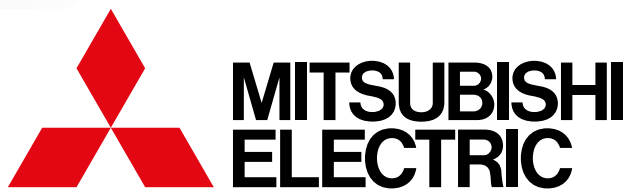




**Heat Pumps:**

# Exploring the Financial Tipping Point



Cooling | Heating | Ventilation | Controls

# Foreword from Russell Dean



Russell Dean, Deputy Divisional  
Manager, Living Environment  
Systems, Mitsubishi Electric

Getting the UK to net zero by 2050 is essential to tackling the climate crisis. Yet we are struggling to stay on track. The government has found we won't be able to reach the targets set out in the sixth Carbon Budget (the volume of greenhouse gas emissions the UK can legally emit between 2033 and 2037), by 2050 if we carry on as we are – let alone by the 2037 deadline. The Climate Change Committee (CCC) has also recommended an 81% reduction in emissions by 2035. With the way we heat our buildings accounting for a third of these emissions, encouraging the adoption of renewable alternatives such as heat pumps will be critical to achieving these challenging legal targets ahead of us.

Progress in heat pump uptake is already being made, particularly in the commercial sector within buildings such as offices, schools and universities. Supported by initiatives such as the Low Carbon Skills Fund and the Public Sector Decarbonisation Scheme, this initial deployment in commercial buildings is paving the way for greater adoption – by exemplifying the benefits heat pump technology can bring.

Accelerating deployment in the residential sector therefore sounds like a clear solution, particularly as heat pumps are proven to be around three times more efficient than a gas boiler. Yet barriers to moving from early to widespread adoption remain. These must be addressed if we want the technology to become the standard way of heating people's homes and businesses.

One of the most impactful ways to boost the uptake of renewables like heat pumps is to make electricity more affordable. In fact, our survey has found that reducing the price of electricity by decoupling it from gas would encourage almost half (44%) of households to either consider or immediately switch to a heat pump. This could also save businesses £2,426 and households £131 per year on their energy bills.

Another factor is to increase public awareness and knowledge of renewables. While homeowners are increasingly expressing a preference for low carbon homes, almost a fifth (18%) still believe gas boilers are the most sustainable heating option. We also need to increase consumer awareness of the financial support that already exists to bring down the upfront cost of heat pumps.

Furthermore, we are also facing a lack of people trained to design, install and commission the technology in people's homes and businesses. The more installers that can recommend a heat pump as an alternative option to consumers, the better.

All of these factors together offer a golden opportunity for the new government to work with the heating industry to overcome these identified barriers and accelerate adoption.

The following report explores these challenges in further detail following a survey of homeowners and installers about what they really think about heat pumps – and crucially, how much homeowners would pay to install one. In doing so, it pinpoints exactly where and how we can overcome these barriers, accelerate adoption and ultimately ensure that heating plays its part in driving the nation across the net zero finish line.



# Introduction

The previous government set a target of 600,000 heat pumps installed in homes per year by 2028 and the new government is continuing to work towards this goal. 2024 has been a record-breaking year for installations so far, with 4,849 air source heat pumps installed in May alone. Yet, the UK continues to lag behind a number of European countries in terms of adoption.

**There are many reasons for the slower pace of uptake in the UK, including a lack of awareness surrounding the technology and climate change as a wider topic. The combined cost of buying and installing a heat pump, and the cost of electricity from running it, also remains an important factor for homeowners and businesses as the cost of living continues to rise. This is partially due to the price of electricity, which continues to be higher than gas following the introduction of the new energy price cap on the 1st of October. This makes the cost of running a heat pump more expensive than a gas boiler.**

Alongside the aforementioned Low Carbon Skills Fund (LCSF) and Public Sector Decarbonisation Scheme (PSDS), there are currently several subsidies and grants available to help ease the initial upfront cost of installation. For families and small to medium-sized businesses (SMEs), this has included the Boiler Upgrade Scheme (BUS), which offers £7,500 to cover the cost of replacing fossil fuel heating systems with an air or ground source heat pump. While this does not include Scotland, the Home Energy Scotland scheme also offers support to those looking to reduce their energy bills while making energy efficient

improvements to their home. The Warm Homes: Social Housing Fund (WH:SHF), which closes on the 25th November, also offers funding for improving the energy performance of social homes in England below Energy Performance Certificate (EPC) C. 51,872 voucher applications had been received for the BUS as of the end of August 2024, while 2,220 grants were paid in that month alone – the highest on record. Ofgem has also been given permission to over-allocate vouchers by the Secretary of State to support heat pump installation.

