



Scottish Government consultation on its draft Heat in Buildings Strategy

30 April 2021

About CREDS

CREDS was established in 2018 with a vision to make the UK a leader in understanding the changes in energy demand needed for the transition to a secure and affordable zero-carbon energy system. Working with researchers, businesses and policymakers, our work addresses a broad range of energy demand issues. CREDS is funded by UKRI.

CREDS responds to consultations and calls for evidence from government, agencies and businesses, providing insight and expertise to decision-makers.

The consultation response is written on behalf of CREDS by Dr Faye Wade, Prof Jan Webb (both University of Edinburgh), Dr Gavin Killip and Kay Jenkinson (both University of Oxford) for the Scottish Government consultation on its draft Heat in Buildings Strategy.

<https://consult.gov.scot/energy-and-climate-change-directorate/heat-in-buildings-strategy/>

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Summary

We are pleased that the draft strategy aims to be comprehensive, and brings together strands of work from across the Scottish Government, setting out the many policy areas that will need to work together to deliver net-zero. CREDS strongly supports the continued focus on energy efficiency at the heart of policy to achieve net-zero. Energy efficiency will be needed to minimise demand on the energy supply and distribution system, and brings multiple benefits to low-income households, such as lower energy bills and improved comfort levels.

We welcome the Strategy's acknowledgement that there is no single solution to the provision of net-zero heat in buildings, and that there will need to be a combination of policy levers and programmes to ensure a just transition.

We propose that the strategy includes the following.

- More information about the carbon saving targets that would be expected from implementing this Strategy (as in 2020 Climate Change Plan), to help prioritise actions.
- A clear plan to support delivery of the Strategy (e.g. Home Energy Scotland loans and grants, support for the development of workforce skills) and to allocate responsibilities to national and local governments, and other stakeholders such as industry and the third sector.
- Clarification of the intended link between the Strategy overall and the Local Heat and Energy Efficiency Strategies (LHEES), taking account of the evaluation of the pilot programmes. How will this relationship support a consistent delivery and monitoring of the Strategy over its lifetime of the work?
- Stronger action to improve EPCs, including (but not restricted to) through training and accreditation of Domestic Energy Assessors alongside more ambitious EPC targets (A and B ratings).
- We propose that the monitoring and evaluation plan should be a learning plan with a commitment to adopt improvements quickly. It should link to the Climate Change Plan Monitoring Framework to track progress towards carbon reduction targets.
- A bolder approach to support the sector to deliver extensive, high-quality installation of energy-efficient homes with low-carbon heating systems through labour market changes including to training and education.

We address these points by responding to specific consultation questions in more detail below.

Chapter 3 - People

Q9. What are the most significant actions we can take to ensure that Scotland's people and organisations are meaningfully engaged in the net zero heat transition?

Q11. What further action can we take to support people to make informed choices on the energy efficiency and heating options available to them?

We believe that there is a role for trusted partners in the construction sector to recommend energy efficiency and retrofit options, moving away from the current model that largely relies on consumers to initiate discussion. This includes a clear energy advocacy role for heating engineers, joiners, bricklayers, electricians and others currently working in the Repair, Maintenance and Improvement sector. A major training/skills strategy in net-zero construction and retrofit (see our response to Q55 & 57 below) could be an opportunity to initiate a wide public conversation about net-zero, sustainable buildings and green job opportunities, supported by leaders at all levels. Responsibility for a new approach to training and skills should be distributed across leaders in national and local governments (e.g. setting a statutory framework, using public procurement to drive change) as well as in industry through bodies such as the sector skills councils.

In terms of building consumer trust and engagement, we think that it will be important to ensure that clear and consistent information is continued throughout the supply chain, right down to the individual tradespeople and installers identified as 'trusted messengers'. These groups can be subject to different training structures and experience on-the-ground, leading to varied information being given to householders (Wade et al., 2017). It would be useful to consider the development of training alongside suitable tools (for example, conversation prompts, householder questionnaires) that can support the delivery of consistent messaging from these groups.

Chapter 4 - Place

Q21. What are your views on how we can support place-based deployment of zero emissions heat within our delivery programmes?

