

Heat pumps – five Government actions to accelerate deployment

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Summary

Heat pumps are a critical technology in decarbonising residential heating in the UK but their deployment, to date, has been limited. To accelerate their deployment a coordinated approach, led by Government, is required.

New research (Barnes et al, 2023a), undertaken between February and July 2023 and supported by CREDS, on the actions required by Government to accelerate residential heat pump deployment in the UK, identified five areas for action:

- Raise awareness of heat pumps and their role in reducing carbon emissions from housing.
- Demonstrate strong policy commitment at the top of Government and deliver a coherent long-term policy framework.
- Acknowledge the disaggregation of the installer industry into multiple roles and provide targeted support to each.
- Expedite fuel price rebalancing and facilitate new value propositions that reduce total cost of ownership.
- Establish consumer confidence and simplify the customer journey.

On Wednesday 20 September 2023, Prime Minister Sunak announced a series of changes to Government policy on net-zero, including on heat pump deployment (HM Government, 2023a). These changes have undermined progress in three areas: awareness, policy commitment and consumer confidence. In only one area, regarding costs, have Government announcements demonstrated support.

Raise awareness of heat pumps

For heat pumps to be adopted en masse, households need to be aware of the technology and have confidence in the emerging market. Households must also be motivated to act.



Recent research shows awareness of heat pumps is slowly but steadily increasing (BEIS, 2023). Growing awareness of the climate emergency and willingness to act on it has been an important driver of interest in heat pumps. Rapid rises in domestic gas prices from the end of 2021 onwards have also prompted further interest (BEIS, 2023). At the same time, inflation and the broader cost of living crises has reduced the number of households able to act (YouGov, 2022).

Our work suggests increasing societal awareness about the importance of decarbonising residential heat is still required. A clear narrative around heat pumps and their role in achieving net-zero is needed. The relative importance of building fabric efficiencies compared to heat pump adoption also requires urgent clarification.

On 20 September 2023 Prime Minister Rishi Sunak made three changes to Government policy towards heat pumps. They included: raising the amount of upfront grant funding available to households via the Boiler Upgrade Scheme from £5,000 to £7,500; delaying the ban on the installation of new fossil fuel heating systems in off-gas properties, due to come into force from 2026 onwards; and proposing exceptions for properties or households where heat pumps 'won't make sense'. He also suggested government would relax mandatory energy efficiency targets for rental properties from 2028 onwards.

Sunak argued that delaying deployment was compatible with the UK's long-term net-zero targets and was justified given historical progress at decarbonising the UK's electricity supply. Neither argument holds. Total cumulative emissions matter more than when the UK net-zero is achieved. Meanwhile, electricity supply must be decarbonised while emissions from residential heating are reduced to zero. Action in one area does not reduce the need for action in another.

These announcements raise the profile of heat pumps within public discourse. Yet they do so for the wrong reasons. They conflate action on energy supply with action to reduce energy demand, for which there is great potential (Barrett et al., 2023) but for which there has been little delivery to date (Barrett et al., 2021). Heat pumps offer one of the few established, mature technologies capable of decarbonising residential heating in the UK.

Demonstrate strong policy commitment at the top of Government

Heat pumps are a disruptive technology. They are disruptive to households during installation. They are disruptive to home heating installation and maintenance industries and disruptive to incumbent gas networks. Their diffusion thus requires the transformation of existing residential heating systems currently centred on the provision and supply of cheap, reliable natural gas supplies (Sovacool and Martiskainen, 2020). Achieving change is understood to be a complicated, multi-actor challenge. Accumulated knowledge suggests a coordinated approach is required (Rosenow et al., 2020; Lowes et al., 2021).



Government is the only actor that can lead this transformation. Government must demonstrate clear leadership through strong policy commitment. A systemic approach to delivery across all Government departments is required. The timely development and delivery of policy will further build societal momentum behind heat pump deployment by guiding the actions of multiple actors, from households, through industry to manufacturers.

By contrast, recent Government announcements undermine its perceived commitment to heat pumps and heating system transformation. Banning the use of fossil fuel boilers in rural areas not connected to the gas grid could have helped scale up heat pump deployment whilst reducing heating bills to those households.

Delaying fossil fuel boiler phase-out dates for properties off the gas grid removes one of the Government's four core policy instruments, announced in October 2021, designed to support the take-up of residential heat pumps. Of the other three instruments there has yet to be a consultation on a proposal to rebalance levies between electricity and gas, and the Clean Heat Market Mechanism remains under development with no clear implementation timetable. This leaves only one policy instrument as having been implemented: the Boiler Upgrade Scheme.

