

Energising the heat pump market

Ten recommendations
for removing barriers
low-carbon heat

Foreword

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In its 2019 report ‘Future of Energy’, Energy UK set out a vision for a what a policy framework for low-carbon heat might look like, and it is commendable that progress has been made by UK Government on a number of its recommendations, including calls for the publication of a strategy to reach Net Zero buildings.¹ However, in the four years since our report was published, the urgency to accelerate the transition and unlock its climate and economic dividends has increased without a proportionate response from UK Government.

Evidence clearly indicates that the existing support schemes are not only insufficient to deliver the Government’s legally binding targets for delivery but that these schemes are not being effectively utilised, as set out most recently by the House of Lords Environment and Climate Change Committee. Heat pumps, in their many guises, will make up a significant part of the range of technologies expected to be needed in future, and the UK can either develop an effective market and supply

chain, or we can lose out on the economic and societal benefits of a UK-led decarbonisation of global heat demand. Research by E3G shows that Europe is turning to low-carbon electric heating as a solution to the gas crisis, including France, which had the largest market for heat pumps in Europe in 2021, followed by Italy and Germany.¹

At a time when investment in the UK is at significant risk, a policy framework for low-carbon heat should focus on unlocking opportunities for growth and investment, bringing forward a fair transition to Net Zero. As households and non-domestic customers struggle with high energy costs in a challenging economic context, coordinated delivery of advice and support is needed to help consumers upgrade their heating systems and move away from costly fossil fuels. A policy framework that helps to bring down upfront costs for essential technologies such as air and ground source heat pumps is core to giving consumers the choice of how and when they make that step.

This report sets out three key areas in which UK Government can work with industry to remove barriers to scaling up the delivery of heat pump products and services across the UK. The report also shares case studies that demonstrate the high levels of ambition and innovation from Energy UK members across the sector that need supportive policy and regulatory frameworks to attract further investment.

With public support for Net Zero and for a wide range of low carbon technologies at an all-time high in the UK, Government is missing the opportunity to make Net Zero something inherently British, tying in manufacturing, finance, service industries, levelling up, skills and job creation, and achieving climate goals as interlinked and critical to effective growth of the UK economy. The UK can be, if effectively incentivised, a hub of innovation and a global leader in technologies like heat pumps and the services surrounding them.

The industry is waiting for clear direction from Government across the sector, and we hope this report helps to ensure that government decisions on spending, taxation, policy and regulation deliver for consumers and for the UK economy.

¹ Getting off gas: Learnings for the UK to get ahead in the global race to clean heat, Electrify Heat, 2022, available at: https://electrifyheat.uk/wp-content/uploads/2022/06/Getting-off-gas_-Learnings-on-how-the-UK-can-get-ahead-in-the-global-race-towards-clean-heat.pdf

Energising the heat pump market

There has never been a more pressing time for the Government to bring forward a policy framework that will enable and unlock the growth of an innovative, competitive and accessible market for low-carbon heating in the UK. While significant steps have been taken by Government and the energy industry to make affordable, low-carbon alternatives to fossil fuel heating available, we must go further and faster in response to rising energy bills.

With international wholesale gas prices set to remain high in the years ahead,² it is vital that we accelerate efforts to decarbonise heating and remove barriers to businesses developing innovative new offers and services for households and non-domestic customers.

The energy industry is leading the way

The energy industry is ambitious when it comes to leading the transition to low-carbon heat, and helping consumers move away from increasingly expensive, and volatile, fossil fuel heating systems, and to access the benefits of a smart, flexible, optimised and low-carbon home or building energy system. This report identifies key policy enablers that, in addition to existing levers, will contribute to removing barriers to energy companies developing competitive heat pump products and associated services.

The report includes policy recommendations within three core areas including finance, the consumer narrative, and the wider Net Zero transition. The report also shares case studies of how the energy industry is investing in new offers and in developing the supply chain.

Making the costs add up: Heat pumps can help tackle the 'energy trilemma'

Energy bills have seen an unprecedented increase in 2022, with Ofgem setting the default tariff cap at £4,279 for the period January to March 2023 compared to £1,277 for the period October 2021 to March 2022.³ While the UK Government's Energy Price Guarantee set a typical household's dual-fuel bill at £2,500 per year for the same period, the number of people living in fuel poverty has still risen to an estimated 6.7 million UK households, according to National Energy Action.⁴

Delivering on the commitments in the UK Government's Heat and Buildings Strategy, including supporting fabric energy efficiency measures alongside the deployment of 600,000 hydronic heat pumps a year by 2028, will contribute towards addressing affordability, energy security and reduced carbon emissions.⁵ As described in the Strategy, heat pumps represent the type of 'no- and low-regrets actions' which need to be delivered now. As summarised by the Climate Change Committee (CCC):

These goals [of the Heat and Buildings Strategy] will help protect UK consumers and shifting demand from gas to electricity, which in future will be predominantly supplied from UK-based renewable generation.⁶

² Energy prices to remain significantly above average up to 2030 and beyond, Cornwall Insights, 2022, available at: <https://www.cornwall-insight.com/press/energy-prices-to-remain-significantly-above-average-up-to-2030-and-beyond/>

³ Default tariff cap level, Ofgem, available at: <https://www.ofgem.gov.uk/energy-policy-and-regulation/policy-and-regulatory-programmes/default-tariff-cap>

⁴ Fuel poverty statistics, National Energy Action, available at: <https://www.nea.org.uk/fuel-poverty-map/>

⁵ Heat and Buildings Strategy, Department for Business, Energy and Industrial Strategy, 2021, available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1044598/6.7408_BEIS_Clean_Heat_Buildings_Strategy_Stage_2_v5_WEB.pdf

⁶ Independent Assessment: The UK's Heat and Buildings Strategy, 2022, available at: <https://www.theccc.org.uk/wp-content/uploads/2022/03/CCC-Independent-Assessment-The-UKs-Heat-and-Buildings-Strategy.pdf>

Research by Nesta finds that not only do more efficient heat pumps have similar running costs to boilers under current energy prices, but also replacing a gas boiler with a hydronic heat pump can reduce a home's gas usage by over 70%.⁷ Aggregating this reduction across thousands of households, and non-domestic customers would significantly reduce the UK's reliance on importing gas.



A compelling consumer narrative: The need for a joined-up policy framework for low-carbon heat

Over this Parliament, the UK Government has brought forward several measures that have provided an important stimulus and enabling landscape for low-carbon heating. This includes the publication of the Heat and Building Strategy, and a range of supporting policies for heat pumps.

The Boiler Upgrade Scheme provides direct financial support to eligible households in England and Wales.⁸ In addition, schemes such as

the Green Homes Grant Local Authority Delivery Scheme, Home Upgrade Grant Scheme and Social Housing Decarbonisation Scheme have also directly funded the installation of low-carbon technology in low-income and vulnerable households, ensuring that no consumers are left behind in the transition to Net Zero buildings.

Regulation such as the Future Homes Standard, which will see all new homes built from 2025 equipped with, or connected to, low-carbon heating sources, has guaranteed a pipeline for the market. New powers in the Energy Bill, including for the establishment of a market-based mechanism for low-carbon heat, will further provide confidence to the supply chain, investors and consumers.

Support for enablers such as the Heat Pump Investment Accelerator Competition and Home Decarbonisation Skills Training Competition have helped to build the end-to-end domestic supply chain.

