The Heat and buildings strategy

A briefing for housing associations

November 2021

Summary

On 19 October 2021, the government released their long-awaited Heat and buildings strategy. The Heat and buildings strategy sets out how the government plans to eliminate 'virtually all emissions arising from heating, cooling and energy use in our buildings'. To achieve this, **housing associations need to replace all fossil fuel heating appliances in all our homes with clean heat technologies powered by net zero energy sources** (e.g. heat pumps power by a decarbonised electricity grid).

A final strategic decision will be made by 2026 on the 'endgame 2050 scenario' that we will pursue for decarbonised housing, following the results of trials to use hydrogen for heating homes.

However, the Heat and buildings strategy emphasises that we have near term carbon emission and fuel poverty targets to meet as a nation. The government are seeking to reduce carbon emissions by 2035 in buildings by 47-62%. To do this, **the Heat and buildings strategy emphasises the need to focus on 'no or low-regrets activity' now**. This means bringing all homes up to an EPC C certified standard with fabric insulation measures by 2035 and beginning to rollout heat pumps and heat networks where they are the obvious solution. The government is planning to prioritise the decarbonisation of new build homes and off-gas grid homes. They will also empower local authorities to mandate homes in particular urban areas are connected to heat networks.

The primary funding stream to support housing associations to decarbonise will be the £800m from the second wave of the Social Housing Decarbonisation Fund over financial years 2022/23 to 2024/25. This is a portion of the £3.8bn for the Social Housing Decarbonisation Fund promised in the Conservative Party Manifesto. The government plan to consult on regulations to enforce social homes reaching EPC C, probably by 2030.

Much of the Heat and buildings strategy is dedicated to the government's plans to boost skills and supply chains and bring down costs for retrofit and clean heat production, installation and maintenance. They aim to bring down the cost of heat pumps so they are comparable with boilers by 2030. The government also plans to shift the levies that currently account for about 25% of an electricity bill onto gas to make heat pumps more affordable to run. They will consult on this soon.

Introduction

On 19 October 2021, the government released their long-awaited Heat and buildings strategy alongside their Net Zero Strategy, which articulates the national, cross-sector strategy for reaching net zero carbon emissions by 2050. Also released was a range of supporting documents, research, funding and consultations for both publications.

This briefing outlines:

1. What the Heat and buildings strategy is.
2. The strategic approach the government is taking to housing decarbonisation.
3. The key clean heat technologies.
4. The key funding and regulation announcements for social housing.
5. The plans laid out for five key policy areas (electricity pricing, EPC reform, public engagement, skills and supply chains and homes that are hard to decarbonise). The National Housing Federation highlighted all of these areas in Decarbonisation: a guide for housing associations (published on the same day) as areas that need addressing for housing associations to be able to decarbonise at scale.
6. Our analysis of the Heat and buildings strategy and next steps.
7. A timeline of key dates announced in the Heat and buildings strategy from now until 2050.

What is the Heat and buildings strategy?

The Heat and buildings strategy sets out how the government plans to eliminate 'virtually all emissions arising from heating, cooling and energy use in our buildings'. To achieve this, we need to replace all fossil fuel heating appliances in all our homes with clean heat technologies powered by net zero energy sources such as heat pumps power by a decarbonised electricity grid. It is 'a roadmap for heat policy' and focuses primarily on plans for reducing emissions from heating, which, given the UK's climate, is the predominant source of emissions from buildings.

It positions the task of decarbonising buildings in the UK as a key pillar of the 'levelling up' agenda and argues that the transition to low carbon buildings could add £6bn GVA (gross value added) and support 175,000 skilled, green jobs by 2030 and 240,000 low carbon jobs by 2035. It also focuses on the importance of creating a UK-based supply chain for clean heat technologies, retrofit goods and labour to drive

down the costs in the UK and stimulate a new export industry. For example, the government is aiming for a 30-fold increase in heat pumps manufactured and sold within the UK by the end of the decade. The Heat and buildings strategy also states that the government will ensure that the benefits of our growing low carbon economy are shared fairly in every region and that the levelling up benefits will lead to improvements in:

- Health.
- Energy costs.
- Employment.
- Wellbeing.
- Clean air.

