Heat and Buildings Strategy

October 2021

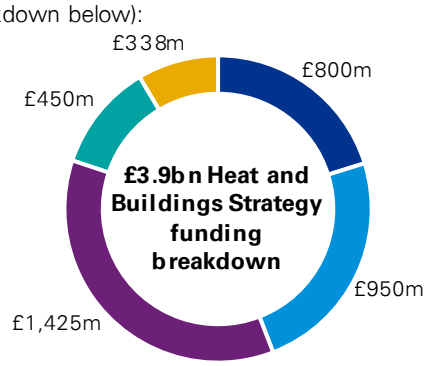
Key points

The UK Government has launched its much-anticipated Heat and Buildings Strategy. This sets out the plan to drive down costs of key low-carbon technologies, in particular heat pumps, to ensure cost parity with gas boilers. The Strategy also sets a timeframe for banning the installation of new gas boilers, with the expectation that from 2035 all new heating systems will be low-carbon, and pledges to consult on requiring hydrogen-ready boilers by 2026.

- Making rapid progress on decarbonisation of heat and buildings will require much greater engagement with the public, at a national and local level
- New funding is a welcome step, but large amounts of additional spending will be required to drive the decarbonisation of heat at scale
- The Strategy's targets for cost reduction are very ambitious and sit alongside wider policy action to rebalance energy levies away from electricity towards gas over time
- Decarbonisation of heat will require a mix of locality-specific solutions. Despite the headline emphasis on heat pumps, the Strategy leaves all options on the table
- More funding will be required to drive the required step change in energy efficiency in homes and buildings

Summary

On Tuesday the UK Government launched the Heat and Buildings Strategy, setting out its plan to reduce the costs of low-carbon heating technologies, with an emphasis on heat pumps, to ultimately achieve cost parity with gas boilers. The centrepiece of the Strategy is the £450m Boiler Upgrade Scheme, which open in April 2022 to offer homeowners grants of £5,000 to install low-carbon heating systems. Funding will be spread over 3 years, implying 30,000 installations per year. The Strategy also sets a timeframe for banning the installation of new gas boilers, with the expectation that from 2035 all new heating systems will be low-carbon, and pledges to consult on requiring hydrogen-ready boilers by 2026. The measures in the Strategy bring the UK Government's total committed support for homes and buildings decarbonisation to £3.9bn (breakdown below):



Source: Heat and Buildings Strategy, p.35-36

While the commitment to driving down costs and additional clarity regarding timeline for the phasing out of new gas boilers is welcome, it is open to question to what extent the Heat and Buildings Strategy will lead to shift the dial on costs and supply chain development in a way that catalyses the decarbonisation of this challenging sector. Key decisions loom down the line, notably around the role of hydrogen in heating in 2026.

Key points

1. Making rapid progress on decarbonisation of heat and buildings will require much greater engagement with the public, at a local and national level

The Strategy only takes limited steps to ensure that consumers buy into the necessity of the transition. **£60m of funding is allocated to a Net Zero Innovation Portfolio (NZIP) 'Heat Pump Ready' programme** to support innovation across the heat pump sector, including improving the customer experience around installing and using the technology. However the Strategy is silent on the need for engagement at a local and national level to raise awareness of the climate impacts of gas heating and the potential technology solutions that address this. The centrepiece of the Strategy, the **£450m Boiler Upgrade Scheme,** is likely to see higher take up among more affluent homeowners who are already considering shifting to low-carbon heating. It is therefore unlikely to facilitate low-carbon heating's shift from a niche to a mass market technology.

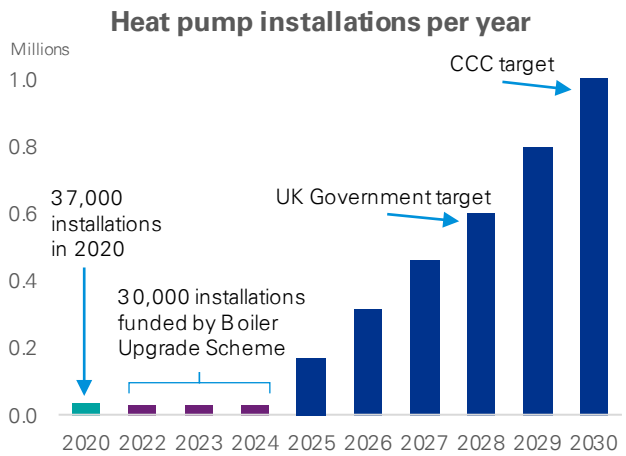
Shifting attitudes around heat will be a long-term process requiring the involvement of various actors at a local and national level. As a matter of urgency, UK Government should begin to map out its strategy for driving behavioural change and increasing awareness.

2. New funding is a welcome step, but large amounts of additional money will be required to drive the decarbonisation of heat at scale

Decarbonising the heat sector in the UK will be one of the greatest challenges of the Net Zero transition, involving millions of interventions at the level of individual households and businesses to install low-carbon heating systems and accompanying energy efficiency measures.

