

Energy Efficient Scotland

Partial Business and Regulatory Impact Assessment



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1. Purpose and intended effect

1.1 Scope

This Business and Regulatory Impact Assessment (BRIA) accompanies the consultation on Energy Efficient Scotland. It focusses on the following four key proposals, each of which sits under the overarching Programme banner:

- a long-term standard for all domestic properties in Scotland;
- an Energy Efficiency Standard for Social Housing beyond 2020 (EESH2);
- a regulatory system for Local Heat and Energy Efficiency strategies (LHEES); and
- a regulatory system for district and communal heating.

As the proposals set out in this consultation are at different stages of development, the degree of detail provided in this BRIA with respect to different proposals varies accordingly. In relation to the ongoing consideration regarding our proposals for LHEES and the potential for regulation of district and communal heating, it is not possible at this time for the Scottish Government to carry out a fuller analysis of costs and wider impacts than we present here, as we are currently still analysing responses to our second consultation and continue to engage with our stakeholders to finalise our policies. In addition, further review will examine future improvement targets and a long-term standard for non-domestic buildings. As there are no regulatory proposals developed for this policy, it is not reported within the scope of this BRIA. As the policy is developed, a separate BRIA will be prepared and issued.

1.2 Background

Scottish Ministers designated energy efficiency as a national infrastructure priority in 2015, recognising the many benefits delivered by improving the energy performance of our buildings. Energy Efficient Scotland (the Programme) sees us delivering on this priority.

Energy efficiency has been a long-term priority for the Scottish Government – by the end of 2021, we will have allocated over £1 billion pounds over the period from 2009 on tackling fuel poverty and improving energy efficiency. The Programme builds on our existing, well-established and successful schemes.

Achieving our vision will take time. That is why the Programme contains a set of actions over a 20-year time period which will move us decisively towards our ultimate vision of making Scotland's existing buildings near-zero carbon where feasible by 2050, in a way that is socially and economically sustainable. It is a cross-cutting programme, designed to help improve the co-ordination of activity across all building sectors through the provision of standards, regulation, legislation and funding to deliver our vision. By the end of the Programme we will have transformed the energy

efficiency and heating of Scotland's buildings, making our existing homes, shops, offices, schools and hospitals more comfortable and easier to heat.

1.3 Objective

The Programme delivers across two key policy areas of Government: fuel poverty and climate change. Because of this it has two main objectives:

- Supporting the eradication of fuel poverty, by removing poor energy efficiency as a driver of fuel poverty.
- Reducing greenhouse gas emissions through more energy efficient buildings and by decarbonising our heat supply.

The Programme contributes to the Scottish Government's Greener and Healthier Strategic Objectives, and has a positive impact on the following National Outcomes:

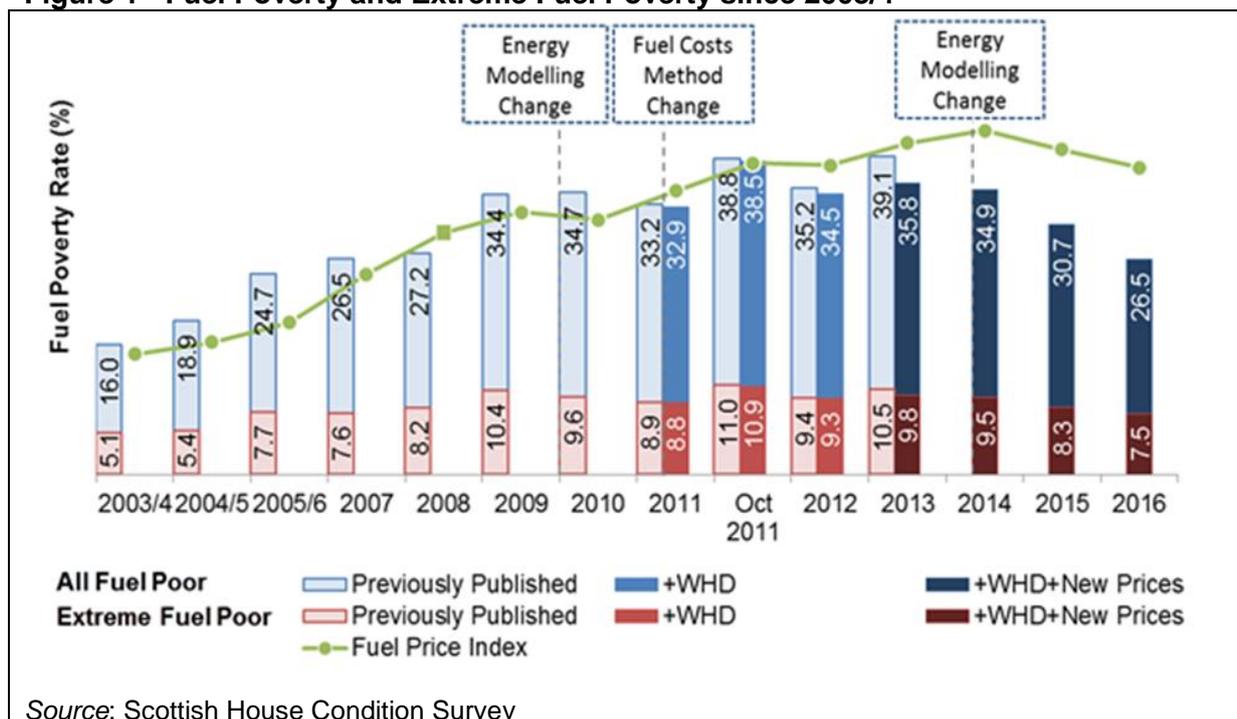
- We reduce the local and global environmental impact of our consumption and production
- We value and enjoy our built and natural environment and protect it and enhance it for future generations
- We live in well-designed, sustainable places where we are able to access the amenities and services we need
- We live longer, healthier lives
- We have tackled the significant inequalities in Scottish Society

1.3.1 Fuel Poverty targets

According to the current definition, a household is fuel poor if energy costs to keep their home sufficiently warm are more than 10% of their income. The Scottish Government consulted on a proposed new definition of fuel poverty in November 2017 and analysis of the responses to this consultation will be published in spring 2018. The Fuel Poverty (Scotland) Bill, due to be introduced to the Scottish Parliament in June 2018, will set out the final form of the new definition and propose a new statutory target to eradicate fuel poverty by 2040.

Fuel poverty rates are monitored through the Scottish House Condition Survey. The latest data indicates that, under the current definition of fuel poverty, an estimated 649,000 households (26.5% of all households) were in fuel poverty in 2016. This is a reduction of 99,000 households compared to 2015, when 748,000 households (30.7%) were in fuel poverty. However, Figure 1 illustrates that this recent moderation in fuel poverty rates is in the context of a longer-term increase, the result of large increases in fuel prices which have more than offset improvements in energy efficiency and household incomes.

Figure 1 - Fuel Poverty and Extreme Fuel Poverty since 2003/4



1.3.2 Climate Change targets

Climate change is expected to have profound effects on Scotland and the wider global community, and action is required at all levels in order to mitigate its harmful consequences. The Climate Change (Scotland) Act 2009 therefore set an ambitious target of an 80% reduction in greenhouse-gas emissions on 1990 levels by 2050, which will contribute to meeting abatement targets set at the UK, EU and international levels. We are currently in the process of strengthening this target through the new Climate Change Bill. If we are to meet our target, significant shifts in the way energy is produced and used are required. Improving energy efficiency and moving from fossil fuels to renewable sources of energy will play a key role in the shift to a low-carbon economy.

The Scottish Government’s Climate Change Plan, published in February 2018, details how progress towards the 2050 target will be taken forward over the period to 2032, and sets a target of a 66% reduction in emissions by 2032 against 1990 levels. Emissions from the residential sector, which comprised 12.7% of total direct emissions in 2015, fell by 25% between 1990 and 2015, although there were substantial annual fluctuations around this declining trend due to varying weather conditions. The Plan proposes that residential emissions, which are principally derived from space and water heating, will be reduced by 23% by 2032 on 2015 levels, while emissions from the services sector will be reduced by 59% over the same period. Improvements to the building fabric will help reduce heat demand by 15% and 20% in domestic and non-domestic properties respectively by 2032.

1.3.3 Energy Strategy Targets

The Programme brings to life one of the six energy priorities as set out by our

Scottish Energy Strategy: that of improving energy efficiency. The strategy, published in December 2017 is a ground breaking first energy strategy for Scotland and sets out the Scottish Government's vision for the future energy system in Scotland. The strategy sets a vision to achieve by 2050 'A flourishing competitive local and national energy sector, delivering secure, affordable, clean energy for Scotland's households, communities and businesses'.

The Energy Strategy recognises that we cannot be entirely certain what our energy system will look like by 2050, so sets ambitious targets for 2030 which supports the principle of the pursuit of low or no regrets options to set us on the right path to the low carbon future:

- The equivalent of 50% of the energy for Scotland's heat, transport and electricity consumption to be supplied from renewable sources;
- An increase by 30% in the productivity of energy use across the Scottish economy.

1.3.4 The Programme

The Programme is a vehicle to marshal the wide range of initiatives to improve and promote energy efficiency and decarbonisation of Scotland's buildings. It brings a focus to delivery across the whole of Scotland, across all types of building.

The Programme contains a range of projects which will strengthen processes, delivery and engagement across Scotland. It will:

- set a long-term standard for all domestic dwellings in Scotland, as well as targets for households in fuel poverty;
- extend regulations to all non-domestic buildings by 2040 where this is technically feasible and cost effective;
- build on collaborative work to support the public sector to act as the vanguard of energy efficiency;
- establish adequate quality assurance and customer protection;
- provide support and actively promote opportunities to ensure a robust supply chain; and
- consider the need for legislation to create a statutory duty for local authorities to develop local heat and energy efficiency strategies and to regulate district and communal heating.