Q25. What is your view on the timescales proposed for LHEES?

Q26. Do you agree with the approach to LHEES set out above? If not, please give reasons to support this.

More certainty about the requirements of, and responsibilities for, Local Heat and Energy Efficiency Strategies (LHEES) will be essential to effectiveness; this includes setting LHEES as a statutory duty. Without this it is unlikely that the ambitious targets in the Strategy will be met. We suggest that within the proposed timetable there should be active stakeholder

engagement (including with the public) by requirement to publish draft LHEES by spring 2022. Given the central role that the Strategy envisages for LHEES, we think that there should be a review process within the LHEES, for example, to permit updates as local conditions change. It should be possible for clusters of local authorities to work together where this would bring operational benefits. For example, smaller authorities, with little experience of any local energy planning could collaborate with regional authorities to share expertise and technical resources. However, Scottish Government needs to ensure that there is adequate resourcing for all local authorities for this work, in order to avoid any risk that strategies will not be systematically implemented and reviewed.

An evaluation of the first round of LHEES pilots (Wade, Webb & Creamer, 2019) found that officers from the twelve pilot local authorities thought that their authorities were in a good position to undertake strategic energy planning. However, in order to deliver this (and adopt the principles set out in this draft statement), local authority officers supported LHEES becoming a statutory duty. They highlighted that it was only through a statutory duty that strategic local energy planning would be prioritised in the council.

In this evaluation, officers highlighted that any statutory duty would need to be coupled with:

- More detail and guidance on exactly what is expected
- Support in establishing chains of accountability
- Support in engaging senior management and councillors
- Sufficient resource to deliver an in-depth and useful strategy. Some suggestions made by local authority officers included: the addition of one or two full time officers; support for development of necessary skills; additional consultancy support; resources should be in-house with the local authority.

This is especially crucial given that LHEES is positioned as a central policy instrument for delivering the Heat in Buildings Strategy. Having positioned LHEES as the lynchpin of the Heat in Buildings Strategy, it is essential that negotiations with COSLA are resolved and LHEES does become statutory. In addition, at present LHEES proposals include the requirement to develop the Strategy, but not a requirement to actually implement it. A requirement to implement, and a timeframe and monitoring programme for doing so are essential to realise the promises laid out in the Heat in Buildings Strategy.

The regulatory regime should coordinate with and support the delivery of local heat and energy efficiency strategies (LHEES). Regulations could be applied to relevant zones specified within LHEES, to ensure that all building types comply with the needs of their local area (e.g. connecting to district heating where appropriate). While this would require a change in Ofgem rules, it would maximise the opportunity for connections to district heating schemes.

Within EPCs, the SAP's design means energy sources, heating technology and fabric efficiency are all reduced to a single figure. This makes it hard to apply the heat hierarchy consistently, and, with LHEES, may mean some supply options (and hence EPC ratings) are only available in certain zones.

Unless there are clear reasons to adopt different fabric performance standards for different energy supply vectors, energy efficiency regulation should focus on a minimum fabric standard, and use other mechanisms to support or require switching of supply for heating. An alternative (which could perhaps sit alongside an overall performance standard) is to regulate the performance of components (e.g. specify maximum U-values for walls, roofs, etc.) or even just to stipulate measures to be installed (loft insulation, cavity wall insulation, etc.). Separating fabric efficiency from supply would mean building owners would be regulated on the issues they are best placed to control, and not on issues such as infrastructure development that require coordinated action.

We also suggest reviewing the UK Government's current consultation on a new approach to energy performance of non-domestic buildings in England and Wales. This follows the National Australian Built Environment Rating System (NABERS) model which has been a significant driver of improvements to non-domestic stock in Australia. The BEIS consultation proposes to introduce energy performance benchmarking and disclosure requirements. <https://www.gov.uk/government/consultations/introducing-a-performance-based-policy-framework-in-large-commercial-and-industrial-buildings>

Chapter 5 – Preparing our energy networks

Q33. What evidence can you provide on the potential for heat networks in Scotland that can help inform a new ambition for deployment within the final Heat in Buildings Strategy?