The Heat and buildings strategy also positions decarbonisation of housing as an essential plank of the recovery from the pandemic to 'build back better'.

The government's approach

The Heat and buildings strategy sets out three possible scenarios for a 2050 decarbonised buildings sector:

High electrification

In this scenario, heat pumps and other forms of electric heating become the dominant technology, supplemented by decarbonised heat networks. For this to work, we would need to have installed 13 million low carbon heating systems in homes (11 million heat pumps and two million heat networks). From there, we would need to install up to 1.9 million heat pumps every year from 2035 to 2050.

High hydrogen

In this scenario, hydrogen proves suitable for home heating and by 2035, roughly 13 million homes have low carbon heating, comprising around seven million with heat pumps, four million using hydrogen, and around two million homes using heat networks.

Dual energy system

This scenario reflects a range of potential hybrid scenarios, which could be:

- All or most of the gas grid is converted to low carbon hydrogen, but the costs and benefits of switching to hydrogen versus installing a heat pump are viewed differently by different consumers.

- There is partial but still extensive conversion of the gas grid to hydrogen, based on differing geographical or built environment factors resulting in a mix of technologies.

- There is widespread consumer demand for hybrid heat pump systems that use a mix of electricity and hydrogen.

Strategic decisions on which scenario to pursue will be taken by 2026 – largely steered by the results of a range of hydrogen heating trials in the next few years.

However, the Heat and buildings strategy emphasises that as a nation, we have near-term carbon emission and fuel poverty targets to meet and the more we delay action the more difficult and expensive decarbonisation will be and we will secure fewer co-benefits.

The Net Zero Strategy, published on the same day as the Heat and buildings strategy, explains that the government are seeking to reduce carbon emissions in buildings by 47-62% by 2035. To do this, the Heat and buildings strategy emphasises the need to focus on 'no or low-regrets activity'. In all scenarios, the following will be essential and should be prioritised now:

1. We need to reduce energy demand from our homes through fabric first energy efficiency activity that brings as many homes as possible up to EPC C by 2035 where cost-effective, practical and affordable (with different targets for different tenures, residents and housing types).

2. Heat pumps and heat networks make up a large proportion of heating in all scenarios and should be deployed as soon as possible where they are obviously the right solution regardless of future trajectory.

There are two key areas where clean heat deployment will be prioritised this decade. These are:

    1. New builds, largely via the planned 2025 Future Homes Standard which will require all new homes to be connected to a heat network or have a

heat pump installed. The Department for Business, Energy and Industrial Strategy (BEIS) will also consult on whether these homes should not be connected to the gas grid at all. The government anticipates that at least a third of their target to install 600,000 heat pumps per year by 2028 will be met by new build domestic properties annually.

2. The four million homes in Great Britain which are not currently connected to the gas grid. These are either currently heated with high carbon fuels like Liquid Petroleum Gas (LPG) and oil, or electricity – both of which make them suitable for a mass transition to heat pumps, or in rare cases biomass boilers. BEIS analysis suggests that around 80% of fossil fuel heated off-gas grid homes in England currently have sufficient energy efficiency and internal fuse limit electrical connections to accommodate a low temperature heat pump system.

The Heat and buildings strategy sets out that the government will look to avoid 'scrappage' and unnecessarily ripping out fully functional heating systems before they come to the end of their lifecycle and focuses instead on natural 'trigger points', which may differ across tenure, such as:

- When people replace heating appliances as they come to the end of their life.
- When there are changes to building use or occupancy or ownership.
- When building and renovation works are carried out.

Key clean heat technologies

Beyond standard fabric first retrofit measures, the Heat and buildings strategy revolves around three key clean heat technologies:

- Heat pumps.
- Heat networks.
- Hydrogen.

