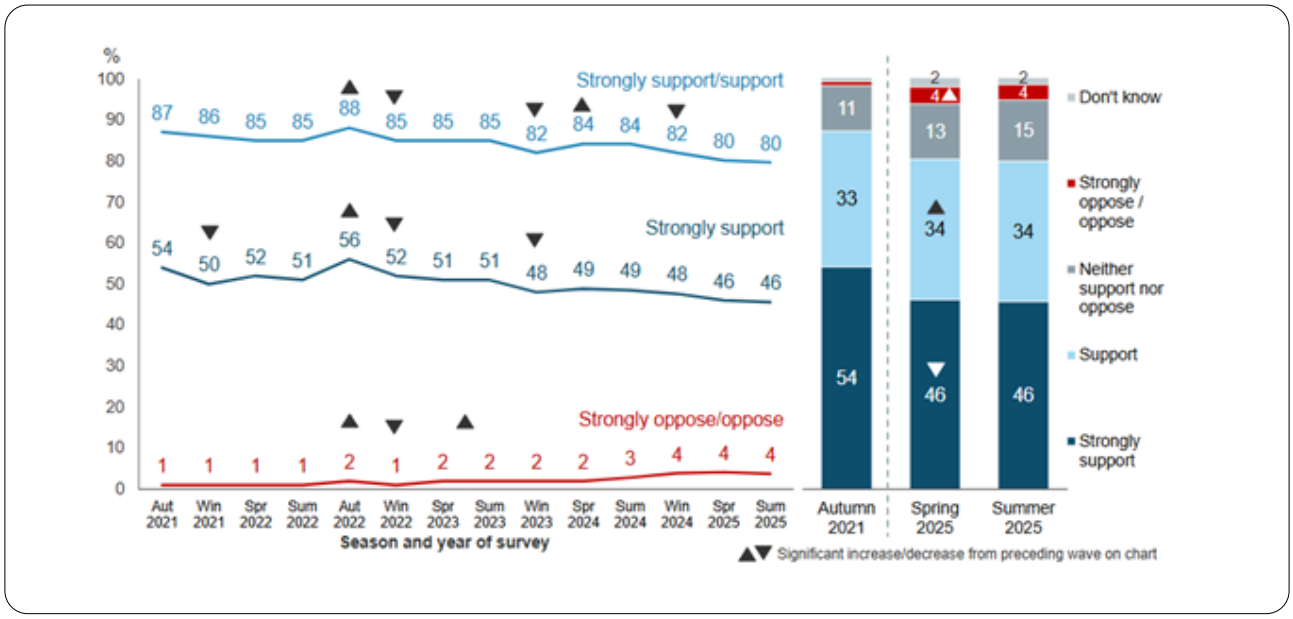


FIGURE 2.5
Support for use of renewable energy (% based on all people), Autumn 2021 to Summer 2025



There is not, therefore, a sudden shift in public opinion away from renewable energy in the same way there has been for centre right parties in Westminster. The British Social Attitudes Survey 2024 similarly found that there is majority support for the construction of more onshore wind farms, with 70% of respondents in favour. However, the building of new pylons and nuclear power stations remains contentious; only 45% support the construction of new pylons, and 43% support the building of new nuclear power stations. While many expressed ambivalence, a significant portion of the population opposed these developments, with 22% against making it easier to build new pylons and 27% against constructing new nuclear power stations.[28] Reform voters were most sceptical of infrastructure, with little support for pylons, however more than half were in favour of wind farms (See figure 2.6).

Analysis of incentives that might persuade people to accept infrastructure development near their home was conducted by DESNZ for the first time in Summer 2025, as part of their public attitudes tracker. This suggested that 84% of people said they would be incentivised by at least one of the listed benefits, although 11% said none of them would increase their support for local construction. At least half said that they would be incentivised by energy bill discounts for those living near new infrastructure (62%), funding for community projects such as home insulation, community facilities and local nature projects (59%) and provision of local jobs and apprenticeships (58%).[29]

Public Awareness and Support

Recently, DESNZ have been conducting polling on public awareness of the Clean Power Mission as part of its public attitudes tracker. This reveals that while there is wide awareness of Clean Power 2030, only 32% have heard either a fair amount or a lot about the proposals, up from 28% in Spring 2025. This highlights the communications challenge still present to increase detailed awareness of the mission.[30]

Lack of Awareness

There is also a wider lack of awareness when it comes to energy tariffs and the opportunity to reduce bills through switching suppliers, which is important when considering the opportunity that demand side responses (DSR) and flexibility can reduce bills and make cost savings. This disproportionately affects women and Black, Asian and minority ethnic (BAME) communities. The MCS Foundation have shown that 35% of women said they did not know what type of electricity tariff they were on, compared to 25% of men, while 83% had never heard of DSR, compared to 72% of men. Among BAME women, 45% did not know what tariff they were on—significantly higher than the overall average of 30%.

FIGURE 2.6
Support for climate policies by party vote

	Conservative (%)	Labour (%)	Liberal Democrat (%)	Green (%)	Reform UK (%)
Support for wind farms	62	77	89	96	52
Support for building pylons	42	44	48	41	28
Support for building nuclear power stations	60	40	43	32	62

Source: British Social Attitudes, 2024

FIGURE 2.7
What might encourage people to support construction of renewable energy infrastructure in local area (% based on all people), Summer 2025

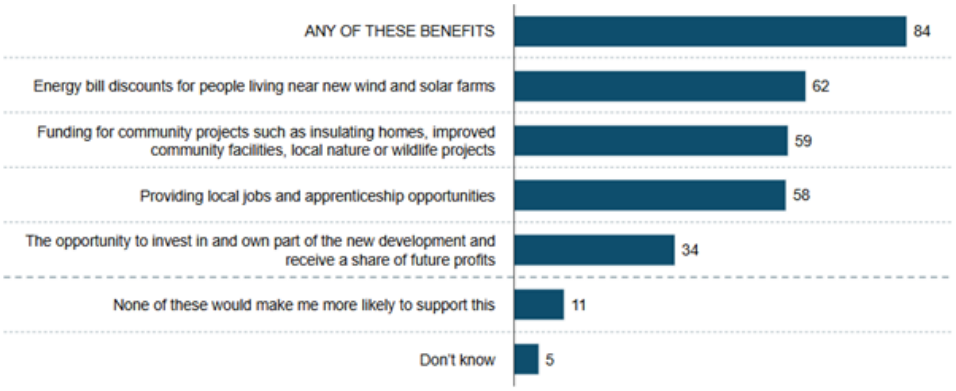
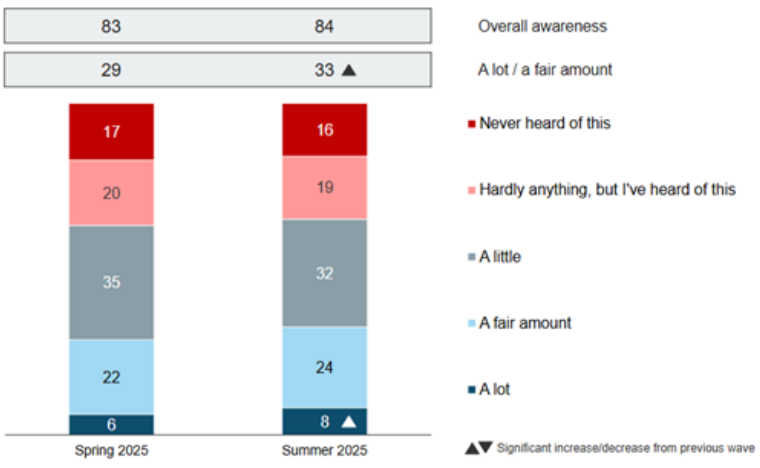


FIGURE 2.8
Awareness of Clean Power 2030 (& based on all people), Spring 2025, Summer 2025



CHAPTER THREE:

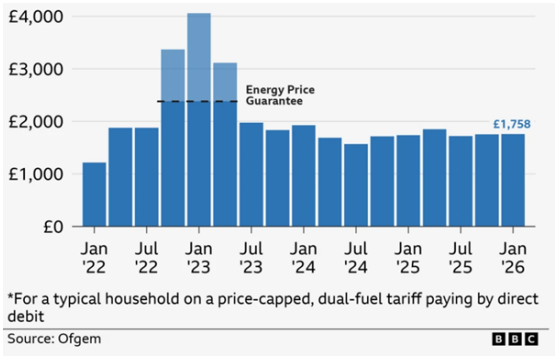
Energy Prices

The most contentious and politically charged issue around the energy transition remains around cost: not only to the taxpayer for the overall costs of delivering decarbonisation and emissions reduction, but also to the bill payer, who has been promised a reduction in bills through cheaper energy, no longer dependent on volatile, expensive fossil fuels. As the Labour party pledged in its manifesto: "We will save families hundreds of pounds on their bills, not just in the short term, but for good." It also promised bills would come down by "up to £300 by 2030".

And yet, two years on, a typical energy bill remains £478 a year higher in October 2025 than it was in October 2021, an increase of 37 per cent. Under the energy price cap for Q3 2025, the domestic retail price of electricity for a typical household is 31.8 p/kWh. This is 40% (9.2 p/kWh) higher in real terms compared to the introduction of the price cap in 2017. The Energy Price Cap is now £1758 since rising by 6% in 2025, though it is expected to fall in April by a further 8% according to energy consultancy Cornwall Insight – the equivalent of a fall of £138 to £1,620 a year for a household using a typical amount of gas and electricity.[31]

There is evidence that renewables are starting to have a positive effect on the cost of electricity is emerging. In Britain, renewables reduced the wholesale cost of electricity by £25 per megawatt hour in 2024. And, in Spain, a large expansion of renewables means gas sets the price of electricity just 19% of the time and Spanish prices are a third cheaper than the EU average. At the same time, NESO have calculated that in their clean power scenarios[32] for 2030, a 2022-style gas price spike would cause an increase in the yearly electricity bill (including EV charging costs) of just £40 per household[33], compared to the counterfactual business-as-usual scenario in which electricity bills would jump by £270 per household. As Energy

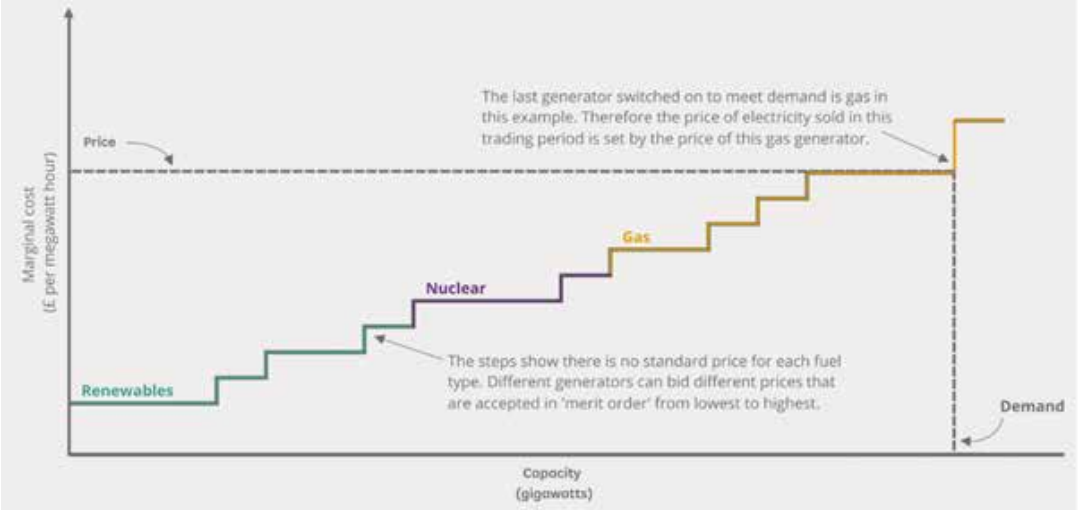
FIGURE 3.1
Typical household's energy bill*



UK have observed, the challenge for the Clean Power 2030 Mission will be that while longer term electricity prices will come down as a result of reducing the UK's dependence on gas, this cannot happen soon enough. As Energy UK have stated in their report, How To Cut Bills, 'Without intervention, the effect of the Clean Power Mission will be lower energy prices next decade, but only modest reductions by 2030. It cannot be right that we ask customers to wait for 5-10 years until prices naturally decrease as a result of the clean power rollout. Urgent action is needed to ensure that whilst we chart the course to Clean Power, a short- to medium-term strategy addresses how we can bring down bills in the interim'.[34] In their 2025 report, How To Cut Bills, Energy UK highlight one of the key political challenges facing Clean Power Mission.

It's important to reiterate: the Clean Power mission will lead to lower energy bills. But like any long term infrastructure project, the full benefits of clean, homegrown energy will take time to enable

FIGURE 3.2
Illustration of marginal pricing and the 'merit order' of electricity generators in the wholesale market



a fundamental change in energy pricing. These effects are unlikely to be meaningfully felt before 2030. Whilst wholesale prices may start to decrease by 2030, it's expected that increases in other parts of the bill may offset these reductions. This presents a clear problem. We know that Clean Power will deliver tangible reductions in energy prices next decade, but few solutions are on the table to lower energy bills over the next five years.

Achieving significant bill reductions over the next five years will require a step change from the Government, which is why Energy UK have called for a National Strategy on Energy Bills led by No.10 or the Treasury to drive change across Whitehall and deliver on this promise.

Framing the Debate: 'the Gas Levy'.

The reality of high energy prices in the UK remains the fact that electricity prices are largely set by the marginal pricing structure that allows the costs of electricity to be set by the wholesale costs of gas. This is in essence a 'gas levy' on bill payers. In contrast to the green levies also added on bills, the 'gas levy' should be better articulated and calculated to increase awareness of the dependence on fossil fuel generation on raising prices and bills, especially when in 2025 two gas power plants were paid more than £12m to supply only three hours of electricity.

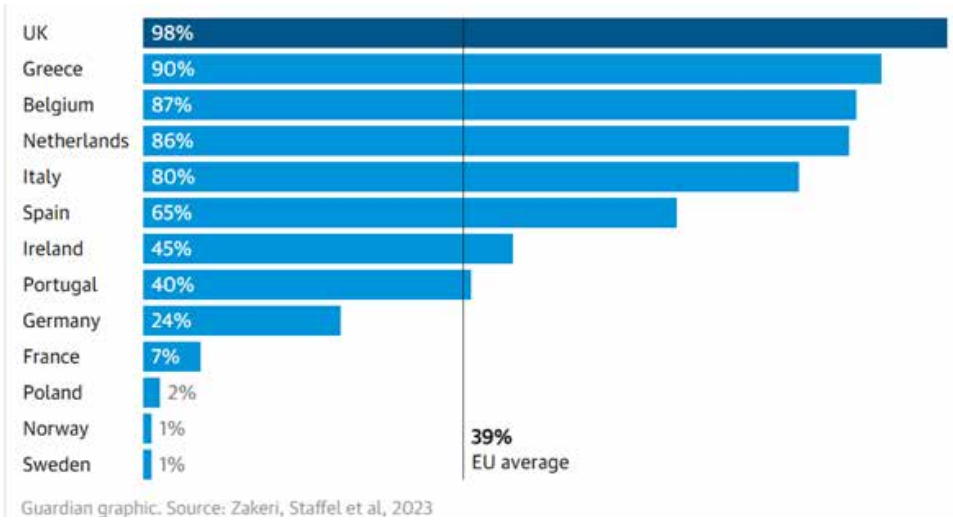
Marginal Pricing and Rebalancing Costs

Marginal cost pricing is where units of electricity are sold at the price of the most expensive unit needed to meet demand at a particular moment in time. In each half-hour trading period, each electricity generator bids the price it will accept to generate electricity, according to how expensive the electricity is to produce. The bids are accepted in 'merit order' until the demand for electricity is met; the cheapest first, and the most expensive last. However, the price of all units of electricity is set according to the bid price of the most expensive unit needed to meet projected demand: this is the 'marginal cost'.

Renewable generators typically have the lowest costs (because they do not have to buy fuel to burn) and so are the first to meet demand. Fossil fuel generators (including gas) often have the highest costs as they must buy fuel to burn, which also has a carbon price on it.

As a result, although most electricity is produced using sources with low marginal costs (42% by renewables and 15% from nuclear)[35], the price that is paid for electricity traded on the spot market is often higher, at the marginal cost of generating electricity with gas. Under this marginal pricing system, the UK's electricity market price is set by gas 98% of the time, the highest rate across Europe and well above the EU average of just under 40%.