Achieving these objectives will deliver multiple benefits. Investment in improving the energy efficiency and decarbonising the heat of Scotland's buildings will:

- put more money in people’s pockets by cutting the cost of heating their homes – supporting our ambitions to eradicate fuel poverty;
- improve business competitiveness by making sure every pound spent on energy maximises productivity;
- substantially reduce greenhouse gas emissions, contributing to meeting our ambitious climate change targets;
- boost GDP, with research showing a 10% improvement in the energy efficiency of all UK households leads to a sustained GDP expansion of around 0.16%;¹
- help create a substantial Scottish market and supply chain for energy efficiency services and technologies, with every £100 million spent on energy efficiency improvements estimated to support approximately 1,200 full-time equivalent jobs across the Scottish economy;²
- increase the likelihood of health and wellbeing benefits through improved housing conditions; and
- help regenerate our communities through upgrading building stock.

1.4 Background to proposals

1.4.1 Long-term domestic standard

In 2016 there were around 2.5 million³ domestic properties in Scotland and it is likely that over 80% of them will still be in use in 2050. Three quarters of our homes were built before 1982, and a fifth were built before 1919 using traditional methods of construction.⁴ Approximately 61% of occupied homes are owner occupied, 15% are privately rented, and 23% are socially rented. Mains gas is the primary heating fuel for 79% of dwellings, with electricity accounting for 11%, oil for 6% and a range of other fuels for the remaining 4%.

We have chosen to use Energy Performance Certificates (‘EPCs’) to set the standard as our consultation in 2017 showed that EPCs are widely known and provide a clear way to model and understand the energy performance of a building.

¹ Figus, G., Turner, K., McGregor, P. & Katris, A. (2017). Making the case for supporting broad energy efficiency programmes: Impacts on household incomes and other economic benefits. *Energy Policy*, 111(September), 157–165. <https://doi.org/10.1016/j.enpol.2017.09.028>.

² Applying the latest construction sector employment multiplier (for 2014) from the Scottish Government input-output tables. The £100 million spend is in 2018 prices. Since the multiplier is expressed in 2014 prices, the £100 million is first deflated to 2014 prices using the GDP deflator before applying the employment multiplier.

³ According to NRS Estimates of Households and Dwellings, 2016, there are 2.45 million households or 2.58 million dwellings. Domestic energy efficiency data presented in later sections is based on the Scottish House Condition Survey (available at <http://www.gov.scot/Topics/Statistics/16002/PublicationAnnual>), which samples occupied dwellings and is therefore calibrated to total household rather than dwelling estimates.

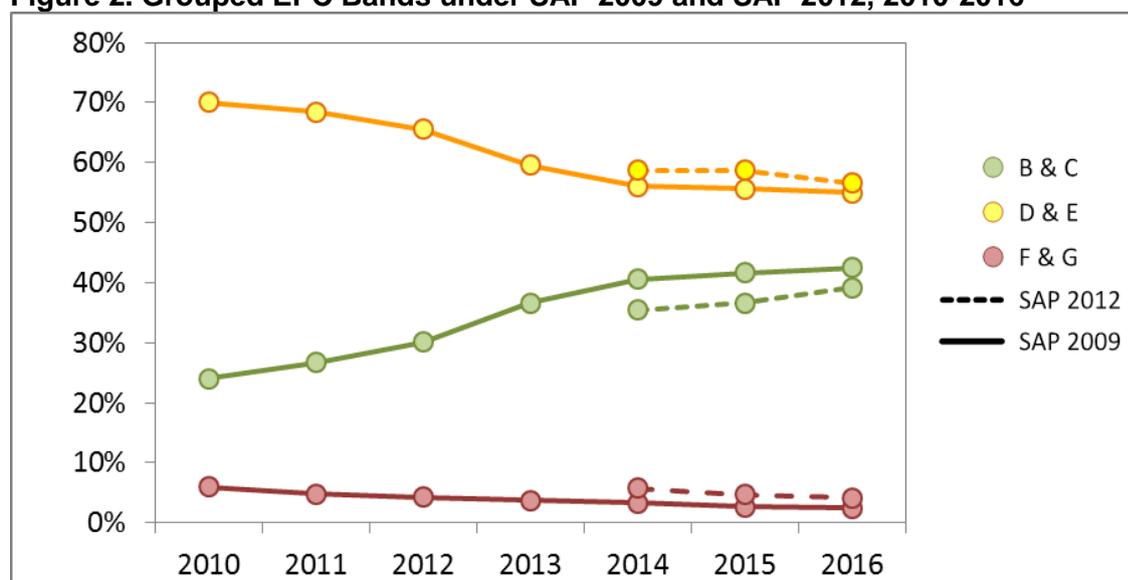
⁴ The research and development of new approaches for the energy efficiency of these pre-1919 buildings is overseen by Historic Environment Scotland.

The consultation also raised some issues with EPCs. We have listened and already commissioned research to identify how we can improve EPCs. Following this we will be doing more work with partners to make sure EPCs more accurately record the energy efficiency of buildings.

The average (mean) Energy Efficiency Rating (EER) in the domestic sector, calculated using the Standard Assessment Procedure (SAP 2012), is 64. The EER is measured on a scale of 1 to 100, with a higher score reflecting greater energy efficiency. For the purposes of EPCs, EER scores are divided into seven bands, labelled A to G. Band A (EER 92 to 100) represents the highest energy performance, while band G (EER 1 to 20) denotes the lowest energy performance. The average score of 64 for the domestic sector falls into EPC band D.

While energy efficiency across the domestic sector has been improving in recent years, as illustrated by Figure 2, the rate of improvement in the share of dwellings rated C or better is unlikely to be sufficient to ensure that all dwellings will meet a minimum EPC of C within the required timescales if improvements in energy efficiency is left to the voluntary decisions of owners.

Figure 2. Grouped EPC Bands under SAP 2009 and SAP 2012, 2010-2016



Source: Scottish House Condition Survey

Note: The number of A-rated dwellings is too small to be identified in the survey, given sample-size restrictions.

The role that regulation can play is illustrated by the significant differences in energy efficiency between sectors. Energy efficiency in the social rented sector has been regulated by the Scottish Housing Quality Standard, which had to be met by 2015, which was further strengthened by the Energy Efficiency Standard for Social Housing, which sets out minimum EPC ratings to be met by 2020. The impact of this stronger regulatory environment is reflected in the fact that in 2016 the average (mean) energy efficiency rating in the social rented sector was 68, as compared to 63 in the owner occupied and 62 in the private rented sector.

Table 1 illustrates the corresponding differences in the distribution of dwellings between EPC bands in the different tenures. It is notable that 53% of dwellings in the social rented sector already have a minimum EPC of C, as compared to 34% in the

owner occupier sector and 38% in the private rented sector. Furthermore, the share of dwellings with the worst energy efficiency ratings (F and G) is only 1% in the social sector as against 5% in the owner occupier sector and 7% in the private rented sector.

Table 1 - EPC Band by Broad Tenure in 2016, SAP 2012

EPC Band	Owner occupied		Private rented		Social sector		All Tenures	
	000s	%	000s	%	000s	%	000s	%
A (92-100)	-	-	-	-	-	-	-	-
B (81-91)	27	2%	11	3%	15	2%	53	2%
C (69-80)	483	32%	113	34%	314	50%	910	37%
D (55-68)	701	47%	120	36%	247	40%	1,068	44%
E (39-54)	220	15%	62	19%	39	6%	321	13%
F (21-38)	60	4%	20	6%	8	1%	88	4%
G (1-20)	10	1%	3	1%	-	-	13	1%
Total	1,500	100%	329	100%	622	100%	2,452	100%
<i>Sample</i>		1,790		344		716		2,850

Source: Scottish House Condition Survey

When we consulted on the Programme in January 2017 there was a clear consensus around setting long-term targets, providing certainty and a clear direction of travel. To give that certainty and clarity we are proposing a long-term standard that by 2040, where technically feasible and cost effective, all domestic properties must have an EPC of at least C. To support our statutory target on fuel poverty we are setting a more ambitious target that households in fuel poverty will live in homes with an EPC of C by 2030 and of B by 2040.

We know that not all buildings will be able to achieve this standard, and that in some cases the cost of the work may outweigh the benefits in terms of energy savings. We will work with partners over the next two years to identify those buildings that may not be able to achieve the standard but will still need to be improved as far as is reasonable.

The work being proposed under the Programme reflects a step change in energy efficiency, and we are therefore proposing a phased approach to implementation, which also reflects the different starting points of different sectors.

1.4.2 EESSH2

The Energy Efficiency Standard for Social Housing (EESH) was introduced in 2014 to encourage social landlords to improve the energy efficiency of their stock.⁵ For gas and electric dwellings, it sets a minimum EPC of D or C, depending on dwelling type, which landlords must achieve by 2020. For other fuels, landlords are required to meet the energy efficiency ratings in the Scottish Housing Quality Standard. EESH compliance is part of the Scottish Social Housing Charter, with the Scottish Housing Regulator responsible for monitoring performance. Encouraging progress

⁵ <https://beta.gov.scot/policies/home-energy-and-fuel-poverty/energy-efficiency-in-social-housing/>

has been made to date, with three quarters of the social housing stock already meeting the EESSH in 2016/17. A variety of funding sources are available to landlords to help them attain the EESSH, although the majority of investment has been from landlords' own resources (roughly 80%).⁶

1.4.3 LHEES

The Programme will be a strategic partnership with local government. Throughout its development, including through the period of development of Scotland's Energy Strategy, we have consulted and discussed the design with our partners in COSLA and across local authorities, so that we can jointly build upon the successful components of existing programmes. From the start, in our initial pre-consultation discussions with stakeholders, they identified the importance of strategic planning at local and national levels across the 20 years of the programme and the creation of investor certainty.

