

Draft Heat in Buildings Strategy

This policy briefing provides summary information on the Scottish Government (SG) report *Draft Heat in Buildings Strategy*¹, which sets out actions and proposals for transforming buildings and heating systems to ensure all buildings reach zero emissions by 2045. This briefing focuses on topics that are of interest for Scottish Renewables and is divided into 3 sections. Section 1 introduces the purpose of the strategy. Section 2 describes the challenges and actions needed to meet net zero. Section 3 outlines the challenges that the electricity network will face, and the actions needed to address these challenges. Finally, the box below contains a summary of the actions² that the SG promises.

HIGHLIGHTS OF ACTIONS

The Scottish Government (SG) will:

- Undertake further analysis in 2021-22 to fully understand the role of secondary technologies, such as solar panels and thermal and battery storage to better understand their role in heat decarbonisation.
- Publish a review of evidence on heat pumps in Scotland, in the first quarter of 2021.
- Keep the role of hybrid systems under active review as the evidence base develops.
- Work closely with consumer groups to continuously monitor and identify potential issues and take mitigating action where they arise.
- Publish guidance principles to underpin the commitment that no one is left behind in the heat transition and ensure that those in lower income or at risk of fuel poverty are protected from any negative impact.
- Take action through the delivery programmes to maximise the number of homes with households in fuel poverty achieving a level of energy efficiency equivalent to EPC C by 2030 and EPC B by 2040.
- Explore the opportunity to integrate heat decarbonisation in community climate action initiatives such as Climate Action Towns and Community Climate Action Hubs.
- Support communities to work together to address, and champion, heat decarbonisation through the new CARES programme.
- Work in collaboration with the Scottish Cities Alliance and the seven cities on the cities' ambitions for low and zero emissions heat (in particular heat networks), supporting delivery of a pipeline of projects by 2030.
- Commission a full evaluation of the LHEES pilot programme in 2021-22.
- Update the Scottish Energy Strategy this year taking into account the whole system issues raised by the net zero climate targets.
- Ask the UK Government to continue to provide the support needed to develop Scotland's renewable electricity pipeline to meet a decarbonised future for heat.
- During 2021, the SG will conduct research into the role of energy storage in heat networks and buildings in reducing consumer costs, and minimising network impact.
- Set up a Heat Electrification Partnership with Scotland's electricity network operators in 2021 to ensure that the upgrades required are delivered when and where they are needed and ensure that the LHEES framework informs this.
- Continue to engage Ofgem to ensure that there is a framework to support the energy network companies – both gas and electricity – in reflecting the Scottish Government targets and ambitions as set out in this draft Strategy.
- Introduce a requirement through the 2024 New Build Heat Standard for new buildings being constructed to connect to existing heat networks, when they are located within a Heat Network Zone.
- Create a new District Heating Relief of 90% by 2023/24 for new District Heating networks powered by renewable sources, waste heat or energy from waste.
- Publish a Heat Network Investment Prospectus during the next financial year.
- Establish a new Green Heat Finance Task Force.
- Take forward work to understand the potential for hydrogen for heat, including identifying those buildings and areas where hydrogen is most likely to be the best option for delivering the targets.

¹ [Draft Heat in Building Strategy](#)

² The actions presented in this briefing are a highlights of the actions of interest for Scottish Renewables. The Draft Heat in building strategy includes a series of actions across different sectors that are much more than the ones presented here.

1. Introduction

The aim of the Heat in Buildings Strategy is to address the steps that will be taken to transform the building sector and heating systems to ensure that Scotland's homes meet both the climate change targets and fuel poverty commitments.

This strategy provides an update to the 2018 Energy Efficient Scotland Route Map³ and the 2015 Heat Policy Statement⁴, and brings together the ambitions on energy efficiency and heat decarbonisation into a single framework.

The report focuses on the near-term actions over the first half of this decade that will put Scotland on a path consistent with the statutory climate change and fuel poverty targets. To prepare for further accelerated action beyond 2025 and to ensure decisions are fully evidenced, the SG will continue to build the evidence base to reduce uncertainties on the right pathway to a net zero future for Scotland's buildings.

The Draft Heat in Buildings Strategy is a consultation that seeks to gather evidence and views on the SG proposed actions to meet the climate change targets, whilst maximising economic opportunities, ensuring a just transition and addressing fuel poverty. You can respond to this consultation at this [webpage](#).

The strategy is organised into sections that address issues from people, local communities, energy networks, investments, regulatory frameworks among others. This briefing looks specifically at actions that address the path to net zero and the aim to prepare Scottish electricity networks.

2. The path to Net Zero

The vast majority of Scotland's homes use mains gas as their primary heating fuel (approx. 2 million) and only around 11% (approx. 278,000) of households have a renewable or very low emissions heating system, such as a heat pump, biomass boiler or electric storage heating.

The energy efficiency of Scotland's homes is improving. Since 2010, the share of the most energy efficient dwellings (rated EPC C or better) has increased by 27 percentage points. In 2019, 45% of Scotland's homes were rated EPC C or better, with social housing generally more energy efficient (56% EPC C or better) than the private sector (41%).

