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Conservation

Climate Change

Sustainability

MIND THE GAP: FUNDING HOME ENERGY EFFICIENCY TO DELIVER SCOTLAND'S CLIMATE CHANGE AND FUEL POVERTY TARGETS

An analysis of the investment challenge

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EXECUTIVE SUMMARY

The Scottish Government has legally binding targets to cut greenhouse gas emissions by 42% by 2020 and 80% by 2050 over 1990 baseline. It also has a statutory commitment to end fuel poverty, as far as is reasonably practical, by 2016.

The housing sector accounts for around a quarter of Scotland's carbon emissions. The poor energy performance of the existing housing stock is also a significant contributor to fuel poverty. Therefore improving the energy efficiency of the housing stock is critical to delivering against both these targets. This report presents the findings from the analysis carried out by Verco to understand the total investment challenge (public and private funding) required to meet the 2016 fuel poverty target and the housing sector's share of the 2020 climate change emission reduction targets. The projected investment shortfall has then been worked out based on the forecasted government spending, expected funding through the obligation on energy companies to reduce carbon as well as expected private sector investment in domestic energy efficiency through the Green Deal.

To model the cost of meeting the 2020 climate targets, the energy savings potential for representative dwelling types within the Scottish housing stock has been carried out using SAP¹ (Standard Assessment Procedure) methodology. The results from the technical analysis have been fed through Verco's in-house NAVITAS tool². The tool prioritises packages of measures across all archetypes based on their cost-effectiveness (£ spend per tonne of CO₂ saved) to work out the scale of investment required across the housing stock, including both social and private sectors. This is an iterative process that allows us to target the so called 'easy wins' across the stock first, rather than trying to meet the required climate reduction target for all archetypes. Sensitivity analysis has then been carried out to assess the impact of key variables on the scale of investment required.

The analysis indicates that the cost of delivering a 36% reduction in emissions from the housing sector by 2020, the ambition set in the Report on Proposals and Policies³, is around £4.6bn rising to £7.7bn to meet a more ambitious 42% target. The figures are based on a grid carbon intensity of 0.1 kgCO₂/ kWh in 2020, in line with Scotland achieving its 100% renewable target. The figures also take into account the emission reduction achieved to date (2009 data) against the 1990 baseline equivalent to around 18% drop in domestic sector emissions (or a 10% reduction if excluding electricity which is classed as traded emissions and addressed separately in the RPP). The sensitivity analysis suggests a cost range of between £6.3bn – £9.4bn to meet a 42% climate change target depending on weather data used for the analysis and assumptions around the pace of grid decarbonisation.

The funding required to meet the 2016 fuel poverty eradication target is estimated at £6.3bn using previous analysis carried out by Verco⁴ (formerly Camco) for England.

Estimates have also been made on the level of investment and associated CO₂ savings that could potentially be delivered via the Green Deal across the Scottish housing stock. Energy efficiency measures that work within the Green Deal 'Golden Rule' could deliver around 34.5% reduction over the 1990 baseline at an investment of £3.9bn, an additional

1. The Standard Assessment Procedure is DECC's methodology for assessing and comparing the energy and environmental performance of dwellings.

2. The tool carries out discounted cash flow analysis to work out the Green Deal potential for different dwelling types taking into account parameters such as capital cost of measures, interest rate, energy price inflation, and contract length.

3. *Low Carbon Scotland: Meeting the Emissions Reduction Targets 2010-2022*, Scottish Government (2011).

4. Camco, Energy Bill Revolution Campaign Report, Feb 2012 (available at www.energybillrevolution.org/wp-content/uploads/2012/02/Energy-Bill-Revolution_full-report.pdf).

17% over and above the reduction achieved to date against the 1990 baseline⁵. However, factoring in the likely uptake for Green Deal based on DECC projections brings down the figure to 19.7%, contributing ~ 2% to the CO₂ emissions reduction achieved to date⁶ against the 1990 baseline.

The study concludes that a significant level of investment is required from both the public and private sectors to meet a 42% climate change emission reduction target by 2020, to the tune of £7.7bn. The level of investment to meet the 2016 fuel poverty targets is estimated at £6.3bn. In contrast, the level of funding available under existing and proposed carbon reduction and fuel poverty policies between now and 2020 is around £1.5bn and £0.85bn⁷ respectively, a fraction of the required level. Private sector investment through Green Deal is likely to contribute only marginally to these targets: around a quarter of a billion investment expected based on uptake rates published by DECC.

