

# Energy UK response - BEIS Net Zero Review Call for Evidence

October 2022

## Executive summary

The cost-of-living crisis and sharply increasing energy costs mean there has never been a more important time to move away from the UK's dependence on fossil fuels and boost our sources of cheap, clean and home-grown energy.

By growing the capacity for low-carbon power generation in the UK, unlocking world-leading flexibility markets and supporting consumers to adopt new behaviours and technologies, the UK energy sector is growing the UK economy, creating jobs and helping to achieve Net Zero carbon emissions by 2050.

Energy UK strongly welcomes this review led by the Rt Hon Chris Skidmore MP and is grateful for the opportunity to make a representation on behalf of the UK energy industry. Energy UK is the trade association for the industry with over 100 members from established FTSE 100 companies to growing suppliers and generators, which now make up over half of our membership. We represent the majority of the energy sector, excluding networks and upstream oil and gas. Our membership includes a national transmission owner who supported this response.

Energy UK's *Energy in the UK* report shows that the energy sector already supports 1 in every 48 jobs in the UK, contributes £40bn of the UK's Gross Value Added (GVA) and contributes £109bn to the economy through its supply chains.<sup>1</sup> Workers in the energy sector are some of the most productive in the economy, producing £135 of output for every hour they work compared to an average of £39 in the economy as a whole.

Unlocking the potential of the energy industry must be the Government's focus, in order to boost growth while accelerating progress towards Net Zero carbon emissions. Continuing the global leadership delivered by the UK energy sector and applying the momentum, investment, and innovation of this sector to the wider economy is key to creating jobs and opportunities in communities across the UK, in direct support of the Government's Levelling Up agenda. Established expertise and experience alongside innovative products and services will maintain the position of the UK as a global leader in the race to reduce the world's dependency on unsustainable and geopolitically volatile fossil fuels, creating new export opportunities and delivering the best outcomes on cost, carbon, and economic growth for UK consumers and businesses.

In our response, we consider the challenges and opportunities for the entire value chain and show that investments in delivering a Net Zero power system will deliver growth, economic activity, and job creation at every turn.

It is essential that we place consumers front and centre of the policies we develop to deliver the energy transition, as the pressures of this winter have unrelentingly shown. With a typical household paying an average bill of £2,500 in winter compared to the October 2021 price cap of £1,277 in October 2021, and with CPI inflation standing at 10.1% in September 2022, a

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<sup>1</sup> <https://www.energy-uk.org.uk/index.php/energy-industry/energy-in-the-uk.html>

long-term and sustainable solution to the volatility we have seen in recent months is urgently needed. Core areas where Government could deliver include:

- Reforming the planning regime and approach to network reinforcement in order to enable continued growth and investment in the delivery of low carbon technologies at all levels of the energy system.
- Creating certainty by passing the draft Energy Bill (HL Bill 39) and moving ahead with wider planned reforms, in full consultation with the energy sector.
- Aligning local Levelling Up, skills, and economic growth policies with Net Zero through the implementation of a Net Zero Test across all policy decisions.
- Engaging consumers and businesses with the transition by facilitating access to trusted and tailored information on low-carbon technologies, such as measures to make buildings more energy efficient, and make clear forthcoming regulatory change that will impact consumer behaviour and energy usage.

We welcome further engagement on this response, both from the Government and wider stakeholders. Those wishing to engage with Energy UK further in relation to this workstream should contact Louise Shooter, Policy Manager, via [louise.shooter@energy-uk.org.uk](mailto:louise.shooter@energy-uk.org.uk).

## Overarching Questions

### **1. How does net zero enable us to meet our economic growth target of 2.5% a year?**

The Climate Change Committee (CCC) estimates that to reach Net Zero carbon emissions, annual low-carbon investment in the UK will have to increase from around £10 billion in 2020 to around £50 billion by 2030, continuing at this level to 2050, with the majority of this coming from the private sector. With it, this private sector investment will unleash economic activity and the creation of high-quality and sustainable jobs all over the country.<sup>2</sup>

According to the CCC, decarbonisation of the power sector requires a balanced generation mix of various technologies. We, therefore, need the right policy signals to encourage investments in a range of technologies including: a high level of renewables, firm power from nuclear, increased flexibility from storage and demand side response, and new technology solutions such as hydrogen and CCUS (Carbon Capture, Utilisation, and Storage); coupled with much greater focus on the networks required to connect to these technologies, energy efficiency and heat decarbonisation.

National Grid Energy System Operator (NGESO) set out in the Future Energy Scenarios (FES)<sup>3</sup> that the *Leading the Way* pathway would make the UK a global leader in the pathway to Net Zero and requires both a fundamental transformation of the energy system and significant consumer behaviour change. This pathway represents an important opportunity for the UK in terms of boosting economic growth and the creation of high-quality and sustainable jobs in a range of sectors, including industrial, manufacturing and retail.

Oxford University recently identified that the faster the transition to a cleaner energy system, the cheaper it will be compared to a slower transition, or no transition at all.<sup>4</sup> Researchers found that 'transitioning to a decarbonised energy system by around 2050 is expected to save the world at least \$12 trillion compared to continuing at current levels of fossil fuel use'.

### Investment in the generation sector will boost economic growth and create new jobs

The UK energy industry is leading the way by investing more than £100bn over the course of this decade in new energy sources.<sup>5</sup>

The UK's energy industry contributes £40bn to the UK's GVA, representing 1.8% of the economy. Through its supply chain, the industry contributes an additional £109bn to the economy, and pays £8bn in taxes every year through companies' payrolls, sales and profits.<sup>6</sup> 138,000 people are employed directly in the energy sector, and an additional 605,000 jobs are supported through the supply chain and broader impact, a number that will increase substantially over the coming years as we align our economy with Net Zero.<sup>7</sup> Renewables UK estimates that delivering 30GW of onshore wind by 2030 would unlock 27,000 high-quality jobs in the process.<sup>8</sup>

Research by Onward found that, across the board, green jobs are expected to be better paid and higher skilled, with a typical Net Zero job having a 46% higher skill requirement than a job in a carbon-intensive industry. They anticipate that 3.2 million workers will need to boost their skills for the green transition and in support of the Green Industrial Revolution. Wages

<sup>2</sup> <https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf>

<sup>3</sup> <https://www.nationalgrideso.com/document/263951/download>

<sup>4</sup> <https://www.smithschool.ox.ac.uk/news/decarbonising-energy-system-2050-could-save-trillions>

<sup>5</sup> <https://www.energy-uk.org.uk/index.php/publication.html?task=file.download&id=8147>

<sup>6</sup> <https://www.energy-uk.org.uk/index.php/publication.html?task=file.download&id=8329>

<sup>7</sup> <https://www.energy-uk.org.uk/index.php/publication.html?task=file.download&id=8329>

<sup>8</sup> [https://cdn.ymaws.com/www.renewableuk.com/resource/resmgr/media/onshore\\_wind\\_prospectus\\_fina.pdf](https://cdn.ymaws.com/www.renewableuk.com/resource/resmgr/media/onshore_wind_prospectus_fina.pdf)

in Net Zero jobs, which average £37,195 per year, pay 30% better than carbon-intensive jobs. The regions which stand to disproportionately benefit, according to their analysis are the North West, and Yorkshire and Humber.<sup>9</sup>

In 2020, National Grid published a report titled *Building the Net Zero Energy Workforce*. This research found that the energy industry would need to recruit for 400,000 jobs by 2050, with 120,000 of these needed between now and 2030, if the UK is to meet its Net Zero target.<sup>10</sup> The report shows that Net Zero energy workforce roles will be spread across every nation and region. For example, there could be 60,000 new jobs in the North West linked to Offshore Wind, 40,000 in the North East and Yorkshire and the Humber linked to offshore wind and CCUS, 50,000 in Scotland for both onshore and offshore wind, and 25,000 across several possible net zero hubs in Wales.

Green jobs in the energy sector will range from civil, mechanical and electrical engineers to machine learning experts and skilled tradespeople, as well as new roles linked to electric vehicles, hydrogen and CCUS. New critical skills, such as data specialist and digital, will also be required as we introduce innovation across the sector. This is not to mention the range of peripheral roles across sales, marketing, customer communications, management, logistics, purchasing, and beyond, that will be required to support delivery.

Many of the jobs created by the transition to Net Zero will be highly skilled, well-paid and spread throughout the country – exactly what is needed to accelerate growth and level up the economy.

#### A Net Zero power system will boost economic activity

Onward estimate that the transition to Net Zero carbon emissions could generate an additional £330bn in extra economic activity every year by 2030, contributing significantly towards the UK's growth ambitions.<sup>11</sup>

Reaching Net Zero will involve a huge expansion of clean electricity generation and electrification. The CCC's Sixth Carbon Budget found that, across their scenarios, the range for electricity demand is 550-680 TWh in 2050, compared to around 300 TWh in 2018.<sup>12</sup> Meeting this will not happen without adequate investment supported by a fiscal environment that provides investors with long-term confidence in the sector.

Through the Contracts for Difference (CfD) mechanism, wind and solar generation is expected to pay back almost £600 million to the system between October 2021 and April 2023, reducing household energy bills and putting more money in people's pockets to invest back into the economy. That the transition to Net Zero is consistent with reducing costs across the economy, including through travel and heating, means consumers will access a higher standard of living and contribute to economic growth.