Given the need for this strategic planning to take place from the outset, we have already consulted in detail twice during 2017-18 on proposals for Local Heat & Energy Efficiency Strategies (LHEES).⁷ We propose that LHEES would be the foundation on which the Programme is delivered over the twenty-year cycle of the programme. Their purpose would be to:

- Provide the evidence base to guide the programme, locally and nationally over its 20 years. Each local authority would assess its building stock, and identify the potential for improvement of their energy performance and heat supply in order to meet long-term Programme standards. This would allow it to set objectives to deliver this improvement, and estimate the scale of the investment needed to meet this. Looking at all of the LHEES together across Scotland will give a comprehensive picture of the building stock and levels of improvement needed for the whole of the Programme.
- Act as the guiding framework for developing and funding of future investment strategies. The strategic analysis that each local authority undertakes in preparing its LHEES would help it to prioritise and cost local delivery programmes. These would be submitted to the Scottish Government for approval and funding. The LHEES analysis will also help the Scottish Government to design and support national investment programmes (where needed) that can complement local authority activities.
- Provide an investment prospectus for developers and the supply chain in the energy efficiency and heat sectors. The data underpinning each LHEES, and the objectives that they set, would provide valuable market information for investors (from both the private and public sectors) on potential new investment opportunities. The prioritisation and costing of local delivery programmes and national investment programmes would help to give investors and the supply chain certainty to help them plan for long-term delivery.

⁶ <https://beta.gov.scot/publications/energy-efficiency-standard-social-housing-eessh-scottish-government-guidance-social/>

⁷ <http://www.gov.scot/Publications/2017/01/9139>; <http://www.gov.scot/Publications/2017/11/6232>

Given that we envisage that LHEES would be central to informing and shaping the overall delivery of the Programme, we are proposing that there should be a statutory duty on local authorities to prepare and deliver them. We recognise that there are resource implications for this and that additional support may be required.

We have therefore consulted twice during 2017 and 2018 on the purpose, scope, and content of LHEES, and on the powers and resources needed to deliver them. In parallel, we have been working with COSLA and with 12 local authorities to pilot the preparation of LHEES. This is allowing us to understand the processes of data gathering, objective-setting, and design and prioritisation of local delivery programmes. The pilots are testing different methodologies and providing evidence on the resources needed to prepare LHEES.

We are now committing to providing support to all remaining local authorities in Scotland over the next two years, to pilot development of LHEES in their areas as part of the Programme Transition Programme. During 2018 we will also establish a working group with COSLA and representative local authorities to develop and agree guidance and supporting materials for LHEES, in preparation for roll-out of the Programme from 2020, and in advance of any proposed statutory duty.

We are considering the evidence from the second consultation alongside the ongoing findings from the pilots. Following conclusion of the consultation accompanying the Energy Efficient Scotland Routemap, we will consider the overall need for legislation, in the light of responses to this and to the earlier LHEES and district heating consultation, before setting out our final position.

1.4.4 District Heating

In parallel to consulting on LHEES, we have consulted twice during 2017 and 2018 on the potential for regulation of district heating. We consulted on the creation of a regulatory framework that would provide confidence for investors and would ensure protection for district heating consumers. We also proposed that the public sector could take a leading role in the development of district heating where LHEES identified it was appropriate to do so. Further development of district heating could play an important role in helping local authorities meet their objectives set out in their LHEES for the Programme.

We are considering the evidence from this consultation. Following conclusion of the consultation accompanying the Routemap, we will consider the overall need for legislation, in the light of responses to this and to the earlier LHEES and district heating consultation, before setting out our final position.

1.5 Rationale for Government intervention

This section considers why the presence of market failure means that government intervention can help improve the functioning of the domestic sector with respect to energy efficiency upgrades and reducing greenhouse gas emissions, with potential benefits not only for householders, but also wider society. Many of these factors apply to the non-domestic sector as well, although considerations relating to that sector will be set out in more detail as regulations are developed.

The first type of arguments consider various forms of market failure which mean that energy efficiency upgrades may not be installed even when the net benefit to the householder is positive. The second type of arguments broaden the discussion to consider why market failures relating to wider factors such as greenhouse gas emissions and health mean that upgrades whose social net benefit is positive may not be installed. Distributional issues, i.e. the impact on the less well-off in society, further strengthen these arguments.

1.5.1 Imperfect information

The market in energy efficiency measures in the domestic sector may be hampered by imperfect information about the benefits of installing measures. To some extent, these can be mitigated by the availability of standardised reports such as EPCs. However, the savings from an upgrade also depend on the way that a given household uses fuel and ventilates a particular property: the energy savings in the same dwelling will vary depending on how many people are in the household, how long they spend in the house, which rooms they prefer to heat and to what temperatures, their perceptions, preferences and expectations about warmth and comfort, how well they monitor and manage their energy use, etc. Thus, apart from the issue of whether households are able to understand EPC reports so that they take the EPC rating into account when deciding whether to undertake improvements, there is the further issue that it may not be easy for them to know on the basis of an EPC – which uses standardised occupancy and use assumptions – what their actual fuel bill will be.

1.5.2 Failures of rationality

Empirical evidence suggests that people can have particular difficulties when weighing up the impact of factors which are spread over time. The costs of energy-efficiency upgrades are usually incurred upfront, while the benefits are spread over potentially quite long periods of time.⁸ Adding to the complexity of assessing the benefits is that savings can vary significantly over time, due to the strong seasonal pattern of fuel use, as well as future trends in fuel prices.

1.5.3 Economies in the installing market

The introduction of regulation can help guarantee minimum levels of demand for energy efficiency upgrades. This can give installers confidence to invest in equipment and training to meet the demand, and a larger market may also provide efficiencies through economies of scale and learning-by-doing effects.

1.5.4 Securing permission from multiple owners

The introduction of regulations in the domestic sector may also make it easier to obtain agreement for the installation of energy efficiency measures which affect communal elements, where the approval of more than one occupier is required. In particular, the proposal of a long-term standard that all domestic dwellings reach an EPC of at least C will help to secure permission from owners who are in different tenures.

⁸ For example, the lifetime of cavity wall insulation can be over 40 years.

1.5.5 Greenhouse gas emissions

The case for regulation is strengthened by taking into account the costs imposed on society from the greenhouse gas emissions produced by fuel use. Since the costs to society from climate change caused by greenhouse gas emissions are not fully reflected in the price of carbon-intensive fuels, the benefits to society from energy efficiency upgrades and switching to low-carbon fuels are even larger than the benefits to occupants from lower fuel bills.⁹

Furthermore, even for dwellings where due to their particular characteristics the net private payoff from upgrades may be marginal or even negative, from a social point of view the upgrades required by regulation can still have a positive payoff once the benefits from reduced emissions are taken into account. The analysis undertaken for the Climate Change Plan indicates that conservation and renewable measures in the domestic sector form part of the least-cost path to society for achieving the greenhouse gas-emissions reductions required by legislation.

1.5.6 Distributional impacts

Since the amount of energy consumed is a relatively fixed component of households' monthly spend, expenditure on energy bills typically consumes a greater percentage of income for lower-income households than for higher-income households. This can result in these households facing a trade-off between paying for adequately heating their homes and spending on other basic goods and services. By increasing the energy efficiency of homes and reducing fuel bills, regulation can help improve the well-being of some of the more vulnerable households in Scotland.

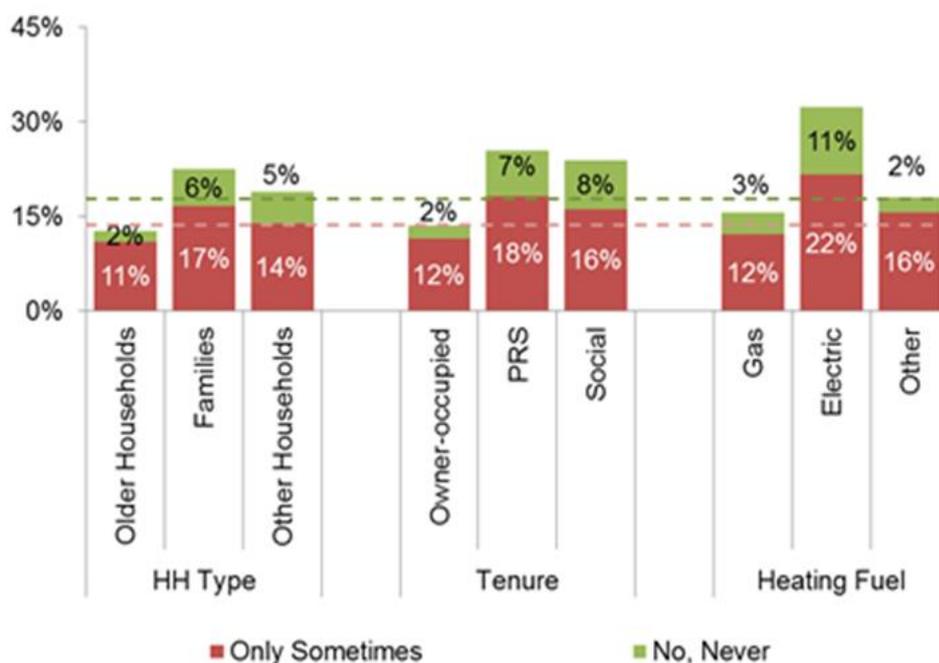
1.5.7 Health and wellbeing impacts

Nearly a fifth of households find that their heating keeps them warm in winter only sometimes (14%) or never (4%), although this is a reduction of 5 percentage points from 2015.¹⁰ Fuel poor households are more likely to have difficulties staying warm in winter and to report affordability problems: 23% of fuel poor say that their heating keeps them warm in winter "only sometimes" (16%) or "never" (6%), compared to 16% of all other households. Figure 3 provides other breakdowns for those reporting difficulties in staying warm.