Even under a relatively optimistic scenario based on Scottish weather data, the level of investment required to meet a 42% climate change target is over four times the level of funding likely to be available, while the 36% ambition set in the RPP would require 2.7 times the investment.

This suggests that the level of ambition for most policy instruments aimed at energy efficiency in the domestic sector needs to be reviewed. Otherwise, there is a very real danger that these policies will fall well short of delivering the short to medium term carbon reduction and fuel poverty targets. Consideration needs to be given to achieving a good balance between regulation and incentives. Setting minimum energy performance standards for private sector housing, similar to those being considered for social housing, will play a pivotal role in delivering against both environmental and social targets. These should be coupled with appropriate incentives, such as interest rate subsidy, stamp duty and council tax rebates, all aimed at improving the uptake of the National Retrofit Programme and Green Deal. In addition, the Scottish Government should work at the UK level to support the recycling of carbon taxes from EU ETS and carbon price floor into domestic energy efficiency offering a potential revenue stream to fund either grants for fuel poor or appropriate incentives for other households. This will ensure that the impact on fuel poor and low income households is less regressive compared to, let's say, a bigger supplier obligation funding pot as a large proportion of these carbon taxes are already reflected in consumer energy bills.

5. Based on 2009 Scottish domestic sector data.

6. Based on 2009 Scottish domestic sector data.

7. It should be noted that all NRP (National Retrofit Programme) funding is included in this total as it is focused on fuel poverty. However it is likely to be a generous estimate as not all the funding will go to fuel poor households. The total available funding to 2016 – the date of the fuel poverty target – is £.54bn.

INTRODUCTION

This research has been commissioned by WWF Scotland to assess the level of investment expected in domestic energy efficiency under both current and proposed programmes, and whether this would be sufficient to meet Scotland's fuel poverty eradication and medium-term climate change emissions reduction target from the housing sector.

The Scottish Government has legally binding targets to cut greenhouse gas emissions by 42% by 2020 and 80% by 2050 over 1990 baseline. It also has a commitment to end fuel poverty, as far as is reasonably practical, by 2016.

This research aims to understand:

- the scale of investment required to meet the 2016 fuel poverty and the housing sector's share of the 2020 emission reduction targets ⁸;
- current and expected government spending on domestic energy efficiency and fuel poverty programmes including the energy company obligation between now and 2020;
- the expected private sector investment in energy efficiency through Green Deal; and
- any projected investment shortfall.

8. 36% reduction as in the RPP (Report on Proposals and Policies) and 42% as pro-rata share of the 2020 target.

METHODOLOGY

2.1 APPROACH TO MODELLING INVESTMENT REQUIRED TO MEET CLIMATE CHANGE EMISSION TARGETS

For the analysis, the Scottish housing stock has been classified into archetypes based on the dwelling form, wall construction and heating fuel. For each archetype, sub-archetypes have been defined to cover a range of starting energy efficiency performance levels or SAP scores. The 2008-2010 Scottish Housing Condition Survey (SHCS) data has been used as the basis of the analysis.

Technical modelling has then been carried out using SAP⁹ (Standard Assessment Procedure) to generate CO₂ reduction curves for the top 10 main archetypes in the Scottish housing stock plus each of their associated sub-archetypes. The modelled archetypes represent around 77% of the total Scottish housing stock. The most predominant typologies are gas heated cavity-wall semi-detached, terraced properties and flats. This is followed by gas heated solid wall flats and electric heated solid wall flats. The top ten archetypes do not include solid fuel or oil heated properties.

The measures modelled vary with archetype, and include cavity insulation, loft insulation, solid wall insulation, floor insulation, hot water cylinder jacket, primary pipework insulation, low energy lighting, draught-proofing, double/ triple glazing, heating controls, high efficiency boilers for gas heated properties, heat pumps for electric heated properties, and advanced airtightness package with MVHR (Mechanical Ventilation with Heat Recovery). The sequence of measures has been optimised to ensure that the most cost-effective measures are installed first; although consideration has also been given to the hassle factor of installing a measure.

