

The Estimated Costs of Improving the Energy Efficiency of Scotland's homes

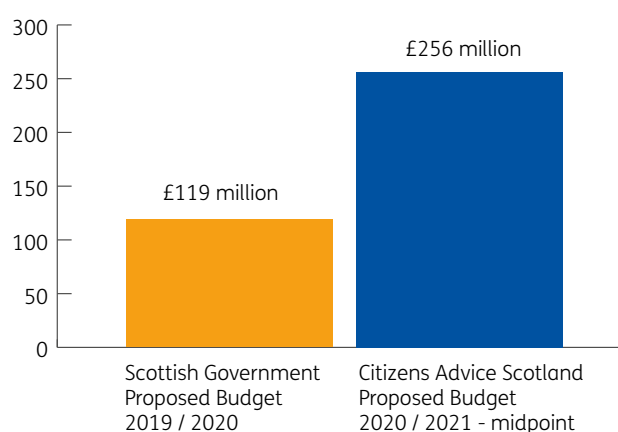
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Executive summary

- > This briefing paper outlines the scale of the challenge to improve the energy performance of Scotland's housing stock. It presents CAS' estimate of how much it will cost to raise the energy performance of all homes in Scotland to at least an EPC C by 2040 (EPC B for social sector homes) in line with the Scottish Government's target under Energy Efficient Scotland (EES)¹.
- > Irrespective of who pays, we estimate that the total investment required to bring the energy performance of homes in Scotland up to at least EPC C in the 20 years to 2040 is in the region of £11.1 billion². This is in contrast with the Scottish Government's cost estimate of £8 billion for domestic properties³. Our estimate would amount to £555 million per year⁴.
- > We believe that the Scottish Government contribution towards this cost of £555million per year should be at least **£256million** in 2020/21 and remain at a similar level for every year of the programme. This represents a doubling of the current annual EES budget of £119 million.
- > We call on MSPs to demand this uplift in the upcoming Budget Review for 2020/21.
- > We believe that this funding increase is justified in order to meet the EES target, as well as the fuel poverty target. It is important to note however, that upgrading all homes to EPC C by 2040 will not achieve the net zero carbon target by 2045 on its own. Significantly more action will be required to increase the uptake of low carbon heating systems in order to reach net zero by 2045, and to support non-domestic buildings.
- > The EES programme also presents an opportunity to ramp-up investment now, to pump-prime the market and commence a national public education campaign to raise citizens' awareness of energy efficiency. The figure of **£256million** includes provision for these activities, as well as investment in consumer protection. For scale, this estimate represents only 0.3% of Scottish public sector expenditure last year⁵.
- > There are significant social and economic benefits of upgrading the energy efficiency of homes, including preventing ill health and premature death from cold homes, leading to savings for health services, and also reduced energy bills for consumers⁶.
- > CAS is a member of the Existing Homes Alliance Scotland (ExHAS). This paper is intended to complement the Alliance's Pathway to Zero Carbon Homes by 2045⁷ report which sets out a route-map to achieving net zero in the housing sector by 2045, and its corresponding budget paper.

Proposed Annual Budget Totals



¹ www.gov.scot/publications/energy-efficient-scotland-route-map/

² The Scottish Government caveats that this target depends on cost-effectiveness and technical feasibility, however these terms have not yet been defined. www.gov.scot/publications/energy-efficient-scotland-route-map/.

³ www.gov.scot/publications/energy-efficient-scotland-consultation-making-homes-buildings-warmer-greener-more/pages/3/

⁴ 'While our methodology is limited by the data and modelling tools we have access to, we have compared our results for the stage to EPC C in the owner occupier with the cost estimates published by the Scottish Government, which were produced using a SAP-based modelling approach, and the results are broadly similar.'

⁵ www.gov.scot/news/government-expenditure-revenue-scotland-2018-19/

⁶ Marmot Review Team (2011); The Health Impacts of Cold Homes and Fuel Poverty

⁷ Pathway to Zero Carbon Homes by 2045 http://existinghomesalliancescotland.co.uk/wp-content/uploads/2019/09/Pathway-to-zero-carbon-homes_EXHA_Sept2019.pdf