Research by Onward found that in 2021, renewables were responsible for 29% of the electricity generation in the UK and that this alone displaced around £6.1 billion worth of gas, equivalent to £221 of gas per household.<sup>13</sup> Indeed, displacing gas is an import economic aim: Energy UK analysis shows that the value of our net imports of gas in 2021 were equivalent to half of the UK's trade deficit.<sup>14</sup>

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<sup>9</sup> <https://www.ukonward.com/reports/net-zero-labour-market-challenge-report/>

<sup>10</sup> <https://www.nationalgrid.com/stories/journey-to-net-zero/net-zero-energy-workforce>

<sup>11</sup> <https://www.ukonward.com/reports/greening-the-giants/>

<sup>12</sup> <https://www.theccc.org.uk/wp-content/uploads/2020/12/Sector-summary-Electricity-generation.pdf>

<sup>13</sup> <https://www.ukonward.com/reports/renewed-importance-renewables-cut-bills/>

<sup>14</sup> <https://www.energy-uk.org.uk/index.php/publication.html?task=file.download&id=8349>

Research by Cambridge Econometrics, commissioned by the UK Corporate Leaders Group, found that policies providing support to consumers in response to the rising cost-of-living and which align with the Net Zero target generate more favourable economic outcomes than other types of support policy packages, in addition to being more progressive by primarily benefitting the lowest income households.<sup>15</sup>

### The opportunity to position the UK as a global leader in new technologies

Moving early and quickly on the transition to Net Zero will help develop and support new industries in the UK that can be globally competitive and drive high-value exports.

For example, floating wind will be an increasingly significant part of the UK's future energy mix, supporting our energy security. It is already a sector that the UK leads in, and with the right policies this dominance can be cemented. With 80% of the world's best wind resource offshore in depths of over 60 metres, it also represents an international leadership and export opportunity for the UK driven by our ambitious 50GW by 2030 target.

The UK has the technological experience and skilled workforce to develop an agile CCUS industry, and this is key to kickstarting a hydrogen economy and ensuring that we can operate a truly Net Zero power system. Modelling by Wood Mackenzie suggests that the average CCS project in the power sector needs a carbon price of US\$100/tonne and forecast that project costs will fall by 20% to 25% over the next two decades.<sup>16</sup> The IEA suggests that there is no single cost for CCUS, and looking specifically at carbon capture, the cost can vary greatly by carbon dioxide source, from a range of US\$ 15-25/t CO<sub>2</sub> to US\$ 40-120/t CO<sub>2</sub>.<sup>17</sup>

Accelerating the permitting and construction of CCUS infrastructure, through ensuring that a clear policy framework is in place, as well as governance guidelines and regulations defining roles and responsibilities, will help maximise the deliverability of the pipeline and attract investors before they look elsewhere. Indeed, in the NGESO FES, the *Leading the Way* and *System Transformation* pathways both deploy two industrial CCUS clusters by 2026. The Government's Ten Point Plan for a Green Industrial Revolution sets the ambition to deploy a further two by 2030.<sup>18</sup>

These are just two examples of the opportunities that Net Zero presents for the UK to export this innovative technology. Others include the opportunity for developing world-leading flexibility markets and digital infrastructure, as the NGESO FES identifies. Equally, Multi-Purpose Interconnectors (MPIs) are a nascent technology that connect clusters of offshore wind farms to the grid in one go, thus reducing the impact on coastal communities and the environment. This technology has not been delivered before at large scale or over long distances and therefore presents an opportunity for the UK to show its leadership.

### Decarbonising buildings will boost growth and level up communities

Achieving the Government's target of upgrading as many homes as possible to an Energy Performance Certificate (EPC) rating of C by 2035 represents a significant capacity challenge, and therefore opportunity, to develop the supply chain, skills and business models needed to deliver these projects. This is all the more important given the urgent need to strengthen the UK's energy security, reduce gas demand and ease the rising cost of living for consumers. Improving the energy efficiency of buildings supports all three of these aims.

<sup>15</sup> [https://www.corporateleadersgroup.com/files/clg\\_uk\\_the\\_best\\_of\\_both\\_worlds\\_policy\\_briefing\\_270622.pdf](https://www.corporateleadersgroup.com/files/clg_uk_the_best_of_both_worlds_policy_briefing_270622.pdf)

<sup>16</sup> <https://www.woodmac.com/news/the-edge/the-coming-carbon-capture-and-storage-boom--we-have-lift-off/#:~:text=Our%20modelling%20implies%20the%20average,over%20the%20next%20two%20decades>

<sup>17</sup> <https://www.iea.org/commentaries/is-carbon-capture-too-expensive>

<sup>18</sup> <https://www.gov.uk/government/publications/the-ten-point-plan-for-a-green-industrial-revolution>

The CCC estimates that the volume of energy efficiency installs needs to scale-up from 150,000 per year in 2021 to 500,000 in 2025 and one million by 2030 in order for the Government to achieve its decarbonisation targets.<sup>19</sup> The Green Finance Institute estimates that an investment of £250 billion will be needed to upgrade existing buildings and reach Net Zero by 2050.<sup>20</sup> This financing must come from both public and private sources, providing opportunities for our world-leading financial services sector to develop new green finance products.

It is also essential to decarbonise the way Britain heats its buildings. 20% of the UK's total emissions output comes from buildings, which is mostly from burning fossil fuels for heating.<sup>21</sup> While the future of heating will comprise a range of technologies, we know that air source heat pumps will represent a considerable proportion of that mix and the Government has set a target for industry to install 600,000 heat pumps annually by 2028.<sup>22</sup> We welcome steps the UK Government is taking to boost domestic manufacturing of heat pumps through the market-based mechanism as set out in the draft Energy Bill, and strategic investment funds to drive competition and innovation including the Heat Pump Investment Accelerator Competition.

Through inclusion of a regulatory framework for heat networks in the Energy Bill, Government has recognised the important potential of this technology for delivering Net Zero carbon emissions from customers' homes. The CCC have projected that an investment of £17.5bn is needed in heat networks by 2030 in order to unlock the potential of this industry. De-risking this investment will require a clear regulatory and policy framework that supports this technology.<sup>23</sup>

The technological knowledge to decarbonise buildings is already available, and the scale of the opportunity is significant. Strong Government backing for an ambitious programme of decarbonisation to stimulate capacity-building and boost demand will unlock growth in communities across the UK. For example, a report by Nesta estimates that there are currently only 3,000 trained heat pump engineers in the UK, but at least 27,000 will be needed in the next six years in order to deliver on the Government's targets for deployment of this vital technology.<sup>24</sup> Analysis by the Institute for Public Policy Research (IPPR) shows that the distribution of job vacancies that will be created by a national retrofitting programme to decarbonise Britain's buildings would be concentrated in current or former industrial centres and coastal communities, outside of London and the South East.<sup>25</sup>

Research by Onward found that, across the board, green jobs are expected to be better paid and higher skilled, with a typical Net Zero job having a 46% higher skill requirement than a job in a carbon-intensive industry. They anticipate that 3.2 million workers will need to boost their skills for the green transition and in support of the Green Industrial Revolution. Wages in Net Zero jobs, which average £37,195 per year, pay 30% better than carbon-intensive

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<sup>19</sup> <https://www.theccc.org.uk/wp-content/uploads/2022/06/Progress-in-reducing-emissions-2022-Report-to-Parliament.pdf>

<sup>20</sup> <https://www.greenfinanceinstitute.co.uk/news-and-insights/unlocking-the-potential-of-the-uks-green-mortgage-market/>

<sup>21</sup> <https://www.theccc.org.uk/wp-content/uploads/2022/06/Progress-in-reducing-emissions-2022-Report-to-Parliament.pdf>

<sup>22</sup>

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/936567/10\\_POINT\\_PLAN\\_BOOKLET.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/936567/10_POINT_PLAN_BOOKLET.pdf)

<sup>23</sup> <https://www.theccc.org.uk/wp-content/uploads/2020/12/Sector-summary-Buildings.pdf>

<sup>24</sup> <https://www.nesta.org.uk/press-release/shortage-of-trained-heat-pump-installers-could-set-back-net-zero/>

<sup>25</sup> [https://www.ippr.org/files/2022-09/1663704885\\_train-local-work-local-summary-sept-22.pdf](https://www.ippr.org/files/2022-09/1663704885_train-local-work-local-summary-sept-22.pdf)

jobs. The regions which stand to disproportionately benefit, according to their analysis are the North West, and Yorkshire and Humber.<sup>26</sup>

### Boosting productivity

Ultimately, the only way to achieve growth and prosperity is to improve the UK's faltering productivity. This is vital, considering that there has essentially been no increase in the amount produced per hour worked in the British economy since the Great Recession. Green Alliance's *Climate for Growth* report highlights how taking the steps towards Net Zero can contribute to rising productivity levels, and that their ability to do so is increasing over time.<sup>27</sup> Renewable generation is one of the most concrete examples of this trend – given that clean energy is now cheaper than fossil fuels, substituting the latter for the former means we can produce more for less, thus improving productivity.

## **2. What challenges and obstacles have you identified to decarbonisation?**

There are a number of barriers to the transition to a Net Zero power system, but through working collaboratively and constructively, the industry has developed the recommendations and solutions for how we can overcome these. With the support of Government, the industry can help to accelerate the energy transition and bring forward the economic benefits that it offers.

Key challenges to the transition include the planning process and timescales on decisions for infrastructure projects, the development of business models for emerging technologies, the closing of skills gaps in strategic sectors and the development of a long-term policy framework that provides confidence and certainty for the industry, consumers and investors. We will explore several of these key themes in the following discussion and offer solutions and ideas for removing these barriers in our response to question 3.

