

Pathway to zero carbon homes by 2045: warm, climate friendly and affordable to heat



SUMMARY

September 2019

Introduction

The transformation of our housing stock is an essential response to the climate emergency and continuing high levels of fuel poverty. This briefing sets out a credible pathway to achieve zero carbon homes by 2045 in line with Scotland's ambitious climate change and fuel poverty targets.

The briefing explains how Scotland's Energy Efficient Scotland programme must be accelerated to reflect the new targets and describes the actions that can be implemented straight away, are scalable and will deliver not only carbon emissions reductions but lower energy bills, improved comfort, better health and well-being.

A smart infrastructure investment

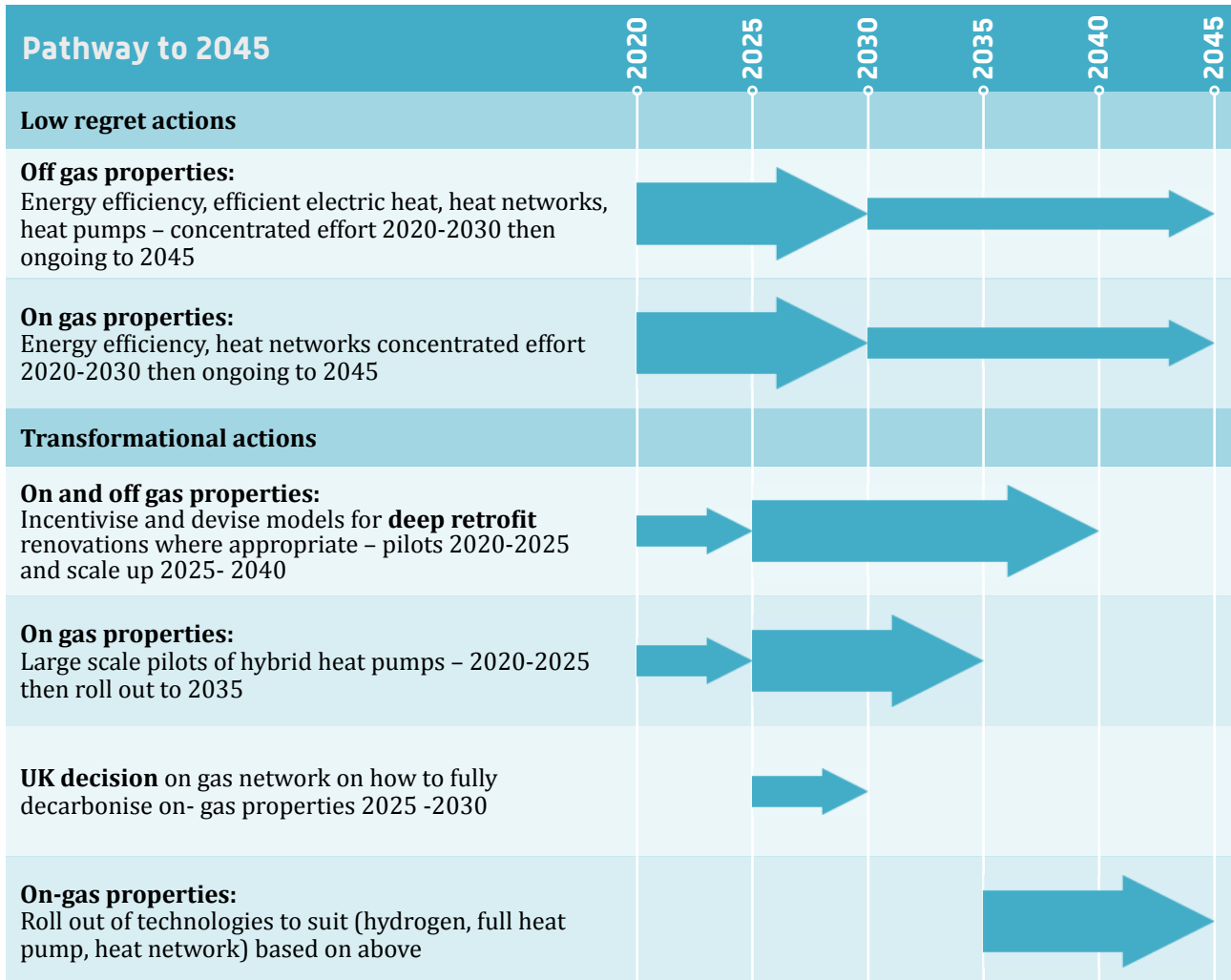
Energy efficiency is a central pillar of a just transition to a decarbonised Scotland. Without it, we will unnecessarily require additional power generation capacity, and larger and more costly heating systems while paying higher energy bills. Fuel poverty would persist, while continuing to require significant sums of welfare spending to treat, rather than prevent, its worst effects.