⁹ In the economics literature, this is referred to as a negative externality, which is a type of market failure which arises when there are costs to society which are not reflected in a market transaction.

¹⁰ Figure 25, Scottish House Condition Survey, 2016.

Figure 3. “Does Your Heating Keep You Warm Enough in the Winter?” by Household Type, Tenure and Primary Heating Fuel



Source: Scottish Housing Condition Survey, 2016

Living in these low indoor temperatures may pose a risk to health due to the range of negative morbidity and mortality impacts associated with exposure to cold and damp conditions. The 2011 Marmot Review Team report,¹¹ the 2012 Hills Fuel Poverty Review¹² and the 2013 Cochrane Systematic Review¹³ set out the strong body of evidence linking low indoor temperatures to these poor health outcomes, particularly for those most vulnerable to the effects i.e. young children, the elderly, and people with physical and mental-health conditions.

The Scottish Government recently commissioned an evidence review from Aether covering the potential wider impacts of climate-change mitigation in the built environment, published in January 2017.¹⁴ The review highlighted the impact which a range of building-fabric improvements can have upon the health of residents of the building. Notably, studies have found that “improvements in insulation can result in direct effects on winter mortality and potentially morbidity as well as indirect effects e.g. through reductions in mould growth (Wilkinson, 2009¹⁵). In order to obtain the health benefits from energy efficiency upgrades, the measures must be installed,

¹¹ Marmot Review Team (2011). “The Health Impacts of Cold Homes and Fuel Poverty”. Available at: <http://www.instituteofhealthequity.org/projects/the-health-impacts-of-cold-homes-and-fuel-poverty>

¹² Hills (2012). “Getting the measures of fuel poverty, Final Report of the Fuel Poverty Review”. Available at: <https://www.gov.uk/government/publications/final-report-of-the-fuel-poverty-review>

¹³ Cochrane Systematic Review (2013). Available at: <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008657.pub2/abstract>

¹⁴ “Evidence Review of the Potential Wider Impacts of Climate change Mitigation Options: Built Environment Sector”, available at <http://www.gov.scot/Publications/2017/01/3358>

¹⁵ “Public health benefits of strategies to reduce greenhouse-gas emissions: household energy”, available at [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(09\)61713-X/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)61713-X/abstract)

operated, and maintained correctly, e.g. to avoid issues such as mould growth arising due to insufficient ventilation when insulation is applied.

In addition to physical-health benefits, the evidence review by Aether highlighted research showing that fabric improvements to improve energy efficiency can offer a range of mental-health benefits. These mental-health benefits are often related to reduced stress from a lower fuel bills as a result of increased energy efficiency. Studies show that improved housing conditions can also increase wellbeing, for example with regards to increased satisfaction with the home and reduced social isolation.¹⁶

These potential health and wellbeing benefits, both physical and mental, further support the case for regulation, since imperfect information and failures of rationality are particularly likely to apply to a household's ability to assess these long-run health impacts. Health impacts also strengthen the arguments based on distributional impacts because they are most likely to be significant for vulnerable households. Finally, the costs to society resulting from greater demand for public-sector services such as the NHS are analogous to the types of costs to society from greenhouse gas emissions.

2. Consultation

2.1 Within Government

The following Scottish Government and government agencies were consulted in the development of the proposals:

- Historic Environment Scotland – Discussions on how minimum standards of energy efficiency might affect traditional buildings.
- Building Standards Division – Input to modelling and technical discussions, discussions on EPCs and registers, and comparisons with non-domestic regulations.
- Legal services – Discussions and advice on legislation, scope of the legislative powers.
- Registers of Scotland – Landlord registers and access for local authorities to these.
- Civil Law and Legal System Division – Discussions on the role of tribunals.

¹⁶ See for example Grey, C. N. B., Jiang, S., Nascimento, C., Rodgers, S. E., Johnson, R., Lyons, R. A., & Poortinga, W. (2017), "The short-term health and psychosocial impacts of domestic energy efficiency investments in low-income areas: a controlled before and after study." BMC Public Health. <https://doi.org/10.1186/s12889-017-4075-4>; and Willand, N., Ridley, I., & Maller, C. (2015), "Towards explaining the health impacts of residential energy efficiency interventions - A realist review." Part 1: Pathways. Social Science and Medicine, (133) 191-201. <https://doi.org/10.1016/j.socscimed.2015.02.005>

- Better Homes Division – Discussions with the Housing Services Policy Unit on the implementation of the proposals for regulations and policy supporting the Private Housing (Tenancies) (Scotland) Act 2016.
- A range of policy areas including Social Housing, Building Standards, Energy and Climate Change Directorate, Historic Environment Scotland, the Scottish Housing Regulator and Analytical Services, helped steer development of EESSH2.

2.2 Public Consultation

In the autumn of 2016 the Scottish Government undertook a period of pre-consultation scoping work on scenarios for the whole programme. In addition to this activity, the following consultations have fed into the development of the current work:

- Scotland’s Energy Efficiency Programme¹⁷
- Scottish Energy Strategy: The Future of Energy in Scotland¹⁸
- Consultation on Local Heat & Energy Efficiency Strategies, and Regulation of District Heating¹⁹
- Energy efficiency and condition standards in private rented housing²⁰
- Fuel Poverty Strategy Consultation²¹
- Second Consultation on Local Heat & Energy Efficiency Strategies, and Regulation of District and Communal Heating²²
- The Energy Efficiency Standard for Social Housing (EESH) Consultation in 2014, in which the current EESH review was proposed.

2.3 Business and stakeholders

Work to date has been informed by extensive engagement with stakeholders. The following have played pivotal roles throughout:

- Local Authorities
- Registered Social Landlords (RSLs)
- Historic Environment Scotland (HES)

¹⁷ <https://consult.gov.scot/energy-and-climate-change-directorate/scotlands-energy-efficiency-programme/>

¹⁸ <http://www.gov.scot/Publications/2017/12/5661/downloads>

¹⁹ <http://www.gov.scot/Publications/2017/01/9139>

²⁰ <http://www.gov.scot/Publications/2017/04/2510>

²¹ <http://www.gov.scot/Publications/2017/11/6179>

²² <http://www.gov.scot/Publications/2017/11/6232>

- the Scottish Federation of Housing Associations (SFHA)
- the Glasgow and West of Scotland Forum of Housing Associations (GWSF)
- the Convention of Scottish Local Authorities (CoSLA)
- Scotland's Energy Efficiency Programme Partnership Forum (Energy Skills Partnership, COSLA, SOLACE, Scottish Futures Trust, Scottish Enterprise, Highlands and Islands Enterprise)
- Scottish Association of Landlords
- Scottish Land and Estates

In addition, various businesses and stakeholders responded to the consultations.

2.3.1 Long-term domestic standard

We have consulted widely on Energy Efficient Scotland programme development including:

- Pre-consultation stakeholder workshops which considered the framework of standards and regulation needed to deliver out objectives. This was attended by a number of stakeholders representing a variety of interests including landlords, the energy efficiency industry, consumer interest groups, etc.
- The Scotland's Energy Efficiency Programme consultation (2017), which supported development of the Scottish Government Energy Strategy included further stakeholder workshops which sought further views on the framework of standards and objectives. This received over 100 responses and has informed the development of the proposed long-term domestic standard.

2.3.2 EESSH2

When EESSH was introduced in 2014, the Scottish Government committed to undertaking a review with social landlords in 2017 to assess progress towards the 2020 target and to consider future milestones beyond 2020. In March 2017, the EESSH Review Group was established. The group is chaired by the Scottish Government, and comprises some members of the first EESSH stakeholder working group as well as additional members. Representatives of the social landlord sector are drawn both from individual social landlords (local authorities and Registered Social Landlords) as well as social landlord representative bodies, such as the Convention of Scottish Local Authorities (CoSLA), the Scottish Federation of Housing Associations (SFHA), and the Glasgow and West of Scotland Forum of Housing Associations (GWSF). Other stakeholders represented on the group are Historic Environment Scotland, the Energy Saving Trust and the Scottish Housing Regulator. The group has met on six occasions and will meet for the final time following the conclusion of the EESSH2 consultation.

The Review was conducted in two phases. Phase 1 assessed progress towards the 2020 target and completed its role in October 2017 with the production of the

updated *Scottish Government EESSH Guidance for Social Landlords*. Phase 2 considered milestones and activity post-2020 and informed proposals contained in the EESSH2 consultation. Following conclusion of the EESSH2 consultation and confirmation of its outcomes, the EESSH Review will be completed and finalised.