### A long-term policy framework that provides confidence

It is clear that a Net Zero power system and its economic benefits will only be realised through attracting significant investment into the UK economy. Attracting this investment can only be achieved by providing confidence to the market, and this confidence can be provided through long-term policy clarity and through accelerating the pace of delivering new policy frameworks. An example of this is the delay to the Energy Bill's progress in Parliament, which is damaging industry's confidence.

Contrastingly, there are several clauses in the Energy Prices Act 2022 which will have a significant impact on the energy sector at a time when investor confidence is needed more than ever to guarantee energy security. The energy sector's concerns include the open-ended powers being granted to the Secretary of State to intervene in the market, the Cost-Plus Revenue Limit proposals and the changes to the price cap on default tariffs. The Cost-Plus Revenue Limit means that the UK Government has now adopted a regulatory framework that prioritises fossil fuel investments over low carbon, and this could have a significant impact on investments in the UK.

### Transmission and network challenges and solutions

Effective approaches to the delivery of energy networks will be a critical enabler to accelerating the energy transition, but this requires industry to invest at pace – for example, to deliver the Government's target of 50GW of offshore wind by 2030, industry must deliver

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<sup>26</sup> <https://www.ukonward.com/reports/net-zero-labour-market-challenge-report/>

<sup>27</sup> <https://green-alliance.org.uk/wp-content/uploads/2022/05/Climate-for-growth.pdf>

more than six times the amount of electricity transmission infrastructure in the next eight years than has been built in the past 30 years. Unless we make decisions quickly and get the right regulatory and policy framework in place for the technologies that will form an important part of our future energy mix, we will not be able to deliver the investments needed at the required pace – which will ultimately be more costly for consumers.

Currently the main challenge with the electricity networks is the connections process; with a large pipeline of renewable projects and clean transport infrastructure (e.g., rapid charging hubs and decarbonising ports) facing longer connection timescales than anticipated. NGENSO is currently leading a Transmission Entry Capacity (TEC) amnesty alongside the Transmission Owners (TOs), which offers projects the opportunity to remove themselves from the connection queue without incurring the usual cancellation costs. NGENSO also shared their intention to reform the connections queue management process to introduce more rigorous milestones for developers on the connections journey, which will help NGENSO and the TOs accelerate the connection times for projects that are hitting these milestones. Consultation with the industry is due in the Spring.

Using forward planning data tools such as the Holistic Network Design and Electricity Ten Year Statement it is possible to drive anticipatory investment in the network, and this will be further enabled by the development of the Independent System Operator and Planner (ISOP) as a central planning body, a key measure in the draft Energy Bill.

The Holistic Network Design (HND) provides a high-level 'blueprint' for the UK's onshore network capacity needs and is a positive step towards giving visibility for developers and the supply chain. We would welcome clarity over who is expected to deliver the projects in the HND and see it endorsed in the National Policy Statements, so that developers can invest with confidence. Industry needs a regulatory regime that encourages and incentivises innovative thinking and approaches to accelerate delivery to serve the best interests of consumers. This requires an evolution of the regime which enables industry to move from a project-by-project approach to a programme approach, and sets the right framework for anticipatory network investment to ensure the infrastructure is ready when offshore wind farms want to connect.

We will only be able to achieve the transition to a more affordable clean energy future if we can bring communities with us on the journey, and it is critical that action on community benefits is brought forward in parallel. The establishment of a new community benefits framework for electricity transmission networks by spring 2023, building on the Government's commitment to consult in this area, presents a critical opportunity for industry, Government and the regulator to work together to deliver more ambitious plans for communities, for example supporting regional energy transition plans.

Generally reducing the burden of the connections process, such as a simplified third party works process, and better visibility of congestion across the distribution network will help remove these barriers. For deployment of all renewable generation, ensuring electricity network capacity can keep pace with ambition will be critical for the delivery of Net Zero and reducing the economy's dependence on imported fossil fuels. This is most evident with offshore wind and the electricity transmission infrastructure to connect it to the energy system, and the Offshore Transmission Network Review (OTNR) led by BEIS will be critical for the delivery of the UK's ambition for 50GW of offshore wind by 2030. Cross-cutting issues like consenting and planning will be important for deployment of network infrastructure.

Another key enabler would be to maintain pace in establishing an ISOP. Institutional Governance must evolve to reflect the changing nature of the energy system and we



welcome the plan to establish an ISOP, which should provide a holistic view of the energy system. Alongside passing the legislation to create the ISOP in this Parliamentary session, the transaction process must also be concluded promptly in order to maintain momentum on establishing this important new institution.

Finally, network operators, and particularly distribution network operators, need to make greater use of data through the digitalisation of their asset bases. One of the most significant barriers to connecting more energy resources at distribution level is the lack of visibility which network operators have of their own networks. One of the most important interventions that network operators can make at this time is to extract additional use and therefore value from existing capacity in the network through open and transparent flexibility markets. This should be prioritised in a coordinated manner alongside building new assets to ensure that the lowest cost approach to short- and long-term needs are delivered. However, the way in which existing assets will be maximised is through digitalisation to enable access to information as to the current capacity and potential of the grid at all levels.

### Consumer demand

Consumer preparedness for Net Zero, as well as access to independent and trusted information about what the transition will look like both represent barriers to demand for low-carbon products, services, and the uptake of the infrastructure necessary to achieve Net Zero.

By way of example, despite many of the benefits of smart meters being linked to Net Zero in communications to customers from suppliers, Government and third-parties, their obvious contribution to the energy transition does not appear to be a significant driver nor incentive for customers to have one installed. Consideration must be given to the mandating of relevant Government policies to deliver major infrastructure upgrades such as the rollout of smart meters, enabling industry to roll out these technologies effectively and at the lowest cost to consumers.

In contrast, demand for electric vehicles (EVs) is burgeoning with research by the Behavioural Insights Team (BIT), commissioned by Onward, finding that 38% of a sample of consumers in the West Midlands would favour an EV. When shown social norms messaging about the uptake of EVs increasing in their area, this rose to 43%.<sup>28</sup>

The visibility of positive messaging, and access to independent and trusted information is a key pillar of boosting consumer demand for Net Zero products, services and low-carbon infrastructure.

A report by Citizens Advice found that the process for households seeking to adopt low-carbon heating measures or install energy efficiency measures was too complicated, and that projects too often went wrong. They found that the consumer experience for seeking home energy improvements was extremely complicated, with a lack of clarity over roles and responsibilities, especially in the case of routes to redress.<sup>29</sup> These issues are hampering widescale roll out of retrofits.

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<sup>28</sup> <https://www.ukonward.com/wp-content/uploads/2022/08/Going-Green.pdf>

<sup>29</sup> <https://www.citizensadvice.org.uk/about-us/our-work/policy/policy-research-topics/energy-policy-research-and-consultation-responses/energy-policy-research/the-net-zero-protections-puzzle-helping-people-piece-together-home-energy-improvements/>

In the case of commercial customers seeking to invest in future-proofed assets and more low-carbon ways of working that will reduce their operational costs and boost efficiency and productivity, tailored information and guidance will also be necessary.

Perhaps the most significant barrier to consumers adopting low-carbon lifestyle changes and engaging with the transition to Net Zero carbon emissions is the often prohibitive cost of doing so.

In the case of improving the energy efficiency of existing buildings, the CCC noted that the UK Government should 'implement the Green Finance Taskforce recommendations around green mortgages, green loans and fiscal incentives to help finance upfront costs, as well as improving consumer access to data and advice'.<sup>30</sup>

In their report on the green mortgages market, the Green Finance Institute describes green mortgages as a 'nascent market' but identifies a 'huge' opportunity for lenders, noting that policy levers such as linking Stamp Duty Land Tax to EPC ratings would help unlock this market.<sup>31</sup>

By way of an international example, in Germany, the state-owned development bank, KfW, offers low-interest loans of up to €120,000 to fund installation of energy efficiency measures into homes as part of their Energy Efficient Renovation scheme. The scheme offers a subsidy of up to 40 per cent of the loan value. A higher subsidy is received for a higher standard of performance. For every €1 invested by KfW to incentivise energy efficient renovation, building owners were motivated to borrow and spend €6.<sup>32</sup>

In terms of achieving a level playing field for air source heat pumps, as well as a fairer outcome for consumers, Energy UK supports moving policy costs on energy bills into general taxation, which will bring down the running costs of these technologies for consumers. This will also help to address the perverse outcome that EPC ratings decrease where an air source heat pump is installed. This reform must be approached carefully, ensuring that important support schemes, such as the Warm Homes Discount, Energy Company Obligation, and CfD schemes, are not at risk of changes based on changes in Government. Government should consult with industry and others before making this change to give full transparency, and assess any potential for unintended consequences.

#### Engagement between industry, Government and the regulator

The speed of change and inconsistent level of engagement with relevant sectors seen across policy changes has increased uncertainty for the sector that could be resolved with appropriate prioritisation, resourcing, and close engagement with the energy sector and others.

This is in part because regulatory bodies and market administrators across the sector are understaffed and underequipped to deal with the mass of change processes required to keep the UK at the forefront of the transition to Net Zero. Delays are expected as standard across all change processes, and urgent changes are often put back by a number of years, undercutting the positive rhetoric and targets set by Government. This represents a significant barrier to maximising the opportunities for growth presented by Net Zero.