Yet, while these incentives signal a shift in the right direction, we must make the technology more affordable for homeowners and businesses to buy, install and run if we are to accelerate adoption and support the transition to renewable heating.

In addition to cost, a lack of awareness of the benefits of heat pumps remains another key barrier. This is partially due to the UK still being in the early adoption phase in comparison to other European countries such as Sweden and Finland, and this translates into lower levels of trust in the technology. Our research shows that most consumers don't understand how heat pumps operate or their advantages when compared to a gas boiler – and are more hesitant about making the switch as a result.

So, how do homeowners really perceive the technology? And how much would they be willing to pay for it?

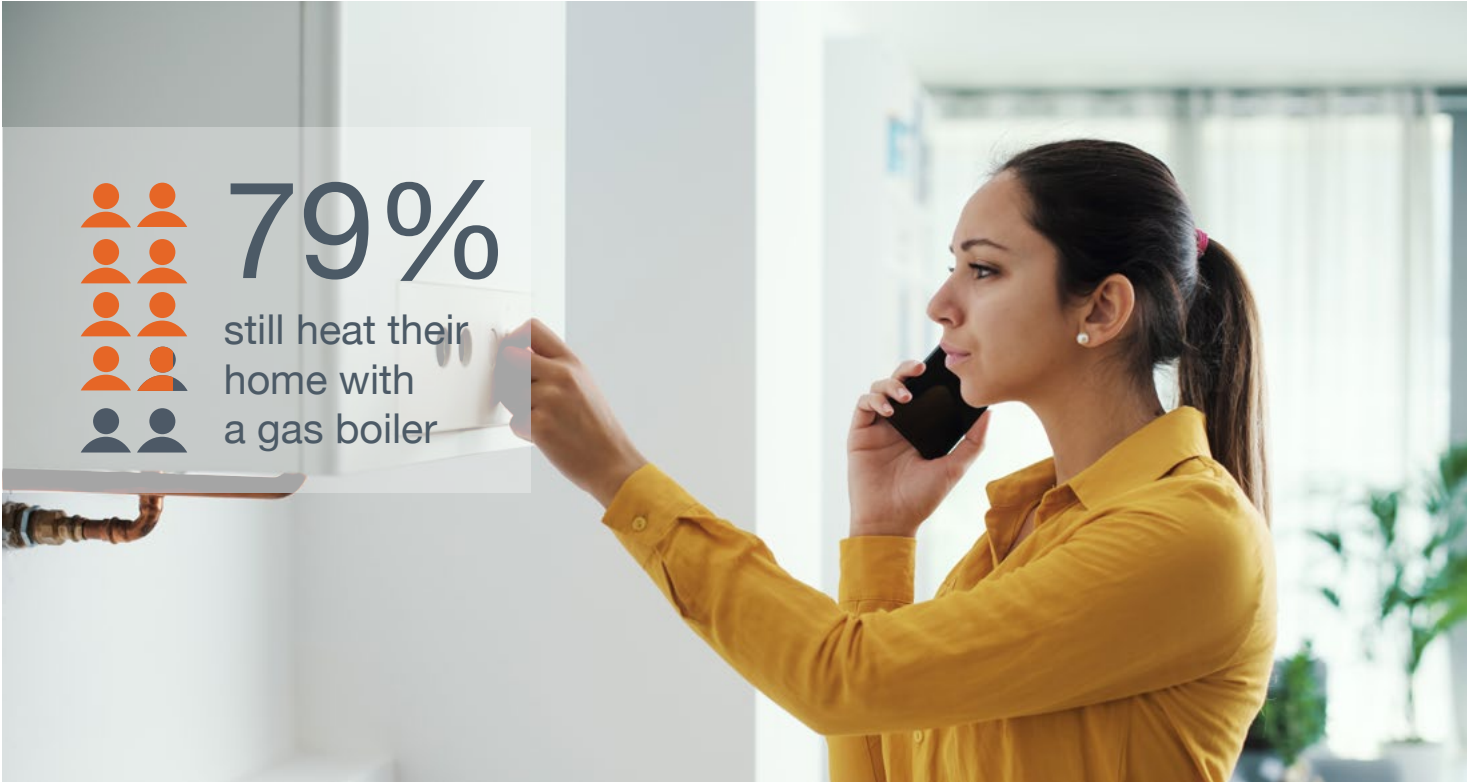
1: From 1st October, gas prices have been capped at 6.24p/kWh with a daily standing charge of 31.66p, while the cost of electricity is capped at 24.5 p/kWh with a daily standing charge of 60.99p.

