

ROADMAP TO DECARBONISED HEATING: ARE WE ON TRACK?



48%
SINCE 1990

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DECEMBER 2023

The Climate Change Act legally commits the UK government to reduce greenhouse gas emissions (GHGs) by at least 100% of 1990 levels by 2050; this is what is commonly referred to as net zero. Scientific consensus is that the world must reach net zero by 2050 to prevent the worst effects of climate change. With 2023 being globally the hottest year ever recorded, we are already seeing the devastating impact of climate change, from wild fires and scorched crops, through to severe flooding.

A key step towards the net zero goal in the UK is reducing emissions by 68% by 2030 compared with 1990 levels. So far, the UK has made significant cuts to its GHG emissions, which have fallen by 48% since 1990; a figure that surpasses that of Germany, France and the USA.

WHY DECARBONISING HEATING MATTERS

In the UK, the building sector is the second largest emitter of GHGs, with most of these emissions resulting from heating and hot water demand in homes being fulfilled by natural gas. In total, the heating of homes and workspaces makes up almost a third of UK carbon emissions.

Decarbonising heating in our buildings, primarily through the replacement of natural gas boilers with heat pumps, is therefore a key government goal. But with any change comes uncertainty and let's not underplay the extent of this change: almost 80% of homes in the UK are currently heated by natural gas and a quick scan of any news source or social media platform shows resistance to heat pumps is high. Every time the government makes an announcement about heat pumps, uncertainty and confusion abound.

The latest major government announcement (at the time of writing) was in September 2023 when Prime Minister Rishi Sunak advised of delays to some climate targets – including the phase out of off-grid gas boilers – in a bid to save people money during the cost of living crisis. For many, this has been viewed as a watering-down of the UK's net zero policies.

But what impact will this, and more recent developments, actually have on the decarbonisation of heating in buildings?

WHAT'S ACTUALLY CHANGED?

The headline news is that a 20% exemption to the phase-out of all fossil fuel boilers has been provided, and the phasing out of fossil fuel heating installations for off the gas grid properties in England, set in the government's Heat and Buildings Strategy for 2026, has been pushed back to 2035. Furthermore, it will include an exemption for off-gas grid properties where there is no suitable low carbon heating solution. A consultation will be held shortly to explore the potential low carbon heating options for off-gas grid properties that are not

suitable for heat pumps. This essentially means an 80% phase-out by 2035, rather than 100%.

More recently, the Clean Heat Market Mechanism, which applies to the whole of the UK and is designed to incentivise the heating industry to invest in developing the heat pump market, has been delayed by a year and will now apply from April 2025 for all boilers under 70kW.



All other Government policies on heating remain the same as before, with the target of deploying 600,000 heat pumps per year by 2028 unchanged. The Future Homes Standard and the Future Building Standard will still be introduced in 2025 in England to ensure new buildings are built to be as efficient as possible. The Heat Pump Investment Accelerator Competition and the Heat Training Grant will continue unchanged, and the Heat Network Market Framework and Heat Network Zoning will also continue as planned.

Under the Boiler Upgrade Scheme, available in England and Wales, the grant level has doubled for heat pumps to £7,500. Biomass boilers will continue to receive grants of £5,000. Phase 4 of the Public Sector Decarbonisation scheme will see £1.17bn worth of grants for 2025/2026 – 2027/2028, to enable public sector organisations to switch to clean energy, such as heat pumps as well as installing energy efficiency measures like

insulation. There remains no funding for private sector non-domestic properties.

WHY HEAT PUMPS FOR NET ZERO?

Heat pumps are significantly – up to a third – more efficient than gas boilers, with potential for even further efficiency as the technology develops, meaning they require less energy to run. Of course, this level of efficiency does rely on the key success factors of system design and the overall thermal efficiency of the building. A heat pump system that is not correctly sized, or a building without effective insulation, will require more energy to keep at the desired temperature, meaning the heat pump is then not operating at maximum efficiency.

Furthermore, heat pumps with smart controls actually learn the occupant's preferences and building heat physics, which makes it possible to reduce the peaks of grid strain whilst power stations are currently still producing both gas and electricity.



WHAT NEXT?

There can be no doubt that heat pumps will be the core means of decarbonising heating in buildings. However, whether the target of deploying 600,000 heat pumps per year by 2028 can be achieved remains hotly debated. In response to the government's announcement in September 2023, the Climate Change Committee said: "These announcements significantly increase the risks to the Government achieving its own targets on heat pump installations." The UK had the lowest number of heat pumps installed per capita in 2022 compared to neighbouring countries.

There are a number of factors at play here, including the cost of heat pumps (plus comparatively high running costs), lack of public trust in them, and the scarcity of trained installers. When it comes to the latter, training really is essential as, whilst there are some similarities, fitting a heat pump is quite distinct from a gas boiler. As of July 2022, the number of qualified heat pump engineers was estimated to be around 3,000, but according to Nesta's (a UK innovation foundation that provides programmes, investment, policy and research to promote innovation across a broad range of sectors) modelling the UK will need at least 27,000 qualified engineers by 2028 to meet the Government's installation targets. This means the training of 5,000-7,000 installers per year is needed between 2025 and 2035.

It's clear that there are challenges here, but also plenty of opportunities. There isn't a one-stop, overnight solution to get to net zero and decarbonise UK heating; this is going to be a stepped process, but it is one we must make.



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