2.3.3 LHEES and District Heating

Work to date around LHEES and the Regulation of District Heating has been informed by extensive engagement with stakeholders. A particularly pivotal role in the development of the proposals was played by:

- The Special Working Group of the Scottish Government's Expert Commission on District Heating ('the Expert Commission's SWG'), who in June 2016, made recommendations on the role that regulation could play in supporting the Scottish Government's vision and ambition for district heating in Scotland. While the Expert Commission's SWG's members contributed their expertise and knowledge as individuals, and their views should not be taken as necessarily representing the views of their employers, the group involved executive members of stakeholder organisations such as the Energy Saving Trust in Scotland; WWF; local authorities; Citizens Advice Bureau; Association for Decentralised Energy; Scottish Power; Ignis Biomass; and University of Edinburgh among others.
- The Short Life Working Group on Heat Regulation ('the Working Group') was established by the Minister for Business, Innovation & Energy in September 2016 and advised on potential regulatory scenarios for district heating and for the introduction of LHEES under Scotland's Energy Efficiency Programme, now Energy Efficient Scotland. This group, comprised of stakeholders representing a variety of interests from local authorities to industry and business to consumer groups, informed, across a series of workshops, the initial high level policy scoping consultation published in January 2018. The Scottish Government then commissioned an independent analysis of the responses and, using that analysis of the views and evidence provided by stakeholders, the Working Group further supported and encouraged the Scottish Government to develop policy proposals using the full extent of its powers. These proposals were set out in the 'Second Consultation on Local Heat & Energy Efficiency Strategies, and Regulation of District and Communal Heating' which included specific impact-focused questions.
- A programme of full-day workshop events around the country during both the first and second LHEES & regulation of district heating consultations, all of which featured presentations on the detailed proposals from Scottish Government officials; presentations on the proposals and potential impact from experts representing key stakeholders (with consumer and industry perspective provided by among others, the Association for Decentralised Energy; the Heat Trust; Aberdeen Heat and Power; Citizens Advice Scotland; and various Local Authorities); and focussed group discussion from which the views gathered were collated to further augment the independent analysis of consultation responses.

2.4 Future Consultation

Work ongoing will involve further consultation. A 12-week period of public consultations, launching on 2nd May 2018, will involve a series of stakeholder consultation events and bilaterals with stakeholders where required.

The consultation will further inform the development of the Energy Efficient Scotland and routemap through asking for views on:

- The long-term domestic standard
- The phasing in of the standard across the different domestic sectors to mirror the different starting levels of energy efficiency
- Higher targets for fuel poor households
- The role of the EPC Assessment in identifying what technically feasible and cost effective measures will be needed to bring a home up to the desired energy efficiency level
- The potential legislative provision to support Energy Efficient Scotland

The consultation will be presented and discussed through a programme of Ministerial and stakeholder events, bilateral meetings with active lobbying and consumer groups as well as existing industry meetings and conferences so as to answer questions and encourage as wider a participation as is possible for consultation responses.

The key messages will also be disseminated through articles in sector publications such as the Housing Scotland Digital Magazine.

Regarding ESSH2, the “Consultation on the Energy Efficiency Standard for Social Housing post-2020 (ESSH2)” invites all interested parties to consider the proposals within the Consultation document and welcomes engagement across the social rented sector and beyond. Formal responses will be analysed and used as part of the decision-making process. Responders’ thoughts and opinions will be taken into account as longer-term energy efficiency rating targets are set for the social rented sector.

To enable wide discussion and consideration of the proposals contained within the ESSH2 consultation, a number of events will be arranged to give stakeholders the opportunity to discuss the detail with their counterparts and with Scottish Government officials.

3. Options appraisal

This section of the partial BRIA presents the impact of the policy proposals within the consultations, and compares the ‘business-as-usual’ option with others.

3.1 Qualitative assessment

A qualitative assessment was first undertaken for each option proposed within the three consultation areas, by scoring the strength of each proposed option against key success criteria

Critical success factor	Description
Strategic fit and economic growth	Supports Scottish Government objectives to: <ul style="list-style-type: none"> - meet Climate Change targets - promote and support growth and development of the Scottish economy in a controlled and sustained manner.
Deliverability and quality	Delivers in a way which: <ul style="list-style-type: none"> - matches the supply chain's ability to deliver the required technologies and works to a set standard and by an appropriately skilled workforce - makes an improvement to Scotland's built estate to a defined level of quality, and provides protection for the consumer.
Affordability and Value for money	Allows a range of finance options to be used and has the potential to attract significant levels of private sector capital. Realises value for money for Scottish Government
Fuel Poverty reduction	Promotes achievement of fuel poverty reduction targets through the programme life.
Environmental success factor	Description
Population and Human health	Work to eradicate fuel poverty Work to reduce greenhouse gas emissions which are harmful to human health Reduce other environmental impacts which are harmful to human health
Climatic Factors	Contribute to formal targets to reduce greenhouse gas emissions across Scotland
Environment	Protect and where appropriate enhance Scotland's diversity of biodiversity, cultural heritage, and our most scenic areas and promote sustainable use/reuse of material assets to support sustainable development, reduce greenhouse gas emissions and make best use of resources

This assessment allowed a 'proposed way forward' to be identified in each area, which formed the basis of the proposals set out in the consultation documents.

3.1.1 Long-term domestic standards including ESSH2

The findings of the consultation in January 2017 on Scotland's Energy Efficiency Programme supported the setting of any long-term standard, applicable to all domestic buildings in Scotland. Responders were keen that this provide clarity and the direction and speed of travel. Taking this and experience from work already undertaken on social housing, the consideration of alternatives has been undertaken against a set of key delivery options.

Table 2. Options for Long-term Domestic Standard

	How			When	
	Business as Usual (Promote behavioural change/No regulation)	Regulation	A blend of regulatory, economic and behavioural change initiatives	Big Bang Delivery	Phased sectoral delivery
	Provide information on energy efficiency / use to consumers to promote behavioural change	New regulatory intervention focused on meeting climate change targets	A blend that combines behavioural, economic and regulatory options	Standard set immediately and delivered in a short timescale (next 10 years)	Standard is delivered over a phased timescale out to 2040
Strategic fit and economic growth	x	x	✓✓	✓	✓
Deliverability and quality	x	✓	✓✓	x	✓✓
Affordability and Value for money	✓✓	x	✓✓	x	✓✓
Fuel Poverty reduction	x	x	✓✓	✓✓	✓✓
Population and Human health	✓	✓	✓✓	✓✓	✓
Climatic Factors	x	✓✓	✓✓	✓✓	✓✓
Environment	✓	✓	✓	x	✓
Conclusion	Discount	Discount	Proposed way forward	Discount	Proposed way forward

The 'How' options relate to ways in which the standard are delivered. Behavioural or regulatory change as standalone options will fail to meet all the key delivery criteria. Neither take into account economic growth or fuel poverty reduction, while behavioural change fails to deal with the deliverability of the supply chain quality assurance or climatic factors, and will not deliver change at the required pace without significant positive incentives being made available. Regulatory intervention

focused on meeting climate-change targets directly contributes to environmental, climatic, human health and deliverability factors; however, it will not impact directly upon value for money, and may not adequately target those living in fuel poor households, as the greatest carbon savings can often be found in homes that are not fuel poor.

A blend of regulatory, economic and behavioural change initiatives alongside a phased sectoral delivery will realise all the key delivery criteria. Therefore, this is the proposed way forward.

The 'When' options relate to the timescale over which the long-term domestic standard is delivered. The 'Big Bang' Delivery scores worse on deliverability and quality assurance as the supply chain and the framework which will train, monitor and assess their output will not be able to successfully achieve the long-term standard across the entire domestic sector within 10 years, without undermining quality.

A phased timescale for the owner occupier, private rented and social rented sectors will provide confidence in the supply chain, allow steady growth of suppliers and promote affordability and value for money as new technology becomes more widespread and therefore reduces in price. It also recognises the different relative starting positions of the tenures.

3.1.2 LHEES and District Heating

In the consideration of a national roll-out of Local Heat & Energy Efficiency Strategies (LHEES), under the control of local authorities, recent consultation (during 2017 and 2018) has provided direction on the consideration of alternatives. This has also been combined with experience taken from the LHEES pilots which have been undertaken during 2017 and 2018 and which are on-going. Further, recent consultation on the implementation of a regulatory system for district heating during 2017 and 2018 has also provided information to allow the consideration of alternatives.

Final decisions on our preferred approach to LHEES and district heating regulation have not yet been taken, and will form part of the Scottish Government's wider response on potential legislative provision, following the related consultation accompanying the Routemap.

Table 3. Options for Local Heat and Energy Efficiency Strategies

	Business as Usual (Non-statutory LHEES)	Statutory LHEES	National Programme – no LHEES
	Local authorities are free to develop LHEES as they see fit, following non-statutory guidance issued by Scottish Government, or using existing powers such as for housing and planning.	Local authorities have a statutory duty to develop and deliver an LHEES, as set out in legislation and statutory guidance	Heat and Energy Efficiency Strategy is developed nationally and delivered by the Scottish Government or national delivery mechanisms
Strategic fit and economic growth	x	✓	✓
Deliverability and quality	✓	✓✓	x
Affordability and Value for money	✓	✓	✓
Fuel Poverty reduction	✓	✓✓	✓
Population and Human health	✓✓	✓✓	✓✓
Climatic Factors	✓✓	✓✓	✓✓
Environment	✓	✓	✓
Conclusion	Discount	Proposed way forward	Discount

As regards LHEES, our proposals around the strategic analysis each local authority would undertake in preparing its LHEES would help it to prioritise and cost local delivery programmes and so accordingly, while the proposals in the first instance would be a duty that falls to local authorities, groups including housebuilders, businesses and contractors at all levels of the local skills and supply chain and low-carbon economy would all be affected.