FIGURE 3.3
UK's electricity market price is set by gas 98% of the time
Share of hours where gas sets the price of electricity in selected European countries, %

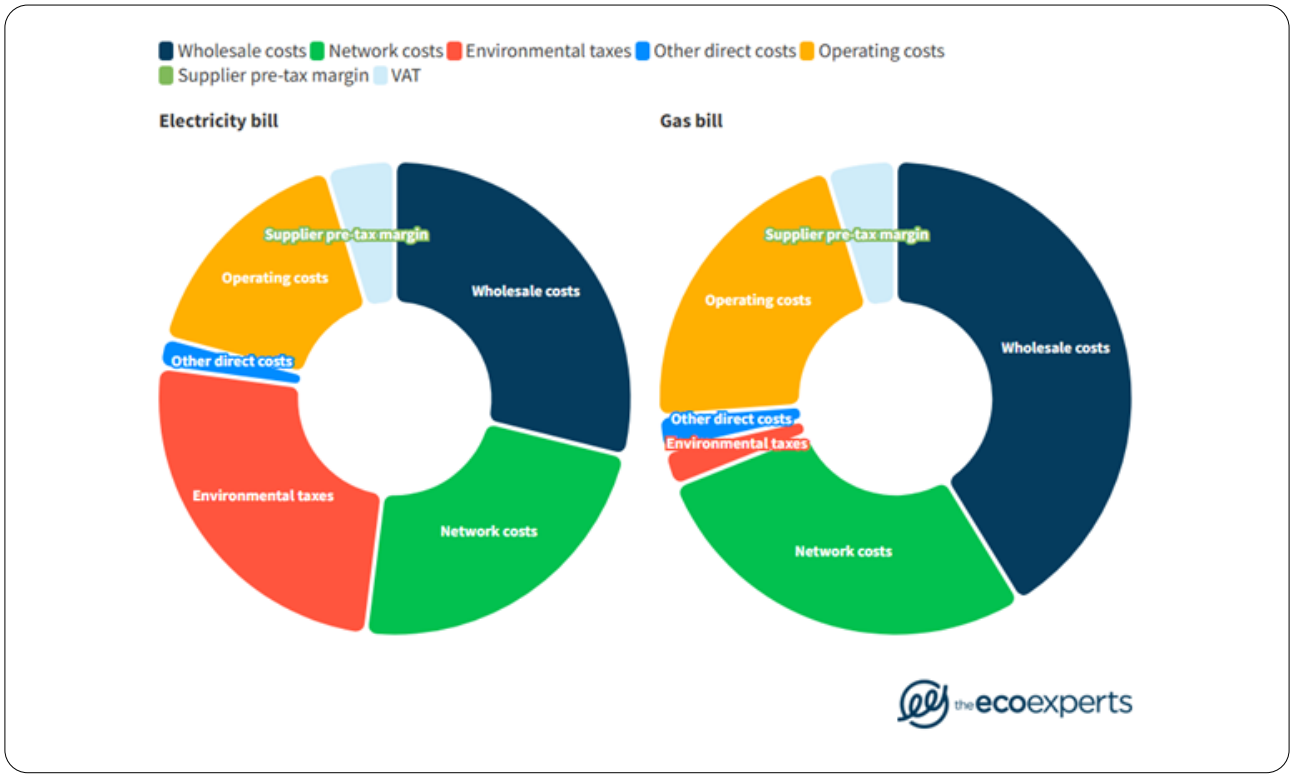


The UK's current electricity mix means that gas is almost always the marginal fuel, even though it only accounts for a third of generation[36] overall.

The result is that the UK's wholesale electricity prices track wholesale gas prices almost perfectly. This has had a significant impact on the overall cost of bills, which could have been cheaper if a more effective bidding structure was available that reflected the actual costs of the electricity supplied rather than the wholesale price of gas. According to the 'Breaking The Link' report, 'from 2022 to 2024, the current market system added £46.6bn to energy bills. This equates to £33bn for businesses and £13.6bn for

FIGURE 3.4
Wholesale gas prices, UK vs EU

FIGURE 3.5
Breakdown of Gas and Electricity Bills UK



consumers, or £397 per household— perhaps an effective calculation of the impact of the 'gas levy' on consumers. This period covers the energy price crisis and shows how vulnerable the current system makes the UK to international gas prices. In 2023 alone, which is when the energy price spike of 2022 fed through to bills, breaking the link of the gas price to electricity bills would have saved £43bn, which would have been £30.4bn saved for businesses and £12.6bn saved for consumers, or £367 per household'.[37]

The government's Clean Power Mission would ensure that by 2030, gas-fired power would meet only 5% of its electricity annually. Plans set out by the National Energy System Operator suggest that in one scenario for the 2030 plan this would mean that gas sets the price in only 15% of hours, insulating consumers from "volatile international gas prices". The UK Government has said it will investigate how to separate electricity prices from gas prices with its Review of Electricity Market Arrangements (REMA).[38] Yet this has led to further calls to 'break the link' between electricity and gas prices, and move to an alternative system of bidding in which suppliers would be paid for the price they were able to generate at, rather than the highest marginal price.

Green Levies on Electricity

For electricity, one of the additional drivers of cost are also the green levies placed upon it rather than gas, that make it more expensive, despite it being the more environmentally friendly option. Since electricity uses renewable technology, such as wind and solar, those charges are applied to it instead of to gas (See figure 3.5).

This challenge of policy costs has now become increasingly politicised. In her speech on 18 March 2025, Kemi Badenoch argued that environmental levies were adding to the cost of energy bills: 'The cost of electricity-far too high-much higher than nearby and comparative countries with the real possibility of it going even higher with environmental levies', she stated, claiming that 'A big chunk of our existing bills are not direct energy costs'.

The amount of money that net zero policy costs add to energy bills was recently considered by the fact-checking organisation Full Fact.[39] It found that:

- For a typical household on an electricity-only tariff, environmental and social policy costs

amount to 16% of the total price cap. Not all of these costs go towards environmental, or 'net zero', schemes.

- Of the £111 increase to the energy price cap from April 2025, approximately 10% is accounted for by an increase in environmental and social scheme costs (or 22% of electricity-only bills).

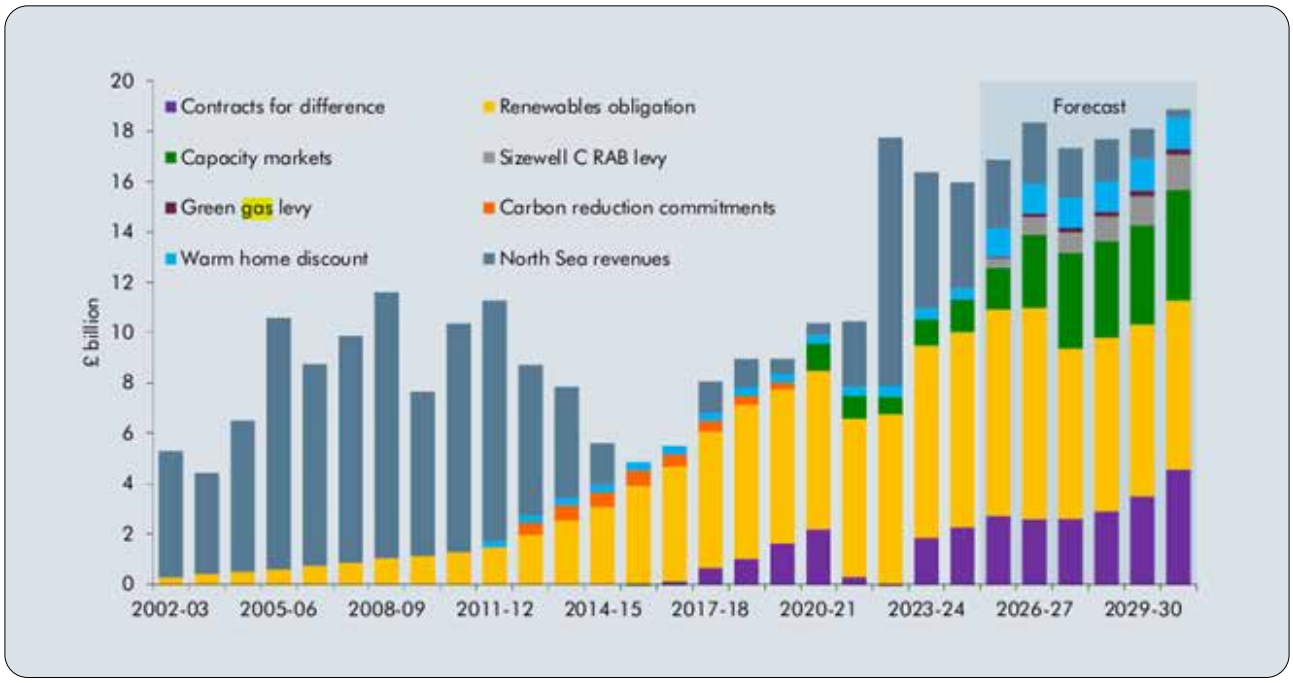
The OBR's latest economic forecasts published in November 2025 state that 'receipts from environmental levies on household energy bills have risen from £0.3 billion (less than 0.1 per cent of GDP) in 2002-03 to £14 billion (0.5 per cent of GDP) in 2025-26, and are expected to increase to £19 billion (0.5 per cent of GDP) at the forecast horizon. This reflects a shift away from the taxation of energy extraction to taxation on the consumption of energy'. The breakdown in the increasing costs of several levies across the next five years has been set out by the OBR:

- Contracts for difference (CfD), which is expected to generate £3.2 billion in receipts on average a year across the forecast period. CfD guarantees a fixed price to energy generators for future electricity generation, with subsidies provided to renewables generators when wholesale prices fall below the agreed fixed price. The CfD scheme has replaced the renewables obligation (RO), which closed to new projects in March 2017, as the main scheme incentivising investment in renewable electricity projects. RO receipts are forecast to fall by £1.7 billion across the forecast, while CfD receipts are forecast to increase by £2.0 billion. The Budget policy to part-fund the RO scheme for three years temporarily shifts a portion of the costs from domestic energy bills to the Exchequer, leading to higher borrowing. In 2030-31, CfD is expected to generate £4.6 billion in receipts including £1.0 billion to fund subsidy payments to the Hinkley Point C nuclear power plant for its first year of expected generation.

- The capacity market is expected to generate £3.8 billion in receipts on average across the forecast period. This scheme funds payments for reliable sources of capacity, through generation, storage, and consumer-led flexibility, to meet future peak energy demands as the UK becomes increasingly reliant on renewable energy sources such as wind and solar, which have more variable energy generation compared to non-renewable sources.

- The Government announced in July 2025 that the Sizewell C nuclear power plant will be financed using a regulated asset base (RAB) model. In the RAB model, levies on electricity consumers contribute directly to financing costs alongside

FIGURE 3.6
Outturn and forecast North Sea revenue and environmental levies



general government spending. The RAB levy is expected to generate £1.0 billion in receipts from consumer electricity bills on average across the forecast period, increasing from £0.3 billion in 2025-26 to £1.4 billion in 2030-31.

- The warm home discount is expected to generate £1.1 billion in receipts on average across the forecast period, including £0.5 billion to extend eligibility to all households in receipt of means-tested benefits. Warm home discount receipts increase energy bills for all consumers to subsidise a £150 discount on bills for selected low-income households.

- The green gas levy is expected to generate £0.2 billion in receipts on average across the forecast period. Receipts from consumer gas bills contribute to the costs of the green gas support scheme, which supports the production of biomethane in the gas grid.

As a result, taxation received from levies are expected to increase to 2030 (See figure 3.6).

The government announced in the Autumn Budget 2025 several measures to reduce energy bills. From 1 April 2026, the average household will benefit from a £150 reduction in the costs on their energy bill. This is in addition to £150 off bills from the Warm Home Discount (WHD) which will benefit 6 million households. From April 2026/27–28/29, 75% of domestic costs associated with the Renewables Obligation (RO) will be met by the Exchequer, while from April 2026, the Energy Company Obligation (ECO) will no longer be levied on energy bills.

Potential Recommendations to Reduce Bills

There have been several recommendations on how to best reduce bills. The think tank E3G have developed an Electricity Bills Charter that could save £200 per annum on bills, acoss a range of practical measures that could be taken alongside the existing Clean Power 2030 Mission.[40]

Green Alliance proposed in their briefing paper on how to reduce energy bills a number of proposals including reducing a typical household bill by up to £178 per year by 2030 by: immediately move £2.3 billion of levies off electricity bills into government spending; – reduce system costs by 2030 by a range of measures including lowering voltage on the low voltage network, moving gas power stations into a strategic reserve, reducing renewables financing costs, reducing transmission system losses and implement a private rental sector minimum energy efficiency standard equivalent to Energy Performance Standard (EPC)

FIGURE 3.7
E3G's Electricity Bills Charter

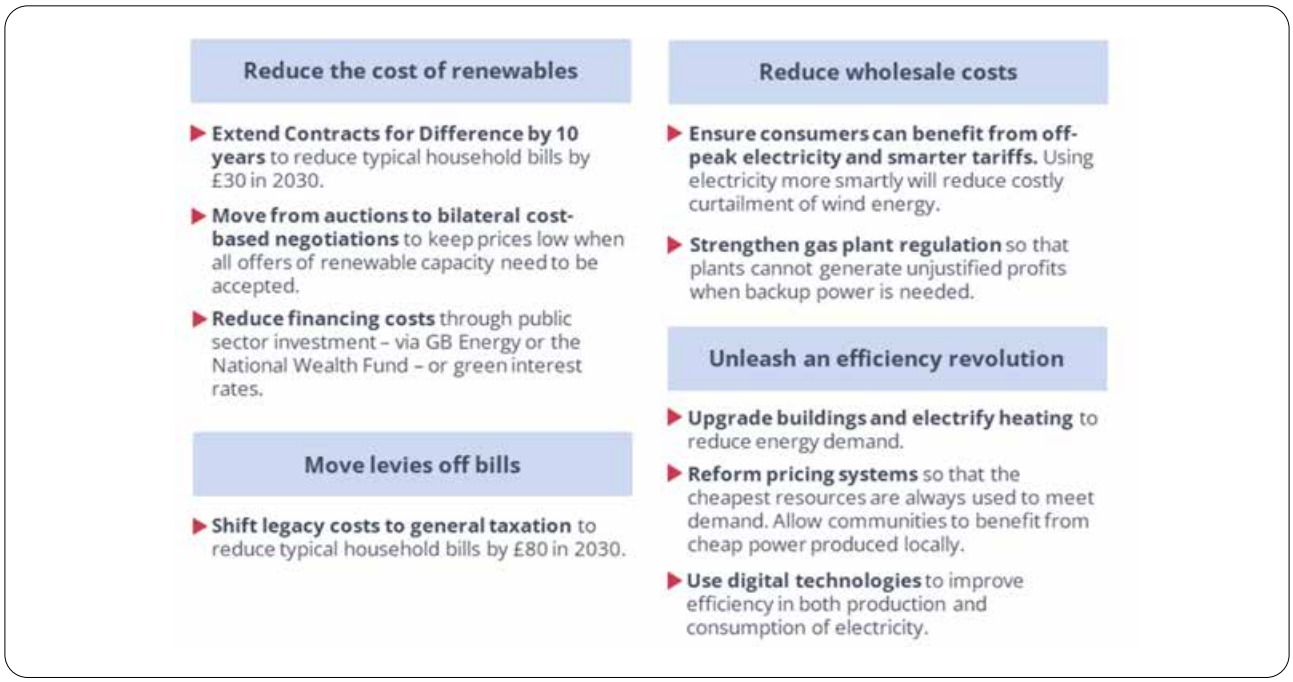
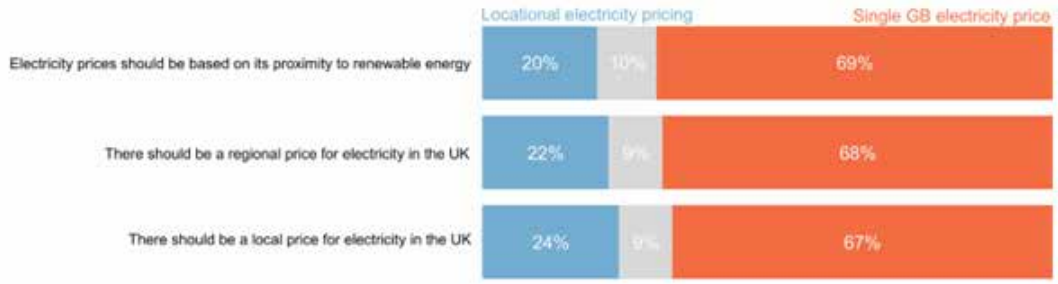


FIGURE 3.8
Public attitudes to locational pricing vs single electricity price



Source: JL Partners poll, 2023

C by 2030.[41] The New Economics Foundation (NEF) have called for the Bank of England to fulfil its mandates by reducing interest rates for loans on energy infrastructure projects dedicated to the energy transition, which in turn would cut bills. NEF estimates suggest that a 2.5% decrease in interest rates for renewables and grid upgrades in the years 2026-30 could result in £29bn of savings in system wide electricity costs from 2026-45, or £24 per household per year (in 2024 prices).[42]

Regional Pricing

The UK's pricing structure for electricity does not reflect the supply and demand at a regional level. As the Energy Systems Catapult Report, Location, Location, Location, noted 'The UK's generation mix is regionally diverse – a single price signal across GB masks the underlying reality of major variations in the supply/demand balance across regions. This regional variation is growing more marked as we decarbonise the grid and rely more on renewable generation located further from demand centres'. Their estimates indicate that £30billion of savings could be found from a system of better pricing structures that reflected the differentiation between supply and demand regionally.