The predicted energy and CO₂ savings are based on standard occupancy and heating patterns as well as standard UK degree day data¹⁰ as is used to generate SAP scores and EPC ratings. The RdSAP (Reduced SAP) methodology that will be used to determine energy savings for the Green Deal 'Golden Rule' calculations (refer to Section 2.3 for explanation of the Golden Rule) is also based on standard assumptions on occupancy and heating patterns. However, from October 2012, RdSAP¹¹ methodology in Scotland will use regional weather data to generate energy consumption figures and related costs, although EPCs will still be generated using standardised UK weather data. The impact of using Scottish weather data on research findings has been appraised as outlined in Section 2.1.2 below.

The results from the technical modelling have then been fed through Verco's financial modelling tool, NAVITAS. The tool prioritises packages of measures across all archetypes and sub-archetypes based on their cost-effectiveness (£ spend per tonne of CO₂ saved) to work out the scale of investment required to meet the 2020 emission reduction targets. This is an iterative process that allows us to target the so called 'easy wins' across the stock first, rather than trying to meet the required emission reduction target for all archetypes. As is expected, a 42% reduction in CO₂ emissions for an energy efficient home will be higher up the Marginal Abatement Cost Curve (MACC) than that for an inefficient home, and trying to deliver a flat 42% reduction across all archetypes and sub-archetypes would overestimate the level of investment required.

The capital costs are taken from EST (Energy Saving Trust) Housing Energy Model 2010¹² corrected for UK regional variations based on data published by the Royal Institute of

9. The Standard Assessment Procedure is DECC's methodology for assessing and comparing the energy and environmental performance of dwellings.

10. This uses degree day data for Sheffield.

11. Reduced Data SAP (RDSAP) was introduced in 2005 as a lower cost method of assessing the performance of existing dwellings.

12. EST Housing Energy Model assumptions: www.energysavingtrust.org.uk/uk/Publications2/Local-authorities/Strategy-development/The-Energy-Saving-Trust-Housing-Energy-Model-assumptions

Chartered Surveyors¹³. The cost data in the EST Housing Model are total installed costs and were put together based on discussions with trade associations, manufacturers and installers. These represent a well-referenced and relatively more recent dataset of costs compared to the DEMScot¹⁴ model. A comparison of the EST costs with those used in the DEMScot model is included in Appendix C. The DEMScot costs are based on estimates derived from data provided by Cambridge Architectural Research, the RICS publication referenced above and short interviews with Scottish contractors.

2.1.1 Assumptions

A key variable in the analysis is how grid decarbonisation is accounted for within the calculations. Our approach has been not to account for CO₂ emissions reduction that will be realised in the domestic sector due to decarbonisation of the electricity grid¹⁵. This means that to work out the CO₂ emissions reduction achieved in 2020 from the domestic sector, both the baseline and post-installation CO₂ emissions are calculated using projected 2020 grid carbon intensity. However, the level of grid decarbonisation achieved by 2020 will impact the baseline emissions for the housing sector. The lower the grid carbon intensity, the smaller the baseline emissions and therefore lower the investment needed to meet a set percentage reduction target. The carbon intensity of the grid in 2020 is based on the Scottish Government target to generate the equivalent of 100% of the country's electricity needs from renewable sources¹⁶.

Section 2.1.2 below outlines the other scenarios on grid intensity modelled as part of this study.

A full list of assumptions and relevant reference sources is included in Appendix A.

2.1.2 Sensitivity analysis

Sensitivity analysis has been carried out to assess the impact of key variables on the scale of investment required to meet CO₂ reduction targets. This includes:

- **weather data:** use of Scottish weather data to calculate baseline energy consumption and energy savings from installed measures, in accordance with plans for revision of RdSAP as of October 2012. The modelling has been carried out using data for Midlothian as the appropriate average;
- **2020 grid carbon intensity:** analysing the impact of 2020 grid carbon factors on research findings. This has been done by modelling three additional grid decarbonisation scenarios: using UK –wide projections published by DECC, using grid carbon intensity should Scotland over achieve against its targets to deliver 125% of its electricity demand from renewable sources and, lastly, should it fall short of its target by 50%.

13. BICs, *The Greener Homes Price Guide - Organising and Budgeting for Energy Efficiency and Reducing Your Carbon Footprint*, 2008.

14. DEMScot is a carbon assessment tool developed to assess the impact of different policy interventions and stock upgrades aimed at reducing greenhouse gas emissions from Scottish housing. More details available at scotland.gov.uk/Publications/2009/10/08143041/o

15. This is consistent with the approach taken in the RPP (Report on Proposals and Policies).

16. Carbon intensity of 103kgCO₂/GWh; source: SKM, *Scottish Generation Scenarios and Power Flows: An analysis*, Nov 2011.