LHEES will give a collective vision and comprehensive picture of the building stock nationally. This will ensure the Scottish Government has an accurate picture of the levels of improvement needed for the whole of the Programme. We note the options described above could have varying potential impacts on the phasing and overall timescales for implementation across the 20-year span of the Programme.

In terms of the benefits of the various options, while they will all provide some level of improvement over the 'Business as Usual' option, it would be reasonable to assume that the difference between LHEES being non-statutory as opposed to statutory will have an impact in terms of how the Scottish Government takes measures towards ensuring consistency nationally across the 20-year span of the Programme.

Regarding the option of a national programme without LHEES – in which a Heat and Energy Efficiency Strategy is developed nationally and delivered by the Scottish Government or national delivery mechanisms – while this would be more beneficial than the Scottish Government taking no additional action (letting the status quo continue), the loss of opportunity to have the standard methodology at the local level that LHEES (statutory or otherwise) would provide, would make it less likely that progress would be as joined-up, evidence-based and consistent so as to best achieve the goals of the overall Programme in the national context.

Table 4. Options for District Heating Regulation

	Business as Usual (No regulation)	Non-statutory guidance and support	Regulation of District Heating	Incentives - Combined Public & Private sector financing
	Leave the implementation of district heating services to the market, supported by research and information	Provide non-statutory guidance and support to local authorities to encourage development of district heating at a local level	New regulatory intervention focused on meeting climate change targets	Public sector funding used to support local authorities to implement LHEES. Public sector financing used to lever in private sector finance to support the growth of DH schemes
Strategic fit and economic growth	✓	✓	✓✓	✓
Deliverability and quality	✗	✗	✓	✓
Affordability and Value for money	✗	✓	✓✓	✓
Fuel Poverty reduction	✗	✗	✓	✗
Population and Human health	✓	✓	✓✓	✓✓
Climatic Factors	✓	✓	✓✓	✓
Environment	✓	✓	✓	✓
Conclusion	Discount	Discount	Proposed way forward	Discount

While our proposals on regulation to encourage the provision of district and communal heating would be expected to affect a similar range of groups as LHEES, the expected and intended increased provision of district heating networks would obviously have a marked effect on district heating providers, and we could expect to see greater impact on social landlords who are receptive to shifts towards district or communal heating. That the regulation could potentially include a licensing regime could also be expected to affect district heating providers; however, it would also

provide benefits by improving consumer protection and guaranteeing minimum standards, which would increase public confidence in the district heating sector and strengthen its overall viability.

In contrast, we would envisage that the option of leaving the implementation of district heating services to the market without any regulation would mean we were losing an opportunity to assist the growth of district heating and have any control over minimum standards and reliability of networks in order to protect consumers.

Under the ‘business as usual’ option, where the Scottish Government continues providing non-statutory guidance and support to local authorities to encourage development of district heating at local level, progress will continue, but likely to be at a slower pace. It would also be less likely that the overall goals of the Programme in terms of reduction of energy demand and carbon would be achieved with district heating playing as great a role.

3.2 Quantitative assessment

For the area where the proposals contained in the consultation have reached a sufficient degree of detail, a quantitative assessment has been undertaken. As such, only policies relating to the long-term domestic standard and EESSH2, which are more developed, particularly in the case of EESSH2, are costed here. Feedback from this consultation on proposals in these areas as well as other areas will help inform any impact assessments which are required in the future as a result of proposals set out in this consultation.

3.2.1 Modelling Methodology

In relation to housing stock, the National Household Model (NHM) has been used to estimate the impact of the proposed regulatory standards in the owner occupier, private rented and social rented sectors. The NHM is a domestic energy-policy modelling and analytical tool, commissioned from the Centre for Sustainable Energy by the UK Government, and also used by the Committee on Climate Change.

The stock information which has been used in the modelling exercise is a three-year combined dataset (2011-2013) of all dwellings surveyed during this period by the Scottish House Condition Survey, which has previously been converted for use in the NHM. Each dwelling record has a sample weight which allows the results for the individual dwellings to be grossed up to represent the overall Scottish housing stock. Assumptions for demolitions and new build were then applied for future years.

The flexibility of the model allows different objective functions to be set for the model to solve. In the modelling work undertaken to inform this consultation, the objective was to meet the relevant EPC rating at the lowest upgrade cost.

Table 5 sets out the measures that were modelled in the NHM for this exercise. This is not exhaustive of all the measures that could be considered; for example, district and community heating was not modelled as the NHM is not designed for spatial analysis. Restrictions were placed on the availability of certain measures to try to account for problems that may arise in practice. For example, only 50% of pre-1919 stone dwellings were assumed to be suitable for wall insulation, and for solar PV, not

only were mid- and ground-floor flats excluded, but in addition it was also assumed that only 50% of top-floor flats and houses which have a roof of at least 30m² also have a suitable pitch and orientation for solar panels.

Table 5. Measures modelled in National Household Model

Insulation and heating efficiency	Renewables
Gas boiler upgrades	Air source heat pumps
Cavity wall insulation	Biomass boilers
Double glazing	Ground source heat pumps
Draught proofing	Solar PV
External wall insulation	Solar thermal
Floor insulation	
Internal wall insulation	
Loft insulation (top-up)	
Low energy lighting	
Secondary glazing	
Storage heater	
Tank insulation	

Given the likelihood that there will be significant technological development over the time period in which it is proposed that the standards should be achieved, which could result in new and improved measures, and reductions in costs of existing measures, the results set out below should be regarded as indicative rather than precise.

3.2.2 Long-term domestic standard in private sector

This section sets out the costs and benefits of the proposed long-term domestic standard that all dwellings should have an EPC of at least C. Since a higher standard is proposed in the social sector (see Section 3.2.3), the costs and benefits set out in this section relate only to the private sector, i.e. the owner occupier and private rented sectors.

Modelling shows that three-quarters of the private sector stock can achieve an EPC of at least C at a total cost of £4.7bn. Higher attainment rates can be achieved by spending more, but in the consultation we propose that properties would only need to be brought up to the standard where it is technically feasible and cost-effective. We will develop our proposals on cost-effectiveness in the light of feedback from this consultation, and we will then be able to revise the costs, benefits and attainment rates given the final form of any exception to meeting the C standard based on cost effectiveness.

Table 6. Costs and benefits of raising dwellings to an EPC C in the private sector

EPC C attainment rate	75%
Total cost	£4.7bn
Average (median) upgrade cost ¹	£3,500
Average (median) fuel bill saving ^{1,2}	£350

Notes:

1. The averages used for upgrade costs and fuel bill savings are medians (i.e. the mid-points). Medians are less affected by extreme values than means, and since we are proposing that upgrades will not have to be installed if they are not cost-effective, the median is a better measure of central tendency than the mean in this context.
2. The benefit relating to a modelled fuel bill saving may be taken either as a money saving through a lower actual fuel bill, or in kind as comfort-taking for those households who were previously underheating their homes and who can now afford to keep them warmer.

3.2.3 EESSH2

Following agreement through the EESSH Review Group, and aligning with our wider ambitions for the Programme, emissions reductions and domestic heat, we are proposing a new EESSH2 milestone by setting a target to maximise the number of social rented homes meeting EPC Band B, by 2032. This will be supported by: an opportunity for review in 2025 (to confirm progress and finalise the detail of future milestones, and which will be able to account of the development of decarbonisation and forthcoming policy announcements on hydrogen from the UKG); and a visionary standard for 2040 to remove poor energy efficiency as a driver for fuel poverty in social housing, and for all social housing to be carbon neutral as far as reasonably practical.

Table 7 sets out the proposed targets for social housing for 2032. Modelling of the impact of EESSH2 was undertaken through the NHM in a similar way to that for the private sector. In addition, a parallel costing exercise was undertaken with volunteer case study landlords. Details of the modelling approach in the case studies are set out in the EESSH2 consultation. The case-study landlords constitute around 12% of the social sector stock, and they were chosen in order to represent a broad range of landlords in terms of the type and location of the stock. The results of the case study landlords were grossed up to express the impact of EESSH2 for the social sector as a whole.

Table 7. EESSH2 targets for 2032 (by fuel and dwelling type)

Dwelling type	Minimum EPC EE Band			
	Gas	Electric	Biomass	Other fuels
Flats	B	B	B	C
Four-in-a-block	B	B	B	C
Houses (other than detached)	B	B	B	C
Detached	C	C	C	C

Table 8 sets out the attainment rates, costs and benefits of meeting EESSH2 in 2032. While the benefits of meeting EESSH2, in terms of fuel bill and energy savings and carbon abatement, were not reported in the case studies, they are available from the NHM modelling.

Table 8. Projected attainment rate, costs and benefits of EESSH2

Case studies grossed up to sector level – attainment rate and cost	
EESSH2 compliance	62%
Total cost	£3.4 billion
National Household Model – attainment rate, costs and benefits	
EESSH2 compliance	49%
Total cost ¹	£3.7 billion
Average (median) upgrade cost ²	£5,400
Total annual fuel bill savings	£110 million
Average (median) annual fuel bill saving ^{2,3}	£160
Total annual energy savings	1.3 TWh
Total annual carbon abatement - including electricity	0.4 MtCO _{2e}
Total annual carbon abatement - excluding electricity	0.2 MtCO _{2e}

Notes:

1. The average cost in the NHM is lower but total cost higher than for the case-study results because the NHM modelling allows for a degree of demolition and new build over the period 2032, while the case-study results were grossed up using the latest (2016) stock figures.
2. The average used for upgrade costs and fuel savings is a median (i.e. the mid-point) to facilitate comparison with results for private sector shown in Table 6. Mean upgrade costs and fuel bill savings are contained in the EESSH2 consultation document.
3. The benefit relating to a modelled fuel bill saving may be taken either as a money saving through a lower actual fuel bill, or in kind as comfort-taking for those households who were previously underheating their homes and who can now afford to keep them warmer.