Support for regional pricing is mixed however, and public support for different pricing structures for overall bills does not suggest that this would be widely supported at a domestic level: according to a poll by JL Partners in 2023, 24% were in favour of a local price for electricity, compared to 67% for a single electricity price.[43]

Concerns have also been raised about how zonal pricing would be delivered in practice, across energy companies with assets across the UK, with one report stating that zonal pricing 'would also significantly disadvantage companies with generation and demand spread across the country. These companies would need to trade in several zones at once (rather than one as is now the case) and also need to buy/sell transmission rights across zones to get power to where it's needed. This creates a system that favours certain generators, such as those focused in one area or the larger generators, which would ultimately stifle competition and create a barrier to entry'.[44]

Consequences of High Electricity Prices

As a result of the unbroken link between gas and electricity pricing and the application of green levies on electricity and not gas the UK continues to have some of the most expensive electricity prices in Europe. Not merely at a domestic retail price, but also disproportionately high industrial prices, compared to other countries.[45] Reduction in bills will be essential for the political success of Clean Power 2030. However if the UK is to become an electric economy and reap the benefits that electrification can bring in reducing overall costs, then the relative costs of electricity to gas must be addressed. This so called 'spark gap' is the foundational lever behind whether the energy transition can in the long term succeed. The UK has had in the past the largest gap between gas and electricity pricing in Europe.

The government in its budget recently took measures to reduce energy bills from April 2026, removing several levies off bill payers and on to general taxation. While this may have helped with cost of living, the real challenge is whether there can be a better rebalancing of electricity and gas prices, to close the so-called 'spark gap' that currently means that electricity prices are four times that of gas prices. As the CEO of the Climate Change

Committee, CEO of the Climate Change Committee (CCC), Emma Pinchbeck told Parliament, the spark gap 'is the important metric for being able to get electric technologies away because you are making a decision about whether the efficiency of the electric technology starts to outpace the fossil fuel counterfactual and you get rewarded for it'. Emma Pinchbeck stated that of the £134 saving calculated from budget measures, new CCC analysis showed that '£96 of it comes off electricity policy costs and £38 from gas policy costs … We do not think that does enough to close that spark gap and get it to the one to three ratio that we need to get the benefit of the more efficient electric technologies'.[46]

The reality is that the recently published Energy Price Cap for January 2026 has reinforced the fact that the gap between electricity and gas prices is higher than ever. The unit price of electricity will increase to 27.69p per kWh and gas will go down to 5.30p per kWh. That means the Spark Gap is set to get wider, with electricity still about four times the price of gas.

This is having an impact both at a domestic level, but also across UK manufacturing and energy intensive industries. For industries such as steel, the costs of electricity are a key contributing factor to their future success. As UK Steel calculated, UK steelmakers have paid £845 million more for electricity than French competitors, and £721 million more than their German counterparts,

FIGURE 3.9
UK electricity among costliest in Europe
Prices in pence per kWh for medium-sized consumers in selected European countries, Jan-Jun 2024

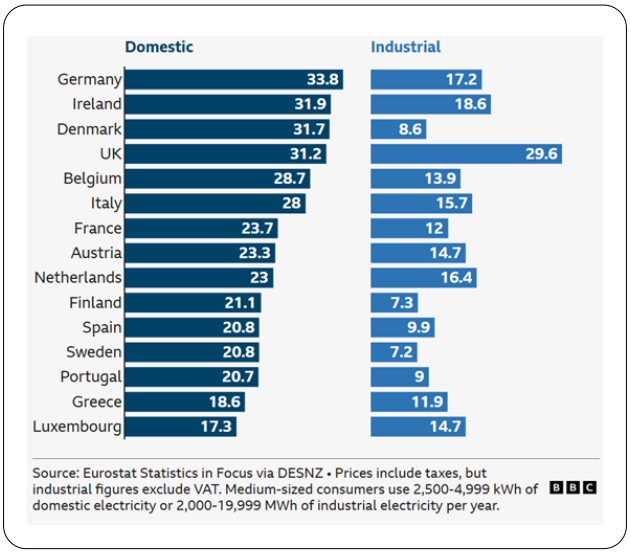


FIGURE 3.10
How a combination of different factors affect the running cost of a heat pump compared to a gas boiler
Annual cost of running a heat pump compared to a gas boiler under different assumptions

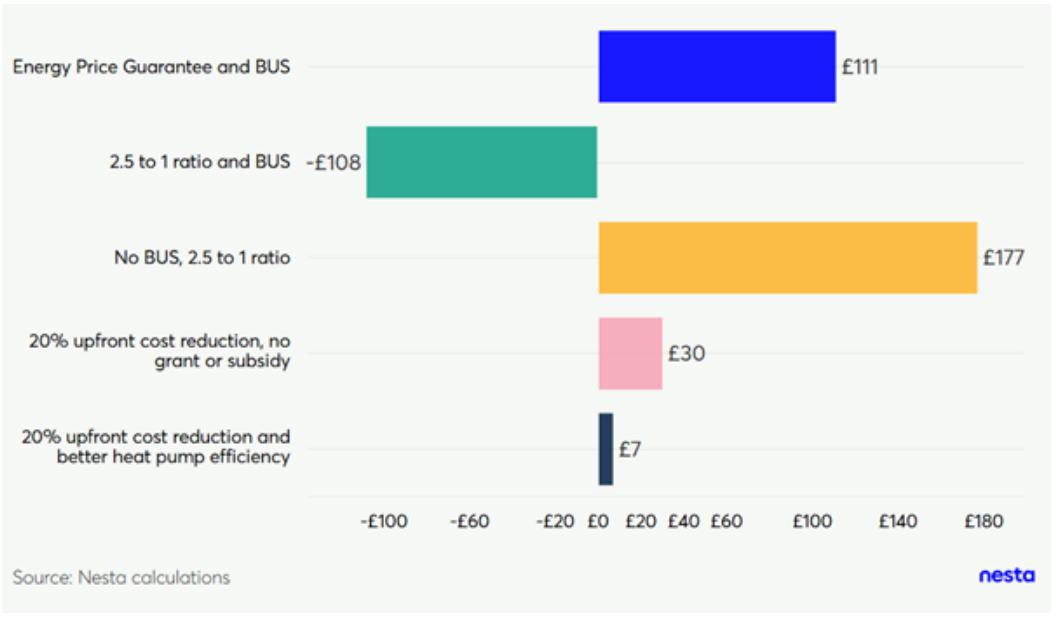
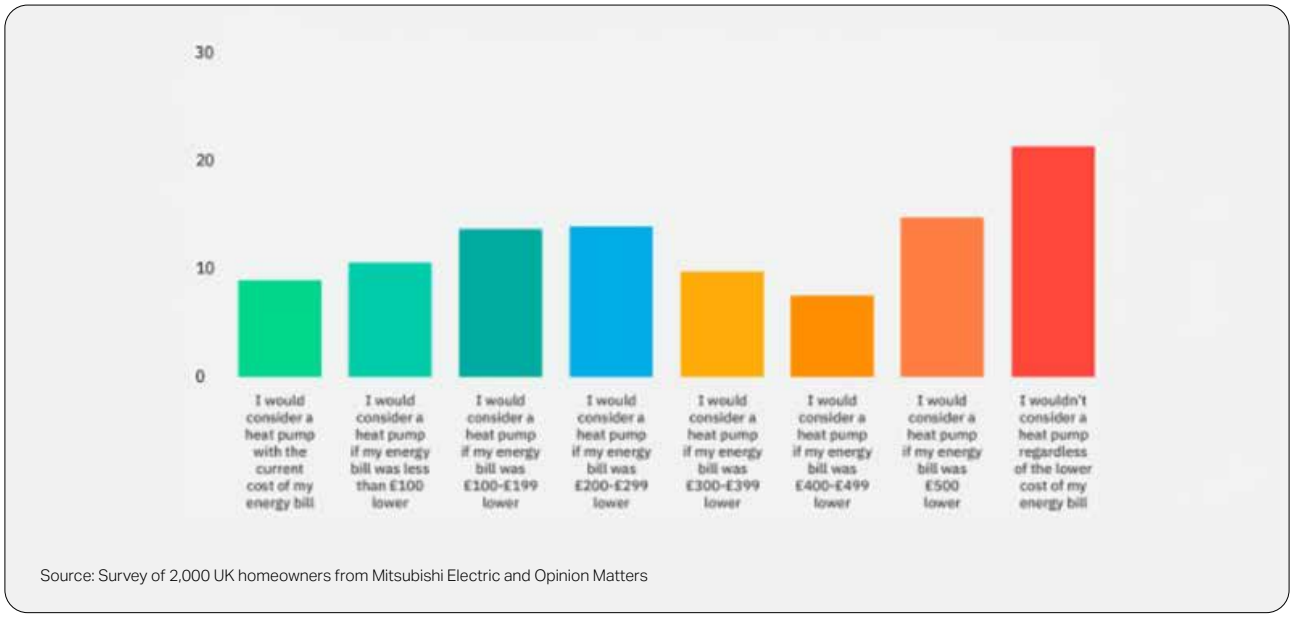


FIGURE 3.11
Question. How much cheaper would your energy bill have to be per year, if at all, for you to cosider a heat pump (which runs on electricity) as an option to heat your home?



Source: Survey of 2,000 UK homeowners from Mitsubishi Electric and Opinion Matters

since 2016/17. Currently, the UK steel industry's electricity use is equivalent to 800,000 homes, yet this is expected to double if the steel industry moves from blast furnaces to electric arc furnaces. UK Steel have therefore called for a 'wholesale power price rebalancing scheme' that would protect energy intensive industries from high wholesale prices, as is in place in other steel-producing countries such as France, Italy, Spain and the UAE.[47]

For electric technologies across the economy, such as heat pumps to be truly scalable, there also needs to be an economic imperative to switch from previous fossil fuelled equipment to electric. And for this to be delivered, electricity need not cost less than gas; given that electric technology is so much more efficient than its fossil-fuel counterpart, it needs to come under the range of being three times more expensive. Nesta have demonstrated for instance that with energy prices as they currently stand, and the Boiler Upgrade Scheme in place, due to the fact that electricity is still over three times more expensive than gas, a heat pump might cost around £110 more per year across its lifetime than a gas boiler. With the Boiler Upgrade Scheme grant still in place, if the electricity-to-gas price ratio came down to 2.5 to 1, a heat pump in this example would be £110 cheaper per year – as shown by the green bar (See figure 3.10).

If electricity prices were no more than 2.5 times the cost of gas, heat pumps could more easily cost less than boilers over the same lifespan, paving the way for a phase-out of boilers altogether.

Existing consumer behaviour towards the wider adoption of heat pumps is being driven by price. A survey of 2,000 UK homeowners from Mitsubishi Electric and Opinion Matters showed that 33% of homeowners would consider switching to a heat pump if electricity cost the same or less than gas. But for many, the bar is even higher: 15% of those surveyed said they would only consider switching if their annual energy bill was at least £500 cheaper. The report, Making The Switch, further found that a 7% reduction in electricity bills would lead to a 9% uptake of heat pumps.[48]

The think-tank E3G also found that a typical household with an annual gas bill of £820 per year could potentially reduce their bills to around £375 by switching to a heat pump – but only if the government takes action to unlock the potential for savings. This would include introducing an Affordable Electric Heating Tariff, which exempts electricity used for heating from legacy policy costs while setting out a longer-term roadmap for fully eliminating legacy policy costs from all electricity bills, improving heat pump efficiency standards and prioritising flexible tariff access.[49]

CHAPTER FOUR:

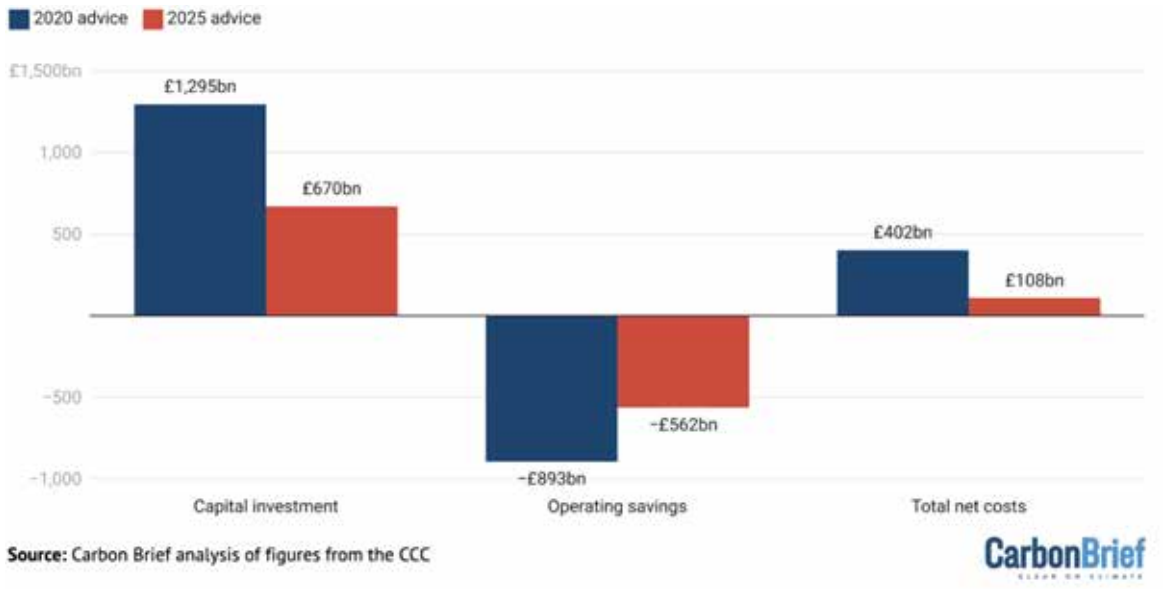
Costs of Net Zero and the Electric Economy

In March 2025, Kemi Badenoch abandoned the Conservative's support for net zero, claiming that the target was unaffordable. Yet the increasing reality is that net zero and the energy transition towards electrification is becoming not only cheaper, the costs of 'not zero' will now potentially be greater.

The overall costs of net zero by 2050 have been dramatically revised since the government originally indicated that the cost of the energy transition would be around £2 to 3 trillion across 30 years. In 2021, the Office for Budget Responsibility concluded that achieving the UK's net zero carbon emissions target would require an investment cost of around £1.4tn spread over 30 years.[50] Yet after taking into account savings, such as improvements to the energy efficiency of buildings and vehicles, the OBR estimated the total net cost of decarbonising the UK economy would be £344bn. This estimate assumes that only around a quarter of this funding would need to come from the government, with the rest coming from private sector investment.

Last year, when presenting their seventh carbon budget advice to Parliament, the CCC further estimated the transition would have a net cost of around £108bn out to 2050, which is £4bn per year, or less than 0.2% of GDP. This is 73% lower than

FIGURE 4.1
The net cost of reaching UK net zero is 73% lower than CCC thought five years ago
Total capital and operating expenditures 2025-2050. £bn



previously thought under its sixth carbon budget advice, published in 2020. At the same time, the transition to net-zero would cut average household energy bills to £716 below today's levels by 2050 and cut household motoring costs by a similar amount (£699).[51]

Significantly, the new advice halves the CCC's previous estimate published in 2020 of the capital investments needed to hit net-zero, from £1.3tn over 2025-2050 to £0.7tn. The £1.3trillion figure had in the past been weaponised by opponents, who have continued to attempt to inflate the overall costs for media attention, with inaccurate calculations. In 2023 a Civitas report claiming that the cost of net zero would be £4.5 trillion had to be withdrawn after the author confused MWs with MW hours, and therefore managed to falsely claim that the cost for onshore wind would be "£1.3m per MWh" when the true number is more than 10,000 times lower at about £50 to £70 per MWh.[52] The use of inaccurate statistical analysis has continued to be published in the press, most recently in January 2026, in which the Daily Mail and Daily Telegraph both featured an IEA report that claimed the costs of net zero could reach £9 trillion— a figure that has been debunked by the Grantham Research Institute at the LSE, since this added up the total cost of providing energy to 2050 and assumed that the alternative would be no further energy costs needed.[53] The reality is that a scenario that meets the "net-zero by 2050" goal would be the "cheapest" option for the UK, according to modelling by the National Energy System Operator (NESO), who states that its "holistic transition" scenario would have the lowest cost over the next 25 years, saving £36bn a year – some 1% of GDP – compared to an alternative scenario that slows climate action.

Economic Costs: Green Jobs, Job Losses

There has been significant criticism that one indirect cost of net zero and the energy transition is job losses: at Port Talbot, and at Grangemouth, the closure of blast furnaces and oil refineries generates significant headlines that link the closure of manufacturing and industrial facilities to net zero. Kemi Badenoch has claimed that job losses in Scotland related to oil and gas are directly linked to a 'reckless and ideological net zero agenda'.[54] However, the reality of the North Sea's decline is geological, not political, and has been a reality for over a decade: jobs supported by the oil and gas industry have more than halved - from 441,000 jobs in 2013 to just 214,000 in 2023, despite hundreds of new licences being issued and new fields being consented in that time.