# Homeowners are still reluctant to spend on renewable alternatives

Mitsubishi Electric and Censuwide conducted a survey of 2,275 respondents across the UK. This polled 2,025 homeowners between the 25th and 30th of July and 250 heating, ventilating and air conditioning (HVAC) installers (including plumbers) between the 25th of July and the 6th of August 2024. The following analysis explores the data and conclusions drawn as a result.

First, the research found that most homeowners still use carbon-intensive methods for heating their homes. Almost eight in 10 (79%) still heat their home with a gas boiler. The way these spaces are heated also varies by region, with those living in or owning properties in Scotland, the North East and North West more likely to use a gas boiler (84%, 86% and 84%, respectively), compared to those living in Greater London (61%).

Conversely, just 4% of homeowners use an air source heat pump and 3% have a ground source model in their homes. Greater London has the highest number of homeowners with air source heat pumps (10%), compared to just 1% in Wales. But how much would they be prepared to pay for one?



# Cost is a key consideration

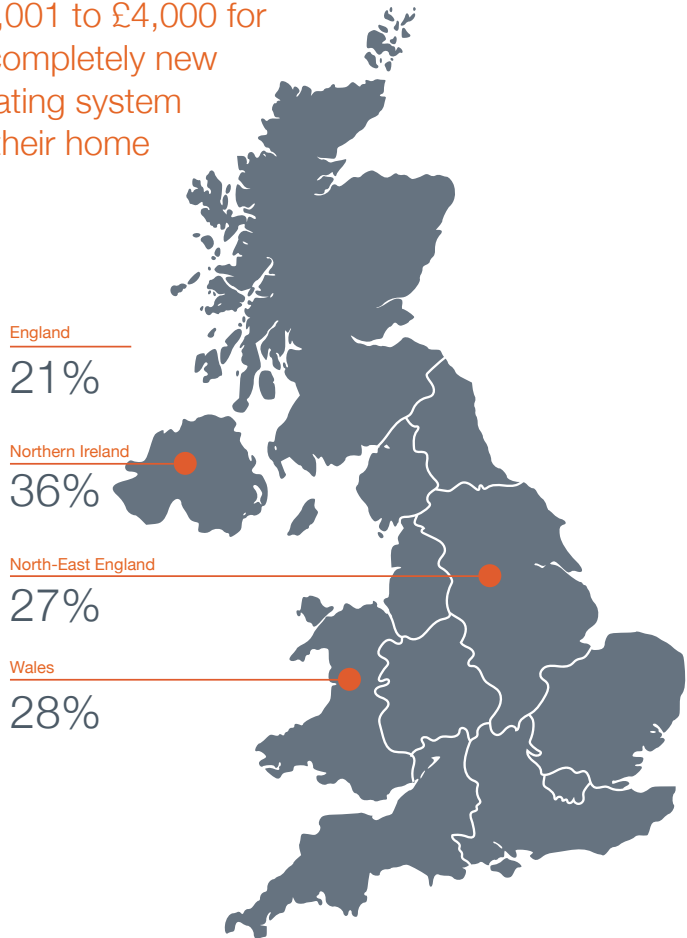


*As the cost of living continues to impact household finances, we need to make the cost of installing and running a heat pump more affordable for homeowners. Our research shows there are substantial regional disparities in adoption – with wealthier areas such as London and the South East more likely to have the technology installed in their home. As we look towards net zero, the new government must narrow this gap by decoupling the cost of electricity from gas and reducing the cost of running a heat pump. Lowering the cost of installing a heat pump can also be achieved by increasing the amount of financial support available to homeowners looking to make the switch – whether that’s through funding, grants or other related economic incentives.”*