The results in Table 7 show that, based on the case study results, it is estimated to cost around £3.4bn to achieve just over 60% attainment of EESSH2, as compared to a cost from the NHM modelling of £3.7bn to raise about half of the stock to EESSH2. Given the somewhat different characteristics of the stock in the two modelling exercises, differences in software used, and different modelling approaches, these results can be considered to be broadly similar.

Table 9 breaks down the attainment rates by dwelling type, based on the NHM modelling. The highest attainment rate is for detached houses, for which a minimum EPC rating of C rather than B is proposed. The next highest attainment rate is for non-detached houses. Although these will have to meet a B if their fuel is gas, electricity or biomass, which is the same standard as for flats and 4-in-a-block, their higher attainment rate reflects the fact that they are more suited for solar upgrades, which play a key role in raising dwellings to a B.

Table 9. Projected EESSH2 attainment in 2032 by dwelling type – NHM modelling

Dwelling type	EESSH2 attainment rate
Flats	10%
4-in-a-block	12%
Houses (other than detached)	94%
Detached houses	100%
All house types	49%

4. Scottish Firms Impact Test

4.1 Long-term domestic standard

No face-to-face discussions with business, beyond those mentioned above, on the impact of the long-term domestic standard on Scottish firms have taken place as yet. We have taken into consideration responses from the high-level SEEP consultation in 2017, together with both consultations on LHEES & regulation of district heating regulations, as well as feedback from consumer interest groups such as Citizen's Advice Scotland which has highlighted specific concerns around cold calling, mis-selling, shortcomings in consumer protection and in the expected quality standards of installations in the renewable energy, energy efficiency and district heating sectors. This feedback has led directly to a government focus on assuring quality and skill in the supply chain to protect customers, alongside the development of a framework to monitor and evaluate the delivery of Energy Efficient Scotland at both national and local levels.

A short-life working group is actively looking into Quality Assurance, Consumer Protection, Skills and the Supply Chain. This group will take in representatives from across industry, consumer organisations and enterprise and skills agencies. They will consider (amongst other topics), the current capacity and capability within the supply chain, how to assess and address the barriers that industries, both small and large, face in successfully participating in reaching the long-term domestic standard and how best to promote the opportunities available to SMEs and help ensure that participation is financially viable.

We will be engaging with the relevant bodies and stakeholders on the development of our monitoring and evaluation framework to ensure that it meets a range of needs, including those of Scottish firms.

4.2 EESSH2

Stakeholder engagement was paramount as the proposals set out for EESSH2 were developed. Members of the Review Group, as well as the sub-groups (Level and Measurement, Funding and Costs, Health and Affordable Warmth and Innovation and Technology) established to consider different elements of the proposals, made a significant contribution as proposals were refined.

At the latest Review Group meeting of 19 March, agreement was reached for consultation on EESSH2 based on the proposals and milestones for activity post-2020 as set in the consultation document. Bi-lateral face to face discussions were also conducted with social landlord representative bodies (SFHA, GWSF and CoSLA), and all agreed that the consultation should go ahead on this basis.

4.3 LHEES and District Heating

The face-to-face engagement with business so far has been a combination of workshop activity and bilateral meetings all of which, together with responses from our two consultations, has directly fed into the development of our proposals. This process has been ongoing since 2016 when stakeholders representing a variety of

interests (from local authorities to industry and business to consumer groups) informed the initial high level policy scoping consultation published in January 2017.

They further advised on potential regulatory scenarios for district heating and for the introduction of LHEES. The stakeholders involved in these face-to-face engagements comprised the Short Life Working Group on Heat Regulation. This group further supported and encouraged the Scottish Government to develop the policy proposals set out in the 'Second Consultation on Local Heat & Energy Efficiency Strategies, and Regulation of District and Communal Heating' (November 2017) which included specific impact-focused questions.

A programme of full-day workshop events around the country took place during both the first and second LHEES & regulation of district heating consultations, all of which featured presentations on the detailed proposals from Scottish Government officials; presentations on the proposals and potential impact from experts representing key stakeholders (with consumer and industry perspectives provided by among others, the Association for Decentralised Energy; the Heat Trust; Aberdeen Heat and Power; Citizens Advice Scotland; and various Local Authorities); and focussed group discussion from which the views gathered were collated to further augment the independent analysis of consultation responses.

Stakeholders across the board have engaged constructively throughout the process and at every stage have continued to highlight the significant potential opportunities the proposals around LHEES and district and communal heating offer for job creation, both on a national level across business and in respect of the local skills and supply chain. Furthermore the proposals for a consistent and strategic approach to zoning across local authorities, combined with the innovative functions of LHEES (such as acting as an 'investor prospectus' where local authorities have identified suitable projects) will provide visibility and encourage confidence in the market that will be reflected in investment on both a local and a national level.

5. Competition Assessment

We have applied the following competition filter questions to the various proposals:

- 1) The measure won't directly or indirectly limit the number or range of suppliers
- 2) The measure won't limit the ability of suppliers to compete
- 3) The measure won't limit suppliers' incentives to compete vigorously
- 4) The measure won't limit the choices and information available to consumers

5.1 Long-term domestic standard

Dwelling owners will be responsible for ensuring appropriate energy efficiency measures are undertaken to reach the required standard. Accordingly, dwelling owners will be able to approach both large and small installation businesses to undertake any proposed energy efficiency measures. As such, we do not believe this will limit the ability of suppliers to compete, as they will be operating in an open and transparent market when tendering for these works. Similarly, dwelling owners will

not be restricted by choices or information available to them. As we continue to engage with stakeholders and further develop our policies and proposals, any future detailed assessment and impact evaluation will reconsider the competition questions.

5.2 EESSH2

To meet the requirements of EESSH2, social landlords will be responsible for ensuring the energy efficiency measures are carried out to a high standard by reputable contractors. The related works will go out to tender and a wide range of construction businesses will have the opportunity to bid for work. There is the potential for both large and small to medium sized enterprises to secure contracts for the installation of measures which will be necessary to meet EESSH2. The amount of work and the nature of the work is unlikely to impact on competitiveness of Scottish companies within the UK or elsewhere in Europe.

There is the potential for significant job creation to undertake the retrofitting works, which may assist in developing skills and market in some of the newer technologies such as external and internal wall insulation and renewables. Individual businesses and business representative bodies are invited to respond to this partial Business and Regulatory Impact Assessment; comments received will inform the final assessment.

Accordingly, when applying the competition filter questions set out above, we can confirm that we expect the proposals for EESSH2 to pass all four of these tests.

5.3 LHEES and District Heating

The LHEES and District Heating proposals will not impact on competition as the processes we propose in terms of local authorities gathering information/data through socio-economic assessment, zoning and identifying of potential opportunities for district and communal heating will encourage competition among suppliers, particularly in terms of providing a level of visibility that currently does not exist.

In light of the above, the Competitions and Markets Authority (CMA), in response to our first consultation²³ made a number of recommendations which have been an ongoing consideration in the continued development of our proposals.

The CMA has also informed the Scottish Government within their response to our second consultation²⁴ that in December 2017 they launched a market study into domestic heat networks to review how well the market works with a focus on consumer experience. The specific focus of the CMA study is on the provision of

²³ Link to CMA response to Consultation on Heat & Energy Efficiency Strategies, and Regulation of District Heating: https://consult.gov.scot/energy-and-climate-change-directorate/local-heat-and-energy-efficiency/consultation/view_respondent?b_index=0&uuld=546918900

²⁴ Link to CMA response to Scotland's Energy Efficiency Programme: Second Consultation on Local Heat & Energy Efficiency Strategies, and Regulation of District and Communal Heating: https://consult.gov.scot/energy-and-climate-change-directorate/lhees-and-dhr2/consultation/view_respondent?uuld=896439750

heat networks to domestic consumers. This includes domestic residents of large commercial housing developments and blocks of flats. The scope of the study is UK-wide.

The CMA have informed the Scottish Government that they are examining three key themes, drawing both on the concerns that have been expressed by other institutions, and those that have been addressed directly to the CMA. These themes are:

- a) Transparency of information, both prior to moving into a property and during residency;
- b) Concerns regarding the monopoly supply of heat, the inability of customers to switch and the potential misalignment of the incentives of the builders, operators and customers of heat networks; and
- c) Outcomes for heat network customers, including prices, service quality and reliability.

The CMA are currently engaging with stakeholders across the UK and examining a range of evidence, including survey evidence, data on prices and costs, the operation of the supply chain, contracts and outcomes for customers. The CMA's stakeholder engagement, as well as research and analysis, is ongoing, and while they have stated they are not currently in a position to provide any detailed analysis of the Scottish Government's proposals as regards regulation of district heating, the Scottish Government will continue to engage closely with CMA as we develop our proposals and take into account any recommendations they may make as a result of their market study.

6. Test run of business forms

6.1 Long-term domestic standard

The long-term domestic standard may necessitate the development of new forms for business with respect to properties attaining this standard. Such forms (if needed) will be developed by the ongoing work undertaken by the short-life working group looking into the role of assessment to support the long-term domestic standard. If developed, we commit to test run the forms with those who will be using them to ensure that they are easy to use.

6.2 EESSH2

The Scottish Housing Regulator (SHR) will monitor social landlord compliance with EESSH2, and a risk-based and proportionate approach will be exercised. Generally, data requirements are likely to be in line with what landlords already provide in their annual returns.