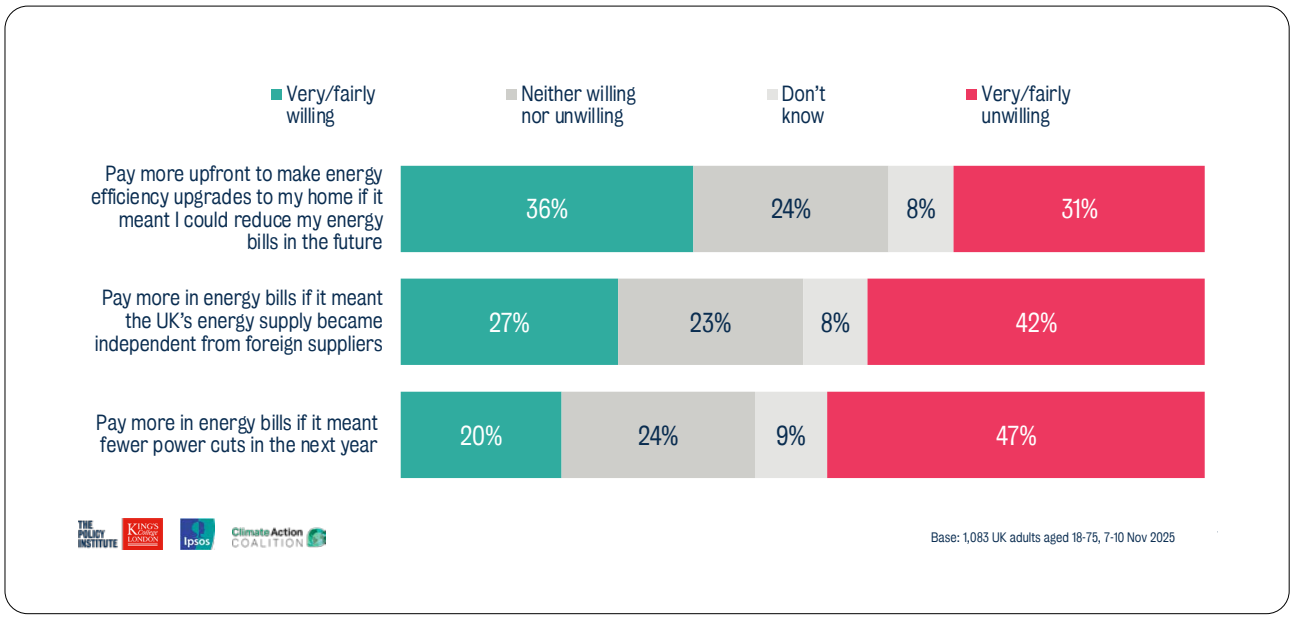
When the Scunthorpe Steel works closure was averted through a government nationalisation in April 2025, the Daily Telegraph was quick to blame the crisis on "sky-high energy costs imposed by successive governments in the name of net-zero".[55] The costs of gas prices were not mentioned once, nor the fact that the UK steel industry is completely exempt from "environmental levies" and – under the government's "supercharger" scheme pays reduced network costs.

In contrast, the Office for National Statistics have cacluated that in 2023, there were an estimated 690,900 full-time equivalent (FTE) employees in green jobs in the UK. This represents a 34.6% increase (or 177,600 additional FTEs) compared with 2015 (the first available figures), when there were an estimated 513,300 FTEs in green jobs.[56]

These figures are only set to increase. For the wind industry, the fixed-bottom wind industry is expected to grow at a rate of 6% per year in real terms, while floating offshore wind is expected to increase five-fold over the next 15 years, with an estimated total UK spend in 2040 of over £13 billion.[57] For solar, DESNZ calculate that the growing solar industry will have 35,000 jobs by 2030, up from 7,000 in 2020.[58] Solar UK estimate that this will further grow to 60,000 jobs by 2035.[59] For heat pumps and other building installations needed, the Heat Pump Association have estimated that the number of heat pump installers will need to increase to around 70,000 FTE individuals by 2035 to keep up with future demand[60]: already last year, however, 8,000 new installers were trained, well above the required 6,600 to keep on track with growth.[61]

In October, energy secretary Ed Miliband announced the Clean Energy Jobs Plan, aiming to make the UK "the winner in the global clean energy jobs race". The plan introduced a range of measures on employment, regional powers and workers' rights, along with £1.2 billion per year to support skills development. For the Energy Security and Net Zero Committee, The UK could gain between 135,000 and 725,000 jobs from the energy transition by 2030 with the right policy, planning and skills programmes, yet the committee noted that many of the skills of the existing energy, engineering and construction workforces are highly transferable, and called on the government to expand Skills Passports and associated funding to enable skills transfers between sectors. It also called for

FIGURE 4.2
A third of Britons are willing to pay a great amount upfront on energy efficiency upgrades if they would save costs long-term, but people are much less willing to pay higher bills to prevent power cuts or to increase the UK's energy independence
How willing or unwilling you would be to do the following:



"tangible workforce transition and support targets" and measures to "leverage UK manufacturing content requirements where possible".[62] There is, however, a significant challenge to not only reskill an existing workforce, but to prepare adequately for the fact that, as the government have admitted, 'across many clean energy sectors such as engineering construction where 38% of the workforce is aged over 50, and heat pumps with two-thirds of the installer base aged over 45. Many individuals with the required clean energy skills have either left the workforce or will retire soon, requiring rapid upskilling to limit shortages from the attrition of a retiring workforce'.[63]

Costs in the Home

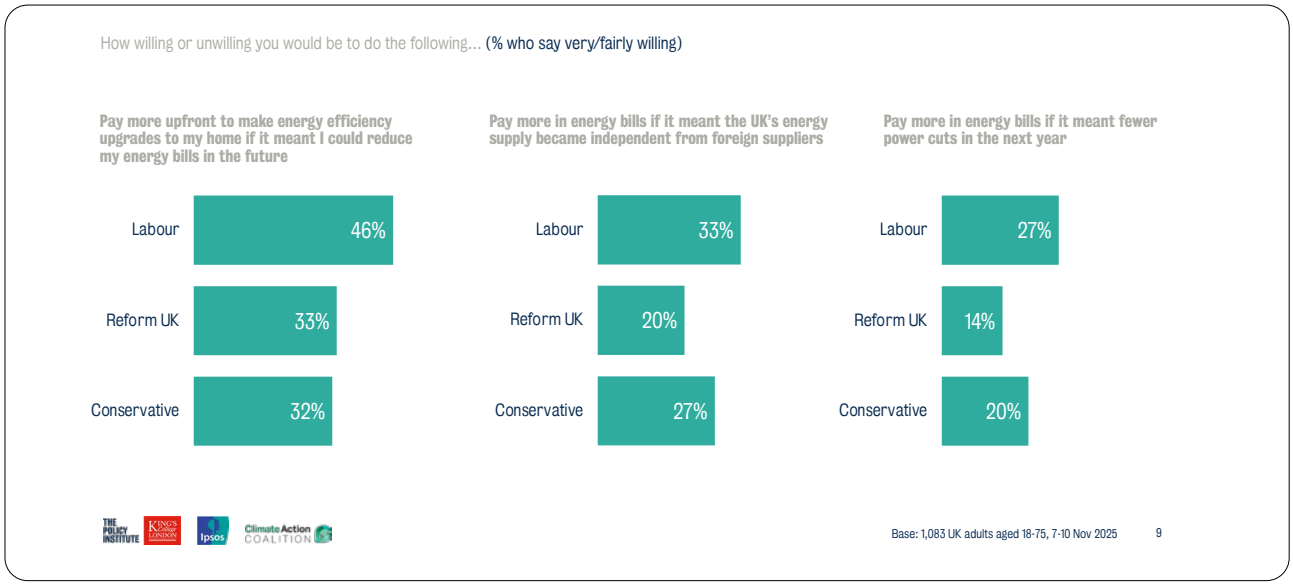
The costs of electrifying heat in the home through heat pumps, or making other adaptations towards low carbon technology continues to face the barrier of cost. For many, it is cheaper to maintain the status quo, than pay an upfront expense, even if this is in reality an investment that will save money over time. This is also reflective of whether people were willing to pay more on their energy bills to deliver outcomes. The polling survey commissioned for this report reveals that 36% of respondents were either very or fairly willing to pay more upfront to make energy effiency upgrades if it was to reduce their bills in future, but 31% were not.

Fewer people were interested in paying more in energy bills if it meant their energy supply was independent from foreign suppliers, while 47% were unwilling to pay more if it meant fewer power cuts (See figure 4.2).

When broken down by voting intention, there is a clear reluctance from Reform or Conservative voters to also pay more if it might lead to an investment (See figure 4.3).

There was a strong interest, however, amongst the public to consider energy improvements, particularly through electrification, in their home. The polling survey conducted for this report revealed that most people would be interested in improving the flexibility of their tariffs- an additional 43% on top of the 25% who already were operating their home energy with smart meters and flexible tariffs, with only 25% seemingly disinterested in this proposal. Next, more insulation was a priority for 51%, and 48% were interested in adding solar panels. Fewer were interested in either installing a heat pump, though still a third of people were interested if price were not a concern, though 49% of respondents were not interested. Only 29% would be interested in having an electric vehicle charging point at home, with 55% disinterested, though this may reflect the fact that not every respondent would have been a driver.

FIGURE 4.3
Climate Action Coalition Ipsos Mori poll on willingness to pay for home upgrades and increased energy bills broken down by political party



However, costs remain at the heart of the debate. The National Home Energy Survey 2024 found that energy bill savings would be the primary reason for people switching to renewable energy and low carbon technologies in the home (see figure 4.5).

This was also reflected in the survey conducted for this report which highlighted that the upfront costs of change are the greatest barrier to improving energy measures in the home, according to the survey conducted for this report, with 44% stating that the

FIGURE 4.4
If price was not a concern for the public, more insulation and solar panels would be the most popular changes to make homes more environmentally friendly - though smart meters have been most widely adopted already

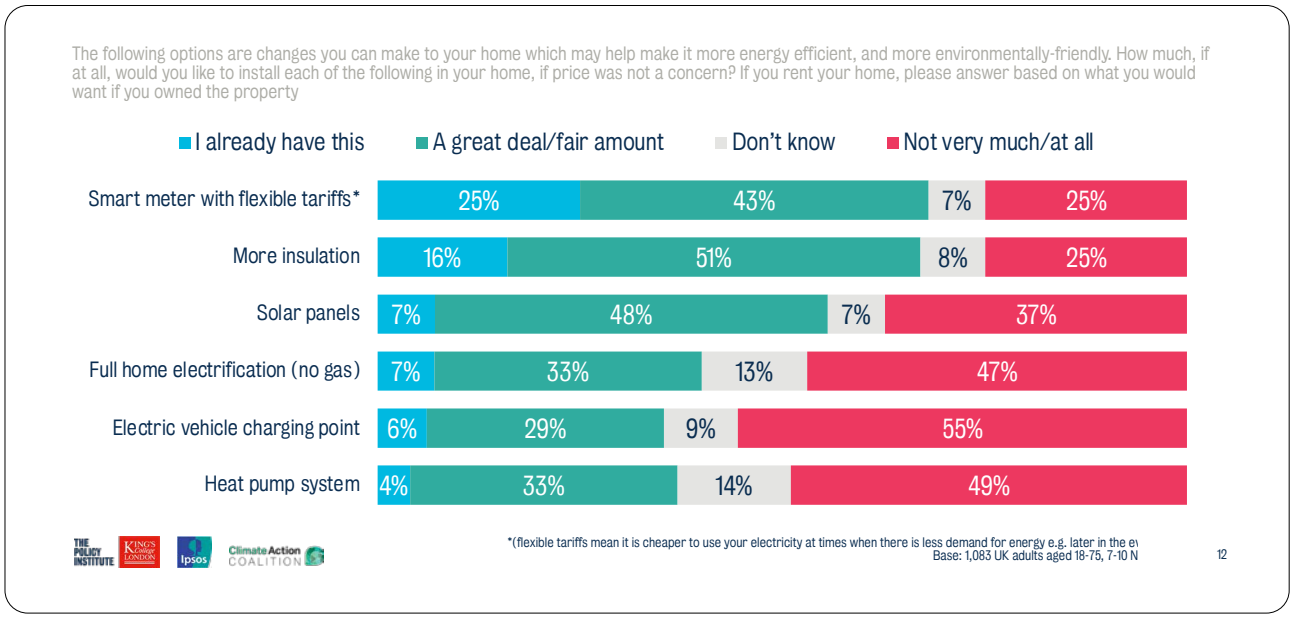
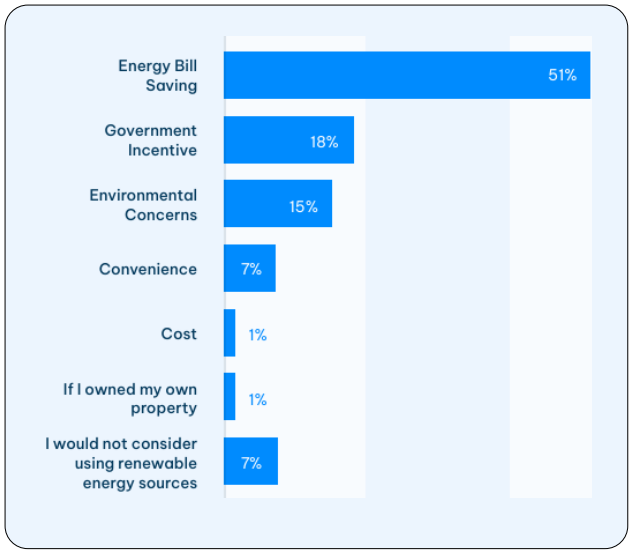


FIGURE 4.5
Which factor would primarily influence your decision to utilise renewable energy sources?

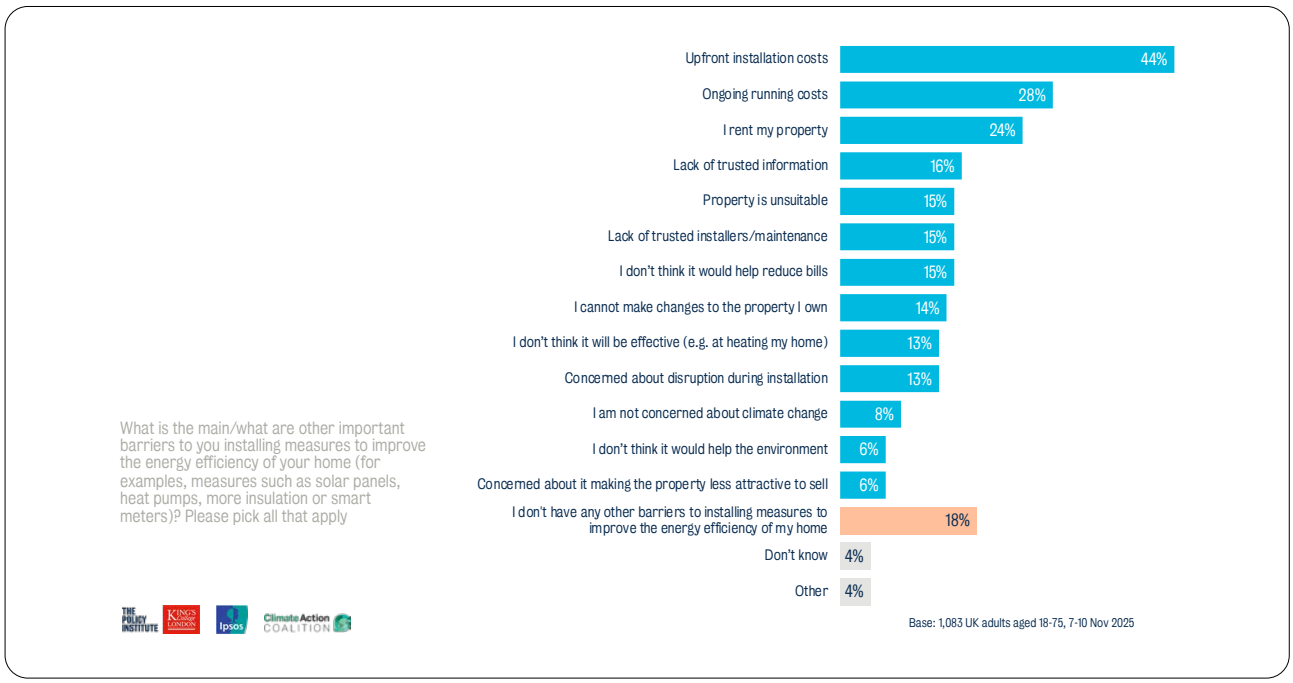


upfront costs of installing solar panels, a heat pump or other measures prevented them from doing so- 28% responded that the ongoing running costs of a heat pump would also prevent them from installing one, a clear indication of the challenge that high electricity prices compared to gas continues to present. A lack of trust in the information available, and the number of trusted suppliers was also a significant contributing factor.

