



Paper 3/1 - Buildings

For information

1. Purpose

1.1 This paper provides Commissioners with background briefing on Government efforts to decarbonise the buildings sector in Scotland.

2. Background

2.1 This paper provides an overview of the Energy Efficient Scotland programme, low carbon heat and fuel poverty. Scottish Government officials have drafted this paper, at the request of the secretariat.

Energy Efficient Scotland

1. The Policy Landscape

- 1.1. Energy efficiency has been a long term priority for the Scottish Government and was designated as a national infrastructure priority in 2015 as part of the transition to a low carbon economy. By the end of 2021, over £1 billion pounds will have been allocated since 2009 on tackling fuel poverty and improving energy efficiency.
- 1.2. Energy Efficient Scotland (EES) is the Scottish Government's flagship energy efficiency programme. It brings together work to improve the energy efficiency of Scotland's buildings and has two main goals; to remove poor energy efficiency as a driver of fuel poverty and to reduce greenhouse gas emissions from Scotland's building stock.
- 1.3. EES is also a key delivery mechanism for the new Climate Change (Emissions Reduction Target) and Fuel Poverty (Targets, Definition and Strategy) (Scotland) Bills, which were introduced in the Scottish Parliament last year. Through setting ambitious goals for fuel poverty and greenhouse gas emission reductions, the two Bills make the successful delivery of EES key to achieving these targets.
- 1.4. The Programme will operate across all parts of Scotland. It builds on the Scottish Government's existing successful schemes and programmes and over time will integrate and extend them so that they make an offer of support to property owners across Scotland.

2. Targets and barriers to delivery

- 2.1. The Scottish Government published the Energy Efficient Scotland Route Map¹ in May 2018. The Route Map sets out the pathway to realising the vision of making Scotland's homes and buildings warmer, greener and more efficient.
- 2.2. The Route Map for Energy Efficient Scotland sets out the steps to ensure that all homes and non-domestic buildings are improved so that they achieve a good level of energy efficiency. The route map sets out a target proposing that homes will need to meet EPC band C by 2040 where technically feasible and cost-effective with an ambition for all fuel poor households to be a minimum band B by 2040. There are also different targets based on tenure - homes in the private rented sector are proposed to meet EPC C by 2030 and social housing EPC B by 2032. All owner occupied homes will need to meet EPC C by 2040.
- 2.3. A consultation has recently been launched which asks for views on the opportunities and challenges of bringing forward the EES target date from 2040. The Scottish Government will consider the responses from the consultation with partners in local government if the target date can be brought forward whilst supporting a just transition to a low carbon economy across Scotland.
- 2.4. Challenges to achieving the current targets include;
 - insufficient capacity to meet demand in remote and rural areas;

¹ <https://www.gov.scot/publications/energy-efficient-scotland-route-map/pages/1/>

- an ageing workforce and not enough young people entering trades;
- shift towards having to deal with harder to treat properties;
- raising awareness of EES to provide confidence there will be a sufficient market available to industry to justify bringing in staff and upskilling

3. Skills and the Supply Chain

- 3.1. EES has the potential to support substantial employment opportunities and build Scotland's supply chain. It has been estimated that the Programme will require investment of around £10 billion to £12 billion over its lifetime from public and private sources and that every £100 million spent on energy efficiency improvements in 2018 will support approximately 1,200 fulltime equivalent jobs across the Scottish economy.
- 3.2. A study carried out by the University of Strathclyde² also calculated that a 10% improvement in energy efficiency across the UK would sustain a GDP expansion of 0.16%. Improving the energy efficiency of homes also brings other benefits that are less easy to quantify but equally important such as improvements in health, wellbeing, and educational attainment.
- 3.3. As part of the Scottish Governments commitment to the Programme, there will be on-going work to provide support and actively promote the opportunities of this market for Scottish companies. As well as making sure companies can benefit from these opportunities there is a need to make sure that the quality of the work carried out by the supply chain is of a high standard and that installers are suitably qualified.
- 3.4. There is a close connection between quality assurance, consumer protection and the skills and supply chain. This was considered by an independent, industry-led Short Life Working Group on Quality Assurance, Consumer Protection, Skills and Supply Chain (further information in Section 4). The actions and recommendations from the Working Group are currently being consulted on and will be used as a foundation to develop the specific skills, quality assurance and consumer protection outcomes that are required to be incorporated into the Programme.