While all these policies are to be commended, it is clear that the right framework is not yet in place to support the market to grow at the rate needed to achieve the Government's 2028 target. Indeed, in its assessment of the strategy, the CCC found that there were gaps in the Government's plans for decarbonising buildings, and that 'significant delivery risks remain'.⁹

These gaps contribute to a confusing landscape for consumers, for example where in some cases Energy Performance Certificates (EPCs) result in poorer outcomes when a building is fitted with a heat pump. Elsewhere, the current approach to permitted development rights for air source heat pumps contribute to disproportionate barriers compared to fossil fuel heating systems.

Joining up the policy approach with regulation, incentives and an enabling framework of independent advice and guidance will help build a more compelling picture for consumers looking to access cheaper and greener heating systems.

⁷ How the energy crisis affects the case for heat pumps, Nesta, 2022, available at: <https://www.nesta.org.uk/report/how-the-energy-crisis-affects-the-case-for-heat-pumps/how-the-costs-of-heat-pumps-compare-to-gas-boilers-since-the-energy-crisis-1/>

⁸ BUS Monthly Scheme Update, Ofgem, 2023, available at: <https://www.ofgem.gov.uk/publications/bus-monthly-scheme-update>

⁹ Independent Assessment: The UK's Heat and Buildings Strategy, 2022, available at: <https://www.theccc.org.uk/wp-content/uploads/2022/03/CCC-Independent-Assessment-The-UKs-Heat-and-Buildings-Strategy.pdf>

Being part of something bigger: The path to Net Zero

While air and ground source heat pumps represent just two technologies among a plethora of alternatives to fossil fuel heating systems, they are expected to represent a significant area of growth in the years ahead.

The National Grid Energy System Operator (ESO)'s Future Energy Scenarios model a significant role for heat pumps in three of its four scenarios for the transition to 2050. In the 'Customer Transformation' pathway, over 23 million heat pumps, including hybrids, would be installed by 2050, alongside district heat networks.¹⁰ Even under the 'System Transformation' scenario, which predicts a greater emphasis on the conversion of the gas network to deliver hydrogen, more than 600,000 heat pumps will still need to be installed each year by 2035. Across these scenarios, heat pumps are able to be immediately deployed and are operational on installation.

Under the CCC's 'Balanced Net Zero Pathway' as set out in the Sixth Carbon Budget, heat pump sales should reach just over 1 million per year in new and existing homes by 2030. They meet 65% of low-carbon heat demand.¹¹

The heat pump market represents an important economic opportunity that, if exploited, could support green growth and local levelling up. In 2020, there were just over 15,000 heat pumps installed across the UK under the MCS scheme, which certifies low-carbon energy technologies, and 953 installers were registered.¹² In 2022, over 31,500 heat pumps were installed by 1,455 certified installers. These figures demonstrate a growing market, with potential for employment and investment opportunities across the UK.

In the Rt Hon Chris Skidmore MP's 'Mission Zero' review of the Net Zero target, the market for clean heat is identified as an economic opportunity that the country is already reaping the benefits of in terms of job creation. However, the report suggests that this could go further, and a strong manufacturing base for heat pumps in the UK could contribute £500 million Gross Value Added (GVA) per annum in export opportunities.¹³ However, as the review also pointed out, these opportunities are not guaranteed, and challenges remain for consumers around agency, affordability and accessibility that the UK Government must now respond to by removing barriers to the energy industry enhancing their products and services for low-carbon heat.

¹⁰ Future Energy Scenarios, National Grid ESO, 2022, available at: <https://www.nationalgrideso.com/document/263951/download>

¹¹ Sixth Carbon Budget, Climate Change Committee, 2020, available at: <https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf>

¹² MCS Data Dashboard, MCS, available at: <https://datadashboard.mcscertified.com/InstallationInsights>

¹³ Mission Zero, Independent Review of Net Zero, Rt Hon Chris Skidmore MP, 2023, available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1128689/mission-zero-independent-review.pdf

Ten recommendations to remove barriers to low-carbon heat

A. Making the costs add up

Recommendation 1: HM Treasury should extend the **Boiler Upgrade Scheme** for an additional three years to 2028, in line with the Government's targets for heat pump delivery. The Government should also consult on updates to the scheme in order to boost uptake after the first year of delivery, which is predicted to result in a considerable underspend. This could include: (i) a means-tested approach to funding; (ii) bringing hybrids within scope; and (iii) increasing the level of grant for specific technologies. To help pay for this, HM Treasury should ringfence underspend in each scheme year, and reinvest this back into voucher availability.

Recommendation 2: The Department for Energy Security and Net Zero should work with social housing providers and installers to promote the option in the **Social Housing Decarbonisation Fund** for heating measures to be installed in properties that are heat-pump ready.

Recommendation 3: UK Government should work with Energy UK to convene the energy industry and consumer groups to progress their commitment in the Heat and Buildings Strategy and British Energy Security Strategy to **reviewing costs on energy bills**.

B. Creating a compelling customer narrative

Recommendation 4: UK Government should **enhance their online energy advice service** by connecting consumers with local actors, and supply chain representatives, including accredited installers and lenders, who can help convert a consumers' interest in energy efficiency into tangible action in the home. All information provided should be free, tailored to the local housing type, and focussed on building confidence in the end-to-end consumer journey from install to redress.

Recommendation 5: The Department for Energy Security and Net Zero should **expedite updates to the Standard Assessment Procedure (SAP) and RdSAP methodologies** used to generate the Energy Performance Certificates (EPCs) for new and existing buildings so that the installation of heat pumps does not lead to perverse outcomes like lower EPC ratings.

Recommendation 6: UK Government should work with industry and consumer groups to **review the approach to Energy Performance Certificates (EPCs)** to ensure that they are fit for purpose in supporting the transition to Net Zero buildings in the long-term.

Recommendation 7: The UK Government should amend the draft regulation in the Energy Bill to legislate for a **phase-out date for carbon-emitting boilers by 2035**.

Recommendation 8: The Department for Levelling Up, Housing and Communities should consult on **updating permitted development rights** under the Town and Country Planning (General Permitted Development)(England) Order 2015 to allow air source heat pump systems with outdoor compressor units of up to 1 cubic metre to be installed within 1 metre of neighbouring properties.

C. Being part of something bigger

Recommendation 9: The 'Smart Meter Guidance for Domestic New Builds' should be brought into the Building Regulations such that all new homes built under the Future Homes Standard must have a **smart meter** fitted.

Recommendation 10: The energy industry should work with **Distribution Network Operators (DNO)** and their representatives to support the development of a streamlined, digitized and automated process for connecting low-carbon technology to low voltage networks.

A. Making the costs add up

- Maximising Government grant schemes, including the Boiler Upgrade Scheme and Social Housing Decarbonisation Fund
- Ensuring a level playing field for electric heating
- Time of use tariffs

The capital costs of heat pumps are being driven down, aided by the energy industry's investments in research and development, alongside Government-supported accelerator projects. Increasing demand for heat pumps will help to bring costs down further still, helping to achieve the Government's targets of reducing the cost of heat pumps by 50% by 2025, and achieving parity with boilers by 2030.¹⁴ Stimulating uptake in the near-term will help build the supply chain, and bring down costs such as manufacturing and labour.