The Heat Pump Challenge

Across the world, heat pumps are becoming the dominant technology for heating, and indeed cooling. The name 'heat pump' is somewhat misleading, as the technology has the potential to both warm and cool homes, providing an additional benefit in hot temperatures. Heat pumps work like an air conditioning unit (or a fridge) in reverse, to concentrate heat energy from the outside air – or a water or ground source – into building interiors. The most common are "air-to-air" units, meaning they take heat from the outside air to blow warm air inside, whereas air-to-water units make hot water. Heat pumps are already standard in Norway, Sweden and Finland: countries with often much lower temperatures than the UK.[64] Cumulatively, the heat pumps sold over the past 30 years contributed to a -72%[65] drop in carbon dioxide (CO2) emissions from heating in Finland, -83%[66] in Norway and -95%[67] in Sweden. And for the first time in 2022, heat pumps outsold gas boilers in the US – and they continued to do so in 2023, with over 4 million units now installed.[68]

FIGURE 4.6
Upfront insulation costs stand out as the key barrier to people improving the energy efficiency of their homes, followed by the costs of keeping any new systems running



Yet in the UK, while uptake of heat pumps is increasing, the total number of installations lags far behind. Partly this is an issue once again of the costs of electricity, combined with the costs of installation. Heat pumps, even with the government grant, have a premium of £1300, though smart tariffs can reduce heat pump running costs by £515 compared to gas.[69] A key reason why upfront costs are higher for heat pumps than boilers is that while most new boilers are like-for-like replacements, fitting a first heat pump often involves some other upgrades, for example to radiators and water cylinders. Future replacements are likely to be simpler – and cheaper.

The UK's record at installing heat pumps compared to gas boilers has remained woeful compared to our European neighbours. Partly as a result, the UK's heating systems continue to be powered by gas— 80% compared to 50% in Continental Europe. Heating our homes and buildings contributes over 38% to the UK's total gas use. Targets set by previous governments to install 600,000 heat pumps by 2028 have been quietly shelved. Yet the reality is that to meet the UK's carbon budgets in the future, the electrification of heat must be a priority. Presenting its seventh carbon budget to Parliament in February 2025, the Committee on Climate Change stated that to meet their balanced pathway towards net zero requires about 50% of UK homes to be heated by a heat pump by 2040. This would require a large increase in the rate of installations per year in existing residential properties from 60,000 in 2023 to 450,000 by 2030 and 1.5 million by 2035. Yet the committee said this would be "a rate of increase in line with that seen in other European countries such as Ireland and the Netherlands".[70]

For those who have installed heat pumps, there is significant positive satisfaction: Owners report 94% satisfaction versus 85% for gas boilers; 85% say that they are cheaper to run, while 89% say easier to maintain.[71] Yet heat pumps have also been a significant object of misinformation. A survey in 2023 found that 25% of respondents believed that heat pumps were less efficient than gas boilers- when in reality they are three or four times more effective. At the same time, 24% believed that running a heat pump would cost more than a gas boiler, and 23% thought that the noise of a heat pump would be louder than a fridge. In fact, The maximum noise output of a heat pump is 42 – 45dB, about the same as a fridge and slightly quieter than a gas boiler, which can range from 48dB – 53dB.[72] 20% thought that heat pumps would only work in new homes, 15% believed that they required extensive underfloor heating, and one in six also believed that they would not work in cold temperatures. These myths have continued to be propagated by the British press, alongside boiler manufacturers: for instance, the Daily Telegraph ran a headline in 2023, stating how 'Heat pumps won't work in old homes, warns Bosch'

Residential Solar

There is greater opportunity for immediate savings with solar panels on roofs, especially if combined with batteries. A report by Solar Energy UK in 2023 estimated that properties with battery storage see an average 25% improvement in energy efficiency[73], translating to substantial annual savings. Hybrid systems also have advantages for landlords in the private rented sector. For instance, a landlord in Dorset installed a solar and wind hybrid system for his five-bedroom rental in Bournemouth. By integrating at Tesla[74] solar system and Powerwall, he reduced energy bills by 60% and was able to increase monthly rent by £150. Within three years, the system paid for itself — with surplus energy even being sold back to the grid.[75]

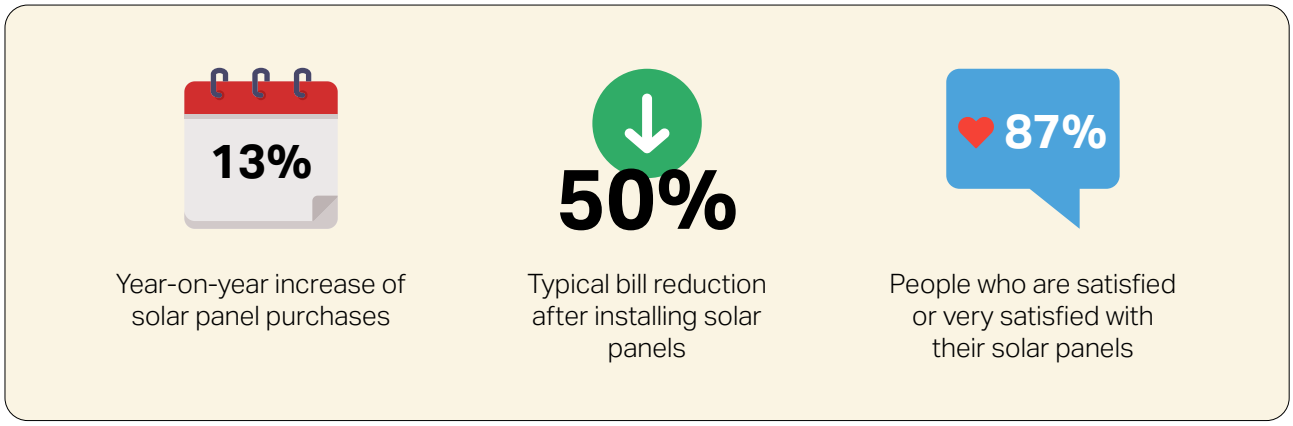
Solar panels are increasingly being installed across homes in the UK, with residents benefitting financially from their decision: 1.8 million homes now have solar, and if projected growth continues, the UK will be on track for 9 million by 2030, while 53% of the public state that they would be likely to purchase. With typical system costs of around £7,700 (+ ~£3,250 battery), resulting savings can be up to £1092/year on smart tariffs. Following installation, according to the National Home Energy Survey, 87% of solar households would recommend others take the same course of action (See figure 4.7).

Electric Vehicles

EVs are now almost at price parity with petrol cars, ending the claim that they were only for those who could afford the luxury. For example, the electric Renault 5 is now only £1,400 more expensive to purchase than the petrol VW Polo – an extra cost that is paid off in little more than a year through the 5's significantly cheaper fuelling costs. VW's electric ID.4 is actually £550 cheaper than a petrol VW Tiguan, meaning that ID.4 owners can start enjoying savings the moment they buy the vehicle.

For UK EV drivers, cost savings of around £1500 a year compared to petrol cars are being realised- compared to £970 in Germany- since British EV drivers are able to use smart meters to charge

FIGURE 4.7
National Home Energy Survey, 2025



their EVs using cheap, surplus power at night when electricity demand is lower. These 'flexible' tariffs allow EVs to be charged for as little as 7p/kWh, meaning they can be run for less than 2p per mile, compared to around 15p per mile for a petrol or diesel car.[76] It is perhaps unsurprising that Electrify Britain found that EV owners are more satisfied with their cars- 6.1/10- than compared to 4.5/10 for petrol/diesel, while only 3% would switch back.[77]

In 2025, one in four new car sales in the UK were electric. Almost half a million (473,348) new BEVs were registered during 2025 – more than in the whole of 2021 and 2022 combined. This is likely to place the UK as the second biggest EV market in Europe by volume, with the BEV market share reaching 23.4%[78] According to new data published by New AutoMotive, BEVs accounted for 32.7% of new car registrations in the UK in December, in line with the UK's interim target of 33% EV sales in 2026. This means that as long as EVs continue to become more popular over the course of 2026, the UK should be able to exceed its interim target.[79]

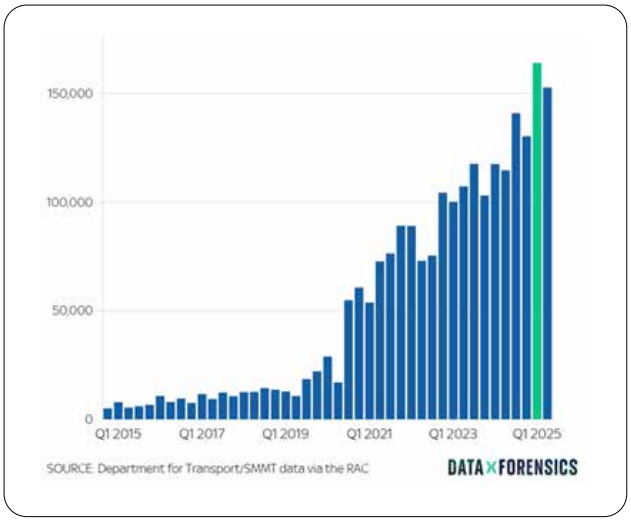
Yet EVs have also come under sustained attack, with claims that they are not environmentally friendly, produce too many emissions or move emissions from the road to the power station. All of these claims have been effectively debunked, with FairCharge even producing a Little Book of EV Myths.[80]

It is the false claims that EVs are too expensive, too costly to maintain, have a short range, cause fires or need their batteries replacing, that are designed to raise fears and alarm that a shift to driving electric is too much of a risk. Again, the reality is that the opposite is the case: on every measure, it is traditional petrol and diesel cars that are costly to maintain, catch fire more often, and even have a shorter range or lifespan. As FairCharge have noted:

With around 20 moving parts in an EV drivetrain compared to more than 200 in a combustion car there are less parts to wear out. No spark plugs, oil, timing belts/chains, exhausts or clutches means that the total cost of ownership of an EV is significantly less than an ICE car. Tusker Direct, a UK leasing company with 16,000 EVs, estimates that their EV maintenance costs are 30% less than petrol and 60% less than diesel. Data from a survey by BookMyGarage.com in Feb 2023 showed that 'overall average maintenance bills (including MoT tests, servicing and repairs) cost 43% less for EVs compared to other fuel types."[81]

Headlines that have claimed that EVs do not work properly in the cold, or lose range, lean on the fact that EVs are 20% less efficient in temperatures at zero or below- but ignore the fact that so too are ICE cars: according to tests done by the US Department of Energy, in low temperatures the average gasoline car also loses 15% fuel efficiency and on shorter trips before the engine has warmed up, the average increase in fuel consumption was 20%. Meanwhile, the claims that EVs are more likely to catch fire— assumptions spread by the media when images of vehicles on fire such as at Luton Airport (which turned out to be a diesel car)— are statistically false: The fire service estimate there are around 100,000 vehicle fires every year in the UK and records for 2022 to 2023 show only 239 EV fires – or 0.24%. The Swedish Contingencies Agency reported that 'Petrol and diesel

FIGURE 4.8
Number of newly licensed battery electric and plug-in hybrid vehicles added each quarter, Q4 2014 to Q2 2025



cars are 20 times more likely to catch fire than EVs'. In 2022 611,000 vehicle fires were recorded in Sweden of which 23 were EV fires – or 0.004%.[82]

The latest PWC EReadiness survey found that the main barriers to EV adoption remain linked to 'performance anxiety' and cost, with the top four factors that have discouraged people are recharge time, limited range, uncertainty about battery life, and higher upfront cost. All of these issues are no longer challenges, with both range and battery life now on parity with ICEs. On price, the average price premium of a new EV fell from 37% in 2023 to 24% in 2024 and trends appear on track to reach price parity between 2026 and 2028, while public charge point installations increased by nearly 40% last year. EV scepticism does not hold across people who actually own EVs, with 95% of EV drivers stating that they would recommend them to their friends and family.[83] Even Richard Tice drives an EV, telling Sky News: "I love technology. I drive a Tesla, not because I think it will save the world - it won't. But it's a great piece of kit, okay?"

In spite of both misinformation and perceived barriers to EV deployment, the adoption of EVs in the UK remains on track. There are 1.5 million electric cars on UK roads, with this number having roughly doubled in the past two years. Even in five Reform UK constituencies, the uptake of EVs has increased between 63% to 40% since 2023.[84] Nationally, the PWC EReadiness Survey published in September 2025 revealed that 70% of UK respondents planning on buying an electric car within five years (up from 65% last year), while those not planning to own an EV (EV sceptics) has fallen from 26% last year to 18%.[85] Yet there remains a significant challenge to change perceptions; according to the latest No Driver Left Behind 2026 Report from Autotrader, households earning below £40,000 remain "significantly less likely" to consider an EV than higher-income households. Almost half (48%) of households earning under £40,000 would consider an EV for their next car, compared with 73% of all households above £40,000, which rises to 84% for households earning above £80,000.[86]

By 2040, the share of electric cars on the road needs to jump from 2.8% in 2023 to 80% in order to meet net zero, according to CCC recommendations. Already the emissions savings from petrol or diesel vehicles being replaced by EVs are having a measurable and rapidly growing effect on overall emissions savings. Approximately half the emissions savings from EVs in 2024 were due to new vehicles registered in the previous two years. If the compound annual average growth rate seen since 2022 continues, the emissions savings from EVs will increase significantly by 2030.

Better communication and clarity of policy direction remain critical if the EV adoption is to continue. For instance, the end of new petrol or diesel car sales has been taken to mean that there will be a general ban on petrol cars. In October 2023 Auto Trader ran a survey that showed that 7 out of 10 thought the 2030 sales ban wasn't only new cars but included used ones too.[87]

The Costs of Energy Infrastructure: Securing Consent

Reform UK have 'declared war' on solar farms, with pylons and other transmission projects coming under attack: most commonly, the lines of political attack pitch solar farms against the use of agricultural land for food.[88] Yet research by More In Common in May 2024 found that rural communities say they support the introduction of nature reserves, solar farms, reservoirs, schools, and onshore wind farms in their areas. In contrast, there is strong opposition to the construction of power lines, nuclear or gas power stations, and fracking sites.[89]

Nevertheless, the percentage of respondents to DESNZ's Public Attitudes tracker who would be happy or fairly happy to have a solar farm built nearby has declined from 54% to 43% while unhappiness at the prospect has risen from 7% to 14%.

FIGURE 4.9
For each of the following, would you suppose or oppose them being built in your local area?