Despite welcome government commitments to multi-year funding of energy efficiency and fuel poverty programmes, the annual public investment for fuel poverty and energy efficiency has stayed more or less the same since 2016. This investment must double to at least £240m in 2020-21 with a three year commitment, and rising, as required to respond to the climate emergency and eliminate fuel poverty.

Proposed pathway to zero carbon homes by 2045

To make Energy Efficient Scotland a success, we have set out a comprehensive and long-term pathway to zero carbon homes by 2045, with the vast majority of homes achieving an EPC rating of C or above by 2030 and newly built homes net-zero from 2021. An overview of how the transition is realised across homes in rural and urban areas is set out in figure 1, below.

Figure 1: Pathway to Zero Carbon Homes by 2045¹



Achieving the EPC band C target by 2030 means upgrading just under 1 million homes – or 80,000 homes each year. At present half that number are moving to EPC band C or above per year, and this rate is unlikely to be maintained by current policies.² There is a vast gap between where we are and where we need to be.

Our pathway is designed to plug that gap and deliver high quality home renovations (highly insulated and low carbon heat) to 2030 and beyond. Its main components are set out in figure 2.

Figure 2: Key components of the credible pathway to zero carbon homes by 2045

<p>NATIONAL LEADERSHIP</p> <p>A statutory underpinning for Energy Efficient Scotland – a consolidated Energy Efficient Scotland Bill and secondary legislation including statutory targets, an independent oversight body, a duty for Local Heat and Energy Efficiency Strategies, Heat Networks Bill and regulation of energy performance standards for all tenures.</p>
<p>TARGETS</p> <p>A statutory target of EPC band C for the vast majority of homes by 2030, and zero carbon by 2045.³</p>
<p>JUST TRANSITION AND FUNDING</p> <p>A budget allocation of at least £240m rising as required to meet the targets with a three year commitment: We know that existing levels of public expenditure are inadequate to drive the transformation needed in the housing stock. Public infrastructure capital will be required to unlock energy efficiency investment at scale.</p> <p>Just transition - Incentives and grants to enable upgrades for all: Expand the programme of zero interest loans and home equity loans for self-funding homeowners and landlords, and grants for fuel poor households to fund energy efficiency and low carbon heat upgrades.</p>
<p>REGULATION</p> <p>Build on regulations in social housing and the private rented sector and extend to the owner-occupied sector. We recommend introducing regulations at point of sale and major refurbishment as these are the most convenient and cost-effective times to undertake the extent of upgrades required. The regulation should be introduced in 2020 and allow a five year foreshadow period before implementation from 2025. Building standards should be updated to require all new homes to be zero carbon from 2021 to remove the need for retrofit at a later date.</p>
<p>LOW CARBON HEAT TRANSITION</p> <p>Phase out high fossil fuel heating in off-gas areas from 2025 by providing advice and support and access to cost effective alternatives; reduce reliance on gas through roll out of hybrid heat pumps in on-gas areas in the next decade starting with a large scale pilot project; do not support extensions to the gas network for existing or new buildings; explore potential for mini, localised grids e.g. via on site battery storage for PV to feed hybrid heat pumps. This policy must include a financial support mechanism to ensure householders are not disadvantaged. This is important so as not to compromise the affordability of fuel for these consumers.</p>
<p>PROGRAMME DEVELOPMENT, DELIVERY AND SUPPORT</p> <p>Local delivery and jobs: Extend the local authority-led area-based programmes to deliver both energy efficiency and heat measures. Procurement should prioritise community benefit and local economic development. Introduce a programme to incentivise deep renovation where appropriate.</p> <p>Support for self funding households: Expand the EES pilots to deliver community engagement, develop local supply chains, and ensure quality control combined with the availability of loan finance.</p> <p>Engagement and advice: Build on Home Energy Scotland and local energy advice providers to launch a major engagement campaign with landlords and homeowners in 2020 re-framing energy efficiency in terms of addressing climate change as well as improving comfort and saving fuel bills, to prepare them for regulation and to support compliance. This would include advice tools such as building renovation roadmaps.</p> <p>Supply chains: work in partnership with the industry to provide appropriate support in training and skills development where there are gaps in certain trades and geographic areas. Develop appropriate support programmes for the housing renovation supply chain.</p> <p>Consumer protection: put in place robust consumer protection measures, as envisaged in the proposals for an Energy Efficient Scotland Quality Mark Scheme, or use existing industry quality trademarks which are already thoroughly monitored.</p>