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<sup>30</sup> <https://www.theccc.org.uk/publication/uk-housing-fit-for-the-future/>

<sup>31</sup> <https://www.greenfinanceinstitute.co.uk/news-and-insights/unlocking-the-potential-of-the-uks-green-mortgage-market/>

<sup>32</sup> <https://publications.parliament.uk/pa/cm5801/cmselect/cmenvaud/346/34607.htm>

### **3. What opportunities are there for new/amended measures to stimulate or facilitate the transition to net zero in a way that is pro-growth and/or pro-business?**

#### A new energy efficiency scheme and long-term regulatory signals

Government support for a long-term energy efficiency scheme would directly stimulate activity in the retrofit supply chain, including the expanding of existing businesses and the creation of new jobs.

Insulation installers who responded to a survey conducted by Gemserv on behalf of EDF, E.ON, OVO Energy and ScottishPower, said that on average, they could increase their capacity by up to 66% after six months and 120% after one year if a £1bn scheme was to be brought forward, with long-term commitments to funding.<sup>33</sup> However, the main challenge that installers cited to delivering an increased volume of retrofits was the availability of a qualified workforce. 96% of respondents said that they would expect an increase in new jobs with the implementation of a long-term and ambitious Government-backed energy efficiency scheme.

Energy UK published a policy report setting out a proposal for a scheme design, *ECO+*, in which it called for a pathway to an annual scheme budget of £1bn to match existing fuel poverty schemes, and a commitment to funding for at least five years so as to provide consumers and installers who have been adversely impacted by previous Government energy efficiency schemes with sufficient confidence to invest.<sup>34</sup> It is essential that in the design of this scheme, the lessons learnt from the policy design of the Green Homes Grant scheme are brought forward.<sup>35</sup>

Linked to this, legislating for long-term targets such as the phase out date of gas boilers or the setting of minimum energy efficiency standards for buildings helps to send strong signals to the market and creates a clear case for investment.

#### Market-based mechanisms to boost domestic manufacturing

Establishing mandates like the proposed ZEV (Zero Emission Vehicle) mandate and the market-based mechanism for low-carbon heat will drive growth in nascent sectors if appropriately ambitious and deliver clear investment signals to businesses that must transition in order to continue to be relevant both in the domestic market and on the international stage. Providing stable, long-term signals to businesses is key, because this is what enables them to build business models and secure investment.

By bringing forward the legislation proposed in the Energy Bill, the Government can send a strong message to the market to start investing in low-carbon propositions.

#### Turbocharging the smart meter roll out

At any one time, the smart meter rollout supports the training and employment of over 6,000 installers who are qualified gas and electricity engineers, trained to high levels of health and safety. These are transferable skills that could be adapted to innovative new industries emerging from the Net Zero transition.

Mandating the installation of smart meters at the earliest possible opportunity to help improve efficiency, lower costs that are passed on to consumers, and enable the smart meter installation workforces to move on to installation of low carbon technology devices

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<sup>33</sup> [https://gemserv.com/wp-content/uploads/2022/07/ECO-supply-chain-market-research\\_report\\_010722\\_final.pdf](https://gemserv.com/wp-content/uploads/2022/07/ECO-supply-chain-market-research_report_010722_final.pdf)

<sup>34</sup> <https://www.energy-uk.org.uk/index.php/publication.html?task=file.download&id=8297>

<sup>35</sup> <https://www.nao.org.uk/reports/green-homes-grant/>

such as heat pumps, EV charge points etc. would also unlock significant capacity and opportunity across the value chain. The benefits of increasing smart data uptake cannot be understated in terms of the opportunities for Net Zero-orientated growth.

### Energy Storage

To support the rapid deployment of renewables, removing constraints and maximising benefits to consumers and the system in the transition to Net Zero, it is also vitally important that the Government creates a best-in-class regulatory framework for electricity storage at all scales and durations.

A range of energy storage technologies will be needed to provide significant grid flexibility, helping to address many of the challenges presented by a shift to a Net Zero power system, including maintaining energy security. The Government needs to accelerate efforts to remove the current barriers to deployment, particularly for large-scale long-duration electricity storage. Greater clarity around the funding mechanism for large-scale energy storage would also boost investment in this sector, and Government has already consulted on a range of options. Established technology providers in the UK are looking to invest to expand capabilities, and those providing innovative technologies are looking to locate in the UK. Delaying clarity on the investment model risks the UK being left behind as these investors look elsewhere.

Finally, greater support for the incentivisation of co-location of storage assets with generation, and of the co-location of storage with large demand assets behind network constraints, is also important. Energy UK supports the Transmission Network Use of System (TNUoS) reform to these ends.

### Digitalisation of the energy system

A smart, flexible and more secure energy system is essential for enabling market conditions that support the delivery of a Net Zero power system and to empowering consumers to engage with the opportunities presented to them by Net Zero and demand side response.

Digitalising the power system will help energy to be distributed more efficiently as part of the future energy system, and this will also better support balancing processes to respond to significantly higher demand on the grid and flatten peaks.

The UK currently holds a competitive advantage in flexibility markets and services due to the nature of our energy system and expertise in the technical, scientific and communications services that go into demand side response and energy smart appliances capital projects. Building on this competitive advantage will create a new, global market for our technology companies.

The risk of a standards-based approach by Government to regulating this emerging sector, incorporating burdensome compliance requirements or stringent Government arrangements would hamper innovation and limit the capacity of the UK to export these products and services.

Significantly increasing the roll out of smart meters is essential to ensuring the success of this market.

### Unblocking the planning system to unleash the potential of onshore wind and solar

Making the planning system fit for purpose to facilitate greater and faster private investment in cheap low carbon energy at the pace required is essential. This should be accompanied by clear, consistent, and streamlined policies that will allow the prioritisation of low-carbon

projects and their swift approval, and include the development of a community benefit framework.

With regards to the deployment of onshore wind and solar power, the planning system is causing difficulties for businesses looking to expand their services and for investors seeking to commit finance to these promising industries.

The onshore wind sector represents significant opportunities for the development of UK industry, regional growth, and the creation of jobs. There are several interventions that Government can make to turbocharge this industry and boost UK energy security. These include:

- Footnote 54 in the National Planning Policy Framework is an urgent priority for review of requirements and wording which acts as a de facto ban on onshore wind. The requirement to have onshore wind in local development plans needs to be removed to ease restrictions on development of onshore wind where there is potential and community support.
- Revisit amendments made in the Town and Country Planning Act with particular note to Section 61W. This places an additional requirement on onshore wind projects for mandatory consultation even at the pre-application stage which is onerous.
- Classifying onshore wind as NSIP (Nationally Significant Infrastructure Projects). Contrary to other large critical infrastructure, onshore wind project applications (even larger plants above 50MW) are decided by local authorities rather than the Secretary of State which has significantly slowed down approval. Approval for planning applications should be granted by the Secretary of State under the NSIP regime to accelerate the process.
- Updating the energy National Policy Statements to support new onshore wind projects and providing a target for onshore wind.
- The Energy Security Strategy committed to consult on developing local partnerships for communities who wish to host new onshore wind infrastructure in return for benefits, which would be a welcome first step on community engagement.
- Providing clear guidance for local authorities to support planning applications.

Regarding solar, the most significant barrier and therefore opportunity to unleash deployment of renewables is the banning of solar on 3b land. The Government's targets in the Energy Security Strategy published in April included plans to increase the UK's solar capacity up to five times by 2035, which would include increasing ground-mounted solar by around 38GW. It would be extremely hard to achieve these targets if there is no level playing field for solar.

Currently, most solar farms are built and planned under land that falls under category 3b (moderate quality agricultural land), which are less productive lands for food production but flat enough for installing solar panels. Lower categories of land are often upland areas, which are not as suitable for installing solar farms.

Extending BMV (best and most versatile) to grade 3b would ban solar from about 41% of the land area of England, or about 58% of agricultural land. Much of grade 4 and 5 land is in upland areas that are unsuitable for solar developments. This would curb the development of solar power, skewing the planning system against solar technology. Changing regulations could threaten over 30GW of projects in the pipeline, which could risk over £20 billion of capital investment into the UK's energy sector and economy.<sup>36</sup>

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<sup>36</sup> <https://www.ft.com/content/c40c33e2-0684-40de-a0af-1ec2e77e1abd>

Reform of the planning system is a particularly useful tool to Government because it can be done at extraordinarily little public expense. The state is currently actively preventing private investment in Net Zero – unleashing that economic opportunity is vital to realising potential growth.

### Energy Market Reform

With the UK Government's focus on delivery of low-carbon infrastructure and the importance of accelerating the rate of investment over the next 10 years, reform of the energy market should focus on evolutionary improvements of existing mechanisms and ensure coherence across development of the range of policy and regulatory mechanisms to avoid closing off future options. With the need for a 'build focus' in the coming decade, more fundamental changes should be avoided unless a robust case for change has been made, accounting for trade-offs given the disruption and distraction they could cause. In the event that a case for more fundamental change in a given area can be made, it will still be important to consider the knock-on implications given that existing policy mechanisms would likely need to be reorientated to mitigate the negative impacts that would arise.

The development of innovative business models, supported by the appropriate regulatory framework, to better support the development of innovative technologies, including CCUS, hydrogen and MPis, is linked to this.

It is also important that this reform considers the sustainability of the energy retail market, and the way in which suppliers' relationships with their customers may change in response to the changing power system.

### Developing markets for CCUS and hydrogen

Energy UK supports the Government continuing its progress on developing the Dispatchable Power Agreement (DPA) as a business model to bring forward power CCUS in the 2020s, requesting feedback from the first projects and adapting to how the market will react before consolidating this model. Continuing this process will increase investor confidence if and when additional projects pass through each phase.