2.2 APPROACH TO ESTIMATING FUNDING REQUIRED TO MEET FUEL POVERTY ERADICATION TARGET

The funding required to meet the 2016 fuel poverty eradication target has been estimated using previous analysis carried out by Verco¹⁷ (formerly Camco). This analysis is based on the English Housing Survey (EHS) dataset and reflects the level of investment required to upgrade the energy performance of fuel poor homes such that their modelled energy spend does not exceed 10% of the household income (up to a maximum energy efficiency rating of EPC Band B). The analysis takes into account the likely reduction in energy consumption from ECO and other relevant policy instruments, as reflected in the CCC (Committee on Climate Change)¹⁸ data, the likely rise in household incomes in real terms over the next five years, and the projected increase in fuel prices. Based on this, it also estimates the likely increase in the number of fuel poor households by 2016. The results from the analysis have been extrapolated for Scotland given the distribution of specific archetypes in the Scottish housing stock.

2.3 APPROACH TO MODELLING GREEN DEAL POTENTIAL

The Green Deal is the UK government's flagship energy policy intended to improve the energy efficiency of the existing building stock. It is a market-led approach to facilitate investment in energy efficiency measures within buildings. Under this policy, Green Deal providers will finance and install energy efficiency improvements from autumn 2012. They recoup their investment through a charge on the electricity bill for the duration of the Green Deal plan. The charge remains with the improved home even if the person living there moves.

To work up the level of investment and associated CO₂ savings that could potentially be delivered via the Green Deal mechanism across the Scottish housing stock, the results from the technical modelling (as outlined in Section 2.1 above) have been fed through the NAVITAS tool. The tool uses discounted cash flow analysis to generate the net present value (NPV) of the investment taking into account the capital cost for work packages and the value of the energy savings over a pre-defined repayment term. It identifies packages of measures that would satisfy the Green Deal 'Golden Rule' for each of the archetypes and sub-archetypes. The 'Golden Rule' requires that the Green Deal annual payment should not exceed the projected associated cost savings from energy efficiency measures for the duration of the Green Deal Finance arrangement.

The analysis is based on a private sector cost of capital of 7% and a 20 year contract length. We understand that under the Green Deal policy, Green Deal Providers could offer different products to consumers with varying interest rates and contract lengths. Our view is that the interest rate offered to consumers is likely to lie somewhere between mortgage rates (highly secured, volume market, liquid and good credit history) and unsecured loans. The 7% figure is therefore a reasonable assumption. Regarding contract lengths, feedback from consumer surveys carried out by DECC as part of the policy impact assessment suggests that consumers would prefer shorter contract lengths, which may limit the Green Deal potential to offer measures with shorter payback periods. Therefore, assuming a 20 year contract length presents a relatively optimistic scenario in terms of the Green Deal potential.

No energy price inflation is factored into the Golden Rule calculations, meaning that the householder retains all the benefits of energy bills rising more slowly within an energy efficient home. This is based on the DECC preferred approach as outlined in the policy consultation document.¹⁹

17. Camco, *Energy Bill Revolution Campaign Report*, Feb 2012 (available at www.energybillrevolution.org/wp-content/uploads/2012/02/Energy-Bill-Revolution_full-report.pdf).

18. Committee on Climate Change (2011) Household energy bills – impacts of carbon budgets.

19. In the responses on the consultation published June 2012, DECC has proposed that Green Deal providers could

SCALE OF INVESTMENT REQUIRED TO MEET CARBON REDUCTION AND FUEL POVERTY TARGETS

3.1 DELIVERING CLIMATE CHANGE TARGETS

Figure 1 below shows the cost of meeting progressively demanding climate change targets from domestic energy efficiency programmes. The analysis indicates that the cost of delivering 36% carbon reduction by 2020 is around £4.6bn rising to £7.7bn to meet the 42% target. The corresponding cost of carbon abatement also rises from £120/tCO₂ to £160/tCO₂.

The figures are based on a grid carbon intensity of 0.1 kgCO₂/ kWh in 2020, in line with Scotland achieving its 100% renewable target. The figures also take into account the emission reduction achieved to date (2009 data) against 1990 baseline equivalent to around 18% drop in domestic sector emissions²⁰ – this is based on total residential sector emissions by end user (i.e. allocating the electricity generation figures to the respective sector

based on end user consumption) – so going down to 14.11 MtCO₂ in 2009 from a 1990 baseline of 17.2 MtCO₂. It should however be noted that the emission savings made in the residential sector from combustion of fossil fuels has been nearly wiped out based on the recently published greenhouse gas inventory data for 2010²¹. This is due to the relatively cold winter months and therefore higher energy demand for heating in 2010.