**Russell Dean, Deputy Divisional Manager of Living Environment Systems at Mitsubishi Electric.**

Homeowners are increasingly interested in transitioning to more environmentally friendly ways of heating their homes, with KPMG finding almost half (49%) would prefer to buy a low carbon home. However, if homeowners were to swap out their gas boiler for a heat pump, the majority would need a financial incentive to switch to a renewable alternative. Over a fifth (21%) would expect to pay between £3,001 to £4,000 for a completely new heating system in their home, rising to 36% in Northern Ireland, 28% in Wales and 27% in the North East. Just 7% would be willing to pay between £6,001 and £7,000, and less than 5% would be willing to pay more than £8,000. These concerns around money have been, in part, fuelled by the rising cost of living in recent years, with more than half of adults reporting this rose in August compared to the same month in the previous year. As such, this reiterates the importance of financial incentives, including the BUS and WH:SHF, in supporting homeowners in making the switch.

Percentage that would expect to pay between £3,001 to £4,000 for a completely new heating system in their home



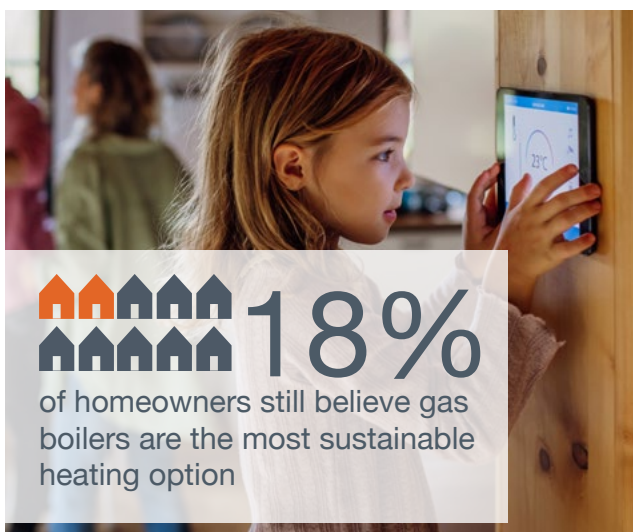
# Misconceptions around heat pump benefits

Our research shows that the public are yet to fully understand the benefits of heat pumps as a sustainable solution, which may be responsible for low levels of adoption. When asked about whether they believed gas boilers were the most sustainable home heating option, almost a fifth (18%) of homeowners said 'yes', while **just 25% believed heat pumps were the most environmentally friendly alternative.** Attitudes towards the technology also vary across the UK, with those living or owning properties in the North East, Northern Ireland and Wales the least likely to perceive heat pumps as a sustainable heating option.

Despite this lack of awareness, use cases in the commercial sector are already showing the environmental benefits heat pump technology could have for residential buildings. This includes [Durham University](#), which after being awarded £1.13 million in funding from the PSDS, replaced its gas-fired heating system with an air source heat pump. This resulted in estimated savings of around 148 tonnes of carbon emissions per year for the wider estate.

While there is [information](#) about heat pumps available in the public domain, a lack of awareness about heat pumps and their benefits remains. Around three quarters (73%) of consumers report not knowing enough about heat pumps or other renewable heating options to make an informed decision about installing one in their home. This is broadly in line with wider awareness around the role of heating in tackling climate change, with the National Audit Office (NAO) finding [almost a third](#) of consumers have either never heard of, or hardly knew anything, about the need to change the way they heat their homes to reach net zero. What's more, improving wider understanding of net zero and its role in tackling the climate crisis is also crucial, with [6-in-10](#) British consumers still not understanding what net zero actually means.

Alongside misconceptions surrounding a heat pump's efficiency, these gaps in knowledge are also being driven by a lack of available information about the technology's financial benefits. This includes their ability to reduce energy bills due to being up to [three times more](#) efficient than a gas boiler, with over a third (39%) believing there is a lack of evidence of the long-term cost savings installing a heat pump could provide. The commercial sector can lead by example here too, with [Newcastle City Council](#) enjoying potential savings of £386,000 per year on running costs after installing heat pumps as part of a wider strategy to decarbonise its estate.