The funding for the Boiler Upgrade Scheme is allocated over 3 years. Assuming the £450m allocation is spread evenly over this period, and given that households are unlikely to install heat pumps without the grant, this risks creating a de facto 'cap' of **30,000 heat pump installations a year out to 2024** (a rate similar to current levels).

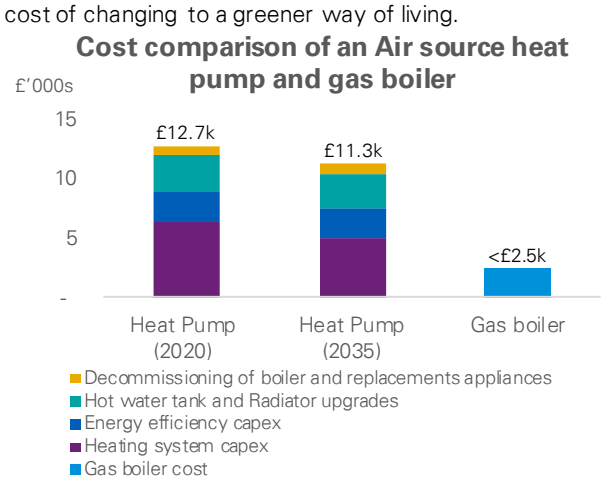
Further UK Government intervention and funding may be required in the medium term to deliver the Strategy's stated **ambition of 600,000 heat pump installations by 2028**, and the Committee on Climate Change recommendation of 1 million installations a year by 2030.



Sources: BSRIA, Heat and Building Strategy (30,000 installations per year assumed), UK Government 10 Point Plan, CCC Sixth Carbon Budget

3. The Strategy's targets for cost reduction are very ambitious and sit alongside wider policy action to rebalance energy levies away from electricity to gas over time

The UK Government has emphasised the importance of fairness and affordability in the transition to low-carbon heat, with a major emphasis on cost reduction in the Strategy. Its ambition is to work with industry to **reduce the costs of heat pumps by at least 25-50% by 2025 and towards parity with gas boilers by 2030.** In briefing around the Heat and Buildings and Net Zero Strategies, ministers have argued that individuals will not bear the cost of changing to a greener way of living.

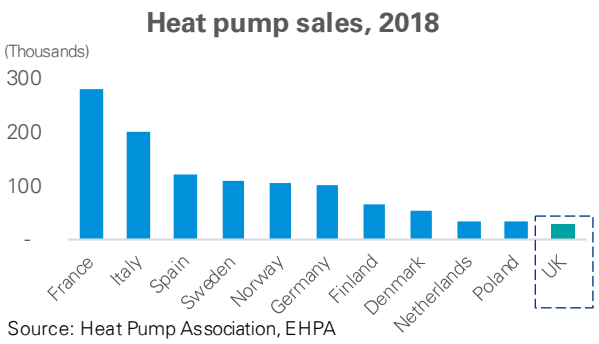


Sources: Heat pump costs: Element Energy study for the Committee on Climate Change, *Development of trajectories for residential heat decarbonisation to inform the Sixth Carbon Budget p.41*, Dec 2020. Gas Boiler cost: USwitch

Octopus Energy is aiming to reduce the cost of a heat pump to £5,500[1]. The Future Homes Standard is mandating the end of fossil fuel heating systems in new homes from 2025.

The UK Government is expecting heat pumps to be deployed in all these new properties, which could be 300,000 installations per year. However, when considering the economics of retrofitting heat pumps to existing homes, there are a range of additional costs besides the heat pump unit itself. These include the replacement/upgrade of existing heating systems (radiators, cooking appliances etc) as well as energy efficiency improvements. CCC analysis for the Sixth Carbon budget shows how even with significant reductions in the cost of the heat pump unit itself, these other factors limit the scope for reductions in the overall system cost. Even if the costs of heat pump units are in line with UK Government's ambitions, this will make it challenging to ensure cost parity with gas boilers so that low-carbon measures do not cost consumers more.

Future cost reductions will be driven by the scale-up of manufacturing at a global level, with more limited reductions being driven by UK-specific learning and innovation.



Source: Heat Pump Association, EHPA

The Strategy also signals the UK Government's intention to **rebalance energy levies and obligations** (e.g. Renewables Obligation, ECO) away from electricity to gas. This will complement the cost reduction measures outlined in the Strategy, and could allow the lifetime system costs of heat pumps to achieve parity with boilers even if installation costs remain higher. In the current context of high commodity prices it will be politically difficult to introduce policies that add to gas bills, meaning these measures are more likely to be introduced in the medium to longer term.