6.3 LHEES and District Heating

In terms of the proposals around LHEES and District Heating regulation there is a potential that there could be, tied into any potential licensing regime, a requirement for new forms to be brought in for business. In that eventuality, the Scottish Government commit that, if needed, we will test run the forms with those who will be using them to ensure that they are easy to use.

7. Legal Aid Impact Test

7.1 The test requires the consideration of the following:

- Will the regulations create any new offences/appeals procedures, etc.?
- Do they change the way in how existing offences are disposed of e.g. court or tribunal procedures will be introduced?
- If there is a similar policy in place at the moment, how many court cases currently exist per year in relation to it and what their costs are to defend?

7.2 Long-term domestic standard

Work is ongoing to develop a means of enforcement and until that is concluded we are not in a position to conclude on the likelihood of the creation of a new offence or appeals process, nor on the means of disposal. Further work will be required on this as the proposal moves closer to draft regulation.

7.3 EESSH2

Social landlords are responsible for sourcing materials and planning energy efficiency installations in their tenant's homes, and they must have the co-operation of tenants to proceed with works. If any tenant were unhappy with how this was progressed, they would raise the matter directly with their housing provider (local authority or registered social landlord) and if still dissatisfied would refer the matter to the Scottish Public Services Ombudsman or the Scottish Housing Regulator. We do not foresee any increased access by social tenants to the legal aid fund as a result of the implementation of EESSH2.

7.4 LHEES & District Heating

We do not foresee anything in our proposals at present which would result in any increase in individuals requiring access to the legal aid fund. While there is always the potential for disputes around alleged mis-selling or complaints about poor installation, the measures we propose for a robust licensing regime to ensure minimum standards and maximise consumer protection leads us to envisage no increase in such cases going down a legal route and, in fact, instances of cases going to court may be proportionally reduced as a result of our proposed measures.

8. Enforcement, sanctions and monitoring

8.1 Long-term domestic standard

Work is ongoing on the development of enforcement, sanctions and monitoring of the long-term domestic standard.

We propose that the long-term domestic standard is made mandatory across all tenures over time, subject to a review of progress, and so there will need to be processes in place to monitor and enforce the standard across the sectors. With the proposal that the standard be set with reference to the EPC rating, there is the opportunity to make use of existing EPC processes to prove compliance and monitor improvements to properties over time.

The consultation in the summer of 2017 proposed that local authorities may be the appropriate body for enforcing the minimum standards in the Private Rented Sector, given their existing role in this sector, although it was noted that there would be resource implications to this. Future consultation on the detail of how mandatory action would work in the owner occupier sector will include proposals on where responsibility for enforcement would sit. The position in the social sector is discussed below.

8.2 EESSH2

Enforcing and monitoring EESSH2 will fall to the Scottish Housing Regulator (SHR), the independent regulator of social landlords in Scotland. Generally, data requirements are likely to be in line with what landlords already provide in their annual returns. A risk-based and proportionate approach will be exercised and the SHR will use the data submitted by landlords to assess risk and decide on any regulatory engagement.

8.3 LHEES & District Heating

In the context of our proposals for LHEES and regulation of district and communal heating, and based upon the analysis of stakeholder views so far, we currently see the development of enforcement, sanctions and monitoring to sit within our proposals around licencing and concessions and consents.

We have proposed that licences could be issued and monitored nationally, in line with regulatory provisions which would be set out by the Scottish Ministers. The national licensing function could be exercised by an existing body, or as part of a wider national governance framework for the Programme.

We intend to continue to explore (initially through the analysis of the responses to our second consultation on LHEES and the regulation of district heating) the precise purpose of any national licensing body. This may for example include being an economic regulator, acting in the interest of customers, and potential customers, reducing emissions and fuel poverty objectives.

Also, in order to further strengthen local authorities' existing powers, within and beyond the planning system, and to encourage local authorities to also use their existing powers to procure concessions or award contracts for district heating, we are proposing to introduce a new district heating consent system, which would be managed and enforced by the local authority. Local authorities would be given a new statutory power to award this consent, subject to the applicant meeting certain requirements set by the Scottish Ministers. This would ensure that district heating development was subject to a similar consenting regime as that for other energy utilities, such as under the Electricity Act 1989 consents process, though with different requirements and thresholds.

The Scottish Ministers would develop national guidance for applicants seeking district heating consent and for local authorities who would be responsible for assessing applications and issuing consents. This guidance would include expected timescales for decisions, and may also include thresholds to which the consenting regime applied and details of any appeals process which might be appropriate.

As regards sanctions, we envisage that licences would be issued by a national body, with conditions to ensure that the licence holder reports appropriately and their sites meet national standards and any other appropriate performance standards (including, if necessary, penalties for non-compliance). In the event of significant breach of licence conditions the regulator would ultimately have the power to revoke the licence, as is the case with other utilities.

9. Implementation and delivery plan

9.1 Long-term domestic standard

We propose that the long-term domestic standard will be implemented in a phased way due to the differences in starting points across the domestic sectors. It is expected that all domestic properties in Scotland will attain the long-term domestic standard, where technically feasible and cost effective, by 2040 at the latest. Work is ongoing to identify potential buildings which may be exempt from this standard, for example, listed buildings, for which, in isolated cases, the need to preserve our architectural heritage may supersede energy efficiency targets.

We are undertaking a review of whether legislation is fit for purpose with respect to the long-term domestic standard and have requested stakeholder comments on this issue in the consultation on Energy Efficient Scotland.

Further detailed plans for implementation in each sector will be set out, where they have not already been, and will be subject to consultation.

9.2 EESSH2

A further review of EESSH is intended for 2025 to (i) assess progress and confirm any additional requirements of the 2032 milestone and (ii) consider a longer-term vision for 2040 of how social housing can contribute to realising our fuel poverty, energy efficiency and climate change ambitions.

9.3 LHEES and District Heating

We propose that the implementation of LHEES will be phased across local authorities over a timescale yet to be determined and dependent on other potential legislative factors.

As LHEES will underpin and provide the evidence base for how the Programme is delivered locally and nationally over its 20 years, acting as the guiding framework for developing and funding of future investment strategies, we would envisage a steady and measured area-by-area implementation to allow for careful monitoring of progress against local and national aims.

This approach will ensure, in terms of implementation that, as well as encouraging the conditions for district heating and ultimately meeting long-term Programme standards, local authorities will be able to set objectives for delivery based on the scale of investment required following assessment of its building stock and the potential for improvement of energy performance and heat supply, prioritising local delivery programmes and supply chain.

The strategic analysis that each local authority undertakes in preparing its LHEES will help it to prioritise and cost local delivery programmes, and a measured approach to delivery will ensure consistency and that, collectively, LHEES will give a comprehensive picture of the building stock needed to ensure the Scottish Government has an accurate picture of the levels of improvement needed for the whole of the Programme.

We are currently reviewing the second consultation responses and engagement with stakeholders to take a final decision on our approach, including whether legislation will be needed. If legislation is needed for LHEES and district heating regulation, we would commit to review within ten years of implementation.

10. Summary and recommendation

10.1 Long-term domestic standard

Modelling shows that three-quarters of the private sector stock can achieve an EPC of at least C at a total cost of £4.7bn. Higher attainment rates can be achieved by spending more, but we propose that properties would only need to be brought up to the standard where it is technically feasible and cost-effective. We will develop our proposals on cost-effectiveness in the light of feedback from this consultation, and we will then be able to revise the costs, benefits and attainment rates given the final form of any exception to regulations based on cost effectiveness.

Table 10. Costs and benefits of raising dwellings to an EPC C in the private sector

Total cost	£4.7bn
Average (median) upgrade cost	£3,500
Average (median) annual fuel bill saving	£350

10.2 EESSH2

We propose that a higher standard be set for the social sector, in particular that social landlords are required to maximise attainment of an EPC B by 2032. This is estimated to have the following costs and benefits:

Table 11. Costs and benefits of meeting EESSH2 in the social sector

Total upgrade cost	£3.4 - £3.7 billion
Average (median) upgrade cost	£5,400
Total annual fuel bill savings	£110 million
Average (median) annual fuel bill saving	£160
Total annual energy savings	1.3 TWh
Total annual carbon abatement - including electricity	0.4 MtCO ₂ e
Total annual carbon abatement - excluding electricity	0.2 MtCO ₂ e

10.3 LHEES and District Heating

Proposals for these are still being developed, and the current consultation does not put forward specific proposals for regulation. Costs and benefits will be assessed as and when the specific form of any proposed regulations is finalised.

10.4 Climate change benefits of Energy Efficient Scotland

The various programmes which fall under Energy Efficient Scotland will make a key contribution to the built environment targets set over the period of the Climate Change Plan (2018 – 2032). In the domestic sector, they will deliver the reduction in heat demand of 15% by 2032, which will in turn contribute to reducing emissions from the domestic sector by 23% over the same period.

With respect to the non-domestic sector, as there are no regulatory proposals set out in this consultation, it is not within the scope of this BRIA. As regulatory proposals for this sector are developed, a separate BRIA will be prepared and issued.

11. Declaration and publication

I have read the Business and Regulatory Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options. I am satisfied that business impact has been assessed with the support of businesses in Scotland.

A handwritten signature in black ink, appearing to read 'Kevin Stewart'.

Kevin Stewart MSP
Minister for Local Government
and Housing

Date:

A handwritten signature in black ink, appearing to read 'Paul Wheelhouse'.

Paul Wheelhouse MSP
Minister for Business, Innovation
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