Maximising the impact of Government grant schemes on the transition to low-carbon heat

The Boiler Upgrade Scheme (BUS) provides welcome support to help consumers with the upfront costs of heat pumps and biomass boilers. Launched in May 2022, the scheme offers grants to domestic and non-domestic customers in England and Wales replacing fossil fuel systems. With a total budget of £450 million over three years, individual grants of £5,000 are available for air source heat pumps or biomass boilers, and £6,000 for ground source heat pumps. Properties must have a valid EPC, with no outstanding recommendations for loft or cavity wall insulation.¹⁵

While the BUS has supported a significant number of installs to date, with 12,981 voucher applications being received in the period from 23 May 2022 to 31 January 2023, the scheme is not on track to spend the total budget allocated for its first year.¹⁶ It is common for new schemes such as this to take time to ramp up the volume of activity, but the current underspend of more than £100 million could be attributed to additional constraints including global supply chain issues, and difficulties managing the payment process for installers at the beginning of the scheme. A marketing campaign to promote the scheme, while very welcome, was only launched in late January 2023.¹⁷ As highlighted by the House of Lords Environment and Climate Change Committee, 'the BUS is seriously failing to deliver on its objectives'.¹⁸

Updates to the BUS design at this stage in its delivery could help to ensure it achieves its objectives of delivering 30,000 new systems a year, maximising its impact on the market for low-carbon heat. As the first year of the scheme draws to a close, the time is right for the Government to review its approach and consult with industry on a range of interventions to unlock delivery at this crucial moment in the transition away from fossil fuels.

¹⁴ Heat and Buildings Strategy, Department for Business, Energy and Industrial Strategy

¹⁵ Boiler Upgrade Scheme, Ofgem, 2022, available at: <https://www.ofgem.gov.uk/environmental-and-social-schemes/boiler-upgrade-scheme-bus>

¹⁶ BUS Monthly Scheme Update, Ofgem, 2023, available at: <https://www.ofgem.gov.uk/publications/bus-monthly-scheme-update>

¹⁷ Spend-to-save improvements, Help for Households, 2023, available at: <https://helpforhouseholds.campaign.gov.uk/energy-saving-advice/>

¹⁸ Letter to Minister Callanan, House of Lords Environment and Climate Change Committee, 2023, available at: <https://committees.parliament.uk/publications/34006/documents/187196/default/>

The Government should extend the duration of the BUS to 2028, as recommended in the Net Zero Review. This would help to account for the initial supply chain challenges that hampered delivery at the start of the scheme, and would help provide confidence to the market through a longer-term pipeline of work while achieving consistency with the Government's targets for heat pump deployment for the same year. By tapering off the level of grant available over these additional years, the Government would send a strong signal to consumers that they should take advantage of the scheme sooner rather than later.

To help pay for this, HM Treasury should ringfence the allocated budget for the BUS, and reinvest any underspend back into making vouchers available to consumers. While this approach to expenditure would represent a departure from HM Treasury's approach to fiscal practice, one of the themes of the Net Zero Review was for the Government to take a proportionate approach to funding practices, whether through longevity or scheme design. Against the backdrop of the urgent need to reduce the UK's gas demand, and protect consumers from high and volatile energy bills, flexibility in the approach to budget allocation for strategic schemes, such as the BUS, should also be considered.

In addition to extending the scheme, Energy UK would support the Government consulting on three interventions that would help to expand the scope of the BUS, and these are as follows:

Means-tested grants

Think tanks such as Green Alliance have called for a means-tested approach to BUS grants, so that lower to middle-income (LMI) households can access a higher rate of funding, of around £10,000.¹⁹ Increasing the grant in this way would help to cover the additional costs of installation such as replacement radiators, pipes and thermal storage such as hot water cylinders.

Adopting a means-tested approach would help ensure that the scheme is accessible to larger cohort of customers, increasing delivery.

Bringing hybrids within scope

In order to achieve greater consistency across Government schemes including the forthcoming market-based mechanism, bringing hybrid heat pump systems into scope of the BUS would clarify the landscape for industry and consumers.

By extending the scope of the grant to cover the heat pump element of hybrid systems, the BUS can continue to fund the provision of low-carbon heating through hybrids as a transitional technology. This could help to support greater uptake of heat pumps in the longer-term, by raising awareness and building the supply chain. Hybrids also help to reduce emissions in the near-term, even where a household is not ready to swap from their current heating system to a standalone heat pump. Installing smart controls alongside hybrid heating systems will support their effective operation, ensuring that the heat pump delivers the majority of the space heating demand.

Increasing grant funding for specific technologies

The ratio of grant funding for ground source heat pumps compared to air source does not accurately reflect the price differential between these two technologies, with analysis from the MCS suggesting that the average cost of install for a ground source heat pump in 2022 was £17,000.²⁰ The impact of this disparity is resulting in low uptake of this technology, with the latest data from Ofgem indicating that around 2% of installs under the scheme up to October 2022 have been ground source heat pumps.²¹ By increasing the level of funding available for this technology to cover the groundworks as well as the technology itself, this will remove barriers to consumers accessing this highly efficient technology.

¹⁹ Locked Out, Green Alliance, 2022, available at: https://green-alliance.org.uk/wp-content/uploads/2022/12/Locked_out.pdf

²⁰ Written evidence from the Microgeneration Certification Scheme (MCS) (BUS00009), MCS, 2022, available at: <https://committees.parliament.uk/writtenevidence/114098/pdf/>

²¹ Boiler Upgrade Scheme Quarterly Report – Aug to October 2022, Ofgem, 2022, available at: <https://www.ofgem.gov.uk/publications/boiler-upgrade-scheme-quarterly-report-aug-oct-2022>

- **Recommendation 1:** HM Treasury should extend the Boiler Upgrade Scheme for an additional three years to 2028, in line with the Government's targets for heat pump delivery. The Government should also consult on updates to the scheme in order to boost uptake after the first year of delivery, which is predicted to result in a considerable underspend. This could include: (i) a means-tested approach to funding; (ii) bringing hybrids within scope; and (iii) increasing the level of grant for specific technologies. To help pay for this, HM Treasury should ringfence underspend in each scheme year, and reinvest this back into voucher availability.

Case study: Good Energy

Renewable electricity supplier Good Energy entered the heat pump market in late 2022 with the acquisition of Igloo Works. Bringing down total cost of ownership whilst driving additional customer value through premium service is now Good Energy's aim.

With the Boiler Upgrade Scheme and its current finance options a heat pump is already competitive on price with a fossil fuel based system. It plans to launch a low cost finance subscription service in the first half of 2023, allowing customers to package their full service install alongside ongoing maintenance and a genuine 100% renewable electricity tariff in a simple monthly payment.

The company offers home surveys, designs, proposals and installs from experts, and is working towards driving down lead times to make heat pumps a viable option for emergency boiler replacement. For more information, visit: <https://www.goodenergy.co.uk/products/heat-pumps/>

In addition to the BUS, the Social Housing Decarbonisation Fund (SHDF), Green Homes Grant Local Authority Delivery Scheme (GHG LADS), Home Upgrade Grant Scheme (HUGS) and the Energy Company Obligation (ECO) all provide grant funding for the installation of heat pumps for fuel poor and vulnerable households. These schemes are helping to ensure that low-income households are not left behind in the transition to Net Zero buildings. The Public Sector Decarbonisation Scheme (PSDS) is also funding the install of energy efficiency measures and low-carbon heating in publicly-owned buildings.