Heat pumps

The Heat and buildings strategy aims to ensure that by 2030, heat pumps should be no more expensive to buy and run than existing boilers. The government is planning to work with industry to make heat pumps more 'beautiful', smaller, quieter, quicker to install and better suited to a diverse range of housing types.

To support this, the government is spending £60m through their Net Zero Innovation Portfolio (NZIP) 'Heat Pump Ready' Programme in the coming years.

To drive down costs further, the government is seeking to ramp up demand for heat pumps in the UK to stimulate the supply chain. The Boiler Upgrade Grant will be aimed at early adopter owner-occupiers, providing them with £5,000-£6,000 in grant to buy a heat pump. Regulations will be introduced to encourage deployment of heat pumps in new builds and off-gas grid homes and they are consulting on an obligation for fossil fuel boiler manufacturers to achieve heat pump sales in line with the trajectory of market growth needed to put the UK on a path for 2050.

Heat networks

The government plans to accelerate the growth of the low carbon heat network market in the 2020s. To support this they plan to invest £338m over 2022/23 to 2024/25 into a Heat Network Transformation Programme.

From the latter half of the decade the government are currently consulting on measures to empower local authorities to engage in heat network zoning to identify and designate areas best suited for heat networks as the lowest cost, low carbon solution and require certain buildings in 'heat network zones' to connect to networks, where it is cost-effective to do so. This will likely mean all new builds and residential buildings already heated using communal systems (such as tower blocks) will be required to connect to the heat network within a given timeframe. They identify social housing blocks as a key target for district heating through this zoning regime.

In addition, the government is planning to bring forward legislation this parliament to regulate heat networks to:

- Introduce consumer standards.
- Give equivalent statutory rights for heat networks as other utilities.
- Enable carbon emissions limits to be set on the market.

This builds on a series of recommendations from a Competition and Markets Authority (CMA) report in 2018 which sets out recommendations for introducing sector specific heat network regulations to protect consumers.

The government wants heat network consumers to have easy access to information about their heat network, a good quality of service, fair and transparently priced heating and a route for redress if these standards are not met.

Hydrogen

There is a series of trials and research projects underway between the government and industry to test the viability of hydrogen as a fuel for heating homes at scale. These include a neighbourhood trial by 2023, a village scale trial by 2025 and developing plans by 2025 for a possible hydrogen town that can be converted before the end of the decade.

The government will also consult soon on requiring all new natural gas boilers to be easily convertible to use hydrogen ('hydrogen-ready') by 2026.

By 2026, a strategic decision will be taken on whether to pursue hydrogen for heating homes at any meaningful scale.

You can read more in the government's hydrogen strategy.

Key funding and regulations for social housing

The primary source of government funding in the near-term for social housing decarbonisation is the £800m announced for the second wave of the Social Housing Decarbonisation Fund over financial years 2022/23 to 2024/25. This is a portion of the £3.8bn promised to 2030 in the Conservative Party Manifesto.

Social landlords will not have access to the £450m Boiler Upgrade Grant and from what we currently know, access to the £950m Home Upgrade Grant and £4bn ECO4 (awaiting consultation outcome) will be limited.

In the Social Housing White Paper the government committed to reviewing the Decent Homes Standard, to consider how it can better support decarbonisation and improve the energy efficiency of social homes in the context of expectations for other tenures, and wider government policies. The Heat and buildings strategy explains that government will consider setting a long term regulatory standard to improve social housing to EPC band C, with levers required to decarbonise the stock in line with net zero. They will consult the sector before setting any regulatory standard.

This consultation has not been published yet and the review of the Decent Homes Standard is ongoing with the NHF as a key stakeholder.

Electricity Pricing

The Heat and buildings strategy explains that the government will take action to reduce electricity costs once the current gas spike subsides. They will likely do this by rebalancing energy levies (such as the renewables obligation and feed in tariffs) and obligations (such as the Energy Company Obligation) away from electricity to gas steadily to 2030. These levies currently account for about 25% of an electricity bill and just 2% of a gas bill. They will also explore carbon pricing and seek to limit any impact on bills overall.