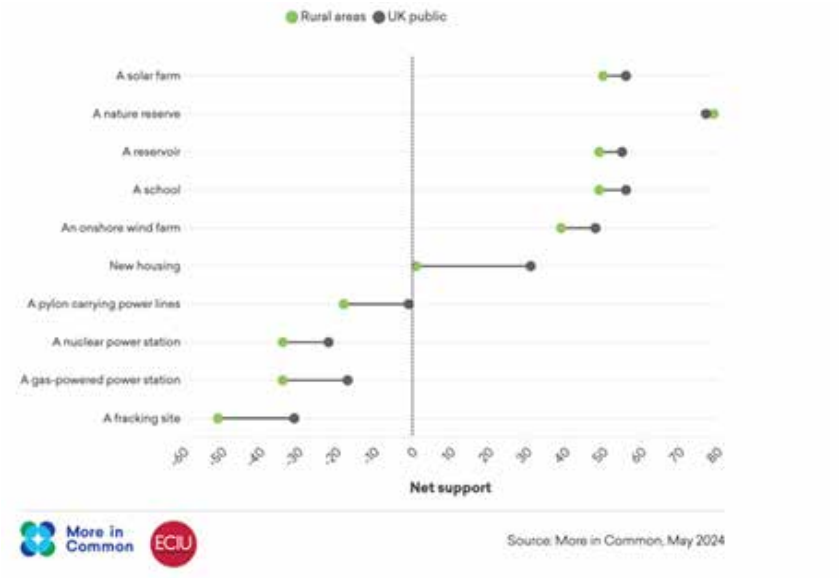
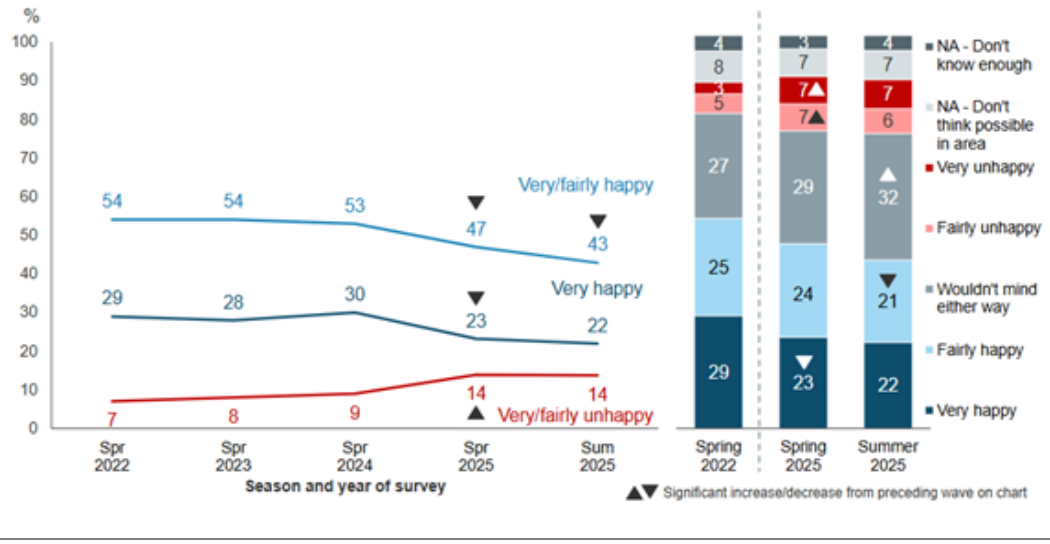
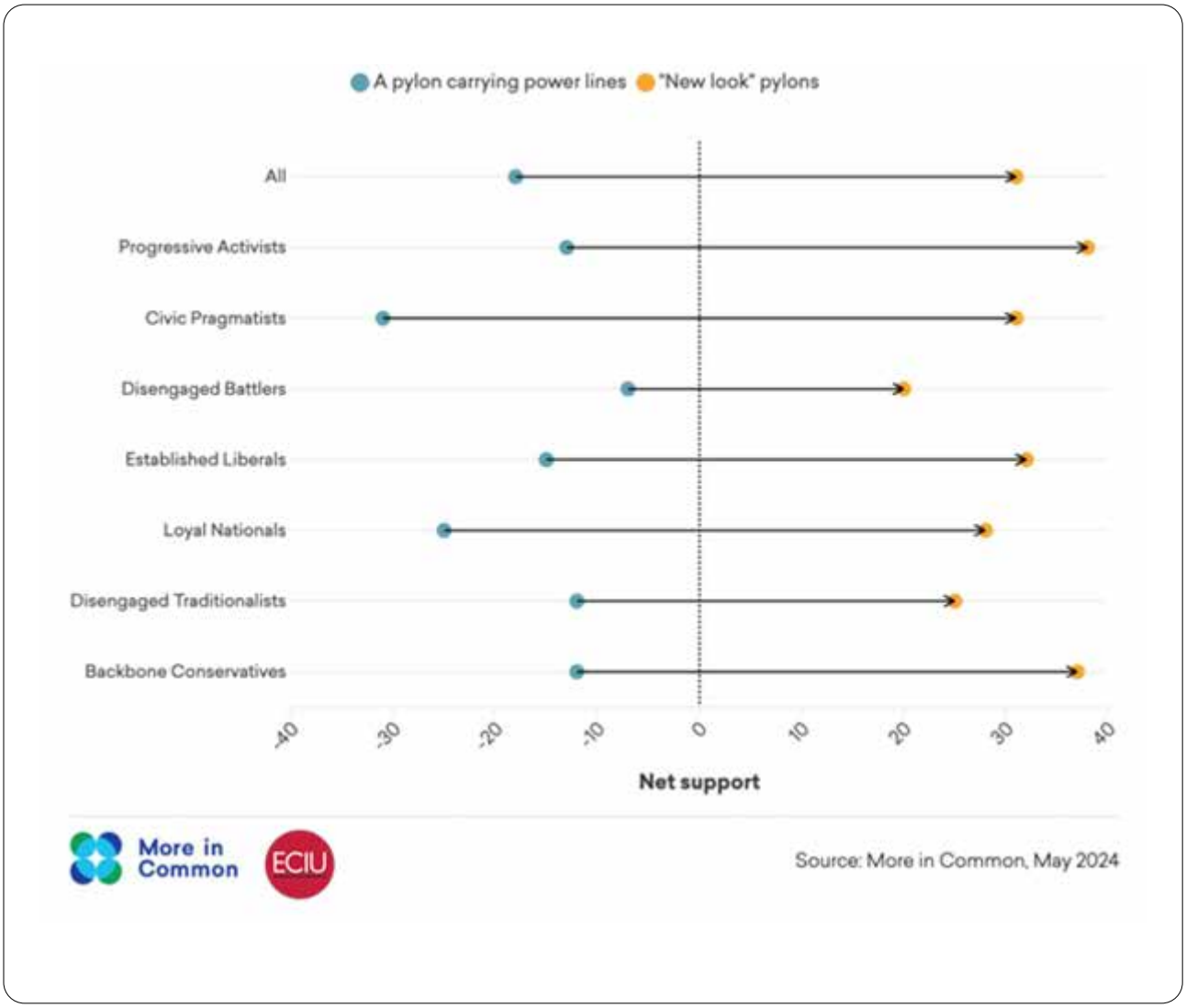


FIGURE 4.10
Whether would be happy for a solar panel farm to be constructed in their local area (% based on all people), Spring 2022, Spring 2023, Spring 2024, Spring 2025, Summer 2025



A survey in 2025 by KPMG UK and YouGov found that while opposition to the transition to renewable sources of energy remains low, at just 12%, and nearly three quarters (72%) of respondents also recognise that existing energy infrastructure in the UK is not sufficient to meet future demand, the number of people who would object to having wind farms, solar farms or electricity pylons built near their homes remains high. A fifth of adults (20%) would oppose having a solar farm built within 500 meters of their home, decreasing to 10% if it were five miles away. Three in 10 (30%) would object to windfarms

FIGURE 4.11
For each of the following, would you support or oppose them being built in your local area



within 500 metres, decreasing to 13% if it were five miles away. Almost half of those surveyed (46%) would object to electricity pylons within 500 meters, reducing to 14% if five miles away. Three quarters (74%) of all respondents agreed that it would be fair to offer discounted bills to those living near new energy infrastructure, yet the research indicates that such offers are likely to be ineffective when proposed to those directly impacted. Of those respondents who say they would object to new energy infrastructure within 500 metres of their homes, the overwhelming majority of them would still object if offered up to £250 off their bills for the next 10 years.[90]

This, of course, highlights the nature of opposition, without reflecting on the wider support across the public for more renewable energy that is local. A recent YouGov survey also found 9 in 10 (87%) people would support a wind turbine in their community if it meant cheaper energy.[91]

And interestingly, opposition to pylons being built decreased significantly, according to a separate survey, when presented with an image of National Grid's new look pylons, rather than old fashioned pylon design (See figure 4.11)

One potential solution to bridging opposition to future infrastructure may lie in the opportunity to demonstrate how projects are linked to the community, especially if a community is able to share in the benefits of the generation. Projects that directly

benefit local communities often enjoy greater public support which makes obtaining planning permission faster. This public support was demonstrated by a 2011 study in Germany where 45% of residents in a town with community-owned wind turbines supported further development, compared to just 16% in areas with externally owned turbines.[92] Octopus' world-first 'Fan Club' tariff[93] provides cheaper power to communities close to its wind turbines when the wind is blowing. Since launching it in 2021, over 15,000 people across the country have got in touch with Octopus asking for a turbine in their community.

Regen have suggested mandating community benefits for all new energy infrastructure projects, though recognising that there cannot be a one size fits all mocel. As Regen have stated:

Community benefit schemes work best when they reflect local needs, priorities and capacities. For that reason, a mandate must be flexible in its design and delivery. Specifically, it must:

- Ensure the contribution level varies by technology, recognising differences in financial models – this process needs to work for developers as well as communities
- Allow flexibility in how benefits are delivered, so that communities can shape projects in a way that works for them
- Set a clear national threshold for mandating – we agree with the 5 MW suggestion for applicability, while exempting smaller, often community-led initiatives
- Avoid prescription on how funds are used, but provide practical guidance and examples.[94]

Regen have further published a best practice guide to how to deliver community benefit and engagement.[95]

More widely, the role of community energy remains a potent one for the UK's energy transition, that should be taken more seriously as a means for building public trust and support to deliver both clean power and also more energy infrastructure.

Community Energy has a vitally important role to play in the UK meeting its renewable commitments. At present, the UK community energy sector's generating capacity is estimated to be 398MW. The policy ambition of the Local Power Plan refers to 'a million owners' of community energy projects and 8 Giga Watts of generating capacity – enough to power up to 4.35 million homes. This therefore requires about a twenty-fold increase in a 5-year period. In order to meet the target of 8 GW of community- and locally-owned energy by 2030 and the Scottish Government and Welsh Government targets of 2 GW and 1.5 GW respectively, there must be a step-change in support and policy changes to substantially grow the pipeline of community energy projects. To achieve the government's ambitious targets for 2030 the sector needs to double in size every year as it did between 2014 and 2017, yet last year the number of organisations working on community energy projects fell by 7%.[96]

CHAPTER FIVE:

Finding Common Ground and Communicating Change

The future of energy is rapidly changing. Possibilities to deliver smart and flexible grids and energy solutions are empowering customers and local communities, through the provision of time of use tariffs and the opportunity to self-generate electricity through solar and batteries, fuelled by the ability of AI to navigate a reduction in bill prices, combined with its ease of use. This chapter explores how the future of energy should be driven by these central tenets, and that the future of energy will succeed if it is both local and empowered by innovation. In turn, this will allow greater consensus to emerge surrounding the opportunity narrative that the energy transition can provide.

Rather than communicating the transition's value through tonnes of carbon saved, there is a need for cost and price to be at the heart of the net zero debate— demonstrating how savings will be made. Yet the importance of demonstrating how these savings will occur not merely for individuals or households, but for communities also, can help bring together voters of different political beliefs. This can take place both through highlighting how 'the future of energy is local', but also how innovation, and the rise of new technologies such as AI and its application can help to empower a new energy landscape, that enables future flexibility, reduces energy demand and helps to shape and strengthen the role of consumers and their influence and impact.

Taking a local approach, demonstrating how communities can benefit financially also has extremely strong public support. In an E.On and YouGov survey from October 2024, there was overwhelming public support for energy projects that benefitted and powered local community infrastructure. When asked "Would [it] be a good idea to install solar panels on public buildings such as schools, hospitals, churches, and libraries to help power local communities?" 93% either strongly or somewhat agreed, and only 2% saying no. And when asked whether people thought that "Generating and selling electricity from rooftop solar is a good way for public services like schools and hospitals to raise additional funds." 85% of people agreed compared to only 4% who didn't. 77% of people said they would "feel more proud of and connected to [their] community knowing that local services like schools, hospitals, churches, and libraries were powering local homes through rooftop solar."[97] In a separate YouGov survey, 57% of people asked also said they would be more likely to shop at a supermarket that provides green electricity to the community through rooftop solar.

At the same time as a national strategy to reduce energy bills, the government or the wider energy community should also focus its communication on highlighting key energy projects across the country, ideally in each of the 650 parliamentary constituencies. A campaign, potentially named 'Project 650' would be able to map out where renewable energy projects, together with decarbonisation projects are not only making carbon savings, but significantly both making cost savings on bills for the organisations or institutions that have wide support across each constituency. For example this might be a school, hospital, GP centre or other building offering key public services, or a place or worship, a community hall, a sports venue, a cherished local industry or business, or even a pub, that has strong emotional attachment acoss a wider area. This in turn can help build public support fo the rationale behind renewable energy and energy efficiency measures that deliver both greater energy independence and cost savings. A campaign such as 'Project 650' would enhance the ability to communicate how the energy transition and electrification is working alongside local communities, empowering them to become masters of their own energy destiny, rather than feeling that the energy

FIGURE 5.1
Ambition Community Energy is a not-for-profit society that develops renewable energy projects with the support of local people, for the benefit of local people

transition is being imposed upon them. Examples of these potential 'points of contact' are given below:

Community Energy Projects

As of the end of 2023[98], the UK's energy generation capacity from community renewable energy generation projects was 398MW. These projects were supported in 2023 by almost 800 employees and more than 3,700 volunteers. Community Energy England estimates[99] that a further 270MW of capacity is in the pipeline, but has been stalled due to barriers like high grid connection costs, long grid connection waiting times and a lack of funding.

In the lead-up to last summer's general election, Ed Miliband said that GB Energy would oversee the "biggest expansion of community energy in our history", targeting up to 8GW of community energy deployment by 2030. Key examples of successful community energy in action include:

Wiltshire Wildlife Community Energy is a not-for-profit society that develops renewable energy projects with the support of local people, for the benefit of local people. Excess income from sustainable solar energy schemes is returned into a community fund and distributed as grants to worthwhile initiatives. Since its inception, WWCE has donated over £210,000 to its Community Fund, meanwhile its solar installations generate nearly 6,000MWh of clean energy every year, enough to power as many as 2,200 homes.[100]

In 2018, Ambition Lawrence Weston created **Ambition Community Energy (ACE)**, an asset-locked Community Interest Company and subsidiary, to develop a community-owned wind turbine. And in June 2023, their 100% community-led and owned wind turbine – the biggest onshore wind turbine in England – begin turning. It now generates enough clean electricity to power every home on the estate, and is projected to power 3,000 homes and save around over 120,000 tonnes of CO2e over its lifetime. Ambition Community Energy estimates that the turbine could generate around £100,000 a year, which would be invested back into the local community.[101]

Ray Valley Solar Park – Community-Owned Utility-Scale Clean Power: Community energy in the UK has historically focused on small rooftop solar projects on schools, community centres and housing associations. Ray Valley Solar Park was developed by Low Carbon Hub, a community energy social enterprise, and connected to the grid in 2022. Generating approximately 19.5 GWh of electricity per year, it is the largest community-owned ground-mounted solar park in the UK. The project was financed through a blend of community shares, ethical investment and long-term power purchase arrangements, allowing local people to directly own a stake in a utility-scale renewable asset. Ray Valley generates enough clean electricity to power over 6,000 homes annually, displacing fossil-fuel generation and cutting emissions, while at the same time it keeps £2.6 million worth of energy spend in the local economy each year. Over its lifetime, the project is expected to generate around £13 million for community benefit, funding fuel-poverty programmes, energy efficiency upgrades and further clean power initiatives.[102]

Community Halls

A survey of village halls across England showed that as of 2024, about 13% of halls had installed solar panels, with a further 8% planning to do so — indicating growing adoption of renewable generation among community buildings.[103]

St Barnabas Community Centre in Chesterfield installed a 36-panel solar PV system with battery storage. The projected annual reduction in electricity bills is around £4,050, and over a 25-year life cycle the centre could save approximately £210,833 through lower energy costs alone.

Wrenthorpe Village Hall in Wakefield benefits from solar PV panels that are estimated to save about £1,400 a year on its electricity bills. Over a 25-

FIGURE 5.2
Marston's has partnered with renewable energy solutions provider Two Blues Solar and installer Nuvolt to deploy solar across 120 of the Group's community-based pubs over the next 12 months

year lifespan, this equates to an estimated £73,711 in savings after accounting for expected production and system performance.

Brockworth Community Centre in Gloucestershire had an upfront cost of about £39,901 for a 28 kWp system. Based on estimated production and consumption patterns, the system's payback period is projected to be just over five years. After this period, energy savings translate into net financial benefit for the community — typically over the next 20 years.[104]

At **Glemsford Village Hall**, a 69-panel array with battery storage has been installed and already noticeable savings are being reported. In just the early operational phase, solar generation is estimated to be reducing the monthly electricity bill by approximately £200 on sunny days — roughly £2,400 annually — with further savings expected during peak summer months. The parish council anticipates that significant energy independence could even allow the hall to sell excess electricity back to the grid at times. This reduction in energy expenditure allows the hall to redirect funds toward building improvements, such as resurfacing the car park and refurbishing interior spaces.[105]

In **East Cambridgeshire**, a coordinated solar PV project spanning 9 village halls and community facilities is expected to generate nearly 100,000 kWh of clean electricity per year, helping these buildings avoid purchasing that electricity from the grid. Collectively this is forecast to deliver about £20,000 in annual savings on electricity bills alone.[106]

Pubs

Marston's has partnered with renewable energy solutions provider Two Blues Solar and installer Nuvolt to deploy solar across 120 of the Group's community-based pubs over the next 12 months. Each installation is expected to generate approximately 30,000 kWh of electricity annually, meeting c.15-20% of each pub's energy demand. The rollout will reduce Marston's carbon emissions by a significant 600 tonnes in the first year, equivalent to removing 430 cars from the road.[107] The rollout is expected to be completed by spring 2026, with each installation taking two to three weeks and causing no disruption to regular business operations.