4. Short Life Working Group on Quality Assurance

4.1 In order to ensure that quality assurance under Energy Efficient Scotland reflects the needs and views of the Scottish supply chain, Scottish Ministers agreed to convene a Short Life Working Group (SLWG) to focus on quality, skills, supply chain and consumer protection requirements. This Group was independently chaired and included representatives from across industry, consumer organisations and enterprise and skills agencies.

4.2 The SLWG put forward 19 recommendations, which are set out in a report³ and consultation⁴ published online on 26 March, to ensure that a comprehensive quality assurance framework can be developed as part of EES; that consumer protection is at the core of the framework; and that Scotland has a skilled and appropriately-trained supply chain to meet likely consumer demand for energy efficiency improvements.

²https://pureportal.strath.ac.uk/files-asset/69161803/Figus_et_al_EP_2017_Making_the_case_for_supporting_broad_energy_efficiency_programmes.pdf

³ <https://www.gov.scot/publications/quality-assurance-short-life-working-group-report/pages/1/>

⁴ <https://www.gov.scot/publications/energy-efficient-scotland-consultation/>

4.3 Their 19 recommendations covered 5 key themes:

- **Quality** – identify how we can ensure high standards are consistently met across the lifetime of the Programme;
- **Skills and Capacity** – make sure that EES drives improvements in the skillset of the industry and that there is sufficient capacity in the supply chain to meet a potential increase in consumer demand;
- **Procurement** – identify any remaining barriers still faced by small and medium enterprises (SMEs) and micro-businesses in public sector procurement and how these could be overcome;
- **Non-domestic buildings** - understand the opportunities for the supply chain in this sector and identify the skills needs;
- **Consumer protection** – ensure that the needs of consumers are considered at every stage of the Programme development and the delivery of the eventual customer journey.

4.4 The recommendations will be re-visited following the consultation period and once there is greater clarity on the proposed delivery of the Programme as this will allow for a more accurate determination of implementation, cost and how they could be applied in practice. In the meantime, development will continue to be built on industry best practice and existing processes to minimise costs for both the consumer and supplier and to ensure the final requirements are proportionate, fair and non-exclusionary.

Low Carbon Heat

5. Background

5.1 Decarbonising the way we heat our buildings is a critical next stage in the transition to a more prosperous, low carbon economy.

5.2 The Scottish Government has been consistent in its support for energy efficiency and low carbon heat, and continues to focus its efforts where it has control of the necessary levers. As such, over the short - to medium - term we are focussing on improving the energy efficiency of all buildings, deploying appropriate low carbon heat solutions in individual buildings that do not use mains gas and developing heat networks where appropriate.

5.3 Our current targets for low carbon heat are:

- 35% of domestic buildings' heat and 70% of non-domestic buildings heat met by low carbon sources by 2032 (*Climate Change Plan*)
- Equivalent of 50% of the energy for Scotland's heat, transport and electricity consumption to be supplied from renewable source by 2030 (*Energy Strategy*)
- 11% of non-electrical heat demand in Scotland to be met from renewable sources by 2020

5.4 Scotland produced 5.9% of its non-electrical heat demand from renewable sources in 2017, an increase from 4.7% in 2016.⁵

5.5 The current Climate Change Plan also sets out the Scottish Government's ambition for all buildings to have near zero emissions by 2050. The Committee on Climate Change published advice on 2 May advising that it is possible to set a net-zero target for Scotland for 2045. The Scottish Government has responded accordingly, introducing amendments to the Climate Change Bill.

5.6 The Minister for Energy, Connectivity and Islands committed at the All Energy Conference to publishing a draft Heat Decarbonisation Policy Statement and Action Plan by Summer 2020.

6. Scale of the challenge ahead

6.1 In Scotland around 79% of the housing stock use mains gas as their primary source of heat. Scotland has a higher proportion than the UK average of domestic properties that do not use mains gas as their primary heating source.

6.2 Other sources include; Oil or LPG (7%); low carbon sources, including electricity (14%). Homes using high carbon fuels like oil, LPG and coal are much more common in remote and rural areas, with properties not connected to the gas grid in urban areas predominantly using electricity for heat.

⁵ <https://www.gov.scot/publications/annual-energy-statement-2019/>

6.3 We estimate that there are approximately 200,000 non-domestic buildings in Scotland, which range from small shop and business units to large office buildings, industrial units and shopping centres. We currently know much less about our non-domestic buildings. We estimate that there are in excess of 100,000 (58%) non-domestic buildings (excluding military and agricultural buildings) which currently do not use mains gas for heat. These buildings are predominantly electrically heated. Heating oil is the most popular alternative to electric heat for non-domestic buildings that do not use mains gas.