There is potential to increase the impact of the SHDF on growing the low-carbon heating market, alongside its objectives to deliver warm, energy-efficient homes and alleviate fuel poverty, by improving the supporting guidance for providers. The latest statistics tracking the measures installed under this scheme show that no air source heat pumps have so far been installed.²² While fabric measures are a vital means of protecting vulnerable consumers and reducing gas demand, this scheme is also an important vehicle for futureproofing tenants' homes by transitioning heating systems away from fossil fuels. Indeed, it is recognised in the guidance for Wave 2.1 that low-carbon heat measures can be installed where 'the fabric of a home is sufficient pre-retrofit' but only if 'significant justification' is provided.²³

The Government should work with social housing providers and the supply chain to promote the option for heating measures to be installed under the SHDF in properties that are heat-pump ready, so that the scheme can achieve its objectives of reducing carbon emissions and supporting the development of the retrofit sector. As more social homes are brought up to EPC C, demand for heat pumps will increase, so promoting the option for heat pumps to be installed as part of this scheme will ensure that these measures can be installed at pace.

²² Social Housing Decarbonisation Fund statistics: February 2023, DESNZ, 2023, available at: <https://www.gov.uk/government/statistics/social-housing-decarbonisation-fund-statistics-february-2023>

²³ Social Housing Decarbonisation Fund Wave 2.1, BEIS, 2022, available via: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1114571/shdf-wave-2.1-competition-guidance.pdf

Case study: PH Jones

PH Jones are delivering ground source heat pumps for their client Cheltenham Borough Council (CBC) under the Social Housing Decarbonisation Scheme (SHDS) Wave 1. With this funding, in sheltered housing apartments and two bungalows, PH Jones have replaced an aging electric underfloor heating system with much more energy efficient individual, compact ground source heat pumps.

The project involved installing fourteen boreholes to create shared ground loops supplying individual heat pumps within each property. The bungalows and one larger apartment have one loop per heat pump and the smaller apartments have a loop between two heat pumps, driving down project cost and disruption. In compliance with PAS2035, the fabric and ventilation has also been addressed. Some fabric improvements were also installed, including replacing older double glazing with high performing units and insulation, as well as upgrades to the ventilation systems.

The project will make a significant difference to the energy usage and carbon emissions for this site (with properties having improved heat demand and EPC rating increasing from E/F to C) whilst also proving to be an exemplar for how different specialists can work effectively together via a retrofit coordinator to ensure the project risk and sequencing are appropriately managed. For more information, visit

<https://phjones.co.uk/case-studies/delivering-ground-source-heat-pumps-for-cheltenham-borough-council-cbc/>

- **Recommendation 2:** The Department for Energy Security and Net Zero should work with social housing providers and installers to promote the option in the Social Housing Decarbonisation Fund for heating measures to be installed in properties that are heat-pump ready.

Ensuring a level playing field for electric heating

The UK Government committed to ‘rebalancing energy prices’ in its Heat and Buildings Strategy, and to looking at options to ‘shift or rebalance’ energy levies and obligations.²⁴ This was reiterated in the British Energy Security Strategy, and the Government pledged to publish its proposals on how to do so in 2022.²⁵

Energy UK stands ready to convene Government, industry and consumer representatives to progress this conversation. It is important to incentivise behaviour change towards electric heating not only to protect consumers from high gas prices, but also in anticipation of the future operation of the energy system and reform of the electricity market arrangements. Moving away from gas also supports greater system resilience and energy security. However, it is essential that these proposals are moved forward in a progressive way to avoid exacerbating the risk of fuel poverty for those still on gas heating, and to ensure that vital schemes and investments in energy infrastructure are protected where the approach to policy costs is changed. The future of energy bills is also wrapped up in the question of what retail market reform may look like, and enduring solutions to affordability, including targeted payment support for vulnerable households, like a social tariff.

For example, in ‘Future of Energy’, Energy UK argued that the current model of support for energy efficiency through supplier obligations is regressive, owing to the fact that households living in the least efficient properties, who are more likely to be vulnerable, contribute disproportionately more towards these schemes. Instead, Energy UK supported the supplier obligations being replaced with a centrally-funded scheme through general taxation.²⁶

²⁴ Heat and Buildings Strategy, BEIS, 2021, available via:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1044598/6.7408_BEIS_Clean_Heat_Buildings_Strategy_Stage_2_v5_WEB.pdf

²⁵ British Energy Security Strategy, Prime Minister’s Office, 2022, available at: <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>

²⁶ Future of Energy, Energy UK

In addition to the themes of fairness and affordability, the UK Government states that the ‘current pricing of electricity and gas does not incentivise consumers to make green choices’.²⁷ As a first step towards this, in its response to the UK Government’s ECO+ consultation, Energy UK welcomed the approach to funding the scheme in its first year through the Energy Price Guarantee.

Another factor to consider is the implementation of the Future Homes Standard coming into effect in 2025. Those consumers purchasing a new home with electric heating should not be at a disadvantage when it comes to market distortions which see a greater level of policy costs placed on electricity bills.

Energy UK would welcome the opportunity to hold a conversation between UK Government and industry regarding costs on bills.

- **Recommendation 3:** UK Government should work with Energy UK to convene the energy industry and consumer groups to progress their commitment in the Heat and Buildings Strategy and British Energy Security Strategy to reviewing costs on energy bills.



Time of use tariffs will help consumers while balancing the grid

The energy industry is supporting customers to access cheaper energy bills by shifting their heating usage to when the balance of supply and demand on the grid means it is cheapest and greenest to do so. Time of use tariffs reward customers with cheaper bills for using electricity when it is abundant, typically being generated by renewables. These tariffs represent an innovative and attractive proposition for consumers in the face of high energy bills, and they also support the balancing of the grid.

As has already been proven by smart electric vehicle charging trials across the UK, positive customer outcomes can be delivered through smart automation and time of use tariffs, and this success can effectively be translated to heating if the market conditions are correct.

In ‘Better Homes, Cooler Planet’, a report published in July 2022 by ScottishPower and WWF, it was found that, at that time, heat pump running costs were lower than that of an old gas boiler by £117 per year, and that they were competitive with modern boilers, being just £56 more expensive per year according to the modelling.²⁸ By providing customers with a time of use tariff alongside a heat pump, customers may be able to access cheaper bills that will protect them, and the grid, from expensive peaks in demand.

Laying the foundations for time of use tariffs depends on the success of the smart meter roll-out, market-wide half-hourly settlement, and whether the UK Government’s proposals for a smart and secure electricity system are fit for purpose. Energy UK encourages a regulatory framework that supports required levels of interoperability, cyber security and data privacy for consumer protection and ease. However, given the energy smart appliance market’s nascency and the potential for innovation, any moves to mandate standards in these devices should allow the providers of energy smart appliances to have a range of options for achieve compliance. Standards must be supported by agile and transparent governance arrangements with a suitably fast and cost-efficient mechanism for their evolution.