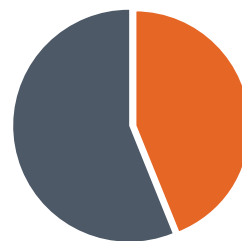


# Key motivations for making the switch

So, what would persuade consumers to install a heat pump in their homes? Greater financial support appears to be the number one motivator, with 44% wanting a funding grant to cover the cost of installing a new system in their building. This has already resulted in rising demand following the introduction of the BUS, with applications more than doubling in April this year compared to the same month in 2023, upon grants increasing from £5,000 to £7,500. In addition, our research suggests a better understanding of what the monthly costs will be, would also help – with almost 40% of homeowners reporting that a lack of evidence of the long-term cost savings is stopping them from installing one in their home.

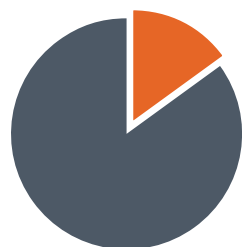
Consumers would also like to know where they can get helpful advice and information on heat pumps from installers, with almost 15% believing the absence of a skilled heat pump installer able to make the technology work in their home is a hindrance. This sentiment is echoed amongst the wider HVAC industry, with a coalition of organisations including the Heating Trades Network UK (HTNUK) and National Energy Action (NEA) now calling for the mandatory accreditation of heat pump installers in a bid to increase consumer confidence in the technology. Industry bodies such as the Heat Pump Association (HPA) have also expanded membership to installers to gauge their opinion on accreditation and certification, and what is needed to ensure rapid heat pump adoption takes place in a way that improves consumer confidence.

It's clear that a combination of cost and a lack of information are the key obstacles to installing a heat pump. With the previous government having introduced a series of aforementioned initiatives designed to support businesses and consumers in making the switch, the new government has a prime opportunity to continue building on this progress by decoupling the cost of electricity from gas and supporting financial incentives. Considering successful use cases in the commercial sector, and applying this knowledge to supporting greater deployment in residential buildings, will also level the playing field in heat pump adoption as we look towards net zero.



**44%**

want a funding grant to cover the cost of installing a new system



**15%**

believe the absence of a skilled heat pump installer is a hindrance



# Installers agree cost and a lack of awareness remain a challenge

Alongside homeowners, the report also surveyed installers working in the HVAC industry on the key considerations and barriers they believe exist for clients considering heat pumps in residential and non-residential sectors.

Installers believe cost is the main consideration for both their residential and non-residential client base. Over half (58%) of installers believe grant and funding options are the most important consideration for homeowners and over a quarter (27%) of businesses. Long-term running costs are also an important aspect, with installers reporting this to be a greater priority for homeowners than businesses. This could be due to heat pumps generally costing more to operate for businesses due to their size and scale, particularly if it's within a large and multi-use office building.

Similar to homeowners, installers' perceptions about cost fluctuate depending

on where they are based. While just 16% of installers in Greater London believe upfront cost to be a main consideration for businesses, this rises to 40% in the East of England and 52% in the North West. This is echoed among homeowners, with almost all installers (90%) in the East of England believing grant and funding options are the number one consideration for homeowners looking to install a new heating system – compared to 25% for those located in Wales and 40% for those living in the South West.

Mirroring homeowner and business views on heat pumps and their benefits, installers also believe a lack of awareness of the technology is the number one barrier for clients looking to install these solutions. 62% believe homeowners are unaware of the benefits heat pumps can offer, with slightly fewer believing there is a lack of awareness of the technology amongst businesses.



## Extending support to installers

Installers also believe this support – whether that’s financial, skills-based or education – needs to be replicated for the trade. 30% believe more financial support is needed from the government for upskilling installers, and a further 30% believe more options for upskilling are needed from manufacturers in order to increase heat pump uptake in the market.

In addition to greater financial support, training programmes must also take into account the specific skills heating installers will need to learn in order to install a heat pump, in comparison to those required for oil and gas.

Our research also suggests we need to tackle misconceptions around heat pumps, not just among consumers and businesses but installers, too. While 61% report either having the skills and expertise needed to install a heat pump or that they are planning to learn these, 36% don’t see the financial benefits of learning to install one – while 23% are not interested in learning to upskill. While the latter may be due to retirement or a potential career change, these factors combined has led to more than half of UK builders not having the knowledge needed to recommend heat pumps to their client base.