7. Barriers to uptake

7.1 Whilst a growing share of Scotland's heat is met from low carbon and renewable sources there remain a number of barriers to uptake, which will need to be overcome if deployment is to be scaled up to achieve Scotland's climate change targets. These barriers include:

- the relatively high upfront costs of installing low carbon heating systems, relative to like-for-like replacement of incumbent systems;
- potentially higher operational and / or maintenance costs;
- limited capacity in some locations on the electricity grid to supply substantial increases in electrical heating;
- Installation can require extensive changes to internal systems;
- Hard-to-treat buildings add complexity to any energy efficiency upgrades;
- Heating systems are most commonly replaced following a breakdown, so customers tend to go with the better known option;
- Lack of awareness of available low carbon systems, risk aversion, fear of unknown technologies, bad experiences, etc. of low carbon systems

8. Levers

8.1 The Scottish Government holds the following levers:

- **Building Standards** – we can set emission standard for heating systems and standards for overall energy use and environmental impact of buildings (new build and existing);
- **Regulation of Heat Networks** – technical standards, consenting, etc. (but not consumer protection);
- **Grants, Loans and Advice Support Schemes** – Energy Efficient Scotland, District Heating Loan Fund, Home Renewables Loans, etc. Home Energy Scotland & Resource Efficient Scotland advice services;
- **Innovation & Commercialisation Support** – Low Carbon Infrastructure Transition Programme

8.2 However, the UK Government holds the following levers for regulation on:

- **Gas Network** – standards and quality i.e. what goes through the pipes;
- **Consumer Protection;**
- **Price signals** – e.g. tax, levies and charges

Fuel Poverty

9. Background

9.1 The Scottish House Condition Survey (published 4 December 2018) indicates that around 613,000 households (24.9%) were in fuel poverty in Scotland in 2017.⁶ Scotland's fuel poverty rate is now at the lowest rate recorded since 2005/06, according to the latest figures available. Between 2014 and 2017, 232,000 households moved out of fuel poverty and the rate reduced from 34.9% (845,000) to 24.9% (613,000).

9.2 These figures are based on the current definition of fuel poverty. The Scottish Government has recently published a paper setting out the latest estimates of fuel poverty and extreme fuel poverty based on the proposed new definition set out in the Fuel Poverty (Targets, Definition and Strategy) (Scotland) Bill.⁷

10. Drivers of fuel poverty

Low household income

10.1 Fuel poverty under the current definition is distinct from poverty in that, while low income is an important driver, it is not a prerequisite. Fuel poor households are found in all income bands. In 2017 around 15% of all fuel poor households had weekly income above £400 before housing costs, which places nearly all of these households in the top half of the income distribution.

10.2 Median income has increased from £16,000 in 2003/04 to £24,000 in 2017, a 50% increase in cash terms.

10.3 In 2017, 50% of households earned £23,800 or more after tax, up from £22,000 in 2016. This median income has increased by 32% (around £5,700) in cash terms since 2010.

Cost of energy

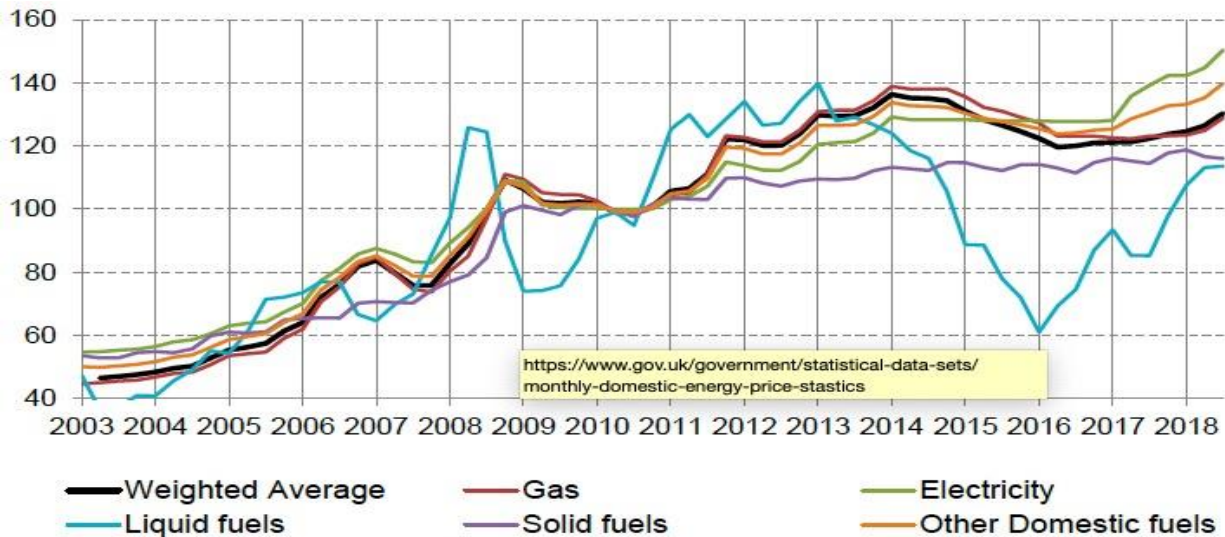
10.4 Data published by the Department for Business, Energy and Industrial Strategy (BEIS) on the price of key fuels enables us to construct time series for the price of fuels for the average Scottish household over the longer term.⁸