The government plans to issue a call for evidence on the 'fairness and affordability' of these options for energy levies and obligations to help rebalance electricity and gas prices with a view to taking decisions in 2022.

All of this is to ensure heat pumps are as affordable as gas boilers to operate.

EPC/SAP and fabric standards

There is no new commitment to reform Energy Performance Certificates (EPCs) beyond the already announced EPC Action Plan and planned updates to Standard Assessment Procedure (SAP) methodology. It is true that actions to rebalance gas and electricity pricing will largely address the current bias against heat pumps in EPC methodology, although further reform of EPCs would be welcome.

The Heat and buildings strategy also seems confident that a property at EPC C will be heated comfortably, efficiently and affordably by a heat pump following the rebalancing of electricity pricing.

Public engagement

The Heat and buildings strategy explains that the government are currently reviewing the effectiveness of their key channels to the public on decarbonising buildings. They recognise that there is currently low public awareness of any need to switch to low carbon heat sources and systems and little understanding of the scale of the challenge.

They reference the portals supported via Citizens Advice and the Simple Energy Advice platform which is intended to move over to GOV.UK to improve user experience. They also aim to ensure it offers better personal, tailored advice on

improving and decarbonising their homes, including tailored retrofit advice in local areas and links to local, accredited, trusted installers.

The government's approach to public engagement is more fully laid out in the accompanying Net Zero Strategy, which commits to:

- Communicating a vision of a net zero 2050 to build a sense of collective action, improve understanding of the role different actors play in reaching net zero and explain how and when choices can be made.
- Ensure there is trusted advice and support for people and businesses to make green choices.
- Mobilise a range of actors and stakeholders to increase and amplify their communication and action on net zero and green choices.
- Give people opportunities to participate in and shape plans for reaching net zero, thereby improving policy design, buy in and uptake of policies.

As an underpinning strategy, the government plans to target measures at an industry level (through regulation, market signals etc.), rather than at the individual consumer, so they can make green choices much simpler for the consumer.

Skills and supply chains

A significant portion of the Heat and buildings strategy is devoted to explaining the current skills gap in the retrofit and clean heat production, installation and maintenance sectors. It explains that BEIS and the Department for Education are collaborating on net zero, particularly through integrating decarbonisation into the wider ongoing reforms to further education.

The Heat and buildings strategy also points to the government launching the independent Green Jobs Taskforce with key industry bodies with a target to deliver 2 million net zero jobs by 2030 by producing an action plan for net zero skills across a range of sectors. This action plan for England will be published in Spring 2022.

The Heat and buildings strategy maps the skills gap across all key profession and technology areas and outlines an action plan to address each of these gaps.

Hard to decarbonise homes

The Heat and buildings strategy touches on the question of homes that are hard to decarbonise but does not have a clear section or action plan for this. It explains that as the UK is effectively one climatic zone, buildings throughout the UK are impacted in similar ways by the climate. However, the diversity of our housing stock means a range of different approaches to decarbonisation will be necessary.

In England in 2019, approximately 15 million homes (60%) were below EPC band C. The Heat and buildings strategy says most or all of these will need to be upgraded between now and 2050 and that the government recognises this may be more challenging in some properties where it is not feasible, affordable, or cost-effective.

The government argues that the policies in the Heat and buildings strategy could bring up to 70% of the English housing stock to EPC band C or above by 2035. They understand that the planned combination of policies and regulations for improving different types of homes may leave some untreated in the near-term. They will keep looking at what can be done with these properties over time but they also believe some properties can be exempt from reaching EPC C entirely due to costs or practicalities. However, these properties will still need to have their fossil fuel heating system replaced.

For example, they discuss a case study of a large detached grade-listed off grid property certified EPC E or F, using oil or LPG for heating. They say it might not be cost-effective or practical to increase this building to EPC C. However, even with limited energy efficiency improvements, they anticipate that by 2035, the electricity bills for this home with a high temperature heat pump would be similar or less than their current fossil fuel heating costs.