Other projects now generating renewable energy that is being used onsite include **Ye Old Fleece in Kendal**, which is generating 25kw electricity to offset costs.[108] **The Spring Hill in Wolverhampton** will save over £14,000 in first-year savings from onsite energy generation with solar panels and a new heating system, with the calculated payback period just 2.6 years.[109]

Places of Worship

All Saints' Church in Bedworth, Warwickshire fitted a 50-panel solar array as part of a net-zero energy project. The church's average monthly electricity cost dropped from £500 to £88 after the installation: an initial investment of about £19,000, the church is predicted to save over £155,000 over the typical 25-year lifespan of the panels. The money saved is now being used to fund youth work and other community services.[110]

St Francis Church in Salisbury installed a 20.7 kWp rooftop solar PV system alongside a 9.6 kWh battery to maximise self-consumption of generated electricity. This smart setup has enabled the church to power lighting, heating, and community events using clean solar energy during the day while storing surplus energy for use in the evening or on low-sunlight days. The total project cost of £21,301 is projected to yield savings of £4,537 in the first year alone. This has resulted in a 21.29% annual return on investment (ROI), with a full payback expected in just 4 years and 6 months.[111]

FIGURE 5.4
Hull University Teaching Hospital's solar carport canopy

Masjid E Noor was the first purpose-built mosque in the Southwest of England and Wales. It is taking a pioneering step towards sustainability with the installation of a commercial solar PV system.The installation at Masjid E Noor is expected to save 6,783 kg of CO2 emissions per year—equivalent to planting over 300 trees annually, yet also deliver a financial savings of £177,708 over 25 years, helping the mosque reinvest in its community-focused initiatives, and achieve a payback period of just 6 years.[112]

Public Sector Buildings

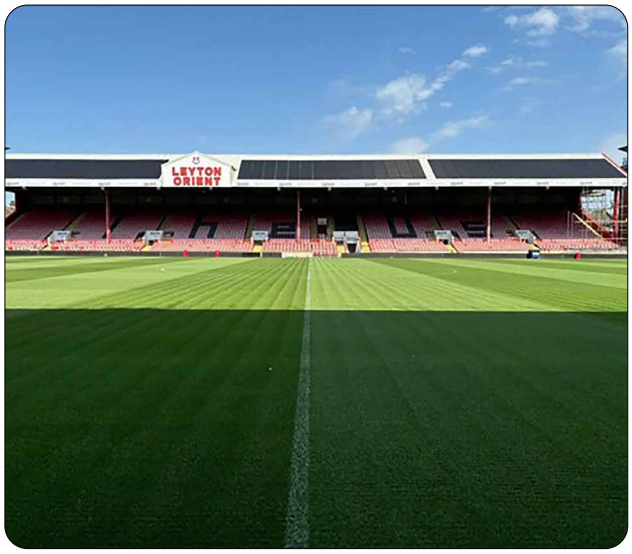
In 2022, 10% of all heating emissions came from public sector buildings such as schools, libraries and hospitals. Public Services are a key area of focus where public support for the energy transition can be anchored in a better understanding of how renewable energy and energy efficiency measures can deliver direct cost savings that can be reinvested into the public services directly themselves: allowing more doctors or nurses to employed, more teachers or investment into other hospital or school equipment. The government is recognising the value of prioritising sites with emotional resonance in demonstrating the best case studies for how solar and battery storage can reduce bills and enhance local energy independence and resilience. Great British Energy have expanded their funding to up to £255 million, supporting around 250 schools, over 270 NHS sites and around 15 military sites across the country.[113] More than £630 million has also been granted by the government for measures including heat pumps, solar panels, insulation and double glazing, helping to make Britain energy secure as part of the Plan for Change while contributing to an estimated £650 million in savings for taxpayers per year on average over the next 12 years.[114]

In July 2025 GB Energy awarded £10 million to mayoral regions to deliver rooftop solar to community facilities. **Liverpool City Region Combined**

FIGURE 5.3
GB Energy initially funded 11 schools to roll out solar panels to generate electricity, with significant cost savings of £176,000 total annual savings to be made. These include:

School Name	Capacity (kW)	Estimated Annual Energy Bill Savings (£)
Charles Warren Academy	20 kW	£4,500
Feversham Primary Academy	53 kW	£13,000
Harris Academy Chafford Hundred	256 kW	£44,500
Harris City Academy Crystal Palace	149 kW	£24,500
Notre Dame RC School	166 kW	£27,000
Oasis Academy Nunsthorpe	92 kW	£22,500
St Boniface's RC College	86 kW	£13,500
St Joseph's Catholic Primary, Poole	37 kW	£8,500
St Mary's Catholic Primary, Axminster	13 kW	£2,000
Westfield Primary Academy	56 kW	£12,000
Whiteknights Primary School	18 kW	£4,500
Total (11 schools)	**945 kW**	**£176,000 total annual savings.[143]**

FIGURE 5.5
Leyton Orient FC solar panels on their stadium



Authority will use the money to fund a rooftop solar project costing £1.46 million to support care homes and leisure centres, cutting around £4.6 million on lifetime energy bills, while **Greater Manchester** will also roll out rooftop solar on libraries, fire stations, police stations and sports centres, leading to estimated savings of over £2.1million on lifetime bills. Projects in **York and North Yorkshire** are estimated to bring around £4 million in lifetime bill savings, they include solar panels to help power an Edwardian swimming pool in York and leisure centres in Whitby, Ripon and Thirsk.[115]

Schools

A £5m project at the **Abbey Multi Academy Trust (Abbey MAT), in Yorkshire** to replace existing gas boilers in five schools with a heat pump-based system has eliminated the trust's reliance on gas for space heating and hot water reducing its carbon emissions by an estimated 9,000 tonnes over the 12-year lifetime of the scheme but also saving an estimated £84,000 a year in energy costs.[116]

E.ON Energy has supported the decarbonisation of **Parrs Wood High School in Manchester**, installing a new hybrid heating system with air source heat pumps, roof-mounted solar panels, new windows, doors, internal wall insulation, and upgraded LED lighting throughout the premises: the measures will save nearly 213 tonnes of carbon and £154,000 in energy costs annually.[117]

Hospitals and Healthcare Facilities

Hospitals and healthcare settings are witnessing even greater financial returns from locally generated clean energy. **Hull University Teaching Hospitals** has installed one of the UK's largest hospital solar PV systems — about 11,000 solar panels on site. The array generates over 4.2 million kWh of electricity annually, saving around £230,000 per month on energy bills during a particularly strong solar generation period.[118] This includes a carport canopy of over 600 solar panels that is saving the trust £75,000.[119]

University Hospitals of Morecambe Bay NHS Foundation Trust received national funding to install solar panels at its three main hospital sites, Royal Lancaster Infirmary (RLI), Westmorland General Hospital (WGH), Furness General Hospital (FGH), saving RLI £147,639 per year, WGH £152,012 per year and FGH £228,032 per year. **Sheffield Teaching Hospitals'** solar project includes approximately 1,500 panels across sites which is anticipated to save around £153,000 per year.

While not a hospital, **Bridgewater Community Healthcare** — which runs GP surgeries, community hospitals, and healthcare facilities — has been awarded funding for rooftop solar. At its headquarters alone (227 solar panels), the installation could save almost £25,000 per year at current electricity prices.

Rather than just put solar on their own rooftops, other hospitals are turning to locating solar energy in farms nearby. Royal Wolverhampton NHS Trust, for instance, have procured a large solar farm project that is projected to save £15–£20 million over the next 20 years by powering the hospital for most of the year.

Across the wider NHS, existing or planned solar installations are expected to achieve around £8.6 million in annual savings and up to £260 million across the panels' lifetime.

Sports Venues

Utilita Bowl (Southampton Cricket Stadium) has installed 1,044 panels generating 381,829 kWh/year (about 25 % of total electricity use). This is saving the club £100,000 on electricity bills annually, and around £1.8 million in savings projected over 20 years, with savings now redirected into stadium operations and community activities. Leyton Orient Football Club now save £67,993 a year on energy use, with £2.4 million projected over 20 years thanks to solar panels on

FIGURE 5.6
Riversmeet Active Leisure Centre, Dorset

the stadium's roof[120], while at the London Stadium, West Ham have planned 6,500m² of solar panels under a multi-million-pound green upgrade, which will save £350,000/year in energy costs once fully operational, with their total grid electricity use expected to drop by 3 million kWh/year by 2026 — a 10–15 % reduction in electricity costs overall. Other clubs that have taken up large scale solar provision include Manchester City, with over 10,000 panels located on their training grounds.

Yet it is not just the bigger sports venues who are benefiting from clean energy generation. Oxstalls Sports & Tennis Centre in Gloucester installed 660 solar panels and battery system, which generates 40% of the centre's needs, and saves £40,000 a year on electricity bills. Harpenden Leisure Centre in St Albans installed 170 panels across 400 m² of rooftop space, saving £24,000 a year. Rugeley Leisure Centre's solar panels produce 178.65 kW/h, leading to over £39,800 in annual electricity savings and a projected £800,000 savings over 20 years. Perdiswell Leisure Centre (Worcester) expects to save £50,000 a year with a 230 MWh solar array, with a payback period of under two years, while the Rainbow Leisure Centre (Epsom) expects to save £44,000 in electricity bills annually, with a 177 kWp system providing one-fifth of their energy.[121]

The move to solar is even credited with saving the RiversMeet Active Leisure Centre, a non-profit at the heart of the Dorset community, from closure. After installing a solar array and batteries with Good Energy, the centre can now invest more back into the facilities people use every day, rather than watching money disappear into energy bills – saving around £57,000 a year.[122]

The Bigger Picture

The examples above are but a fraction of the thousands of projects that have been developed and continue to be developed. These community examples that have wider impact are dwarfed by the rapidly growing adoption of solar across properties.

The number of certified solar panel installations in 2025 surpassed 203,125 – the previous annual record set in 2011. This brings the total to 1.85 million certified solar panel installations to date, according to data from MCS. One of the key drivers behind the growth has been installations on new build properties. Since MCS started collecting data for new builds in October 2023, there have been 139,425 certified solar PV installations on properties of this type – accounting for 32% of total solar installations during this period.[123]

At the same time, there has also been significant growth in battery storage, often installed alongside solar panels to store excess electricity. By the end of September, certified battery storage installations had increased by 122% compared to the equivalent period last year, with total installations now reaching 59,000.

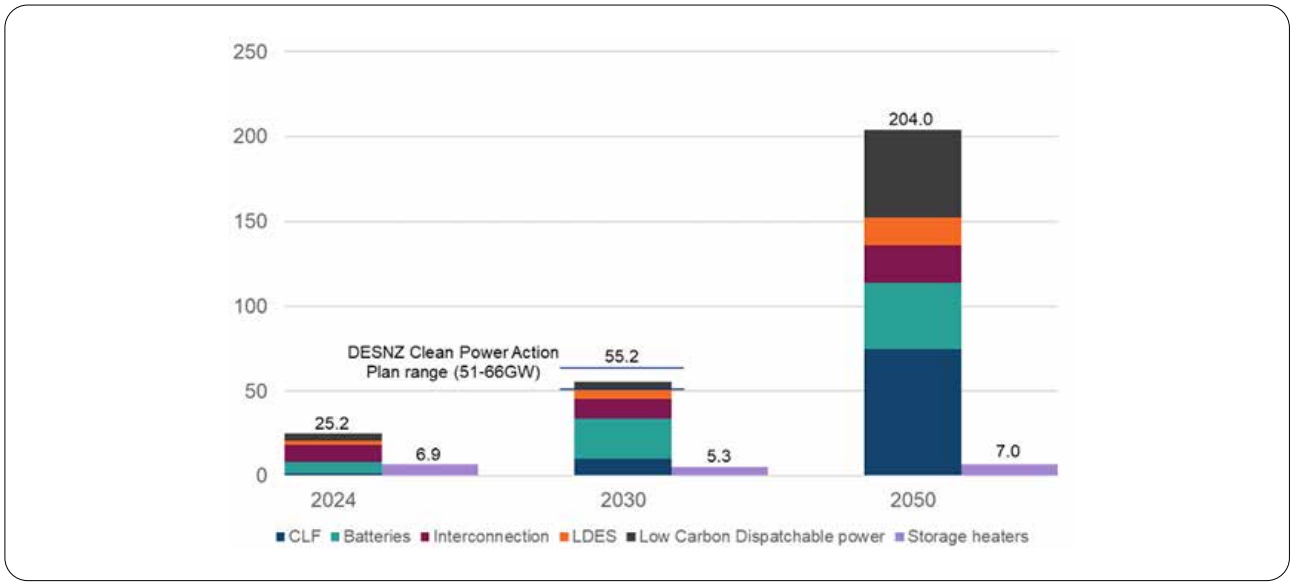
The rapid expansion of both solar and battery storage across properties provides a significant opportunity to deliver huge gains in clean flexibility and energy demand reduction, resulting in further cost savings.

The Future of Clean Flexibility

Clean flexibility is the ability to shift in time or location the demand or supply of electricity, over hours, days or seasons, while reducing emissions. It includes storing clean energy for times when demand outstrips supply, offering rewards to consumers who choose to shift demand away from peak times, importing and exporting electricity, and generating low carbon dispatchable power.

The Clean Power 2030 Action Plan, published in December 2024, set out how clean power can be achieved, and that clean flexibility will play a key role. The Plan set out a flexibility capacity range of 51GW to 66GW by 2030, marking a two to three-fold increase on the 24GW of capacity installed in 2023. However, the most significant changes anticipated

FIGURE 5.7
Indicative clean flexibility capacity scenario (GW), 2024-2050



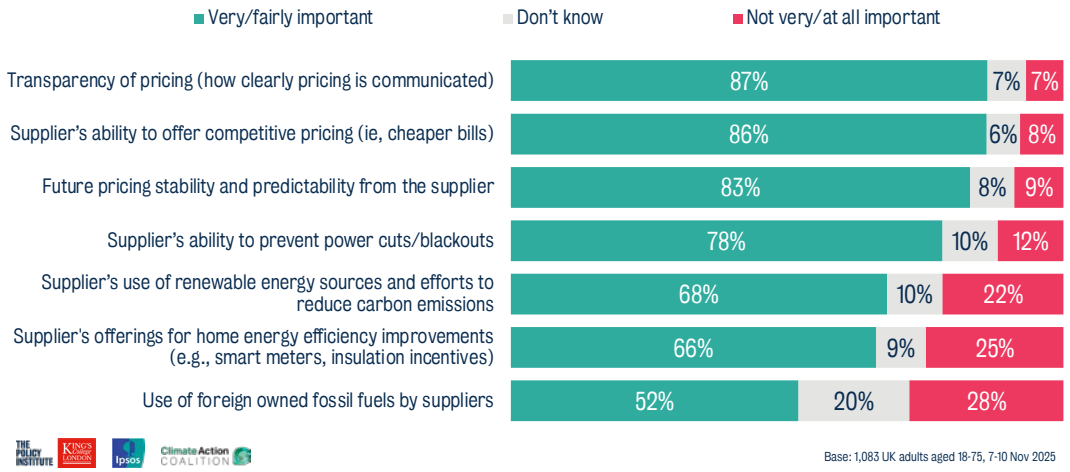
occur after 2030, with a significant increase in low carbon dispatachable power and consumer led flexibility (CLF). The Future Energy Scenario (FES) 2025 set out in the Clean Flexibility Roadmap continues to see capacity grow from the 51-66GW range in 2030, to 204 GW in 2050 (see figure 5.7)

The CEO of NESO has stated that their organisation has been 'crystal clear that clean power by 2030 will require industry, government and regulators to work in new and innovative ways alongside delivering flexibility on a scale which has never been done before'. The publication of the Clean Flexibility Roadmap in July 2025 set out a clear direction of travel on a range of sectors on how to deliver greater consumer-led flexibility.[124]

According to the Carbon Trust, a fully flexible energy system has the potential to deliver material net savings of between £9.6 billion and £16.7 billion per annum in 2050. Flexibility will enable the development of a safe and secure net zero energy system that can operate cost-effectively in diverse situations such as dark, cold and windless days in winter or hot summers. Demand side response (DSR) is when households, commercial buildings, or industrial businesses adjust their electricity consumption—either by increasing, decreasing, or shifting usage—based on price signals. The recent Future Energy Scenarios 2025 published by the National Electricity System Operator (NESO) model that flexibility from households and businesses could reduce peak electricity demand by up to 54% by 2050, through measures such as flexible home heating, smart EV charging, and Vehicle-to-Grid (V2G) technologies, where EVs not only charge flexibly but also export electricity back to the grid during peak periods.

A silent revolution has been underway in recent years, ensuring that for the future customers will be more empowered than before to shape the energy market. The smart meter roll-out enables the development of tariffs that offer consumers greater understanding and control of their energy usage. For instance, smart ToU (time of use) electricity tariffs allow the owners of low carbon technologies such as EVs and heat pumps to directly benefit (in the form of cheaper prices) from the flexibility they add to the energy system. The market penetration of smart ToU tariffs in the domestic retail market is currently at 2.3%, but take-up is increasing rapidly. Ofgem's State of The Market report in April 2025 revealed that the number of domestic customers on these tariffs increased by over 68% in the 12 months to January 2025, from 395,000 to 664,000. This was driven almost entirely by EV tariffs, which grew by 107%, from 243,000 to 502,000. There remain however challenges to embed the concept of flexibility and the opportunities that it can bring to households. In a poll commissioned by MCS Foundation and YouGov in August 2025, more than two in five households (41%) say they are unlikely or very unlikely to switch to tariffs which offer cheaper electricity outside of peak times, and nearly four in five (78%) said they had no awareness of demand side response schemes that offer households financial

FIGURE 5.8
The majority of Britons say all these factors are very or fairly important when choosing their energy supplier, with factors relating to pricing coming out as most important
Think about your household energy suppler. How important, if at all, is each of the following factors when choosing your current household energy supplier or deciding to switch?



incentives to turn down energy usage during certain times. The MCS Foundation's report, Unlocking flexibility: how to engage households in demand side response, further cites research showing that this "triple win" could represent savings of £375 a year by 2040 on an average households' electricity bill.[125] Yet better transparency, communication and information is still needed to deliver and unlock the benefits that clean flexibility can bring. The survey commissioned for this report found that when it came to choosing their next energy supplier, or potential flexible tariff, the transparency of the process was most important for 87% of respondents, alongside a commitment to competitive prices (86%) and longer term predictability of prices (83%). An overwhelming number of respondents were engaged and interested in ensuring that the energy they procured was renewable (68%), compared to those who were not interested (22%), and also that the energy was not procured from foreign owned fossil fuels (52%) compared to 28% who were not concerned.