²⁷ Heat and Buildings Strategy, BEIS

²⁸ Better Homes, Cooler Planet, ScottishPower and WWF, 2022, available via: https://www.scottishpower.com/news/pages/better_homes_cooler_planet.aspx

Case study: Octopus Energy

Octopus Energy has launched Cosy Octopus, a smart electricity tariff that helps their customers access cheaper electricity rates during two three-hour periods each day. Octopus estimates that heat pump customers on the Cosy Octopus tariff can increase their existing savings over gas boilers — which already total up to £450 per year, according to their estimates — by a further £100. The Cosy Octopus flexible tariff helps customers shift their heat pump usage to the optimised off-peak hours of 04:00 – 07:00, and 13:00 – 16:00 without compromising home comfort. The more consumption customers shift out of peak periods, the more they will be able to save. In the first few weeks since the tariff launched, customers have saved an average of £1.80 per day vs a standard flat rate tariff. For more information, visit <https://octopus.energy/smart/cosy-octopus/>



B. Creating a compelling customer offer

- The role of Governments messaging
- Ensuring EPCs are fit for purpose
- The need for stronger regulation
- Reforming planning policy

Throughout the cost of living crisis, the energy industry has been a source of essential information and support for customers struggling to pay their bills. As heat pumps become increasingly attractive in terms of the financial case, energy companies are well placed to build on their relationship with customers and provide information about how they can access lower-carbon heating.

The UK Government also has an important role to play in talking to consumers about the lifestyle changes they may experience as part of the transition to Net Zero, and in particular providing confidence to consumers that a wide range of heating technologies are both available to them and trustworthy. As such, it should work alongside industry to engage consumers on the way in which their home and its energy system are changing. Indeed, the Climate Assembly ranked education and communication as their third highest priority for Government when considering Net Zero policies that related to the home.²⁹



Maximising the impact of Government messaging on energy efficiency

Energy UK has consistently supported a stronger campaign from Government on the options available to consumers to access cheaper, lower-carbon heating.

As identified in the Social Market Foundation's 2020 'Boiler Alert' report, a lack of familiarity and trust within heat pumps is contributing to an unwillingness among some consumer groups to have these technologies installed, even in cases where the same level of disruption and costs would occur with a fossil fuel system.³⁰ Raising

consumer awareness must be addressed in order to help customers fully engage with the options available to them.

To this end, the launch of the UK Government's new home energy MOT online advice service is to be commended, as well as the 'It all Adds Up' campaign, launched at the end of 2022. These services help households to make informed choices about their energy usage, and build knowledge of what steps they can take to save money. They also start to build a picture across Government campaigns through consistent messaging that heat pumps represent a spend-to-save option for accessing longer-term savings, as gas prices are set to remain high in the years ahead.

In order to spur further action, this information could be strengthened by linking to local organisations and independent bodies that can help provide additional guidance and advice that is tailored to the local area and building type. Furthermore, by connecting consumers with third party representatives of accredited

²⁹ The path to Net Zero, In the home, Climate Assembly, 2020, available via: <https://www.climateassembly.uk/recommendations/index.html>

³⁰ Boiler Alert, Social Market Foundation, 2020, available at: <https://www.smf.co.uk/wp-content/uploads/2020/10/Boiler-alert-Nov-2020.pdf>

installers and lenders, it is possible to start bringing together the currently disparate information that a consumer needs in order to retrofit their home, onto a single, 'one-stop-shop' trusted platform.

As demonstrated in their 2021 report 'Home Truths', Citizens Advice shows that 'people are confused and face numerous problems at different stages along the consumer journey' of home energy improvements.³¹ Consumers face barriers to accessing initial advice, challenges with redress when things go wrong, and a lack of support to identify the right funding solutions. When it comes to heat pumps specifically, it is also essential that post-installation support is provided to consumers to help guide them through the usage and optimisation of this new technology, to ensure its efficient running.

Case study: E.ON

E.ON worked with Newcastle City Council as part of the Government's Electrification of Heat Demonstrator Projects to understand more about how consumers interacted with the installation process, and running of, heat pump technology. As part of this project, E.ON installed a ground source heat pump that serviced a block of flats with 16 properties, and 293 air source heat pumps (a mixture of high temperature, low temperature and hybrid models).

An important focus of this project, in addition to the challenge of designing and installing these technologies despite the COVID-19 restrictions, was understanding how residents needed to be supported through the process. A key finding of the project was that sufficient time was needed at the start of the project to communicate plans and resolve any issues, as well as the need for tailored assistance when setting up the systems after installation, including finding the right tariff.

Residents have seen a significant increase in comfort levels, and quickly adjusted to their new heating systems, finding them easy to operate.

For more information, visit <https://www.eonenergy.com/>

The citizens' panel on home energy decarbonisation, arranged by the CCC and the University of Lancaster, found that 'bespoke, trusted information is vital' to support home energy decarbonisation.³² Their conversations found that generic information was of limited use, and that the panel supported a free and impartial advice service that included a list of local suppliers, in-depth information about measures and technologies, and options to visit local demonstration homes.

While much of this support focuses on building awareness among domestic consumers, it is also vital that non-domestic customers are provided with trusted information, and a simple pathway to improving the energy performance and sustainability of premises.

- **Recommendation 4:** UK Government should enhance their online energy advice service by connecting consumers with local actors, and supply chain representatives, including accredited installers and lenders, who can help convert a consumers' interest in energy efficiency into tangible action in the home. All information provided should be free, tailored to the local housing type, and focussed on building confidence in the end-to-end consumer journey from install to redress.

³¹ Home Truths, Citizens Advice, 2021, available at:

https://www.citizensadvice.org.uk/Global/CitizensAdvice/Energy/FINAL_%20Home%20Truths.pdf

³² Findings of a Citizens' Panel on home energy decarbonisation (University of Lancaster), Climate Change Committee, 2022, available at: <https://www.theccc.org.uk/publication/findings-of-a-citizens-panel-on-home-energy-decarbonisation-university-of-lancaster/>

Ensuring that EPCs are fit for purpose

Energy Performance Certificates (EPCs) are a key tool for enabling UK Government's energy advice schemes and fuel poverty schemes, and for informing consumers' decisions when buying, selling and renting properties. They are a crucial tool in the pathway to Net Zero buildings.

However, EPCs are not currently fit for purpose, and are contributing to low-carbon heating competing on an unlevel playing field with fossil fuel systems. As set out in the Net Zero Review, EPCs are using out of date fuel prices that result in the Standard Assessment Procedure (SAP) rating, the methodology by which the EPC is calculated, dropping following the installation of heat pumps in some cases.³³

In their progress report on the EPC Action Plan, the Government said that their work on updating the SAP methodology was 'ongoing'.³⁴ The Government should expedite this work urgently, and Energy UK supports the recommendations by the Heat Pump Federation for the Reduced Data SAP (RdSAP) update to be updated simultaneously, as this calculation is used for existing buildings where consumers will be living in the least efficient properties and paying most for their heating.

Furthermore, these updates will aid delivery of the Energy Company Obligation (ECO)4. While the scheme has a target for 60,000 heat pumps to be installed, it also requires a minimum improvement of at least two EPC bands for each household retrofitted. The current SAP calculations are working against the intended objectives of the scheme, and hampering the delivery of fuel saving measures in the country's poorest households.

Finally, updating SAP ahead of the Future Homes Standard in 2025 will see accurate EPC ratings generated for new build properties that will, as a matter of course, have low-carbon heating installed.