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*There is clearly a disconnect between net zero and the current and future installer base. If we are to accelerate adoption, we must communicate the benefits of heat pumps to not just consumers and businesses, but the people that are going to install them too. This will motivate installers to acquire the skills needed to install the technology in people’s homes and businesses, which, in turn, should be accompanied by significant investment in upskilling programmes and initiatives by the new government.”*

**Russell Dean**

It’s clear that supporting installers in installing heat pumps – whether that’s through training, financial incentives or communicating the technology’s benefits – is another crucial piece of the puzzle in building on the initial progress that has been made in the commercial sector and encouraging wider uptake. Diversifying this training, whether that’s via online courses that allow installers to upskill at a time that suits them or providing a ‘hands-on’ experience via virtual reality (VR), will also play an important role in persuading installers to acquire these skills. However, these initiatives must also take into account the barriers installers believe to be preventing widespread adoption amongst the residential and non-residential sectors and mirroring this support for homeowners and businesses.



# Reducing the cost of electricity will make heat pumps affordable

So, how can we make heat pumps more financially viable and remove these wider obstacles to adoption for homeowners and businesses?

## Decoupling electricity from gas

The first way is by decoupling the price of electricity from the price of gas, which would have saved businesses £2,426 and homeowners £131 per year on their energy bills during the energy crisis of 2021-23. The wholesale price of electricity in the UK continues to be higher than that of gas following the rise in the energy price cap from October, with gas prices now capped at 6.24p per kilowatt hour (kWh) and electricity substantially greater at 24.50p per kWh. Decoupling would fundamentally reduce the cost of electricity and make heating methods using electricity (such as heat pumps) cheaper to run.

Doctor Ed Manderson, Senior Lecturer at the Department of Economics at the University of Manchester, reiterates this. He has found that during the natural gas spike of 2021-23, decoupling the price of electricity generated from renewables (solar and wind) from natural gas prices would have resulted in substantial annual savings for both households and businesses. The average household would have saved £131 on their energy bill in 2022 (equating to 15% of the average bill), rising to £178 if onshore wind generation was doubled. These cost reductions are replicated amongst businesses, too, with the average business in the industrial sector saving £2,426. If onshore wind generation had doubled what was observed, these savings would have further increased by 30-40%.

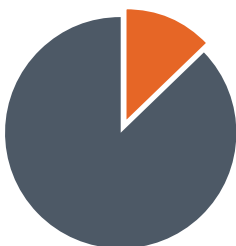
It's also worth noting that these savings are for the average household, and homes and businesses with greater than average electricity use would have saved even more. these energy refunds could be targeted to lower-income or elderly households rather than simply based on energy usage.

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*“Households and businesses would have saved significantly more on their energy bills if the wholesale price of electricity had been determined by the average cost of renewable energy between 2021 and 2023. This further enforces how decoupling the cost of electricity from gas would make heat pumps more affordable and, in doing so, reduce the financial barriers to wider uptake. This, coupled with greater financial support for homeowners, businesses and installers, will ensure we are tackling the cost question head-on.”*

**Doctor Ed Manderson, Senior Lecturer at the Department of Economics at the University of Manchester**

This was also reflected in our research, with almost half (44%) of households reporting they would either consider or immediately switch to a heat pump if electricity prices were lower and heat pumps were cheaper to run. This sentiment is echoed amongst installers, with over a quarter (27%) agreeing that decoupling electricity from gas would increase heat pump uptake.



**13%**  
of homeowners would immediately consider a heat pump if electricity prices were lower



**27%**  
agree that decoupling electricity from gas would increase heat pump uptake

Decoupling electricity from gas would also move household energy requirements away from volatile oil and gas prices. This would support greater energy security for the UK, while also accelerating the adoption of renewable heating.

## Removing government levies

The second way to reduce the cost of heat pumps in the short term is by removing government levies from energy bills. At present, these add an average of **£131** to a consumer’s annual electricity bill, compared to just £34 for the average annual gas bill. This means the cost of running a heat pump remains significantly higher than that of a gas boiler.

This move is supported by both government and industry, with the CCC recently advising the government to remove levies from electricity bills in order to make electricity cheaper and support the transition to net zero. Cornwall Insight has predicted doing so would reduce bills by around £300 per year for homes heated using electricity.