The MCS Foundation have further highlighted some of the lack of information and knowledge around tariffs.[126] Significantly, the effective application of smart meters remains a barrier to the future adoption of demand side response measures. In the survey, only 54% of respondents reported having a smart meter in their home. 19% of those who were unwilling to switch to a Time of Use tariff cited not wanting a smart meter as the reason. Compounding the issue is the reliability of installed devices. Around 20% of households with smart meters—equivalent to 2.86 million homes—still have to submit manual readings due to device malfunctions.

Digital Transformation of Industry

Smart technologies do not merely have the opportunity to transform energy use in the home: they are already helping to deliver significant gains for industry and manufacturing. Energy-intensive industries are responsible for 11% of the UK's total emissions and represent over 70% of UK industrial emissions. It is estimated that industry will need to cut their emissions by two thirds by 2035 for the UK to achieve its net zero target.[127]

As the CCC noted in its Progress Report for 2025, 'There has been little progress in this key area, with the Government acknowledging the existence of barriers to electrification but not yet taking action to address them'.[128]

The government has released a new Industrial Strategy, including a Clean Energy Industries Sector Plan. The new British Industrial Competitiveness Scheme (BICS)[129] is intended to reduce electricity

costs for around 7,000 energy-intensive businesses by up to 25% from 2027 including compensation for 90% of network costs.

From 2027, the new British Industrial Competitiveness Scheme will reduce electricity costs by up to £40 per megawatt hour for over 7,000 electricity-intensive businesses in manufacturing sectors like automotive, aerospace and chemicals.

These firms, which support over 300,000 skilled jobs, will be exempt from paying levies such as the Renewables Obligation, Feed-in Tariffs and the Capacity Market.

The government is also increasing support for the most energy-intensive firms — like steel, chemicals, and glass — by covering more of the electricity network charges they normally have to pay through the British Industry Supercharger. These businesses currently get a 60% discount on those charges, but from 2026, that will increase to 90%.

This is a significant expansion from the previous British Industry Supercharger, which covered only around 300 businesses. However, this scheme will not tackle high wholesale prices, which are the main component of bills and remain a struggle for many businesses, or help those not eligible for the narrow support criteria, such as at-risk industries like ceramics.

Rightwing populists around the world are increasingly campaigning on the consequences of deindustrialisation as part of their playbook: from Donald Trump's efforts to champion the US rust belt to Alternative für Deutschland (AfD) targeting east German auto workers. The call for reindustrialisation and support for manufacturing onshore is further backed by unions such as the GMB union, which includes offshore workers in Scotland among its members. Gary Smith, the General Secretary told the Guardian last year that net zero advocates on the left risked fuelling support for Reform by leaving workers out of the debate."Climate fundamentalism and rightwing populism are two cheeks of the same backside," he said.[130]

Yet when industry and manufacturing have been able to electrify and to decarbonise, studies have shown sustainability to be a key purchase driver across a number of sectors and manufacturing is no different. Even pre-COVID, 40% of manufacturers[131] experienced increased profit margins, while 30% reported increased competitiveness when sustainability credentials were met.[132] Companies own efficiencies and productivity gains can also be transformed. According to recent industry data, manufacturers that have successfully implemented digital and electrification strategies have seen productivity gains of up to 25% and reduced operational costs by as much as 20%.[133]

Much of this is now being delivered through the use of digital solutions and AI optimisation, to generate new efficiencies at scale. Data-driven approaches, including AI tools, help connect people with trusted information and insights, and help teams work together more effectively, so they can engineer capital projects more efficiently, operate better and create sustainable value. This drives results at four levels:

- **Industrial emissions reduction and circularity:** By accelerating industrial efficiency to reduce energy and materials intensity.
- **Transition technologies for decarbonising hard-to-abate sectors:** By facilitating the design, engineering, construction, ramp-up and integration of transition technologies such as CCUS, green H2, small-scale nuclear, and energy storage.
- **Green grids:** By facilitating the design, construction, scale up and integration of renewable power, and improving grid efficiency, flexibility and resilience.
- **Ecosystem changes:** By enabling systems change within cities, industrial clusters and along value chains, and supporting radical collaboration between industrial companies, academia and policymakers.

The world of AI is rapidly evolving, and with it the needs for additional electricity to power data centres in the UK. Data centre energy use in the UK was ~3.6 TWh in 2020; projections vary but could hit 72 TWh by 2030 (over a quarter of 2021's total), with some forecasts placing data centres at 9% of total demand by then.[134] A typical data centre consumes as much electricity as 100,000 households, but the largest under construction today could consume 20 times as much. There are clearly concerns that must be managed about the impact of AI on the wider electricity grid for the future, though the opportunity for AI to create a more efficient and streamlined energy system must be recognised in full.

According to the World Economic Forum, energy sector investment in AI will more than triple by 2030[135], from approximately £30 billion a year to

CASE STUDY:
UK Power Networks deploys AVEVA's software to optimise grid resiliency

UK Power Networks (UKPN) is the UK's largest Distribution Network Operator, maintaining the electricity networks for London, the South East and the South of England. They are responsible for keeping the power flowing to 19 million homes and businesses, which is 29% of the UK's population.

With the proliferation of smart meters, and distributed energy resources (DERs) which consume or produce electricity, such as electric vehicles, smart thermostats, home batteries and solar inverters, the grid has become much more complex and dynamic.

In order to balance the grid today and in the future, it has become imperative for UKPN to capture, correlate and analyse the vast data sets generated by these smart devices – upwards of 4 billion data points a day. Bringing this operational data ('OT data') together with IT data into a single, robust data management platform allows the whole organisation to source the same data in a secure, shared framework – a single version of the truth. When the information is captured and organised in this way, it becomes available to drive a variety of use cases for the many departments that require it: operations, planning, asset management, etc.

An AI-powered predictive analytics system is used to manage the data from tens of millions of assets on the grid to break down decision-making silos for faster operational decision management. This system combines digital and analogue data to extract real-time actionable information.

Together, these advancements have enabled the team to automate previously manual functions, supporting optimisation of operations, and enabling failures in the system to be predicted and preemptively maintained, and cutting curtailment and outages. The greater visibility of data drives better understanding of the performance of the grid, enabling operators to manage a greater number of DERs while maintaining stability on the network, maximising the amount of power available, and supporting the transition to a low carbon grid.

over £105 billion. Indigo Advisory has calculated more than 50 possible uses for AI in the wider energy sector, from renewables—creating a market worth up to $13 billion—to helping select the best sites for wind and solar farms and forecasting electricity demand. AI is already playing a significant role in predicative maintenance of wind farms, yet this will likely, according to AVEVA, be expanded to a wider network of energy and electrical assets: the number of electric charging points in Europe is expected to be around 3.5 million by 2030—a vast fleet of assets to monitor. "There are tasks where artificial intelligence is simply better at processing [a] significant amount of data," says Stefan Herr, a senior manager at E.ON's innovation unit. "It can make connections, recognize patterns and make predictions much better and faster than any human service team, no matter how large or experienced, ever could."[136]

This Internet of Things approach (IoT) enables data connectivity across devices, providing real-time monitoring of energy supply and demand, predictive maintenance based on sensor data, and storage optimisation. Altogether, these capabilities allow energy system participants to drive down operational and maintenance costs, improve plant and network efficiency, reduce unplanned outages and downtime, and extend the operational lifetime of assets. Baringa estimate that there are around 25% cost savings from predictive maintenance, equivalent to circa £5.5bn across the UK out to 2030, while there has already been an 11.39% growth rate of IoT in energy.[137]

Digital twins also offer a platform for systems testing and predictive planning. This is particularly valuable for complex renewable systems like wind farms. They can increase the lifetime revenue of each offshore wind turbine by 7%, increase efficiency by 20%, and reduce the levellised cost of energy by 35%.

AI and Smart Grids

A smart grid is an advanced electrical grid that incorporates digital technology to facilitate a two-way flow of electricity and information between utilities and consumers. Unlike traditional grids operating on a one-way model, smart grids enable real-time communication and data exchange. This capability allows for better monitoring, control, and optimisation of energy distribution and consumption.

When AI is integrated into smart grids, it has the potential to significantly improve efficiency, sustainability, and failure prediction. Using machine

learning algorithms, data analytics, and predictive modeling, AI can analyse vast amounts of data generated by smart grid systems. This analysis enables utilities to:

- Monitor energy consumption patterns and grid performance in real-time, identifying inefficiencies and potential issues before they escalate;
- Forecast energy demand and supply fluctuations;
- Make automated data-driven decisions that optimise energy management and reduce waste.

The government has launched the Clean Energy: 2GW Peak Time Flexibility Challenge – as part of the government's R&D Missions Accelerator Programme, with the aim of cutting peak-time electricity demand by 2 gigawatts (GW) by 2030 — the equivalent of powering over 1.5 million homes. One area where AI is already being used is to support customers in need, for example the uZero platform[138]. This platform identifies areas living in fuel poverty, by using anonymised real-time smart meter data from the Data Communications Company's network alongside other cross-sector datasets. This allows Ofgem, government, housing associations, energy providers and social care providers to better understand where there are high proportions of households experiencing vulnerability, so they can tailor solutions appropriately. For example, working with The Wise Group, Octopus Energy has used this approach[139] to more easily identify households across its service areas that are eligible for the Warm Home Discount.[140]

Taken together, the opportunity for clean flexibility and future AI technologies to both deliver savings for both domestic customers, but also industry and manufacturing will be a key aspect of the future electric economy. Across the public sector alone, the government estimate that digitisation can save £45 billion.[141] Research from Baringa has revealed that embracing digitalisation, companies will make renewable energy solutions more effective, efficient, and economically viable. UK companies could realise cumulative savings of 10-20% in both the CAPEX and OPEX phases of the renewable energy lifecycle between 2025 and 2035. In addition, we calculated that this cost saving range is equivalent to one to two years of spending on renewable energy sources.[142]

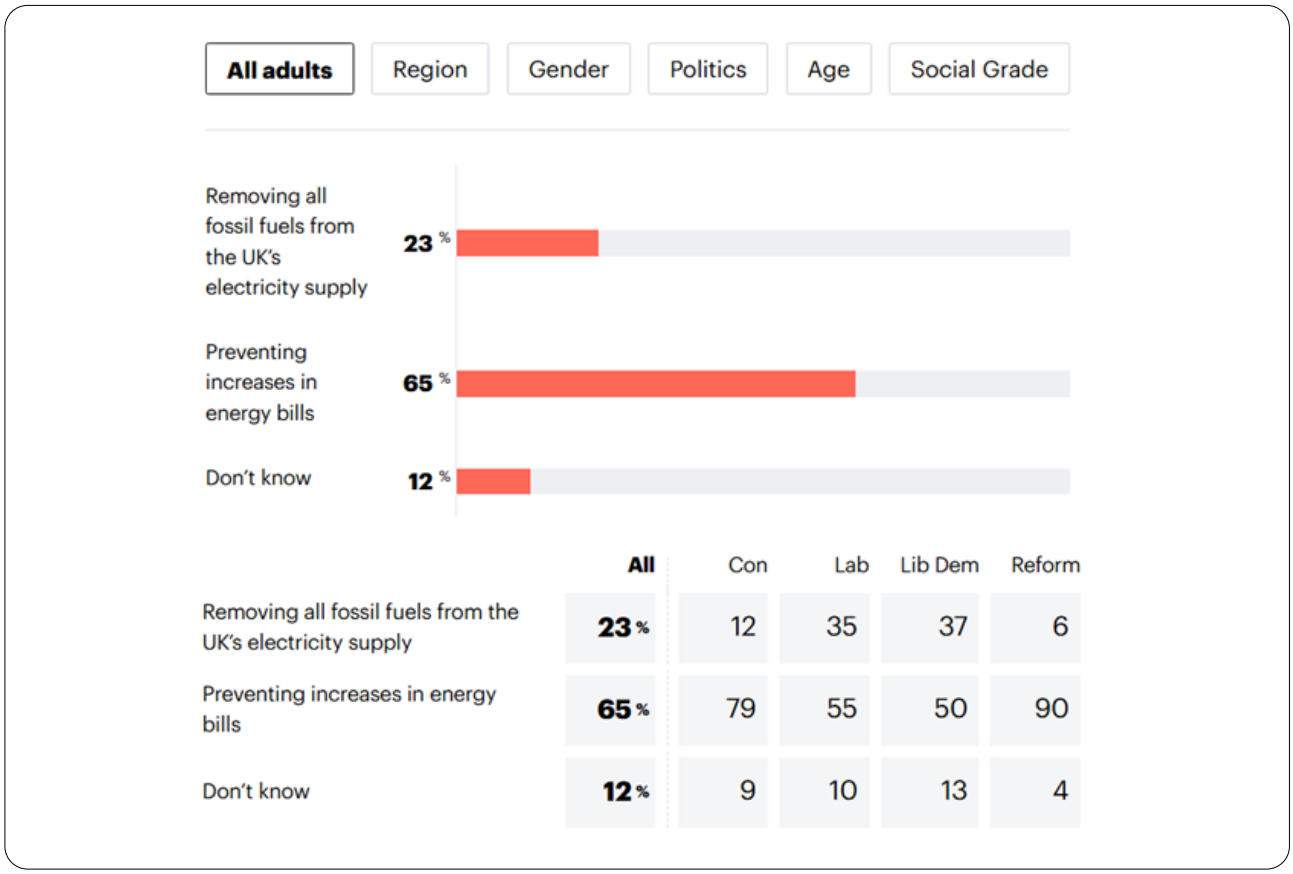
This should, in turn, provide a significant lever for making the costs of electricity generation much cheaper— rather than shift this to profits on to the balance sheet, however, focus should be on how to communicate the benefits of AI and digitisation to customers and consumers, so that they directly benefit from the greater efficiencies and productivity that AI will generate. This is an opportunity that should not be missed.

Conclusion

The reality is that the costs of energy— in particular the cost of electricity— will be one of the defining issues at the next General Election. There is simply no getting away from the fact that, overwhelmingly, people want to see bills reduced (See figure 5.9)

A recent study by Octopus revealed that while most households support net zero, 71% would only maintain their support if energy bills did not increase further. Conversely, 65% of those currently opposed to net zero would reconsider their stance if the policy resulted in lower energy bills. The future of the UK's pathway to net zero lies in demonstrating that energy prices and bills can come down, and come down fast. This report's survey, along with other polling evidence, has demonstrated that consensus can be established across political parties for the energy transition. This must be grounded in the language of both cost and

FIGURE 5.9
Which do you think is the greater priority?



	All	Con	Lab	Lib Dem	Reform
Removing all fossil fuels from the UK's electricity supply	**23 %**	12	35	37	6
Preventing increases in energy bills	**65 %**	79	55	50	90
Don't know	**12 %**	9	10	13	4

enhancing energy independence. While the pathways to net zero are increasingly now focused on the importance of establishing an electric economy, and with the numbers on EVs, solar and renewable electricity going in the right direction, the gulf between policy progress on the energy transition and the state of politics in the UK has perhaps never been greater.

The greatest challenge for the UK's Clean Power Mission is not whether it will succeed or fail, but rather the fact that the political ground has shifted dramatically over the past two years. At the 2024 General Election, only Reform UK, with four MPs elected, were publicly against reaching net zero by 2050. In their General Election Manifesto for 2024, net zero was a clear policy commitment of the Conservative Party, for instance, stating that:

"We are proud of our record and remain committed to delivering net zero by 2050. Today the UK is home to the five largest offshore wind farms in the world. Half of our electricity comes from renewables, compared to just 7% when Labour were last in office. We have reduced emissions further and faster than any of our competitors and the UK is the first major economy to get halfway to net zero. And we have done this while growing our economy by 80%, demonstrating to other countries that there is a positive economic path to tackling climate change."

While those words are true, and the facts are correct and remain the same, the politicians behind them are no longer present, nor can we rely on the fact that at the next General Election, when party manifestos come to be written, that there will be any commitment from the winning party to continue the progress on the energy transition that has been made, but rather to reverse it. This should be a wake up call to everyone involved in delivering an electric economy that mirrors the direction that the rest of the world is taking to move away from fossil fuels, that we cannot rely on plans alone. Greater thought must be given to how best to communicate the positive impact of the energy transition, the savings that are being made, across communities across the country.

Net zero and action on climate retains strong public support: yet we must also seek to reinforce the message that the action taken to deliver clean power is action taken to reduce costs, and reduce bills. This means that as a point of urgency, with now perhaps three years until the next General Election, 2026 will need to be the year in which electricity, both domestic and industrial, was made cheaper, and the costs of electricity compared to gas reduced and rebalanced. There is no other action that matters more, if the government is to succeed on its Clean Power Mission, or if the UK as a whole is to become an electric economy.

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To find out more about the work of the Climate Action Coalition please visit the website:

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or email info@climateaction.org