⁶ The Scottish House Conditions Survey is published online at <https://www2.gov.scot/Topics/Statistics/SHCS>

⁷ <https://www.gov.scot/publications/latest-estimates-fuel-poverty-extreme-fuel-poverty-under-proposed-new-definition-following-stage-2-fuel-poverty-targets-definition-strategy-scotland-bill/>

⁸ This uses information from the SHCS about the fuels used for space and water heating to weight the national quarterly fuel price indices published by BEIS and produce an average index value for the price of the heating fuel requirement for Scotland.

Chart 2: BEIS Fuel Price Indices and a Weighted Average for Scotland: 2003 to September 2018



Energy efficiency of the house

10.5 The energy efficiency of a dwelling can be measured through its Energy Efficiency Rating (EER), which is expressed on a scale of 1 (very poor efficiency) to 100 (very high efficiency), or through the Energy Performance Certificate (EPC) banding, which ranges from Band A (high efficiency) to band H (low efficiency).

10.6 Table 1 below shows the trend in mean EERs based on Standard Assessment Procedure (SAP) 2009 from 2010 to 2017. The mean ratings rose from 59.9 in 2010 to 65.6 in 2017. These ratings fall into band D. There was around a 1 point increase in the mean EER each year between 2010 and 2014. Improvement since then has been slower, and the increase between 2016 and 2017 was less than 1% which is not statistically significant.

Table 1: Average EER for 2010 – 2017, SAP 2009

		2010	2011	2012	2013	2014	2015	2016	2017
EER	Mean	59.9	60.9	61.8	63.2	64.1	64.6	65.1	65.6
	Median	62	63	64	66	67	67	67	68
Sample		3115	3219	2787	2725	2682	2754	2850	3002

The statistics presented in this table are based on SAP 2009. SAP 2012 is also available, however, 2009 has been used here to allow analysis of a longer period.

10.7 Under SAP 2009, well over two fifths of dwellings (46%) were rated C or better, up 22 percentage points since 2010. In the same period, the proportion of properties in the lowest EPC bands (E, F or G) has more than halved, reducing from 27% in 2010 to 13% in 2017.

How energy is used in the household

10.8 In addition to the above three drivers, the Scottish Government consider a fourth driver, which is how household energy is used.

10.9 All of the above four drivers will be addressed in the Fuel Poverty Strategy although it should be noted that the Scottish Government does not have all the levers at its disposal to tackle all the drivers of fuel poverty.

11. Fuel Poverty (Targets, Definition and Strategy) (Scotland) Bill

11.1 This Bill was introduced into the Scottish Parliament in June 2018 and is due to complete Stage 3 by June 2019. The main provisions of the Bill at Stage 2 are set out below (there are likely be amendments or additions to the Bill during Stage 3).

12. Targets

12.1 The Bills sets targets relating to the eradication of fuel poverty and is aimed at reducing both the prevalence and depth of fuel poverty:

- By 2030 no more than 15% of households in Scotland are in fuel poverty, no more than 5% of households are in extreme fuel poverty, the median fuel poverty gaps of households in Scotland in fuel poverty is no more than £350.
- By 2040 no more than 5% of households are in fuel poverty, no more than 1% of households are in extreme fuel poverty , the median fuel gap of households in Scotland in fuel poverty is no more than £250. These targets should also be achieved in each Local Authority area.