FIGURE 1 INVESTMENT REQUIRED TO DELIVER 2020 CLIMATE CHANGE TARGET

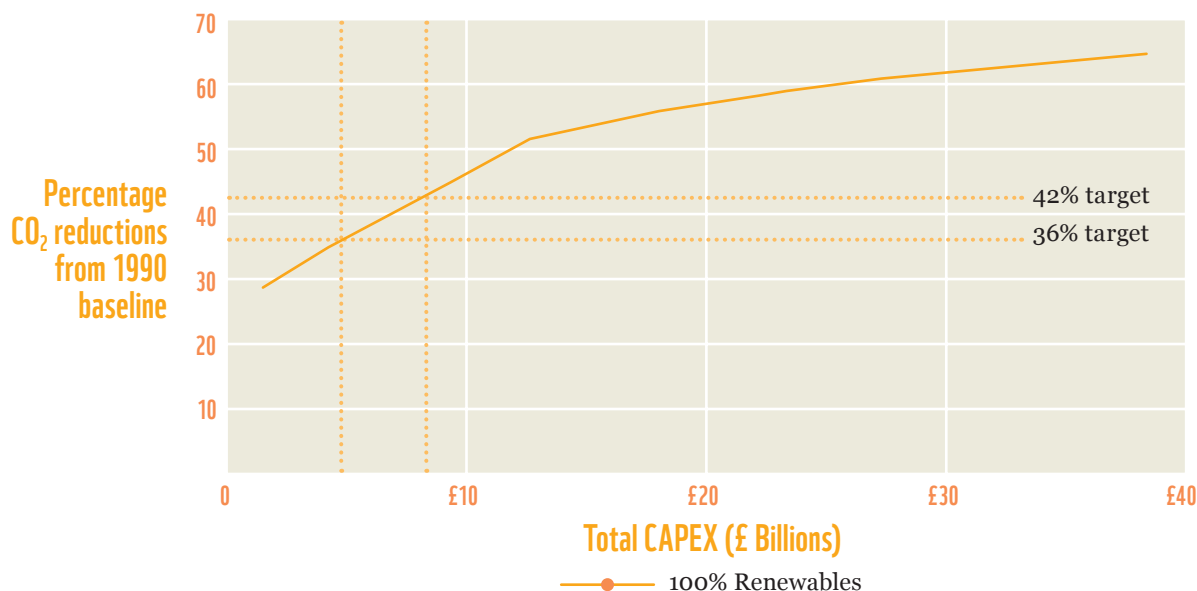


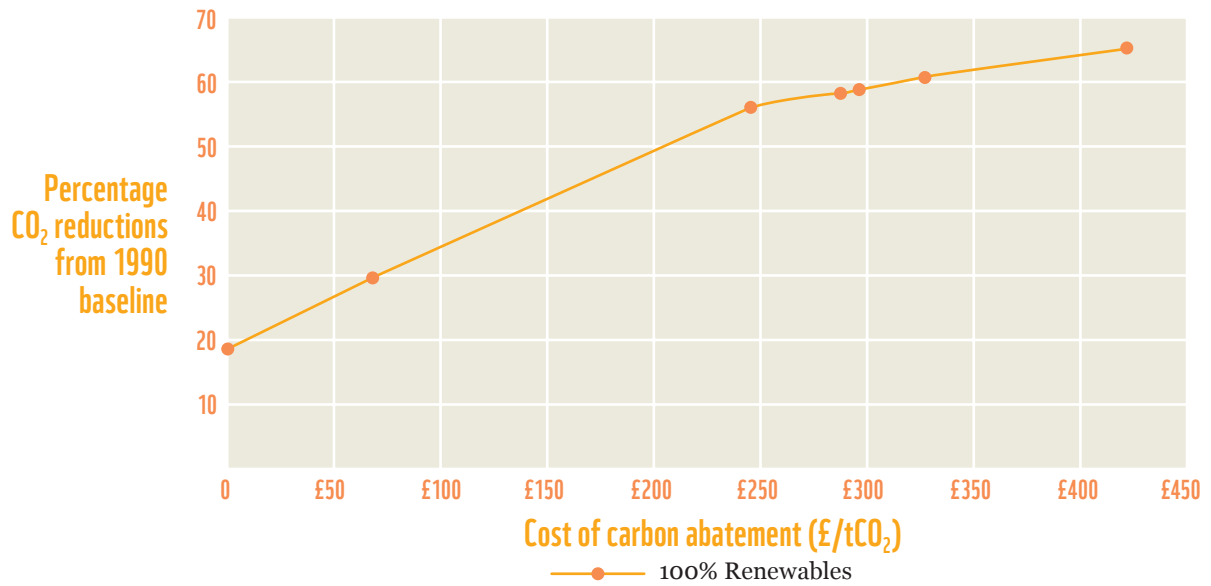
Figure 2 presents the analysis in terms of the percentage CO₂ savings that can be realised by installing measures below a certain cost threshold. This shows that as the low cost opportunities are exhausted, more expensive measures will need to be considered to deliver progressively smaller savings in CO₂ emissions