The Challenge

- > Heating in domestic housing sector accounts for 13% of Scotland's carbon emissions⁸. The challenge to decarbonise heat over the next 25 years in order to reach the net zero carbon target by 2045 is huge given that only 2.8% of Scottish households currently have low carbon heating installed⁹ and 79% rely on natural gas heating.
- > This is coupled with the challenge of meeting the Scottish Government's target of lowering fuel poverty rates in Scotland to 5% by 2040, and reaching net zero carbon emissions by 2045.
- > The first aim in decarbonising heat must be to improve the energy efficiency of homes in order to lower fuel usage in the first place.
- > Secondary to this is considering low carbon heating options like heat pumps, to replace traditional fossil fuel heating systems, such as gas and oil.
- > The Scottish Government's 20 year Energy Efficient Scotland (EES) programme aims to be the key mechanism to drive change. The target is for all homes in Scotland to have an energy performance rating of EPC C or higher by 2040¹⁰.
 - > The social housing sector is expected to go one step further with all properties reaching at least EPC B by 2040.
 - > Currently, just under half of Scottish housing stock is rated EPC C or higher¹¹ but there are still estimated to be 1.42 million properties rated EPC D or below.
 - > There are an additional 328,000 social sector homes rated EPC C which must be improved to reach EPC B.
- > Despite energy efficiency being designated a national infrastructure priority in 2015, central funding has remained the same and existing support schemes haven't seen the uptake of energy efficiency measures at the pace and scale required to meet the target.
- > We argue that householders need more support to take action, particularly fuel poor households.

⁸ www.theccc.org.uk/publication/reducing-emissions-scotland-2017-progress-report/

⁹ Scottish Government (2018); Scottish house condition survey: 2017 key findings

¹⁰ EPC is an Energy Performance Certificate. There are different EPC standards proposed for each type of tenure. Regulation of minimum energy efficiency standards in the private rental sector is due to come into force on 1 April 2020 where all newly let homes must be at least EPC Band E, and at least Band D from 31 March 2022.

¹¹ Scottish Government (2018); Scottish house condition survey: 2017 key findings



Current state of the market

As stated, just under half of Scottish housing stock is rated EPC C or higher¹² but there are estimated to be 1.42 million properties rated EPC D or below. The Scottish Government has set the aim of all homes in Scotland being rated EPC C or higher by 2040 “where technically feasible and cost effective”¹³.

The Scottish Government will need to support all tenures to improve their energy efficiency. This includes capital investment in delivery programmes for measures and advice, as well as investment in national marketing to promote them and strengthen consumer protection and enforcement via Trading Standards Scotland.

There has been considerable investment in domestic energy efficiency over the decades in Scotland as outlined in our 2016 report *Taking the Temperature*¹⁴ but hard-to-treat properties such as those with solid walls remain. CAS very much welcomes the Scottish Government’s Energy Efficient Scotland programme as it offers a long term 20 year commitment to address a systemic problem¹⁵. EES includes several delivery-programmes, including the Home Energy Efficiency Programme (HEEPS) and Warmer Homes Scotland (WHS). A key delivery mechanism is Local Heat and Energy Efficiency Strategies (LHEES) which are proposed to be a statutory duty upon every local authority in Scotland.

Despite the progress made so far, our analysis highlights that current budget of £119m in 2019/20 for EES is not sufficient to meet the target (assuming that funding stayed at this level year on year).

Our analysis

CAS has done analysis to explore what it will cost to upgrade Scotland’s existing housing stock to reach EPC Band C by 2040, per tenure. This is based on figures from the Scottish House Condition Survey (2017) and the cost of upgrading the SAP rating based on average costs from the Warmer Homes Scotland evaluation report (2017). Minimum costs are based on all homes requiring the lowest possible number of SAP points to move into EPC Band C or B for the social sector (eg all homes being at the top of Band D, E, F and G). The maximum cost is based on all homes being at the bottom of bands and therefore requiring to gain more SAP points to progress to EPC Band C or B for the social sector (eg homes being at the bottom of Bands D, E, F and G).

Table 1 below sets out how much investment we estimate is needed in each tenure to bring properties up to EPC C (irrespective of who pays for the cost i.e. Scottish Government, landlords or self-funded by homeowners). The far-right column indicates what we believe the Scottish Government should contribute towards this cost. The following estimates are for energy efficiency measures only; they do not include low carbon heat options because the suitability of low carbon heating is highly variable and dependent on the property. The estimates do not include the costs of improving energy efficiency in the non-domestic sector.

¹² EPC ratings are based on Standard Assessment Procedure (SAP) points. There are varying SAP points to an EPC band. The higher the energy efficiency of the property is, the higher the SAP will be and the higher the resulting EPC band will be. The average SAP (2012) rating is 63.6, which is EPC band D. Installing energy efficiency measures can help towards increasing the SAP rating of a property. The average cost per SAP point for energy efficiency upgrades as installed by Warmer Homes Scotland was £457. We acknowledge that the cost of measures may change over time due to demand, however this is the best estimate available at this time.