Energy UK supports a forward-looking approach and a policy framework that supports innovation in the diversification of revenue streams for CCUS and hydrogen. Building in regular reviews over this period will support the market to adapt to changes in market conditions.

The DPA has been designed to address route to market challenges for power-CCS projects. This is going to be reviewed by industry, to understand the range of alternative business models that support an enduring market rather than FOAK projects.

Running competitive allocations in the 2020s would be welcome. There's likely to be a capacity gap as the decade progresses, with older capacity retiring and demand increasing through electrification. Power-CCS is one of the flexible, dispatchable low-carbon technologies that can help deliver security of supply and Net Zero in a way that is pro-business and pro-growth. Increased policy clarity and ambition will be one of the key drivers for increasing investment in power-CCS, and subsequently growing the UK supply chain.

## **4. What more could government do to support businesses, consumers and other actors to decarbonise?**

### Joined-up thinking in Government

The Net Zero Buildings Council which brings together industry, the Department for Levelling-Up, Housing and Communities (DLUHC) and BEIS is a welcome step by Government to take a holistic view of a complex policy area. This approach should be adopted for other sectors, and Government should encourage a cross-departmental approach to policy making to send the message that Net Zero is a priority. For example, stronger collaboration between DLUHC and BEIS in accelerating the smart meter roll out in such instances as change of tenancy, in public sector buildings, or with regards to updates to the Building Regulations, would help demonstrate that this is a priority area providing the infrastructure and data necessary to help decarbonise the grid.

#### Establish a Net Zero Test

Energy UK advocated for the inclusion of a Net Zero Test within the Energy Bill. This would signal the value of Net Zero economy in terms of growth, but also its wider benefits such as its environmental and health benefits, and ensure that all regulation that is brought forward directs investment to building a more sustainable and prosperous future by being in line with the Government's legal obligation to achieve Net Zero carbon emissions by 2050.

This policy would provide the Secretary of State with appropriate powers to examine and review the policies of other departments to assess their compatibility with the country's Net Zero target.

#### Bringing forward immature technologies

Consistent funding for research, development and deployment in immature technologies is vital to achieving Net Zero and to de-risking innovative technologies as an investment. This is even more important considering the current gas crisis and the urgent need to advance new areas of the economy through emerging technologies. Technologies such as power CCUS, hydrogen power and electricity storage solutions have not yet been deployed or manufactured at scale and the first nation and businesses to do so will be able to benefit significantly. A delaying factor in investment is that even if the technology, for example CCUS, is proven to work, regulations need to be decided now to allow it to be deployed as soon as it's manufactured. Decisions as to where the technology can be used, the regulations and associated obligations all need to be made now.

In order to further benefit the UK's CCUS economy and global CO<sub>2</sub> emissions, the advancement of technology and strengthening of regulations governing the transportation of CO<sub>2</sub> need to be brought forward.

### **5. Where and in what areas of policy focus could net zero be achieved in a more economically efficient manner?**

In our response to question 3, we highlight a number of areas in which policy reform would help achieve Net Zero in a more economically efficient manner, in particular through streamlining and unblocking the planning system.

Indeed, the previously mentioned report by Oxford University which identified that the faster the transition to a cleaner energy system, the cheaper it will be compared to a slower transition, or no transition at all, means that bringing forward early investment at scale will support an economically more efficient transition than lower-level financial support over the longer-term.<sup>37</sup>

There are a number of areas which require further consideration, and these are as follows.

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<sup>37</sup> <https://www.smithschool.ox.ac.uk/news/decarbonising-energy-system-2050-could-save-trillions>

## Taxonomy

Aligning the tax system with Net Zero could encourage investment and incentivise producers and consumers to switch to lower carbon technology (e.g., VAT treatment of low carbon technologies and energy efficient materials, Business Rates reform, tax surrounding ICE vehicles etc). Some consideration of ensuring that carbon is priced at an appropriate level throughout the economy is important in order to achieve Net Zero in a more economically efficient manner. This is explored further in our response to question 7.

Furthermore, reforming tax rules for generators around capital allowances to better incentivise investment in more efficient, long-lasting infrastructure is also important, as is maintaining a positive environment for investors through delivering long-term clarity and preventing stop-start support schemes. For example, building on the success of initiatives such as CfDs by creating instruments that provide the certainty that allows investors to lower the cost of investment.

## Devolution

Devolving responsibility for delivery, where appropriate, to local and regional areas to enable tailored community engagement, effective utilisation of local assets, and accelerated timelines where applicable will also create efficiencies. This will enable the market to develop, delivering economic and supply chain benefits for the whole of the UK.

An example of this working in practice is the smart meter local pilot but this could be extended to Local Area Energy Planning. Energy UK supports the Government providing powers to the Secretary of State to establish a national framework for this innovative new decentralised approach by setting out a common methodology and funding approach.

## Strengthening the role of the regulator in delivering Net Zero

Ofgem must have a clear responsibility for delivery of Net Zero within its statutory duties, and Energy UK welcomes the Government's commitment to reviewing the regulator's duties and to publishing a Strategy and Policy Statement for Ofgem. In the anticipated Review of Energy Regulation, we hope that a wider consideration of the remit, resource, and suitability of Ofgem for the role of delivering such wholesale change is considered. Adopting this joined-up approach will support efficiencies across the industry.

### **6. How should we balance our priorities to maintaining energy security with our commitments to delivering net zero by 2050?**

#### Investing in domestic low-carbon generation supports energy security

Investing in homegrown, low-carbon generation will help create jobs, drive growth, reduce emissions and shield our energy system from future external shocks. Continued support by Government for renewables is crucial to sustaining their deployment. This support must include a legislative and regulatory landscape that provides the long-term certainty needed to encourage investment in the UK, as well as more work being done on promoting public support for renewables.

Voluntary CfDs represent a significant opportunity to boost renewable energy generation, and the Government should build on the success of these initiatives to provide the certainty that allows investors to lower the cost of investment. Energy UK was supportive of the recent proposal brought forward in the Energy Prices Bill to this end.



The Capacity Market (CM) has been successful in driving investment in generation capacity and ensuring security of supply. The CM has an essential role to play in a decarbonised power sector, but requires reform before enabling low carbon generation to provide security of supply. Modified, it can bring forward the necessary investment in new low-carbon flexible or dispatchable capacity that will support a power system made up of a high proportion of intermittent renewables. BEIS should continue to consider reforms to the CM through REMA and the forthcoming consultation on aligning the CM with Net Zero.

We will continue to require a diverse generation mix to deliver all of these priorities for consumers, so consideration of this within wider market reforms under REMA will be critical to success.

The following section is a discussion of the opportunities presented by a range of generation sectors that could strengthen UK energy security while delivering on Net Zero by 2050:

#### A. Onshore wind

Onshore wind provides one of the cheapest and quickest ways to expand our domestic renewable energy generation, helping to keep bills down for consumers. It is also widely supported by communities, with a poll finding that 67% of people would support an onshore wind farm being built close to where they live.<sup>38</sup>

#### B. Offshore wind

The UK is one of the world's technological leaders for offshore wind, and represents a significant opportunity to grow further through increased investment in research and development, and deployment in this sector. Through investment and development, the cost of offshore wind has reduced by 65% in just seven years, and recent auction rounds awarded offshore wind projects at the lowest cost ever.<sup>39</sup>

To realise the opportunity of floating wind, the Government should look to enhance the existing industrial strategy for the wider sector and look to remove the barriers to growth. This should include ensuring that the CfD allocation framework procures benefits for this industry and supports policies that unlock further investment, for example in port infrastructure. This should be progressed in full consultation with the sector.

In order to fully exploit the potential of offshore wind (particularly in the North Sea) it is vital that we co-operate and co-ordinate with our European neighbours. This approach would deliver the most efficient build out of offshore wind and ensure that, when operational, it is most efficiently utilised and delivered to the nations that need it most, delivering benefits to all nations involved. We welcome the recent positive steps for Great Britain to resume its participation in the North Seas Energy Cooperation and would urge the Government to make this happen as soon as possible.

#### C. Nuclear

Energy UK welcomes the ambition for new nuclear development set out in the recent Energy Security Strategy, including the plans for eight more reactors across the next series of projects and up to 24GW by 2050.

The national and regional economic benefits of investment in new nuclear are considerable. In relation to the under construction Hinkley Point C (HPC) project in Somerset, around

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<sup>38</sup> <https://www.blog.renewableuk.com/post/why-are-government-interested-in-onshore-wind>

<sup>39</sup> <https://www.gov.uk/government/news/biggest-ever-renewable-energy-support-scheme-backed-by-additional-265-million>

~64% of the value of HPC contracts are with UK based companies. To date £4.1bn has been spent with companies operating in the South-West of England, and more than £1bn with companies across the North of England. More than 1,000 apprentices have been recruited so far on to the project and in total around 3,800 British businesses and 22,000 people across the UK are working on the project. Three new Training Centres of Excellence, specialising in welding, mechanics, and electrics, have been opened as part of the project and more than 15,000 people have been trained in Somerset at the Construction Skills and Innovation Centre.

A project like Sizewell C will also deliver comparable economic benefits to the local community and beyond. It will be important to ensure that the details of Regulated Asset Base (RAB) funding model, when brought forward, delivers the best value for customers through appropriate risk sharing arrangements which will achieve financing at a lower cost of capital.

Securing long-term funding for nuclear reactors and making decisions earlier, particularly with respect to extending the lifespan of existing reactors, will help remove barriers to unlocking the potential of this sector. EDF is investigating the potential for a twenty year life extension for the UK's pressurised water reactor, Sizewell B.