Acknowledge the disaggregation of the installer industry into multiple roles and provide targeted support to each.

Installers are widely regarded to be central to the uptake of heat pumps (Nesta 2021; Callanan, 2023). Perceived wisdom suggests the new heat pump installer industry will look and feel like the existing gas boiler industry (Harris and Walker, 2023). Our work suggests this is unlikely to be the case. Unlike the existing gas boiler industry, the heat pump installer industry will need to take on more roles. Design and specification of systems is increasingly viewed as critical and is likely to be a separate job to installation and maintenance, due to the skills and expertise involved.

To support the transformation of the installer industry Government must first recognise its disaggregation into multiple roles before providing targeted support to each.

Expedite fuel price rebalancing and facilitate new value propositions that reduce total cost of ownership

The cost of installing and operating a heat pump has long been seen as a barrier (IEA, 2022; Turner et al., 2023), particularly when compared to gas boilers, which over 80% of UK households have.

Increasing the upfront grant from £5,000 to £7,500 under the Boiler Upgrade Scheme is a welcome Government announcement.

Nonetheless, more effort should be directed towards making heat pumps affordable to households. Sole focus on upfront and running costs plays into an existing narrative that is failing to win over societal support. Policy options to make heat pumps more affordable include:



- Fuel price rebalancing between domestic gas and electricity prices, where gas has for many years remained artificially cheap whilst multiple policy costs have been placed on electricity.
- Supporting new business models, such as 'heat as a service' that remove upfront capital costs.
- Supporting the emergence of green mortgages or low interest credit loans to support the 'willing-but-unable-to-pay' market.
- Give access for heat pumps to participate in remunerated power system flexibility events.

Establish consumer confidence and simplify the customer journey

Establishing confidence in the new market will be critical for consumers planning heat system upgrades. It will also be critical in the formation of installer industries, acting as an incentive to train and retain, as well as repurpose or set up a new business.

Our work suggests that concerted effort is required to foster confidence in the transformation of residential heating, away from systems based on gas towards electrified systems in which heat pumps play a leading role. Establishing consumer safeguards will be important, as will streamlining the adoption process. Industry can lead but must be supported by clear, consistent messaging, strong standards and enforcement from Government (Bonfield, 2016).

Recent Government announcements do little to establish consumer confidence in the technology or emerging market. Instead, they serve to reinforce existing narratives around high cost. They also stoke feelings of resentment and injustice when the prime minister describes prior Government policy as "imposing costs on hard-pressed families, at a time when technology is often still expensive and won't work in all homes" (Hm Government, 2023).

About the research

Heat pumps are a critical technology in decarbonising residential heating in the UK. In October 2021 the UK Government set out a market-based approach to support heat pump deployment in the UK, including an ambition to deploy upwards of 600,000 residential heat pumps per year by 2028. Whilst praised by some commentators, others questioned the capacity of this strategy to deliver change.

This research – funded by the Network+ for the Decarbonisation of Heating and Cooling and supported by CREDS – asked how has the UK market for residential heat pumps developed in the last few years given unprecedented events in geopolitics, national politics, energy markets, the economy and society? And what is now required to accelerate the deployment of residential heat pumps in the UK?



First, a rapid review of the UK market for heat pumps was undertaken to understand recent developments in policy, markets, and wider society. Second, a series of three stakeholder workshops were undertaken. Each workshop followed a decision theatre methodology – a highly discursive yet structured approach to tackling complex, multi-stakeholder issues – which was designed to result in participants reaching decisions on how to accelerate residential heat pump deployment in the UK. Analysis of written statements and audio transcripts concentrated on areas of agreement, tensions, and trade-offs, and resulted in the identification of five common priorities for change across all three workshops.

Further details:

- **Policy brief:** [Heat pumps – Five key policy areas for accelerating deployment in the UK](#)
- **Pre-print:** ['No courage at the heart of Government': What are the most important changes needed to accelerate heat pump deployment in the UK?](#)
- **Report:** Barnes, J. Taylor, M and Silvonen, T (2023) Domestic heat pumps: A rapid assessment of an emerging UK market, 30 June 2023, doi: [10.5281/zenodo.8099472](https://doi.org/10.5281/zenodo.8099472)

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About CREDS

The Centre for Research in Energy Demand Solutions (CREDS) was established as part of the UK Research and Innovation's Energy Programme in April 2018, with funding of £19.5M over five years. Its mission is to make the UK a leader in understanding the changes in energy demand needed for the transition to a secure and affordable, net-zero society. CREDS has a team of over 140 people based at 24 UK universities

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