Proposed Energy Efficient Scotland route map

To achieve this pathway, the Energy Efficient Scotland route map⁴ of phased standards must be accelerated as set out in figure 3. The regulatory framework should aim to achieve parity across all housing tenures so that everyone has a right to a warm, affordable to heat home.

Figure 3: Proposed Energy Efficient Scotland Route Map

Proposed EES Route Map	2020	2025	2030	2035	2040	2045
Statutory targets - vast majority of properties	EPC band C by 2030		Zero carbon by 2045			
Building passport and deep retrofit approaches	Ongoing					
PRS Regulation*	EPC band E by 2022	EPC band D by 2025	EPC band C by 2030			
O/O Regulation*	EPC band C at point of sale from 2025					
	EPC band C at point of major refurbishment from 2025					
Social Housing Regulation*	EPC band B by 2032					
Homes of fuel poor households*	EPC band C by 2030		Zero carbon by 2040			
New housing	Net-zero carbon new buildings from 2021 (no new build connections to gas grid)					
All housing	Emissions standard for boilers (phasing out coal, oil and LPG boilers from 2025)					
	Emissions standards for boilers (phasing out gas boilers from 2028)					
Delivery and Support						
<ul style="list-style-type: none"> National fuel poverty programme – Warmer Homes Scotland Local delivery – area-based schemes Fuel poor grants to meet EPC band C or above from 2020, support to address income, energy prices and how energy is managed in the home. Social housing: Funding support to achieve EESSH2 Self-funding owners and landlords: Advice, support, zero interest loans, incentives 						
EES legislation: primary legislation to create National Oversight Body; LHEES Duty; Heat networks Bill; secondary legislation for O/O and PRS regulations and on tenements.						
Supply chain support and consumer protection						
Monitoring – national and local						

* Standards to be met where technically feasible and cost-effective in the climate emergency context – see endnote 3

While not detailed in this proposed route map, a trajectory to a net-zero carbon standard by 2045 to meet the statutory target will have to be developed in the next 5-10 years.

It is vital that the introduction of standards and regulation is accompanied by:

- Independent advice, consumer protection and a range of financial incentives. Everyone should have a clear and achievable route for compliance.
- Mechanism to address the current limitations of the methodology which underpins EPC's so that it supports net-zero requirements.
- Big engagement campaign to maximise period of foreshadowing regulation and minimising any need for enforcement.
- Advice and financial support to self-funding households, to develop local supply chains, and ensure quality control.

Act now

The climate science is clear – action must be taken now and in the next decade to avert the worst impacts of the climate crisis. Scotland is in an excellent position to make rapid progress – getting nearly all homes to a good standard of EPC band C or above by 2030, and zero carbon by 2045. Scotland could be a leader in Europe by transforming what was once some of the worst housing stock into some of the best in the next twenty years.

The building blocks are largely in place, and the proposals for creating highly energy efficient and low carbon homes are ready to go. With greater ambition and investment, zero carbon homes are within reach – along with all the benefits in terms of reducing fuel poverty, improving health and wellbeing, creating local jobs, boosting economic growth, and enhancing energy security.

- 1 Informed by Figure B2.2 Pursuing a 'hybrid first' approach alongside other low-regret actions, [UK Housing: fit for the future?](#), 2019, UK CCC
- 2 Energy Efficient Scotland consultation, March 2019, Scottish Government
- 3 Where technically feasible and cost effective in the context of the climate emergency. Cost effectiveness must be considered for the individual and for public investment.
- 4 Energy Efficient Scotland Route Map, May 2018

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