A key element of the future nuclear opportunity lies in the development of SMR (Small Modular Reactor) and AMR (Advanced Modular Reactor) technologies. These technologies present a huge opportunity to the economy in terms of technological innovation, job creation and export potential. For example, the Rolls Royce SMR received a £100 million investment from BEIS and are aiming to produce enough energy for one million homes. SMRs and AMRs provide less power per reactor than a conventional large nuclear power station, such as Hinkley Point C. But their intended use is as a cheaper and quicker way to generate the new, low-carbon power the UK needs. If commercially viable this presents a huge opportunity to the economy. Support must therefore be provided to SMR and AMR technologies to help them scale up the supply chain to achieve cost reductions and to continue developing the technology.

We therefore welcome the decision to establish the Great British Nuclear vehicle (GBN) announced through the Energy Security Strategy with the scope to remove barriers and speed up delivery of new nuclear, including GW scale, and Advanced and Small Modular reactors. GBN can help bring forward nuclear projects by ensuring appropriate focus on, and timely identification and resolution of, key issues related to new nuclear development. It can also provide dedicated support to nuclear projects taken forward in order to expedite these through to delivery (through regulatory processes, resourcing / supply chain support etc).

GBN can provide an informed view about potential technologies, including nuclear fusion, and the optimisation of the limited UK nuclear sites and projects to support Government decision-making. The nuclear sector roadmap provides an opportunity to set out a coherent plan which encompasses all aspects of the nuclear sector. It should also highlight that the important role that nuclear (alongside renewables) can play in low carbon hydrogen production, with heat from nuclear creating the potential for efficient hydrogen production on the scale that will be needed to decarbonise large parts of UK industry.

#### D. Hydrogen

The Government's ambition for up to 10GW of low carbon hydrogen production capacity by 2030 will help to create a thriving hydrogen economy in the UK.<sup>40</sup> The focus should be on making sure gas is directed to the highest value/lowest cost uses.

Hydrogen has a role to play in the power sector, supporting increased renewable capacity when coupled with electrolysers and large scale storage. This supports it being used as a low-carbon fuel that can be used to decarbonise flexible, dispatchable power stations. Development of business models for transport and storage needs to progress at pace, as well as further exploration of demand-side incentives, would support a more cohesive growth of a hydrogen economy. The deployment of hydrogen, along with CCUS, could also protect existing jobs in the power sector; extending the economic life of existing power generation sites that are typically in industrial areas, while also creating new skilled jobs in these technologies.

Of utmost importance is for the Government to continue bringing forward the draft Energy Bill, which makes provision for measures to develop a market framework for CCUS and hydrogen projects. Legislating for a policy framework for CCUS and hydrogen networks and storage will enable investment to come forward and develop projects at pace. Ensuring delivery bodies have the necessary powers and funding to deal with projects in a timely way will provide a legislative basis to execute the required business models. Accelerating the permitting and construction of CCUS and hydrogen infrastructure will help maximise the deliverability of the project pipeline and attract investors before they look elsewhere.

#### E. Biomass

Energy UK members are also looking to grow existing production of power through biomass in the UK, and this represents a potential area of growth. Across this sector, the role of Governance and regulation is vital in ensuring that natural climate solutions are not being impacted by this generation, and to provide confidence for building public perceptions and attitudes that support this generation.

Bioenergy with Carbon Capture and Storage (BECCS) will produce renewable dispatchable power alongside negative emissions. Negative emissions will be critical to decarbonise hard-to-abate sectors of the economy such as aviation and agriculture. The government has set an ambition to deploy at least 5 MtCO<sub>2</sub> of negative emissions by 2030. This will require business models to support the deployment of technologies such as power-BECCS, to be in place as soon as possible to enable investment in these projects.

#### F. Gas

Biomethane has the potential to reduce the UK's reliance on imported gas, supporting energy security. There is significant potential in this space with CNG Services identifying that the UK has 143 biomethane to grid projects registered under the NDRHI, with a further 31 projects in the pipeline.<sup>41</sup> Another 45 biomethane plants are also expected to be developed over the life of the Green Gas Support Scheme.

Gas also has a transitional role to play in the pathway to Net Zero. Existing gas-fired power stations are likely to see reducing load factors in the coming years, but will still play a role in ensuring security of supply as we build out low-carbon alternatives.

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[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1067408/hydrogen-investor-roadmap.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1067408/hydrogen-investor-roadmap.pdf)

<sup>41</sup> <https://www.cngservices.co.uk/green-gas-days/>

## G. CCUS

Amongst the key barriers to scaling-up this industry includes the scale of the investment needed, as well as labour costs and productivity challenges. These are acting as blockers to the competitive nature of the UK's emerging industry. In addition, the lack of process for developing beyond Track 1 Clusters, and Phase 1 Projects within these clusters, could damage progress. Low-carbon flexible power could be provided by CCUS and hydrogen. The commitment to at least one power CCUS project by the middle of the 2020s, and no clear policy ambition for hydrogen in power is limited compared to what is needed if we are to deliver a net zero energy system by 2035, and up to 10GW of power CCUS could be needed on the system to meet the requirements of the sixth Carbon Budget. Increased policy ambition and a clear framework would support the industry in building out the pipeline and investing in the skills and jobs required.

Solutions to removing these barriers include a clear policy framework that sets out the future role of CCS in the UK power industry, and strong action from the construction industry in investing in developing skills and training. What is also needed is clear Governance guidelines and regulations such that roles and responsibilities are clearly defined. The Government should continue with bringing forward the regulation set out in the draft Energy Bill.

As set out in the Ten-Point plan, the Government's ambition is to deploy CCUS in two industrial clusters by the mid-2020s and a further two by 2030 in order to help the UK meet net zero and Carbon Budget 6 targets. Clarity is needed over the timetable for, and process to select the Track 2 clusters to meet Government's ambition for 4 clusters by 2030. Across both Track 1 and Track 2 clusters, developers and investors also require signalling over the available budget to support establishment of the CCS industry in the UK.

However, this can only be achieved if the Government urgently finalises the legislation, business models, support packages and licence arrangements for CCUS and hydrogen in order to provide certainty to developers.

### Boosting flexibility and demand side response

Demand side response should be a crucial part of the UK's plan to strength its energy security, and this can be achieved by accelerating programmes that enable consumers to adopt technologies that enable this, and retail market reform is needed to allow energy suppliers to develop holistic new products and services for their customers.

The cheapest energy is the energy that we don't use, and reducing demand for domestic heating through a comprehensive energy efficiency scheme will provide essential support for customers struggling with rising energy bills while reducing the UK's reliance on imported gas.

As discussed in our response to question 4, Energy UK supports an evolutionary as opposed to revolutionary approach to the reform of energy market arrangements. We support policy reform being brought forward in consultation with industry and at a pace that allows for consideration and engagement with industry, Government and consumers where appropriate in order to deliver energy security while transitioning to a low-carbon energy sector.

### **7. What export opportunities does the transition to net zero present for the UK economy or UK businesses?**

The Government estimates that the global market for low-carbon exports is projected to reach almost £2 trillion by 2030.<sup>42</sup>

The UK has a comparative advantage in export of financial, technical, scientific, professional, and information and communications services. UK climate tech start-ups saw a 210% growth in investment year-on-year in the 12 months prior to H1 2021, and the UK saw more climate tech companies receive venture funding than any other European country between 2013 and H1 2021. All of these input into Net Zero capital projects, i.e. building, energy efficiency provisions, low carbon transport, and grid reinforcement. Globally, UK companies are well-positioned in all of these areas, but uncertainty has acted as a barrier to delivery at scale.

Developing new supply chains and onshoring manufacturing capabilities could contribute to job creation, as well as delivering export potential and reducing costs for UK consumers. Bolstering domestic production of rare earth minerals needed for EVs could support the UK's critical mineral security, but also create a new export opportunity. Indeed, the UK is beginning lithium exploration (Cornish Lithium). Elsewhere, the Government is already supporting businesses to invest in developing the domestic supply chain for heat pumps.

### Removing barriers to trade

Whilst Net Zero presents a magnitude of UK export opportunities, it is important to note the current barriers facing UK exports.

The introduction of Carbon Border Adjustment Mechanisms (CBAMs) should not act as a barrier to trade between nations whose decarbonisation and climate commitments are aligned. According to the draft EU CBAM regulation, the UK is not currently among the list of third-countries exempt. Any additional costs and administrative burdens placed on UK electricity exports to the EU may inadvertently disincentivise the trade of low-carbon electricity over interconnectors between GB and continental Europe; stifling the build-out of renewable generation required to meet Net Zero.

Additionally, the UK's Emission Trading System (ETS) remains dwarfed by the EU's well-established, more liquid carbon market. The higher carbon price of the UK ETS means that UK companies are paying substantially more than they are in the EU to produce carbon; thereby placing British businesses at a competitive disadvantage to their EU counterparts, and hindering exports.

The potential for an EU CBAM reinforces the need for continued high ambition and convergence with EU policies on carbon pricing and borders to ensure the competitiveness of UK businesses. Government should continue to pursue multilateral engagement and solutions with the EU whilst the CBAM proposal is still in the early stages of development, including commencing action towards linking the UK and EU ETS.

### Questions for businesses

#### **8. What growth benefits/opportunities have you had, or do you envisage having, from the net zero transition?**

The transition to Net Zero has provided and will continue to provide incredible growth benefit and opportunities to British business, and in multiple aspects, from attracting investment and

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<sup>42</sup> <https://www.gov.uk/government/news/green-trade-crucial-to-economic-security-and-net-zero-says-international-trade-secretary>

increasing export potential, to locating manufacturing of Net Zero compatible products to the UK and locking-in growth in green jobs. Ultimately, this growth path requires a detailed policy plan from Government in delivering the target to send clear signals to industry and position the UK as a global leader and hub in the transition.