potentially charge 2% indexation on Green Deal payments.

20. AEA Technologies, Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland:1990 – 2009.

21. G Thistlethwaite, J Goodwin, E Salisbury, J MacCarthy, Y Pang, A Thomson and L Cardenas; Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland: 1990 – 2010, July 2012.

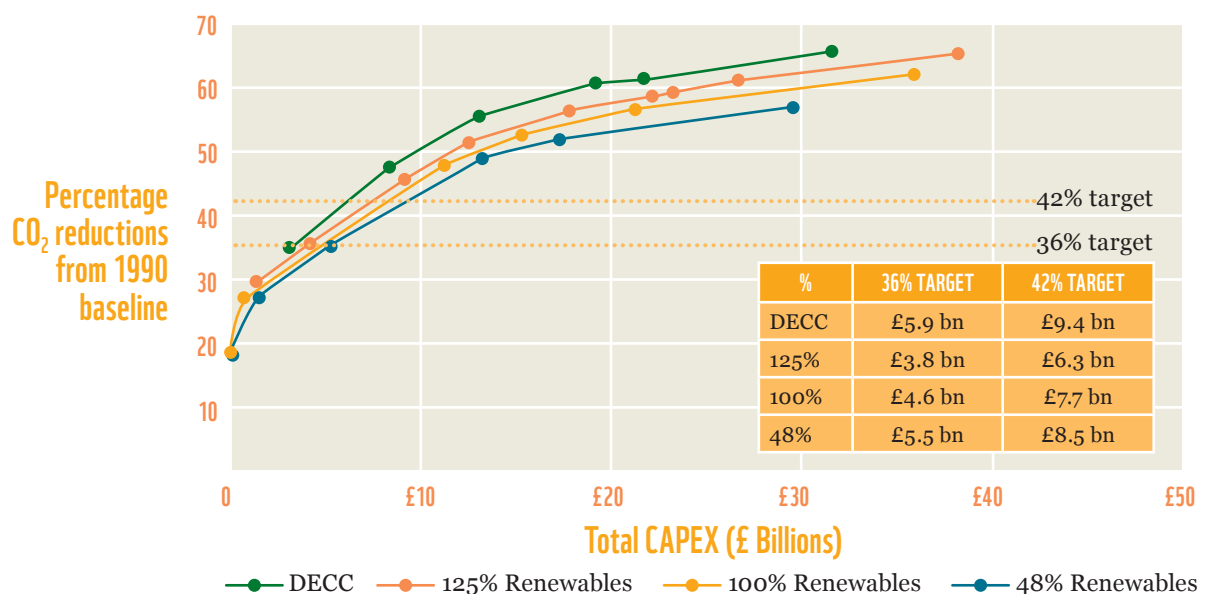
FIGURE 2 COST OF CARBON ABATEMENT



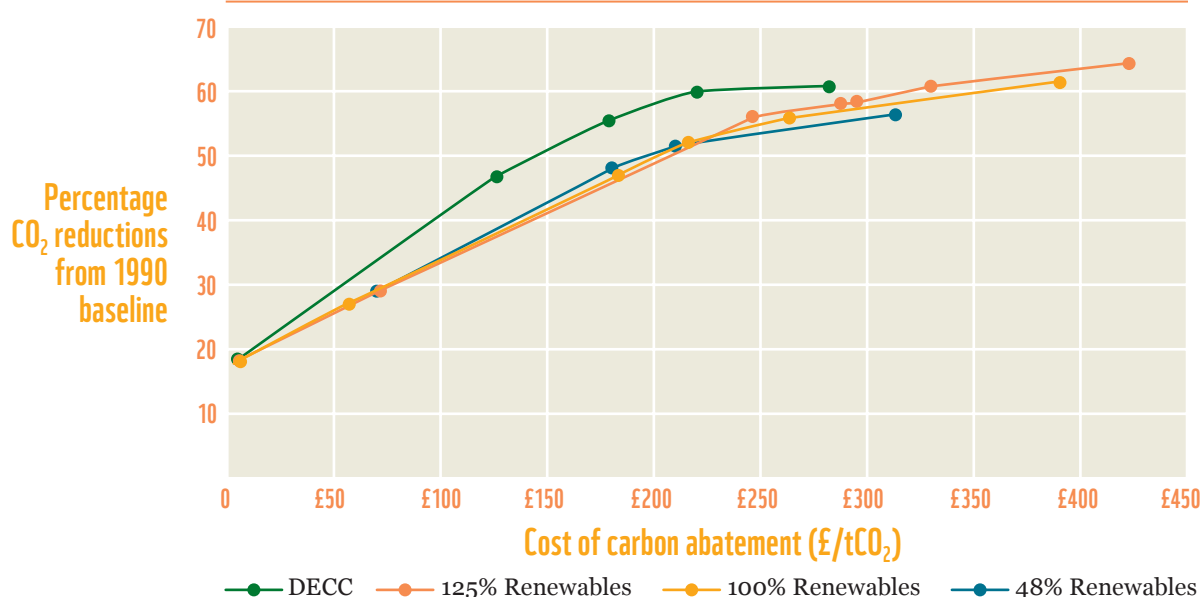
3.2 SENSITIVITY ANALYSIS

The sensitivity analysis below shows the impact of grid carbon intensity on the cost of delivering CO₂ mitigation targets for the domestic sector. The numbers presented in the previous section are based on the projected carbon intensity of the grid in 2020 given the Scottish Government's target to generate 100% of the country's electricity needs from renewable sources. Using DECC projections on UK grid intensity in 2020 (a figure of 0.30kgCO₂/kWh compared to 0.1 based on Scotland meeting its 100% renewable energy target) increases the cost of delivering the 42% target up to around £9.4bn. This is because a higher grid factor would mean a higher sector baseline in 2020 requiring more investment to deliver a set percentage reduction against that baseline.

FIGURE 3 SENSITIVITY ANALYSIS AROUND IMPACT OF GRID CARBON INTENSITY ON SCALE OF INVESTMENT REQUIRED TO DELIVER 2020 CLIMATE CHANGE TARGET



**FIGURE 4 COST OF CARBON ABATEMENT
FOR DIFFERENT GRID DECARBONISATION SCENARIOS**



These results using DECC projection on grid carbon intensity are comparable to the figure of £8.2bn suggested by DEMScot to deliver 20% savings in the domestic sector over 2005 baseline. The DEMScot figures are based on a carbon intensity figure of 0.34kgCO₂/ kWh. It should however be noted that there are other key differences between the two models that will also impact on results, in particular the methodology used to model energy savings and the costs of measures, among others.

In contrast, should Scotland exceed its 2020 target to generate 125% of its electricity needs from renewable energy sources, this would decrease the cost of meeting the domestic sector target of 42% to £6.3bn.

Figure 5 shows the impact of using Scottish weather data to predict energy savings as against UK standard weather data. With the Scottish weather data, the cost of meeting the 2020 CO₂ reduction target of 42% is predicted to be around £6.4bn and £4bn to reach a target of 36%.

Both cost curves follow a similar profile. However, with the Scottish weather data, the energy and CO₂ savings associated with most measures (e.g. insulation, double glazing, airtightness, and efficient heating systems) are proportionately higher for the same level of investment due to colder temperatures (and therefore higher heating energy demand) compared to the UK average. For example, in the case of a typical semi-detached, gas heated, cavity wall property, the predicted CO₂ savings from installing a package of energy efficiency measures is higher by between 12 -25%.