Executives from Octopus Energy and EDF Energy have also called on the government in recent months to move these levies from electricity to gas bills in order to incentivise families to make the switch to renewable alternatives. They have also suggested that savings on electricity bills could offset the increased cost of gas, making the transition more manageable in the long term. A number of countries are already putting this into action. France has introduced an additional carbon charge on fossil fuels,

including gas, while Spain has cut VAT on energy bills and reduced tax on electricity. Energy ministers at the European Union have also extended a cap on gas prices until January for member states in order to cut gas prices and support the transition to renewable energy.

## Launching Great British Energy

The government is also aiming to reduce energy bills via the introduction of Great British Energy. Headquartered in Scotland, this will be a publicly owned clean energy company that will own, operate and invest in clean power projects across the UK. It is currently aiming to reduce energy bills by, on average, £300 per year, alongside supporting the creation of local jobs and the establishment of clean energy supply chains. While this will rightly increase the production of renewables and boost energy security, it's important this is combined with the other aforementioned initiatives to further drive down costs for consumers and businesses.



# Tackling the wider challenges

Beyond cost, it's clear that wider challenges to heat pump adoption still exist. This includes misconceptions around heat pumps, with more than 7-in-10 (73%) homeowners not knowing enough about the technology or other renewable heating options to make an informed decision about what to install.

While successful use cases in commercial buildings are showcasing the benefits heat pump technology can bring, more needs to be done to raise awareness amongst homeowners, businesses, and installers. Both the government and the heating industry must work together to provide trusted sources of information about what a heat pump is, how the technology works and the benefits of installing one. Current examples include the launch of the Heat Pump Association's [series of articles](#) on low-carbon heating and the previous government's [heat pump explainer](#) from the Department of Energy Security and Net Zero.

Alongside increasing consumer confidence in renewable technologies, we also need to communicate these benefits to installers if we are to expand their skill set into this domain. This will play a crucial role in narrowing the installer gap, with Nesta [finding](#) there is currently a shortfall of 27,000 installers needed to reach the previous government's target of installing 600,000 heat pumps per year by 2028.



Meeting these targets will require a tenfold increase in the number of installations over the next five years – and we need the workforce to do it. This can be achieved by increasing funding for installer training in schools and colleges and encouraging businesses to provide heat pump training and modular qualifications. A growing number of industry bodies are also calling for more qualified and accredited heat pump installers in a bid to boost consumer confidence in the technology, allowing installers to deliver accurate information and address consumer concerns. Upskilling the current and future generation of installers for this change in the market will, therefore, ensure they are prepared for the net zero economy.



# Conclusion

As we forge the path towards net zero across the UK economy, we must not forget the critical role changing the way we heat our buildings will play in reaching this goal. Heat pumps can and will help us to tackle this challenge head-on, yet our research shows that despite their proven benefits, significant barriers to large-scale adoption remain. The cost of installing and running a heat pump in homes and businesses remains out of reach for many as the cost of living continues to bite. This, coupled with misconceptions about their benefits and a lack of skilled installers to make this a reality, means the UK still has some of the lowest levels of uptake in Europe.

While we have already made initial progress in accelerating adoption in the commercial sector, the new government has to tackle this challenge head on. The climate crisis is an intergenerational emergency which simply cannot be put on the backburner. Addressing these barriers to heat pump adoption will not only reduce emissions, but lower energy bills and improve the UK's energy security. Yet we need to make this financially viable. In the short term, this can be achieved by removing government levies from energy bills and increasing the grants

and funding available for homeowners and businesses looking to make the switch. Decoupling electricity from gas will not only reduce these costs further but support the creation of a more stable, independent energy supply to complement government initiatives like Great British Energy. We must also acknowledge the regional disparities in heat pump adoption. Our research shows that those living in Scotland, Wales, the North East and North West are more likely to use inefficient methods of home heating than wealthier areas such as Greater London. While this is partially due to certain areas having different housing types or being slightly more urbanised, addressing these disparities will be crucial to ensuring these technologies are accessible to all.

It doesn't end there. Communicating the benefits of heat pumps – whether that's to homeowners, large corporations or heating engineers – will further remove uncertainties surrounding the technology and increase current levels of trust to spearhead adoption. This will increase demand and, in turn, make the transition towards greener forms of energy a reality – ultimately allowing us to hit net zero by 2050.



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