They also explain that alongside high temperature heat pumps, both biomass and heat networks can often operate at sufficiently high temperatures to heat homes left below EPC C.

They also discuss the complexity in multi-tenure, multi-use buildings, where occupants – and even the owner – may be limited in the changes they can make. For example, there are particular challenges for leasehold property owners, who will have legal restrictions on what they can do to their property. They explain they are looking further into how to prevent this being a barrier to decarbonisation.

The Net Zero Strategy discusses how they can better align the planning system with net zero saying that as part of the programme of planning reform the government intends to review the National Planning Policy Framework to make sure it contributes to climate change mitigation and adaptation as fully as possible.

Analysis and next steps

The NHF welcomed the publication of the Heat and building strategy and in particular the commitment of £800m for the second wave of the Social Housing Decarbonisation Fund, which accompanied its launch.

The strategy sets out a clear trajectory towards 2050, which aligns with the one we set out in our guide to decarbonising housing association homes. It is honest about the uncertainties, outlines sensible approaches tries to address these, and commits to further action on several key areas including electricity pricing, SAP reform, regulatory standards, skills and supply chain support. It also highlights the importance of resident engagement – which we strongly support.

The funding available so far for this strategy provides a solid basis for investment over the next three years and housing associations will be match-funding this government investment several times over as part of planned investment in their existing homes. However, as our recently published analysis by Savills shows, there is a considerable funding gap to be closed between now and 2050.

We look forward to working closely with the government and NHF members to deliver on the approach outlined in the strategy, to develop the detailed policies needed for implementation, and to build a more complete picture of how to fund the investment needed.

Over the next few months the NHF will:

- Respond to government consultations on heat networks, off-gas grid homes and minimum energy efficiency standards in social homes (when this is launched).
- Work with members to further explore the issues around hard to decarbonise homes and present policy solutions which help meet this challenge.
- Work with members on the contribution housing associations can make to developing the skills and supply chains needed to decarbonise homes.
- Provide support, practical case studies and resources to members to support planning and implementation.

Key dates outlined in the Heat and buildings strategy

- Building Regulation Part L and F uplift for new-build home carbon standards – 2022.
- Hydrogen neighbourhood trial – by 2023.
- Heat Network Transformation Programme to grow the market for low carbon heat networks – up to 2025.
- Introduction of heat network zones in England – by 2025.
- Future Homes Standard introduced – 2025.
- No new homes connected to the gas grid – 2025 (subject to consultation).
- Hydrogen village scale trial – by 2025.
- As many fuel poor homes as is reasonably practicable are improved to EPC band D – by 2025.
- Ambition of the government to work with industry to reduce cost of heat pumps by at least 25-50% – by 2025.
- No new fossil fuel heating systems will be installed in off-gas grid homes – 2026 (subject to consultation).
- All new natural gas boilers to be easily convertible to use hydrogen ('hydrogen-ready') – by 2026 (subject to consultation).
- Strategic decision on the role of hydrogen, following trials – by 2026.
- A minimum of 600,000 heat pumps are installed in homes each year – by 2028.
- All private rented sector homes are made EPC C – by 2028 (subject to consultation).
- All social housing homes reach EPC C – likely by 2028/2030 (subject to consultation).
- Heat pumps reach cost parity with boilers – by 2030.
- All fuel-poor homes where reasonably practicable reach EPC C – by 2030.
- Potential Hydrogen town trial – by 2030.
- As many homes across all tenures as possible to achieve EPC band C where cost-effective, practical and affordable – by 2035.
- Heat Networks Market Framework comes into force, switching established district heating networks to low carbon sources – by early 2030s.
- Ambition to phase out the installation of any new natural gas boilers – 2035.
- Low carbon heating technologies deployed at scale across all buildings – 2035 onward.
- Government considering the case for setting a date to ensure that all homes meet a net zero minimum energy performance standard where cost-effective, practical and affordable – before 2050.