¹³ The Scottish Government has not yet defined what cost effective means for the owner occupier sector and social rented sector, but for the private rented sector has signalled that “cost effective” would mean a landlord investment limit of £5,000 per EPC band.

¹⁴ www.cas.org.uk/publications/taking-temperature

¹⁵ www.gov.scot/publications/energy-efficient-scotland-route-map/



Table 1

Housing sector	Number of homes below EPC C (EPC B for Social rented sector)	Total required investment to reach EPC C (EPC B for social sector) by 2040			Expected Scottish Government contribution based on midpoint ¹⁵
		Minimum ¹⁶	Maximum ¹⁷	Midpoint ¹⁸	
Social rented sector	607,000	£2.13bn	£5.49bn	£3.81bn	£3.81bn
Owner occupier sector	931,000	£2.77bn	£8.63bn	£5.70bn	£2.65bn
Private rented sector	211,000	£909.89m	£2.27bn	£1.59bn	£1.33bn
Total over 20 year lifetime of EES	1,749,000	£5.81bn	£16.39bn	£11.1bn	£7.79bn
Total per year		£290m	£820m	£555m	£485m (first 12 years) £167m (last eight years)¹⁹

¹⁵We expect the Scottish Government to contribute 90% for fuel poor and 10% for able to pay in the owner occupier sector, and the whole cost of upgrading the social rented sector. The expected government contribution for the PRS is NOT based on fuel poverty. It is total cost – landlord contribution of maximum £5000 per property. It is the difference between the amount it will actually take to get to the goal and the amount the government has proposed landlords pay.

¹⁶ Cost = (minimum SAP points needed to reach band C) x (£457) x (number of homes)

¹⁷ Cost = (maximum SAP points needed to reach band C) x (£457) x (number of homes)

¹⁸ Mid point cost = Minimum total cost + Maximum total cost / 2. This should not be considered an average as it does not weight the distribution of properties in each band. It is midway between the highest and lowest costs of upgrading the stock

¹⁹ CAS proposes this funding split as there is an existing commitment under EESSH to bring social sector homes up to EPC B by 2032, which suggests that funding needs to be front-loaded. Updated EESSH2 target - <https://www.gov.scot/policies/home-energy-and-fuel-poverty/energy-efficiency-in-social-housing/>

Social rented sector

- > Goal – to achieve EPC B by 2032, surpassing the EPC C target for the other two tenures. There are currently 607,000 social sector homes below EPC B.
- > Cost – The total cost to bring all Social Rented Sector properties to EPC band B would be between £2.13bn and £5.49bn. The midpoint cost would be £3.81bn.
- > CAS position on Scottish Government contribution – we would expect the Scottish Government to cover the full cost of this and increase funding to social landlords accordingly.

Owner occupier sector

- > Goal – to achieve EPC C by 2040. There are currently 931,000 owner occupier homes below EPC C.
- > Cost – The total cost to bring all owner occupier properties to EPC band C would be between £2.77bn and £8.63bn. The midpoint cost would be £5.7 bn. The cost for the fuel poor would be between £1.6bn and £3.5bn. The midpoint cost would be £2.5bn.
- > CAS position on Scottish Government contribution – We think it is fair to expect the Scottish Government to subsidise capital costs for fuel poor homes (contributing at least 90%), and also offer financial support (maximum 10% contribution) to non-fuel poor, often referred to as “able to pay or self-funded”, however this is not a concrete position. In total we would expect a contribution of £2.65bn – 90% of fuel poor costs as well as EPC assessment costs (£2.3bn midpoint cost) and 10% of able to pay costs (£322 million). This is recognition of the fact that many householders simply do not have the disposable income to afford energy efficiency measures, even though they are not defined as being fuel poor²⁰.

Private rented sector

- > Goal – to achieve EPC C by 2040 (NB – accelerated targets of achieving EPC C by 2030 may be introduced but there is currently a lack of clarity on this). There are currently 211,000 private rented homes below EPC C.
- > Cost – The total cost to bring all PRS properties up to EPC C would be between £909.89m and £2.27bn. The midpoint cost would be £1.59bn.
- > CAS position on Scottish Government contribution – We would expect the Scottish Government to fund the difference between the total cost of upgrade (estimated to be £1.59 bn) and expected landlord contribution of max £5,000 per property per band below EPC band C. We expect a range of financial incentives and support.

To recap, to achieve EPC B in the social sector and EPC C in the owner occupier and private rented sectors, it would cost between £5.81bn and £16.39bn over the course of the 20 year programme. The “midpoint cost” is £11.1 billion.