In order to meet the interim climate targets and ensure long-term delivery of the net zero objectives, **by 2030 around 50% of homes, or over a million households**, will need to convert to a zero or low emissions heating system. Reducing emissions from homes will mean converting the vast majority of the 167,000 off-gas homes that currently use high emissions oil, LPG, and solid fuels, as well as at least 1 million homes currently using mains gas, to zero emissions heating. **By 2030, it will also be necessary to convert an estimated 50,000 of Scotland's non-domestic properties to zero emissions sources of heat.**

To meet the ambition for energy efficiency and zero emissions heat deployment set out above, it is necessary to quickly ramp up the number of installations of low and zero emissions heating systems being installed per annum. Currently around 3,000 renewable heating systems are installed in Scotland's homes per year. As set out in the Programme for Government, the ambition is - as a minimum - to see the rate of low and zero emissions heat installations in new and existing homes and

³ [Energy Efficient Scotland: route map - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/energy-efficient-scotland-route-map-2018/pages/1-introduction.aspx)

⁴ [Decarbonising heat: policy statement - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/decarbonising-heat-policy-statement-2015/pages/1-introduction.aspx)

buildings double every year from the current baseline to at least 64,000 homes fitted in 2025, with the installation rate expected to peak at over 200,000 new systems per annum in the late-2020s.

Additionally, an increased use of biomethane, low carbon and green hydrogen in the mains gas network will be needed to reduce the emissions intensity of the gas network by 2030. **By 2030, it would be expected at least 20% of the volume of gas in the gas grid to be green gas.**

Technologies

There is no single technology that will deliver zero emissions heating in Scotland; the most cost-effective pathway will require several different approaches. The key low and zero emissions heating solutions available today are heat pumps and heat networks, and early progress must be made - deploying them in buildings for which they are the right long-term solution.

Over the next decade the SG propose the following strategic technologies:

- For **energy efficiency** measures, the SG will prioritise actions to deliver regulations to support the installation of cost-effective 'energy efficiency first' improvements in all buildings (e.g. **roof, windows, wall and floor insulation**); both the retrofit of existing buildings and increased energy performance of new buildings.
- **Deployment of individual building heat pumps in buildings off the gas network** which currently use high carbon heating fuels.
- **Deployment of heat pumps in certain buildings currently using mains gas** particularly in areas least likely to receive a mains hydrogen supply in the future and buildings for which initial assessments suggest heat pumps are likely to be cost effective in the short-term.
- **The development of low and zero emissions heat networks** (district heating and communal heating systems) in areas deemed suitable.

In this Strategy the SG commits to keep the option of **hydrogen** open where it represents a potential cost-effective solution, whilst also making progress with technologies that are ready to deploy in the near term.

3. Electricity Networks

It is likely that the majority of heat demand that will need to convert to low and zero emissions heating by 2030 will switch to electric systems. These systems will likely be either individual heat pumps or green heat networks, some of which will be powered using large-scale heat pumps. Transitioning this number of properties to electric heating systems will substantially increase the demand on the electricity system.

It will be critical to ensure that sufficient renewable electricity generation is available, at the right times and in the right places. Wider policy initiatives to decarbonise other sectors, including transport and industry, will increase electricity demand still further. Although Scotland's electricity generation is already largely decarbonised, we need to understand the generation capacity necessary to meet future demand, as well as an indication of where in Scotland renewable generation will be located and how it will be delivered to consumers. The SG will undertake this analysis during the first half of 2021 and set out further details in the refreshed Energy Strategy to be published later this year.

Electrifying a significant proportion of heat over the course of this decade will substantially increase the amount of energy that the local electricity distribution networks need to deliver to buildings. There will be places right across Scotland where network owners will need to reinforce cables and upgrade the substations that serve our neighbourhoods and buildings, and do so in a way that coordinates with

plans for conversion to electric heating. As set out in the networks vision statement, an integrated approach to future systems planning will be crucial.

There will also be increasing value in energy storage. This includes large scale energy storage such as hydro systems and large-scale battery storage but also heat storage in heat networks, building-scale batteries and thermal storage. These tools could help balance the use of electricity for heat in buildings ensuring that networks are not overloaded and help to keep consumer bills affordable.

The SG is working closely with the Distribution Network Operators (DNOs) on the issues above. The SG also has engaged the Energy Networks Strategic Leadership Group on the challenges Scotland faces in terms of securing network investment. However, in order to take the collaboration with the DNOs further the SG is setting up a new Heat Electrification Partnership with them to work together to understand the scale, pace and location of network investment needed, build the evidence for the right investment decisions for Scotland and ensure compatibility with delivery and deployment plans.

The SG is also working closely with Ofgem to better understand how the electricity networks will be affected by policy and statutory targets, and the changes that will be needed as a result of these impacts. The evidence gathered through collaboration as part of the Heat Electrification Partnership will inform DNO's business planning in the run up to the next price control, RII0-ED2, which covers the period 2023 - 2028.

As Local Heat & Energy Efficiency Strategies (LHEES) are rolled out for all local authority areas in Scotland, they will provide a long-term platform for considering local circumstances in developing electricity network business plans, and support this necessary co-ordination of resources and development.