- **Recommendation 5:** The Department for Energy Security and Net Zero should expedite updates to the Standard Assessment Procedure (SAP) and RdSAP methodologies used to generate the Energy Performance Certificates (EPCs) for new and existing buildings so that the installation of heat pumps does not lead to perverse outcomes like lower EPC ratings.

While this report focusses on the urgent need to update the SAP methodology that generates EPC ratings, there is a much broader piece of work to look at how effective EPCs are in supporting consumers to act on improving buildings. For example, the CCC wrote in February 2023 to the Parliamentary Under Secretary of State for the Department for Levelling Up, Housing and Communities to underline the need for EPCs to go further in providing clear information to consumers.³⁵ The CCC recommends that EPCs adopt four new metrics relating to energy use, space heating demand, heating system type, and costs, that will allow simple comparison between properties. Alongside this, it also calls for an overhaul to the SAP methodology, improvements in the accuracy of assessments, their digital presentation, and finally the storage of input data.

It is clear that Government must work with industry and consumer groups to expedite progress on the EPC Action Plan, while consulting on what a fresh approach to EPCs, their data and usage should be, to ensure that this vital tool is fit for purpose in aiding the transition to Net Zero buildings.

- **Recommendation 6:** UK Government should work with industry and consumer groups to review the approach to Energy Performance Certificates (EPCs) to ensure that they are fit for purpose in supporting the transition to Net Zero buildings in the long-term.

³³ Mission Zero, Rt Hon Chris Skidmore MP

³⁴ Improving Energy Performance Certificates: Action plan – progress report, DLUCH and BEIS, 2021, available via: <https://www.gov.uk/government/publications/improving-energy-performance-certificates-action-plan-progress-report>

³⁵ Reform of domestic EPC rating metrics to Lee Rowley MP, CCC, 2023, available at: <https://www.theccc.org.uk/publication/letter-reform-of-domestic-epc-rating-metrics-to-lee-rowley-mp/>

Stronger regulation will send impactful signals to consumers

Alongside clear messaging from Government and industry about the transition to Net Zero carbon emissions and an EPC framework that sets out clearly the opportunities for improving the energy efficiency of a property, long-term regulation will complete the compelling consumer narrative that low-carbon heating systems are future-proof, spend-to-save investment.

Firstly, ensuring that the draft regulation in the Energy Bill that makes provision for the market-based mechanism for low-carbon heat is passed must be a priority. This will help build domestic manufacturing capacity, boosting jobs and growth, while reducing supply chain costs.

Secondly, while the energy industry is providing attractive new products, services and incentives that are disrupting the existing heating market, a stronger regulatory picture will help set a timeframe for the transition already underway. It is welcome that the Government has set an ambition for a phase out date of natural gas boilers beyond 2035,³⁶ but this policy needs teeth if it is to effectively drive change in consumer behaviour, and provide confidence to the business community that they should invest in new offers and developing their supply chains. This can be achieved by transferring the phase-out date from ambition into legislation.

Case study: ScottishPower

ScottishPower already generates 100% green electricity, and believes that home installations of heat pumps, solar panels and electric vehicle chargers can help to further reduce our dependence on fossil fuels and meet the Net Zero challenge.

ScottishPower launched a GB nationwide heat pump offer in 2021, to help to make it cheaper and easier for customers to install a heat pump and make their property warmer and more energy efficient. They recognise that peace of mind is important when customers move to a new technology, so ScottishPower includes as standard an extended 7-year manufacturer warranty plus 2 years' annual servicing, giving customers confidence that their heat pump will work safely and efficiently for years to come. These service plans are available to all heat pump owners, not just ScottishPower heat pump customers.

ScottishPower's 'Better Homes, Cooler Planet' report, produced in collaboration with WWF, demonstrated that installing a heat pump can be a smart investment for homeowners and landlords, increasing the value of the average home by around £4,500 to £8,000 as well as reducing home energy bills and carbon emissions.

For more information, visit: <https://www.scottishpower.co.uk/air-source-heat-pumps> and <https://www.scottishpower.co.uk/air-source-heat-pumps-maintenance>

In 'Future of Energy', Energy UK supported a ban on the sale of 'carbon emitting boilers' by 2040, but in the context of the urgent need to protect consumers against volatile gas prices, strengthen the UK's energy independence, and deliver on the UK Government's target of a 15% reduction in the energy consumption of buildings and industry by 2030,³⁷ Energy UK is supportive of the Government's ambition for a phase out of 2035.

³⁶ Net Zero Strategy, BEIS, 2021, available via: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1033990/net-zero-strategy-beis.pdf

³⁷ Autumn Statement, HMT, 2022, available via: <https://www.gov.uk/government/publications/autumn-statement-2022-documents/autumn-statement-2022-html>

Alongside Energy UK's position, it should be noted that there is some support in the energy industry for an earlier phase out date to match the recommendation in the Net Zero Review to regulate for the end of new and replacement gas boilers by 2033.

Regulation cannot complete a policy framework for low-carbon heat alone, and should only be introduced alongside appropriate support and incentives to help consumers make the change, and ensure that no one is left behind in the transition. This includes the proposals set out above to strengthen the BUS, progress the discussion of rebalancing energy prices, and wider measures in support of energy efficiency improvements for all buildings.

- **Recommendation 7:** The UK Government should legislate for phasing out the installation of natural gas boilers beyond 2035.

Aligning planning policy with the transition to low-carbon heat

The current approach to permitted development rights for air source heat pumps is increasing the time and cost associated with the installation process, and acting as a deterrent for consumers. This is not only resulting in an unequal playing field for low-carbon heating, but it is also increasing workload for local authority planning departments.

While the Town and Country Planning (General Permitted Development)(England) Order 2015 permits the 'installation, alteration or replacement' of both air and ground source heat pumps without the need for planning permission, there are a number of constraints, particularly associated with air source heat pumps, that are contributing to increased costs and delays to installation.³⁸

These restrictions are, firstly, that only one air source heat pump can be installed at a time for the same building, or within the curtilage of the building or block of flats, secondly, that the unit's volume cannot exceed 0.6 cubic metres, and, thirdly, that the unit cannot be installed within one metre of the premises' boundary.

That some larger properties may require two air source heat pump units to be installed as part of the heating system means that these customers are facing additional barriers to accessing this technology by having to apply for planning permission as opposed to pursuing the permitted development pathway. This is a disproportionate barrier given that these larger properties may be located in more remote areas with correspondingly larger boundaries, so the impact on neighbouring dwellings will be minimal. The Heat Pump Federation has recommended that the wording in the Order be updated to refer to 'systems' to account for the fact that larger properties may require two units, and this is a recommendation that Energy UK supports.

The Order should be amended such that the volume of the outdoor compressor unit cannot exceed one cubic metre. This would ensure that consumers are not being pushed unnecessarily towards smaller units, which tend to be louder to run, counter to ensuring that neighbours are not disturbed.

Finally, the requirement that air source heat pumps are not installed within one metre of a neighbouring property is an out of date policy that does not account for the fact that air source heat pumps are increasingly quiet to run, with the noise that they produce typically being easily drowned out by a nearby conversation. This restriction means that customers living in, for example, terraced properties, are struggling to fit the unit while complying with permitted development regulations.