This calculation is based on the current method and cost of upgrading the energy efficiency of homes. We acknowledge that significant changes such as the potential phasing-out of gas boilers, curtailment of new gas-grid connections, and the reduction in unit cost of heating systems/measures will impact these costings. The cost also does not include the cost of EPC assessments which may be required as part of the regulation of energy performance standards under EES.

²⁰ Securing an interest-free loan under HES requires a householder to have enough money to put down a deposit. Our omnibus survey 2019 showed that 62% of owner occupiers said they would be incentivised to install measures if a grant was available, 49% would be motivated if a council tax rebate of £500 was offered in the first year after the installation, followed by 26% who said they would be if a council tax rebate of £1000 was offered over ten years after upgrading their home by two EPC bands.

Comparing this cost with the existing EES budget and ExHAS' proposed budget

Table 2 outlines the breakdown of what we think the EES budget should be in 2020/21 based on increasing funding under existing schemes. These schemes cover all sectors. It also takes account of the additional estimated costs for:

- > Marketing EES
- > The provision of public advice under Home Energy Scotland
- > Supporting local authorities to deliver EES,
- > Boosting consumer protection by increasing funding to Trading Standards Scotland and local authority level Trading Standards.

These cost estimates reflect the same figures as outlined in the budget paper published by ExHAS. We believe the existing schemes are appropriate to deliver the increased funding and do not suggest these structures should change. However, we believe that the range of financial support is not sufficient to encourage people, and especially owner occupiers to upgrade their homes. Additional financial and fiscal incentives, such as council tax rebates, should be offered.



Table 2

Programme/Activity	Scottish Government's current budget for 2019/20 £m	ExHAS' proposed SG budget for 2020/21 £m	CAS' proposed SG budget for 2020/21 £m
Warmer Homes Scotland – National fuel poverty support	24	48	48 (social rented sector) + 116 (mid-point cost per year for fuel poor owner occupiers) = 164
Local authority-led area-based schemes (HEEPS: ABS)	49	98	
Energy Efficient Scotland Transition Programme Pilot projects / engagement & support for the self-funded sector	1.25	12	12
HES Loans and other financial support	30	55	46 (mid-point cost per year for owner occupiers)
National energy efficiency and fuel poverty advice	10.6	19	19
Local authority support including Local Heat and Energy Efficiency Strategies		4	4
Major engagement campaign		1	1
New programmes - development and delivery ²³		3	3
Support for Trading Standards Scotland (TSS) and Local Authority Trading Standards			0.5 ²⁴
SG contribution to the private rented sector. This is the cost of meeting EPC C over and above the £5k cost cap that landlords will have already needed to have invested as per PRS regulation.			6.6 (mid-point SG contribution to cover the difference between £5k landlord capped contribution and cost of reaching EPC C)
Balance	4.75 ²⁵	0	0
Total	119	240	256.1

²³ New programmes should include deep retrofit pilots, hybrid heat pump pilots and support for the housing renovation supply chain.

²⁴ This is a best guess estimate from Trading Standards Scotland to improve consumer protection under EES against trading malpractice in the domestic energy efficiency and renewables sector. This estimated cost covers nine additional staff across TSS and local authority level trading standards. This would increase resources to cover the prevention of trading malpractice, intelligence sharing and national investigations.

²⁵ The Scottish Government budget figures in this table come directly from the response to a Parliamentary Question, see: <https://www.parliament.scot/S5ChamberOffice/WA20190111.pdf>. The 'balance' figure is the total headline budget allocated to energy efficiency and fuel poverty (£119.6 million) figure minus the budget allocated to each of the programmes listed in the PQ and also minus £1.25 million for the first phase of the EES transition programme pilots (note: subsequent funding for a second phase of pilots has recently been confirmed. This is not detailed in this briefing note).



Summary of our key asks:

- > That the Scottish Government more than doubles its EES budget for 2020/21 to £256m. This figure represents only 0.3% of public sector spend in Scotland last year and is critical in achieving improved energy efficiency which is in turn key to eventually achieving net zero.
- > That a range of financial incentives and support are available to help households upgrade their homes in the owner occupier sector.
- > That alongside the boost in investment to upgrade the energy efficiency of homes, there is simultaneously provision made for:
 - > a major public awareness and education campaign;
 - > a one-stop shop for advice, information and consumer redress;
 - > a boost in funding for Trading Standards Scotland;
 - > a new Quality Mark to ensure adequate consumer protection.

We would welcome further discussion on any of the points raised in this paper. Our budget calculations are available on request. Please email CFUenergy@cas.org.uk.



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