Here we draw on findings from 'Meeting the Strategic Challenges of UK district heating' from Heat & the City programme, with full details at

<https://heatandthecity.org.uk/resources/?search=meeting+strategic+challenges>. This report made some specific recommendations, below, that we think are relevant.

- Equipping local government with the powers and resources to develop and enforce local heat and energy efficiency strategies will be important for progressing from 'cherry-picking' of fastest pay-back district heating 'island systems', towards maximising the energy efficiency, scale economies and decarbonisation potential of heat networks.
- A 'cluster-density' model for heat network development could deliver a significantly higher connection rate, and corresponding higher percentage of low carbon heat for buildings. A cluster-density model works by anchoring district heating through supplying large

neighbouring heat loads first, then building out to smaller heat users, such as social housing multi-storey blocks. Analysis using Scottish Heat Map data zones showed that this would maximise heat demand connected to a network, at a specified cost threshold. Most social housing flats included in our cluster-density analysis were selected based on proximity to heat dense clusters, rather than the heat density of their own areas. This highlights the potential social benefit of the clustering model.

- A requirement to connect for certain building types or heat loads is needed to ensure financial viability of networks and to de-risk investment in networks for both clustering and other network planning models. This requires coordination between public authorities in network development and strategic planning of heat decarbonisation.
- Use of concession zones with licenses (such as in Norway), and a requirement to connect for specific building owners, would incentivise district heating developers to invest in future proofing systems and to plan for future expansion in line with cluster-density planning.
- Customer protection measures include transparency of financial data to allow assessment of company profits, and establishment of standards for heat network business accounting (c.f. case study of the Netherlands). Linking consumer protection to concession zones with licensing would provide a means for enforcing standards and collective accountability of network operators. Protections needs to include identity of a supplier of last resort who would step-in to maintain heat and hot water supply if the contractor/system operator failed. This is typically either a local authority or a national government agency, such as the heat network licensing body.

Chapter 8 – A Regulatory Framework

Q48. What are your views on the regulatory actions set out in the proposed regulatory framework?

Reform of Energy Performance Certificates (EPCs) would be welcome, especially for the possibility of clarifying changes in cost for different heating systems. However, proposed changes to the Certificate and calculation methodology will not address underlying issues with the implementation of EPCs 'on the ground' and there are known challenges in achieving consistency with EPC assessments. We propose that the Scottish Government needs to have a much stronger enforcement mechanism alongside any reform of EPCs with parallel reform of the training and accreditation process. There will also be a requirement to ramp up capacity in order to meet future demand for EPC assessments.

It could be useful to consider possibilities for linking EPC assessment methodologies with the methodology used in Local Heat and Energy Efficiency Strategies (LHEES) for low carbon heating planning. At present EPC and SAP methodologies do not consider the available low

carbon heating options beyond household-level technologies, and the least-cost calculus currently used includes a replacement gas boiler. They therefore miss opportunities to recommend connection to a nearby district heating network or hydrogen supply. The LHEES strategies also may change over time as investments are made in particular low carbon heat infrastructures.

We suggest that the EPC rating targets should be much more ambitious, and that the definition of EPC bands should be periodically revised to reflect the distribution of ratings across the stock: the Strategy notes that 45% of homes are already at an EPC C rating. Progress in the social housing sector has been positive. We would encourage the Government to be more ambitious now, working towards A-rated and near-zero carbon homes across all sectors. This would provide clear messaging for the types of activity expected and build momentum within markets and supply chains for the proposed new compliance dates.

We would like to see more detail to demonstrate how the Strategy will move to delivery. For example, is not clear on how the 'All Tenure Zero Emissions Heat Standard' will link to LHEES; how will issues arising from multi-occupancy and multi-use buildings be resolved; and how would area-based regulation operate in practice?

There is a need to develop a much clearer definition of 'technically feasible and cost-effective'. How are technical feasibility and cost effectiveness going to be determined? And for whom will cost-effectiveness apply? It will be important to ensure that these definitions are sufficiently limited so that these phrases do not become a loophole through which people can evade the requirement to retrofit. Having such a loophole will also incur administrative costs of dealing with potentially burden-some applications for exemption.