³⁸ The Town and Country Planning (General Permitted Development) (England) Order 2015, UK Statutory Instruments, 2015, available via: <https://www.legislation.gov.uk/uksi/2015/596/made>

There should be alignment across the devolved nations in terms of the approach to permitted development rights. Installers working across the nations should not face disproportionate barriers in some locations compared to others, and consistency across the regulatory framework would provide additional clarity and simplicity for the benefit of industry, consumers and a reduced administration burden for local authority planning departments.

- **Recommendation 8:** The Department for Levelling Up, Housing and Communities should consult on updating permitted development rights under the Town and Country Planning (General Permitted Development)(England) Order 2015 to allow air source heat pump systems with outdoor compressor units of up to 1 cubic metre to be installed within 1 metre of neighbouring properties.

C. Being part of something bigger

- Opportunities for heat as a service
- Turbocharging the smart meter rollout
- Speeding up connections
- Aligning the wider policy framework on Net Zero buildings

The transition to low-carbon heating is just one piece of a much bigger picture of the transition to a Net Zero power system in the 2030s.³⁹ Energy UK's vision for the Future of Energy is 'a low carbon energy system that customers see as fair and which delivers excellent service, choice and value for money to all homes and businesses'.⁴⁰



The change to low-carbon heating is emblematic of system change, and connects to wider questions of how additional demand on the grid will be managed and enabled through a burgeoning flexibility market and a process of digitalisation, and how an increasing proportion of our electricity will be generated through renewable sources. It is also directly linked to conversations around the future of the energy retail market, and electricity market arrangements.

The energy industry stands ready to bring consumers along on the journey to a Net Zero power system by providing smart and optimised low-carbon technologies, and by forging new kinds of supplier-consumer

relationships that strengthen the way that consumers interact with the energy industry and its services.

Case study: Passiv UK

Passiv UK is a smart energy technology business that develops software solutions to decarbonise homes. In 2015, Passiv UK participated in a major project, 'Smart Energy Islands', which was established to help residents and businesses of the Isles of Scilly move to a lower-carbon economy. Their aim was, by 2025, to cut electricity bills by 40%, meet 40% of the island's energy demand through renewable sources, and support the transition to electric vehicles.

As part of the project, 82 social housing properties saw solar PV generation, electric vehicles, home batteries, smart heating technologies and hot water cylinders installed in their homes. Passiv used its Smart Energy Platform and heat pump controls to provide low-carbon heating. The platform helped to optimise the heat pump and reduce running costs, and residents saw average energy bill reductions of 20% as a result.

This flexible and optimised approach also showed how low-carbon technologies such as heat pumps could play a role in Demand Side Response to help manage the grid. For more information, visit <https://www.passivuk.com/case-studies/smart-energy-islands/>.

³⁹ Plans unveiled to decarbonise UK power system by 2035, BEIS, 2021, available via: <https://www.gov.uk/government/news/plans-unveiled-to-decarbonise-uk-power-system-by-2035>

⁴⁰ Future of Energy, Energy UK

The opportunities for heat as a service

Energy suppliers and technology companies are well placed to offer bundled services to their customers that offer a whole house approach to Net Zero, of which low-carbon heating is just one part. This can include combining a heat pump with microgeneration such as solar PV, a smart meter that allows the consumer to access time of use tariffs, and a home energy management system that optimises all the smart assets in the home to work around both the customer's needs, and demand on the grid. The supplier may also be able to arrange installation of fabric energy efficiency measures for customers so that they can be sure to minimise the amount of heat that they are wasting.

This paints a picture of an intelligent, cheaper and lower-carbon home, with additional benefits resulting from warm and dry conditions, including improved indoor air quality, productivity, educational achievement and a reduced burden on the NHS.⁴¹ However, the upfront costs of installing this technology can be prohibitive for many. Energy companies need flexibility and confidence so that they can invest in developing new propositions for customers and in opening up opportunities for customers to pay for technologies over time. This approach to financing will be key to ensuring that all consumers can participate in the transition to Net Zero, especially those with minimal financial assets. The UK Infrastructure Bank should continue to work with industry, and agencies such as Nesta who are moving the conversation forwards on new ways to pay for heat,⁴² to identify opportunities to bring forward affordable finance for retrofit, aligning with the priorities set out in their 2022 Strategic Plan.⁴³

Turbocharging the smart meter rollout

Enabling change in the way that people engage with the energy industry in and around their home is predicated on the successful rollout of smart meters, which will help to achieve the UK's Net Zero targets. Smart meters will enable consumers' access to flexible and time of use tariffs, as well as innovative demand side response schemes such as National Grid ESO's Demand Flexibility Service.⁴⁴

With the smart meter rollout reaching its halfway point as of April 2022, over 24 million smart meters are now connected.⁴⁵ This is a considerable achievement given the context of the rollout being the most complex infrastructure upgrade the energy industry has ever seen, and delivered in the most competitive retail energy market in the world.

Energy suppliers are committed to completing the smart meter programme so that as many customers as possible can experience their benefits, while ensuring that the rollout is carried out safely, efficiently and cost-effectively.

However, a limitation of this programme is that the smart rollout is an 'opt-in' obligation on customers, which is stopping the rollout from fulfilling its potential. Energy UK has consistently called for changes to wider Government policy to drive smart uptake, for example requiring smart meters to be installed in new builds, private rented properties, and in instances of energy theft. Further action also needs to be taken to promote the installation of smart meters in non-domestic properties.

The Future Homes Standard will see new homes from 2025 being built with low-carbon heating, and heat pumps in many instances. Ensuring that these homes are sold with smart meters already installed will mean that consumers have instant access to the benefits of a smart and optimised household energy system, as well as demand side response schemes. Moving the Department for Energy Security and Net Zero (DESNZ)'s 'Smart Meter Guidance for Domestic New Builds' into Building Regulations will remove barriers to consumers accessing these benefits and ensure compliance in new build homes.

⁴¹ Building Our Future: Laying the Foundations for Healthy Homes and Buildings, APPG for Healthy Homes and Buildings, 2019, available at: <https://healthyhomesbuildings.org.uk/wp-content/uploads/2019/04/HHB-APPG-White-Paper-V2.pdf>

⁴² New ways of paying for heat, Nesta, 2022, available at: <https://www.nesta.org.uk/feature/new-ways-of-paying-for-heat/>

⁴³ Strategic Plan, UK Infrastructure Bank 2022, available at: <https://www.ukib.org.uk/strategic-plan>

⁴⁴ Demand Flexibility Service, National Grid ESO, 2023, available at: <https://www.nationalgrideso.com/industry-information/balancing-services/demand-flexibility>

⁴⁵ Smart meter statistics and network coverage, Smart DCC, 2023, available at: <https://www.smartdcc.co.uk/our-smart-network/network-data-dashboard/>

Energy UK will continue to work with DESNZ, on progressing their commitments as set out in the Smart Meter Policy Framework Post-2020, and pushing for further action on the policy levers that will help turbocharge this vital campaign.

- **Recommendation 9:** The ‘Smart Meter Guidance for Domestic New Builds’ should be brought into the Building Regulations such that all new homes built under the Future Homes Standard must have a smart meter fitted.