Clear policy signals on Net Zero will prime UK markets and industry for attracting investment in new low carbon technology, simultaneously locating manufacturing of these technologies in the country. Consequentially, export potential to new markets will grow, whilst green credentials will continue to increase customer traction at home and abroad as is already being seen with new sales markets for 'green steel', which the UK has the potential to become a global leader in producing.

Increased investment will also catalyse growth in green jobs, in particular in the manufacturing, design and installation of low carbon technologies across the country.<sup>43</sup> For example, with appropriate policy signals boosting investment in and locating EV battery manufacturing to the UK, the battery workforce is projected to have 78,000 new jobs created in gigafactories and battery mineral supply chains by 2040.<sup>44</sup>

#### **9. What barriers do you face in decarbonising your business and its operations?**

N/A

#### **10. Looking at the international market in your sector, what green opportunities seem to be nascent or growing?**

Products and services in energy efficiency, low-carbon heating and low-carbon transport are some of the fastest growing sectors in Western Europe and North America. In particular, the smart systems markets within these spheres are nascent yet highly innovative, especially in the UK. Due to the nature of our energy retail market, the UK has a greater number of, and greater variety in, individual smart energy devices and services than many other countries. This market is therefore opportune for the UK to become a global leader in if clear policy signals are delivered.

Similarly, the renewable generation, energy storage, hydrogen and CCUS spheres are all innovative sectors that provide great opportunity for growth in the UK, and therefore potential in international markets, in particular in exporting energy to mainland Europe.

#### **11. What challenges has the net zero transition presented to your business?**

Following changing regulations and updated guidance when these have not been provided in a timely manner or with detail on, for instance, when certain obligations apply to and when, has been a challenge for some businesses in transitioning to Net Zero. However, these regulations have nonetheless delivered growth in new sectors across the energy sector and such challenges can be mitigated through timely clarity and detail from regulating bodies.

Delays or issues in Scope 3 emissions reductions have also impacted the achievability of certain business' Net Zero goals as these emissions are often much harder to account for. Supply chain issues such as the global shortage in silicon chips and semi-conductors has similarly led to global and industry-level competition for these materials which has impacted the cost and efficiency of the smart meter rollout.

Finally, hiring those with the correct skillset for Net Zero enabling jobs has been a challenge for certain businesses given inconsistency in the process of upskilling and reskilling to date.

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<sup>43</sup>[https://faraday.ac.uk/wp-content/uploads/2020/03/2040\\_Gigafactory\\_Report\\_FINAL.pdf](https://faraday.ac.uk/wp-content/uploads/2020/03/2040_Gigafactory_Report_FINAL.pdf)

<sup>44</sup> <https://www.faraday.ac.uk/success-stories/charging-up-north-east-battery-workforce/>

However, industry is aware of where skills gaps reside and further engagement from Government on addressing this issue will help mitigate this challenge and deliver further green job opportunities for the UK.

### **12. What impacts have changing consumer choices/demand had on your business?**

Broadly speaking, changes in consumer demand and choice is welcomed and in some cases desired by energy sector businesses. On the one hand, although growth in electricity demand has put significant strain on electricity networks, network reinforcement alongside a more varied and renewable generation mix has managed costs.

Simultaneously, increased consumer willingness to engage with low carbon technologies such as electric vehicles and varied energy retail tariffs to reduce bills has catalysed change in business models for energy retail companies with multiple offering, or due to offer, agile green tariffs. In allowing consumers to use electricity at a lower cost, whilst enabling energy to be more efficiently distributed on the system, such demand side response services manage costs for the electricity network and ultimately lower bills for all consumers.

### **13. What impacts have decarbonisation/net zero measures had on your business?**

Decarbonisation is fundamentally transforming how the energy sector operates as the industry transitions to new technologies, products and funding models. Ultimately, as electricity plays a larger role in our lives and the economy, this will result in a larger sector, generating more electricity and offering a wider range of products and services to consumers.

On the generation side, switching from a primarily fossil fuel fleet to a primarily renewable fleet entails a number of changes, beyond the sheer scale of the investment needed. Different technologies in different locations require changing mixes of skills, inputs and supply chains – building and operating an offshore windfarm is a different endeavour to a gas power plant. It is essential for industry and the Government to consider investment in skills and support for individuals and businesses in legacy sectors to ensure a just transition.

Shifting towards renewable generation is also seeing a pivot towards capital, rather than operational expenditure. This requires new funding models, such as the successful CfD programme. Products like storage and hydrogen will require new business and funding models for them to fulfil their potential in transitioning electricity production to Net Zero.

There is possibly even more scope for innovation and expansion on the retail side of the energy market. Here, businesses can much more offer “energy as a service” as households and businesses electricity their transport and heating and can produce and store electricity on site. This provides opportunities for services that can better manage energy use to save money and provide flexibility to the grid. The upfront costs of these new home technologies also provide opportunities for energy companies to create new funding packages. Overall, this will require radically rethinking what an energy supplier is and the relationship it has with its customers. This will probably see a shift towards a more consumer orientated, tech-driven way of operating. A different mix of staff, skills and supply chains will be needed to deliver these changes.

### **14. What more could be done to support your business and/or sector to decarbonise?**

At a high level, businesses can be further supported by Government bringing forward the correct foundational frameworks, including on institutional governance, markets, regulatory frameworks and planning reform. These frameworks will support businesses to take advantage of the growth opportunities presented by Net Zero.

For greater detail, please see member responses.

**15. Do you foresee a role for your business within an expanded UK supply of heat pumps, energy efficiency, electric vehicles, hydrogen economy or clean power?**

The entire supply chains for the stated technologies are substantive and therefore offer various opportunities for new businesses and sectors to be involved with and benefit from the transition to Net Zero. The electric automotive and charging infrastructure industry offers multiple green job opportunities from the manufacture of cars and installation of chargepoints, to the development of the smart technology for services which connect EVs to other home energy devices. This supply chain in particular is highly skilled and required throughout the country given the geographical spread of charging infrastructure required.

Similarly, the hydrogen industry presents opportunities in a multitude of sectors from energy storage to niche agricultural equipment. Though market freedom must be upheld for technology to develop and expand where it is best suited, Government should look to prioritise areas with a clear business case, including industrial use and power generation.

Finally, given the nature of the energy efficiency industry and its breadth, from insulation materials to smart metering, this 'low hanging fruit' makes a significant difference to UK emissions whilst creating green jobs across various skill levels.

**16. For clean power industry: what barriers to entry have you found in deploying new plant and technologies?**

We would like to refer back to a number of the barriers and solutions that we identify in our responses to questions 3 and 6, and highlight the enduring need for policy certainty that provides confidence to investors looking to invest in the UK's transition to a Net Zero power system.

To expand on these points, barriers to entry in deploying new plants and technologies centre around locational challenges. Firstly, plants require an extensive process of planning permission to be built in areas with the correct natural resource, for example on coastlines if sea water is required for cooling purposes.

Secondly, it is only cost-efficient to locate new plants in areas of employees with the appropriate skillsets to fulfil the roles required, whilst citizens of that area must also be supportive of the technology being built. Traditionally, there has been a lack of public support for nuclear plants and onshore/offshore wind turbines being built near homes, though changing attitudes towards these facilities and increased public understanding on the necessity of these technologies to reach Net Zero has resolved some tensions. However, continued engagement from industry coupled with Government-led education on the value of such plants, and the wider Net Zero transition, and consistency in funding them is required to ensure that both local communities and the sector continue to reap the associated job-benefits and economic growth of the clean power sector.

**17. How many green jobs do you estimate will be created in your sector by 2030**



Given the scale and breadth of the transition to Net Zero, the overall impact on job creation and job-resilience in the sector will be substantial and therefore difficult to quantify. Every renewable asset and new low carbon technology holds a considerable supply chain from the manufacture of individual products, to their service provision, delivery and even recycling of materials.

These processes are also specialised and therefore job growth in the transition sector will be of highly skilled and highly paid workers, required across the country given the locational necessities on manufacturing facilities and that the installation of distributed low carbon energy assets must, ideally, be spread to every home or local area in the UK.

We advise Government to collate evidence from Member responses on total expected job figures, and to look to the following publications for baseline information: The Local Government Association<sup>45</sup>, the ONS' *The Challenges of Defining a Green Job*<sup>46</sup>, the Department for Education's 2020 *Working Futures Report*<sup>47</sup> and National Grid's *Building the Net Zero Energy Workforce*.<sup>48</sup>

We also provide further detail in our response to question 1.

### **Questions for the public**

**18. Have you or are you planning to take personal action to reduce your carbon emissions (for example through how you travel, what you buy, how you heat your home)? If so, how?**

N/A

**19. Do you face any barriers to doing this? What are they?**

N/A

**20. What would help you to make greener choices?**

N/A

**21. What is working well about the measures being put in place to reach net zero?**

N/A

**22. What is not working well about the measures being put in place to reach net zero?**

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<sup>45</sup> <https://www.local.gov.uk/local-green-jobs-accelerating-sustainable-economic-recovery>

<sup>46</sup> <https://www.ons.gov.uk/economy/environmentalaccounts/methodologies/thechallengesofdefiningagreenjob>

<sup>47</sup>

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/863506/Working\\_Futures\\_Main\\_Report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/863506/Working_Futures_Main_Report.pdf)

<sup>48</sup> <https://www.nationalgrid.com/stories/journey-to-net-zero/net-zero-energy-workforce>

N/A

**23. Do you have any further comments on how efforts to tackle climate change are affecting you?**

N/A

**Questions for local government, communities and other organisations delivering net zero locally**

**24. What are the biggest barriers you face in decarbonising / enabling your communities and areas to decarbonise?**

Local authorities could have an important role to play in locally-led decarbonisation efforts, including the development of Local Area Energy Plans. Sufficient resources for local authorities to be able to develop these plans will be crucial to their success. Furthermore, structures of coordination and accountability across District Network Operators, local authorities and national Government are also needed to deliver on these plans. Clarity on the outcomes of Ofgem's work on the future of local energy institutions and governance is also necessary for progress to be made in this area.