Q50. What are your views on how our Delivery Programmes could support compliance with regulation?

It is unclear what 'Delivery Programmes' are referred to here – for example, does this include Home Energy Scotland? What other organisations are Scottish Government proposing to include in monitoring compliance?

We propose that a key institution for ensuring compliance is local authorities. Here, a unitary system, with independent assessors, for monitoring and enforcement needs to be developed. Re-trained and properly resourced local Building Control Officers could be the basis for this. A single system with independent assessors will help to minimise corrupt practice, poor quality work and distrust by buyers.

At present, there is insufficient information on how the Strategy's commitments will be structured and delivered. An accompanying delivery plan would help to explain how responsible bodies (national government, local government, third sector, private sector, for example) might contribute to the strategy, integrating timescales from the strategy and with indicative resources and targets.

Chapter 9 - The Economic Opportunity

Q55. What more can be done to support the development of sustainable, high quality and local jobs in the heat and energy efficiency supply chain across the breadth of Scotland?

Q57. In recognition of the proposals in the forthcoming skills consultation, what further action can be taken to support skills development in Scotland over the lifetime of this strategy?

Recent research suggests that to achieve net-zero buildings would require profound labour market reform to improve skills, stimulate demand and ensure high-quality installation and retrofit. We think that this approach equally applies to the specific area of low and zero carbon heat in buildings.

Recent research (Killip, 2020) proposes that to create low or net-zero carbon buildings, there needs to be an integrated approach to design and construction, not compatible with what tends to happen at present where the focus is on individual tasks. This needs to change, so that the construction sector and the contributing occupations within it have a need a stronger shared understanding of how to deliver low and zero carbon buildings.

Regulated entry to the labour market via required occupational standards might assist with supply side concerns, but crucially there would have to be accompanying complementary reforms to stimulate demand for this enhanced level of competence, for example, by regulating building performance outcomes (not just design intent). This is likely to represent a significant reform of regulation, organisational culture and the provision of vocational and technical training.

While the actions proposed by the draft strategy document are welcome, a bolder approach could deliver carbon reductions in the necessary time-frame, as well as contribute to the co-benefits described in the Strategy (a just transition, opportunities for young people, broader economic opportunities). We understand the scale of the challenge: it represents a change that would require the long-term, active support of the construction sector.

Such a shift has happened elsewhere. The research highlights comparisons between the UK and Germany from the 1970s to the 1990s. Starting with a similar level of unskilled labourers, the German construction sector increased youth training, reduced its relative number of

unskilled labourers and consolidated employment to some extent into larger firms. In the UK, the sector reduced youth training and became heavily reliant on self-employment and subcontracting, with the numbers of unskilled labourers rising slightly.

The UK construction market represents a 'low-skills equilibrium' characterised by poor quality assurance, performance gaps, low-skills and low wages. We think that without significant change in the sector, there will be significant risks so it might be necessary to re-think policy assumptions about the UK's capacity to deliver low carbon buildings and retrofits. The necessary reforms would not be quick to implement either; the [National Retrofit Strategy](#) factors in the reform process and assumes that widespread high quality cannot be achieved before 2030.

Chapter 10 - Working with the UK Government

Q60. To what extent do you agree that the issues identified must be addressed jointly by the UK and Scottish governments to unlock delivery in Scotland?

Q61. Are there any further areas where joint action is required, for example to ensure no one is left behind in the transition and fuel poverty is addressed?

In terms of fuel poverty, we suggest revisiting the proposal made by the Scottish Fuel Poverty Review Panel which made the argument for a minimum income standard as basis for universal welfare benefits, rather than treating fuel poverty as 'silo', as at present.

Chapter 11 – Monitoring, Evaluation and Future Decision Making

Q62. Do you agree with our proposals for a monitoring and evaluation framework? If not, please state your reasons and suggested improvements.

We propose that there should be a clear learning plan in the Strategy, that would go beyond monitoring and evaluation to review and update processes as the Strategy is implemented.

There should be integration with the Climate Change Plan Monitoring Framework, to include progress towards carbon reduction targets.

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