Case study: Amp X

Amp X is a digital energy platform whose mission is to accelerate the energy transition by unlocking flexibility from grid-edge energy assets. Amp X utilise their platform to manage assets for a range of customers, and can aggregate their activity to provide flexibility and resilience to the grid. Their offer to businesses and households includes demand-side management and virtual power plant solutions which allow consumer assets and devices to be managed efficiently and transparently to the user. Customers have a smart digital assistant powered by artificial intelligence, optimising their energy consumption and trading their demand-side flexibility in energy and grid services markets. For more information, visit <https://ampx.energy/solutions.html>.

Speeding up connections

The process by which installers of low-carbon technologies connect to the grid by notifying the Distribution Network Operator (DNO) is not fit for purpose. As the market for heat pumps grows, it is essential that this process of connection does not act as a blocker for consumers having new assets installed in their home. While it is right that there should be checks and balances as multiple heat pumps, and other low-carbon technologies, are connected to a low voltage system, the process by which suppliers receive consent from DNOs should be streamlined. This will safeguard against the potential for future bottlenecks in delivery, as volume ramps up.

The energy industry stands ready to support work being undertaken by DNOs, and their representatives, to implement a quick process for approving heat pump applications, that is robust and automated where possible, and provides targets for response times. Energy UK supports the creation of a self-service web portal, provided by DNOs, where installers can perform a first stage check to see if the property is connected to a looped supply of energy. Where it is connected to a looped supply, the DNO will then manually consider the application. Elsewhere, the process should be digitized, streamlined and automated where possible, and supported by improved visibility of low-voltage networks.

More broadly, this work should be supported by anticipatory wider network reinforcements, as this will be needed to support heat pumps at a transmission level.⁴⁶ This is particularly the case for new build schemes with multiple low-carbon technologies being connected in each unit.

⁴⁶ Ofgem's decision on accelerated onshore electricity transmission investment published, National Grid, 2022, available at: <https://www.nationalgrid.com/ofgems-decision-accelerated-onshore-electricity-transmission-investment-published>

- **Recommendation 10:** The energy industry should work with Distribution Network Operators (DNO) and their representatives to support the development of a streamlined, digitized and automated process for connecting low-carbon technology to low voltage networks.

Case study: Utilita Energy

Utilita Energy is participating in phase 1 of the UK Government's Heat Pump Ready programme, part of the Net Zero Innovation Portfolio, which seeks to identify solutions for high-density heat pump deployment. This feasibility study brings together Local Authorities, Distribution Network Operators, Social Housing Providers and homeowners to identify households that are suitable for the deployment of heat pumps. It seeks to adopt a collaborative approach with stakeholders, sourcing various funding streams and targeting fuel poor households in Sunderland, Tyne and Wear. The study interrogates the end-to-end procurement and installation process of heat pumps, and identifies opportunities to consolidate this. For more information visit <https://utilita.co.uk/>.

Aligning the wider policy and regulatory framework to Net Zero buildings

Key enablers that should be brought forward to aid the transition to Net Zero buildings, in addition to the specific policy recommendations outlined in this report, include a more ambitious programme from Government on increasing the energy efficiency of existing buildings. That the median EPC rating of properties in England and Wales is D means heat is being wasted from an inefficient housing stock, and consumers are having to pay more than they should on energy bills in the midst of an international wholesale gas price crisis.⁴⁷ This is a challenge which must urgently be addressed, and Energy UK has set forward proposals for an energy industry-led scheme in response to this challenge in its report 'ECO+'.⁴⁸ This should sit alongside the wider policy framework discussed in 'Future of Energy', including regulations for minimum energy efficiency standards, and fiscal incentives such as a Stamp Duty and business rates regime that rewards efficient properties.

Case study: EDF Energy

In 2022, EDF Energy entered into a new strategic partnership with CB Heating to develop its heat pump offer and support the training and upskilling of heat engineers across the country. CB Heating's growing Heat Pump Installer Network (HPIN) currently has over 150 approved heat pump installers based across the UK, and this enables the company to offer EDF customers an end-to-end installation service.

EDF's investment is supporting the development of a Heat Pump Installers Network Academy, which will have the potential to train up to 4,000 installers per year. This regionally focussed approach supports a partnership approach between EDF and smaller business and local installers, supporting its customers with the decarbonisation of heat. For more information, visit <https://www.edfenergy.com/>.

⁴⁷ Energy efficiency of housing in England and Wales: 2022, ONS, 2022, available at: <https://www.ons.gov.uk/peoplepopulationandcommunity/housing/articles/energyefficiencyofhousinginenglandandwales/2022#:~:text=1.-,Main%20points,homes%20are%20in%20band%20G>

⁴⁸ ECO+, Energy UK, 2022, available at: <https://www.energy-uk.org.uk/index.php/publication.html?task=file.download&id=8297>



The availability of a skilled and accredited heat pump installer workforce is a key enabler of the delivery of low-carbon heating and other domestic-scale low-carbon technologies. The number of MCS-accredited installers, though it has grown in recent years, remains too low.⁴⁹ Government should work with industry to ensure that the right support is in place for businesses, especially SMEs, to train up existing tradespeople and bring in new entrants on apprenticeships.

By bringing forward the right policy framework that provides confidence in future demand and a long-term pipeline of work for the purchase

and installation of heat pumps, Government can create the right conditions for the supply chain to invest in their business and build capacity.

⁴⁹ MCS Data Dashboard, MCS

Conclusion

The long-term response to the rising cost of living must include removing barriers to consumers accessing low-carbon heating, and to maximise the impact of existing Government support for those living in fuel poverty.

The energy industry is developing innovative and competitive products and services that are helping consumers to access the benefits of living in smarter, cheaper, lower-carbon homes but the policy framework and regulation must be in place to give business and consumers the confidence needed to invest in forging ahead towards Net Zero.

The ten policy recommendations put forward in this report would remove barriers to the transition to low-carbon heating, and allow technologies such as air and ground source heat pumps to compete on a level playing field with fossil fuel alternatives. These changes, alongside the introduction of an effective market mechanism for low-carbon heat, could deliver significant growth and job creation across the UK, boosting the economy and levelling up.

The landscape is much broader than any single technology, and heat pumps represent just one aspect of a more significant transition to a modern, net zero power system. However, they are emblematic of the way that Government and industry must work in partnership to shake up what's on offer.

Removing barriers to low-carbon heating is an essential part of the UK's response to the rising cost of living, and is part of the industry's longer-term transition to a net zero power system. Much work has already been done to bring forward innovative and competitive consumer offers, but to truly realise the ambition of UK industry, and access the benefits promised for climate and growth, we must go further and faster, and there is no time to waste.



Energy UK is the trade association for the energy industry with over 100 members – from established FTSE 100 companies right through to new, growing suppliers, generators and service providers across energy, transport, heat and technology.

Our members deliver nearly 80% of the UK's power generation and over 95% of the energy supply for 28 million UK homes as well as businesses.

The sector invests £13bn annually and delivers nearly £30bn in gross value – on top of the nearly £100bn in economic activity through its supply chain and interaction with other sectors. The energy industry is key to delivering growth and plans to invest £100bn over the course of this decade in new energy sources.

The energy sector supports 700,000 jobs in every corner of the country. Energy UK plays a key role in ensuring we attract and retain a diverse workforce.

In addition to our Young Energy Professionals Forum, which has over 2,000 members representing over 350 organisations, we are a founding member of TIDE, an industry-wide taskforce to tackle Inclusion and Diversity across energy.

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