One of the risks of local delivery is the variance in policy and level of ambition on the pathway to Net Zero, with some areas far more advanced than others and this could potentially lead to unfair outcomes for some consumers.

**25. What has worked well? Please share examples of any successful place-based net zero projects.**

**EV charging**

Several local authority schemes from the Department for Transport including the LEVI fund, On-street Residential Charging Scheme and Local Authority Toolkit have assisted council's in delivering public charging infrastructure and contributed well in positioning EVs as the pioneering new low carbon technology for the general public. We suggest Government issue specific support to local authorities who may be lagging in progress rather than further blanket schemes spread across several authorities.

Durham City Council's efforts in coordinated action on public chargepoint delivery are particularly commendable. The council's 2021 Chargepoint Delivery Plans sets five aims surrounding leading by example, developing the public charging network, providing infrastructure for the council's fleet, supporting private sector proposals and pursuing opportunities for funding and education on EVs.<sup>49</sup> Through utilising Government's On-Street Residential Chargepoint Scheme, as well as Weardale's EV Accelerator project and Innovate UK's Scaling On-Street Charging Infrastructure project, the council is engaging well with Government support in its long term goal for every resident to live within a five minute walk of an EV chargepoint.

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<sup>49</sup> <https://democracy.durham.gov.uk/documents/s133516/Chargepoint%20Delivery%20Plan%202021.pdf>

## Heat networks

The Leeds PIPES District Heating Network (DHN) provides energy to almost 2,000 properties in Leeds, including a number of public buildings.<sup>50</sup> It is a £40 million project, and funded through a range of channels, including European, national and regional sources, and directly through the council. The second phase will be funded via the Heat Network Investment Project. This project has supported more than 400 jobs, and has a capacity of 33MW, providing up to 175GWh of low carbon heat per annum.

Bristol City Council is also installing a new heat network, covering central Bristol and other areas across the City.<sup>51</sup> This provides low-carbon energy to residents and businesses and is providing opportunities for additional connections, including publicly-available plans for future proposed development.

### **26. How does the planning system affect your efforts to decarbonise?**

Planning plays a crucial role in supporting the delivery of low-carbon projects, as noted in our response to question 3, there are a number of barriers embedded in current planning policy that could be removed in order to provide the UK economy with additional clean and low-cost energy. A simplified, streamlined and pragmatic approach needs to be developed to deliver low-carbon energy at the pace required.

One of the key constraints in the planning system is the insufficient resourcing of local authority planning departments, and the LGA has highlighted the impact of resources for council staff and capacity in carrying out the work of placemaking.<sup>52</sup> The regulator also needs sufficient resourcing to carry out Government policy. A lack of sufficient funding is contributing to long permitting and consenting timelines, causing delays to low-carbon projects and the expansion of grid networks.

With regards to removing barriers posed by transmission and network challenges, the planning framework must be fit for purpose. The commitment to speed up the Development Consent Order process for Nationally Significant Infrastructure Projects was welcome, which should include reducing examination and determination stages as part of an end-to-end reduction in timescales. In addition, better alignment between the regulatory and planning regimes for Nationally Significant Infrastructure Projects could also help to reduce timelines and deliver improved community outcomes.

The planning system must be reformed to include a statutory duty on planning authorities and environmental regulators to take the climate emergency and Net Zero target into account when exercising their functions.

### **27. How can the design of net zero policies, programmes, and funding schemes be improved to make it easier to deliver in your area?**

## Local Area Energy Planning

Energy UK supports the Government providing powers to the Secretary of State to establish a national framework for Local Area Energy Planning as an innovative new decentralised approach to providing energy by setting out a common methodology and funding approach.

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<sup>50</sup> <https://news.leeds.gov.uk/leeds-spotlight/leeds-district-heating-network>

<sup>51</sup> <https://www.energyservicebristol.co.uk/business/heat-networks/>

<sup>52</sup> <https://www.local.gov.uk/parliament/briefings-and-responses/lgas-position-governments-planning-reforms>

Energy UK would encourage the adoption of Energy Systems Catapult's recommendations on the *Future of Local Area Energy Planning*,<sup>53</sup> in addition to addressing the potential impacts set out in the Citizens Advice *Look Before you LAEP* report.<sup>54</sup>

Development of coordinated Local Area Energy Mapping and Planning tools will be critical for addressing network congestion and signalling areas where there is available network capacity. Fundamentally, for both transmission and distribution network development, ensuring strategic network investment can take place under the network price control frameworks will be essential.

### Planning and Building Regulations

Amending and strengthening Building Regulations will help to unlock the decarbonisation of buildings on a local level. By providing local, regional and devolved government with guidance on planning and Building Regulations that facilitate the installation of low carbon technologies, UK Government can support local planners and inspectors with additional expertise in raising standards on buildings in their area through these mechanisms. Furthermore, BEIS and DLUHC, working with the Net Zero Buildings Council, should coordinate and consult to reform existing national Building Regulations to ensure their suitability for low carbon assets.

DLUHC should issue guidance to landlords and lease owners, and implement reforms such that all consumers have the right to access energy efficiency measures and low carbon technologies unless there is a specific reason for their properties to be ineligible. Setting minimum energy efficiency standards into legislation for certain properties will help to further stimulate behaviour change in this space.

Heat networks and public EV charging should be given specific carve outs with regards to land access and planning arrangements in order to allow faster deployment. Allocating statutory duties to Local Authorities to plan and enable delivery of sufficient EV charging infrastructure will further support the deployment of this vital technology.

### Data and digitalisation to support connections

Implementing the recommendations of the Energy Data Taskforce, and creating a single point of registration for any low carbon technology at the demand side will help to facilitate the transition to Net Zero at a local level.

#### **28. Are there any other implications of net zero or specific decarbonisation projects for your area that the Review should consider?**

N/A

### **Questions for academia and innovators**

#### **29. How can we ensure that we seize the benefits from future innovation and technologies?**

As mentioned in our response to question 7, the UK has a burgeoning climate tech sector, which supports the wider landscape of the UK's innovative progress towards Net Zero. In the

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<sup>53</sup> <https://es.catapult.org.uk/report/the-future-of-local-area-energy-planning-in-the-uk/>

<sup>54</sup> <https://www.citizensadvice.org.uk/Global/CitizensAdvice/Energy/Local%20Energy%20Report.pdf>

UK, PWC found that climate tech start-ups saw a 210% growth in investment year-on-year in the 12 months prior to H1 2021.<sup>55</sup> Furthermore, the UK saw more climate tech companies receive venture funding than any other European country between 2013 and H1 2021.<sup>56</sup> Support for this sector and promoting access into the market helps to unlock the opportunities that Net Zero provides for growth.

Continuing Government support for research and development, such as the Heat Pump Investment Accelerator Competition, and the Electrification of Heat Demonstration Projects, are both fantastic examples of Government-supported innovation and development supporting businesses to develop innovative customer solutions in the UK. A framework by which these publicly-funded projects can recycle their innovation back into British industry to ensure that research translates into delivery would provide additional confidence to industry investing in research and development.

Finally, Government can support innovation by adopting a technology-agnostic approach where possible, and by shaping a market that allows actors to find the optimal mix of technologies to achieve Net Zero, rather than dictating outcomes from the centre.

### **30. Is there a policy idea that will help us reach net zero you think we should consider as part of the review?**

#### Establish a Net Zero Test

As discussed in question 4, Energy UK advocated for the inclusion of a Net Zero Test within the Energy Bill, and this would align across all policy decisions. This would signal the value of Net Zero economy in terms of growth, environmental and health benefits, and ensure that all regulation that is brought forward directs investment to building a more sustainable and prosperous future by being in line with the Government's legal obligation to achieve Net Zero carbon emissions by 2050.

This test would apply to policy making at a national, local and regional level, and would also inform the policy and strategy of the regulator.

#### Establish a national energy efficiency programme

As discussed in question 3, Government support for a long-term energy efficiency scheme would directly stimulate activity in the retrofit supply chain, including the expanding of existing businesses and the creation of new jobs. A national scheme, including regulatory targets for minimum EPC ratings, combined with support for skills and training and innovative new green finance products for consumers, would all support the ramping up of retrofits across the UK.

#### Turbocharge the smart meter roll out

Supporting the smart meter rollout by communicating the importance and benefits of a smart network to customers via more assertive levers on homes, landlords and businesses to accept a smart meter, and consideration for mandates where appropriate, are essential actions for Government in order to enable the wider transition to a Net Zero power system while delivering important benefits for consumers.

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<sup>55</sup> <https://www.pwc.com/gx/en/services/sustainability/assets/pwc-the-state-of-climate-tech-2020.pdf>

<sup>56</sup> <https://www.pwc.co.uk/issues/esg/pdf/net-zero-future-50-2022.pdf>