4. Decarbonisation of heat will require a mix of locality-specific solutions. Despite the headline emphasis on heat pumps, the Strategy leaves all options for heat decarbonisation on the table

Decarbonising heat and buildings will require **a mosaic of locality-specific solutions** which take account of an area's characteristics and energy potential. This is reflected in the Strategy: while the funding measures announced are largely aimed at heat pumps, the UK Government signals its continued commitment to establishing the case for hydrogen for heat by the middle of the decade, prior to a decision on its role in 2026. As well as neighbourhood, village and town trials, the assessment of the case for hydrogen blending continues, together with efforts to ensure new boilers are hydrogen ready by 2026. The Strategy also reaffirms the UK Government's commitment to accelerating growth in low-carbon heat networks and increasing the proportion of biomethane in the gas grid.

Supporting the development of a broad range of low-carbon heat technologies will improve understanding of costs, performance and constraints and allow better decision-making at a local level in future. Going forward, it will be important to maintain this optionality. The Strategy is mindful of this, for example through the **pledge to consult on requiring new boilers to be hydrogen ready by 2026**. This will ensure new boilers are fit for the future and minimise future disruption and costs.

1. The Times, *Octopus Energy prepares for air-source heat pump revolution*, July 2021

5. More funding will be required to drive the necessary step change in energy efficiency in homes and buildings

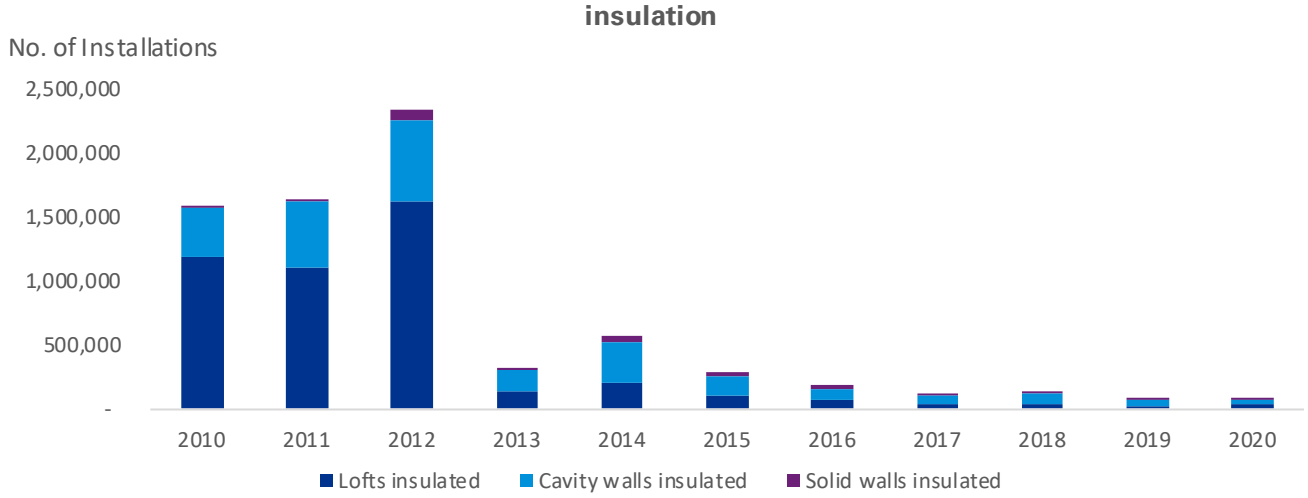
While the funding announced in this strategy is a welcome and important step, substantially more spending will be required if the government is to achieve its decarbonisation targets.

Any new funding will need to be delivered in an enduring way which takes accounts of the needs and preferences of homeowners and occupiers. Recent flagship schemes such as the Green Deal and Green Homes Grant were not user-friendly or accessible and were quickly withdrawn, with low levels of uptake. Energy efficiency measures are central to the successful operation of key technologies such as heat pumps. In contract to past energy efficiency schemes, new policy needs to provide long term certainty to the public and installers of energy efficiency measures whilst also sufficiently addressing the consumer perspective.

Shortcomings in the energy efficiency of the UK's housing stock mean that a large proportion of the UK's housing stock (37-54%) can only be made suitable for heat pumps through the installation of intrusive, expensive energy efficiency measures such as solid wall insulation, with another 14-18% requiring less extensive measures such as cavity wall insulation. More generally, **energy efficiency measures represent a 'no regrets' option** that reduces emissions in the near term without precluding any future low-carbon heating option. However, the amount of funding required to drive energy efficiency improvements across the housing stock is substantial; for the private rented sector alone, the estimated cost of bringing all buildings currently at EPC Band D or below up to Band C is £21bn.

It will be important to **significantly improve the uptake of energy efficiency measures** which has declined in recent years (see chart below). However, while the Strategy affirms the UK Governments commitment for as many homes to reach EPC Band C by 2035 as possible (and for fuel poor homes by 2030) no new funding was announced.

Annual installation rates of loft insulation, cavity wall insulation and solid wall insulation



Source: Committee on Climate Change, *Progress in reducing emissions 2021 Report to Parliament*, p.112, Figure 3.4

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