13. Definition of fuel poverty

13.1 The Bill sets out a two pronged test for fuel poverty.

- The first element of the test retains a fuel cost to income ratio whereby, in order to qualify as fuel poor, a household requires to spend over 10% of its income on household fuel. As is the case with the current definition, the applicable fuel costs are those deemed necessary to heat the home as opposed to those fuel costs which the household actually incurs. However, unlike the current definition, the income used in this part of the test is the household's after housing costs ("ACH") net income. This means that rent or mortgage costs, council tax and charges for water and sewerage are deducted from the household's net income whereas under the current definition, household income is defined as income before housing costs with only council tax, water and sewerage charges deducted.
- The second element of the test introduces an income threshold whereby a household is in fuel poverty if, after the deduction of its necessary fuel costs and its childcare costs (if any) as well as benefits received for a care need or disability (if any) its remaining AHC net income is below 90% of the UK MIS or below the additional remote rural, remote small town and island uplift (where relevant) for its household type. An additional uplift will be specified for remote rural, remote small town and island communities with the island component being calculated separately. This is to take account of the additional costs of living in these areas.

- The Bill also sets out the definition of extreme fuel poverty which is similar to the above test but instead of 10% the figure is 20% of household income on fuel.

14. Fuel Poverty Strategy

14.1 The Bill places a duty on Ministers to prepare a Fuel Poverty Strategy setting out the approach they intend to take to ensure the fuel poverty targets are met. This Strategy has to be laid before Parliament within a year of the relevant provision coming into force. A draft Fuel Poverty Strategy was published in June 2018 and we anticipate that the final Fuel Poverty Strategy will build on this.

15. Reporting on Fuel Poverty Target and Strategy

15.1 The Bill requires Ministers to produce a report every three years setting out the steps that have been taken to meet the targets, the progress towards meeting the targets and the steps that will be taken in the next reporting period to meet the targets. Specified people must be consulted in the preparation of these report.

16. Scottish Fuel Poverty Advisory Panel

16.1 A statutory Fuel Poverty Advisory Panel is being established and this Panel must meet after the publication of each periodic report to consider the progress towards the various targets and the extent to which the four drivers of fuel poverty are being addressed. The Panel will then make a report to Ministers that may propose changes to the Fuel Poverty Strategy and other recommendations they consider appropriate.

17. Improving Energy Efficiency

17.1 The Scottish Government currently funds a range of programmes aimed at improving the energy efficiency of homes.

17.2 The Home Energy Efficiency Programmes for Scotland: Area Based Schemes (HEEPS: ABS) are designed and delivered by Local Authorities, in conjunction with utility companies and local delivery partners, targeting fuel poor areas to provide energy efficiency measures to a large number of Scottish households and help reduce fuel poverty.

17.3 The national fuel poverty scheme, HEEPS: Warmer Homes Scotland, was formally launched in September 2015. Since then, it has helped over 15,000 fuel poor households across Scotland.

17.4 The contract to deliver Warmer Homes Scotland was awarded to Warmworks Scotland LLP (a partnership between Changeworks, the Energy Saving Trust and Everwarm) - following an open tendering process, in April 2015. Warmworks is responsible for managing the customer journey, which includes identifying the measures which are suitable for the dwelling, carrying out a technical survey, installing the measures and completing a post-installation inspection. This process, and the supply chain which Warmworks has procured, creates significant opportunities for businesses in this sector. The majority of businesses in Warmworks' installer supply chain are SMEs.



17.5 It is recognised that alongside funding for physical measures, we also need to ensure householders are guided through the choices available to them. We also fund the award winning Home Energy Scotland advice centres and hotline which are managed on behalf of the Scottish Government by the Energy Saving Trust.

17.6 Home Energy Scotland:

- provides free and impartial advice on energy efficiency measures to all householders in Scotland including advice on schemes they may be eligible for;
- can provide tailored advice for an individual's own home;
- can assist householders through the complaints process of Government energy efficiency schemes;
- offers every caller a free benefits check to ensure householders are receiving all the help and support they are entitled to; and
- provides a community liaison service to join up with other service providers to reach the most vulnerable people in the community
- has developed an online referral portal to enable seamless referrals from external stakeholders to HES. The portal also allows stakeholders to track progress with the referral to the outcome for the customer.

17.7 The latest annual statistics on Scottish Government schemes sets out the summary of delivery in 2017/18, showing:

- Over 15,500 households were assisted in 2017/18 through HEEPS programmes
- Approximately 27,734 energy efficiency measures installed in 2017/18 across HEEPS programmes
- Annual CO2 savings of 17,200 tonnes and fuel bill savings of over £4.6 million
- Lifetime CO2 savings of 401,000 tonnes and fuel bill savings of approximately £129.8 million

17.8 As well as looking to improve the energy efficiency of homes the Scottish Government is also taking action to maximise the incomes of households through a range of policies set out in the Fairer Scotland Action Plan. We have also published the Consumer Energy Action Plan that sets out a range of measures to put consumers at the heart of energy policy.