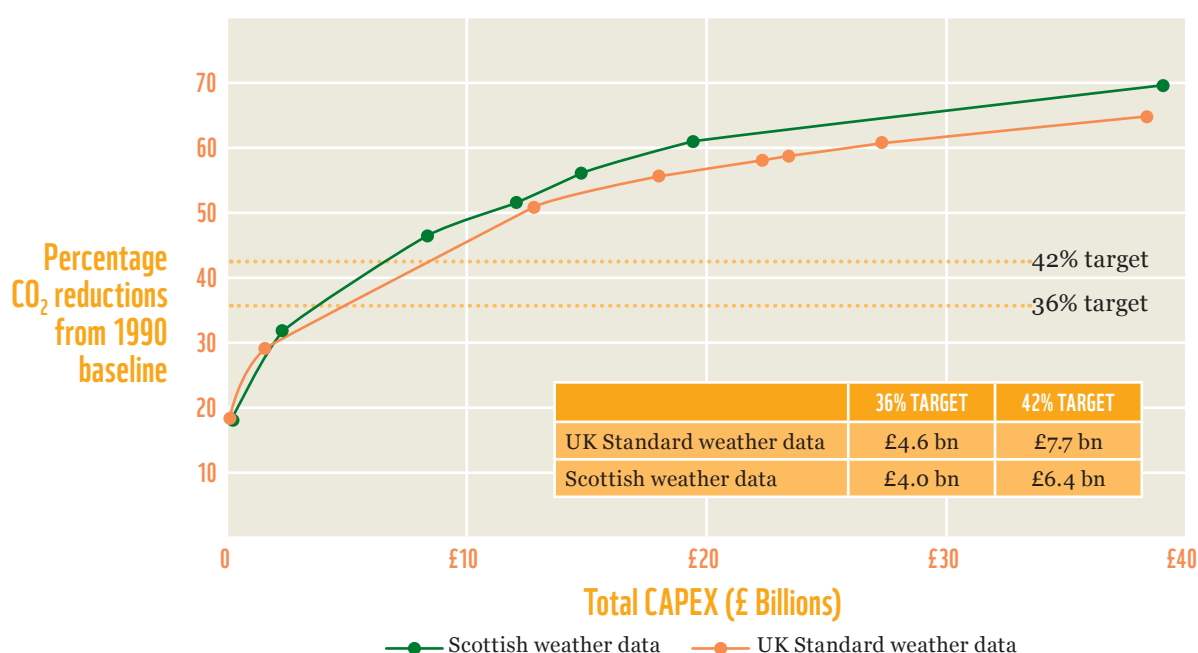
The modelling of savings and therefore investment to meet emission reduction targets has been done using BREDEM²² methodology. This underpins the energy saving calculations for both SAP and RdSAP. The DEMScot report²³ notes that in old dwellings BREDEM and SAP can over-predict space heating energy because old dwellings are often heated to a lesser standard than modern ones, a compromise between running costs and thermal comfort on the part of the occupants of older dwellings.

Therefore, any conclusion on the scale of investment required to meet emission reduction targets needs to take into consideration the differences between modelled

22. BRE Domestic Energy Model (BREDEM) is a model for the calculation of the annual energy requirements of domestic buildings, and for the estimation of savings resulting from energy conservation measures.

23. *Modelling Greenhouse Gas Emissions from Scottish Housing: Final Report*, 2009.

FIGURE 5 SENSITIVITY ANALYSIS AROUND IMPACT OF WEATHER DATA ON SCALE OF INVESTMENT REQUIRED TO DELIVER 2020 CLIMATE CHANGE TARGET



energy demand (as predicted by the BREDEM model) and actual household energy demand. Resident behaviour will also impact the actual energy and CO₂ savings that will be delivered by energy upgrade measures.

The BREDEM approach also underpins the CO₂ emissions baseline estimates in the Scottish Housing Condition Survey. These are carried out using Scottish weather data. In addition to these bottom-up estimates, the National Atmospheric Emissions Inventory (NAEI) also produces top-down estimates on sector emissions. The NAEI direct fuel estimates have been routinely lower (20-30%) than the SHCS estimates in recent years²⁴. While both the top-down and bottom-up approaches have their limitations, this difference in carbon accounting supports the issue highlighted in the DEMScot report.

A detailed analysis of the limitations of the BREDEM and SAP methodology are outside of the scope of this current research. However, should the BREDEM approach be overestimating CO₂ savings at household level by as much as 20-30% as is being suggested, this would mean that the £6.4bn modelled costs required to meet targets would be an underestimation.

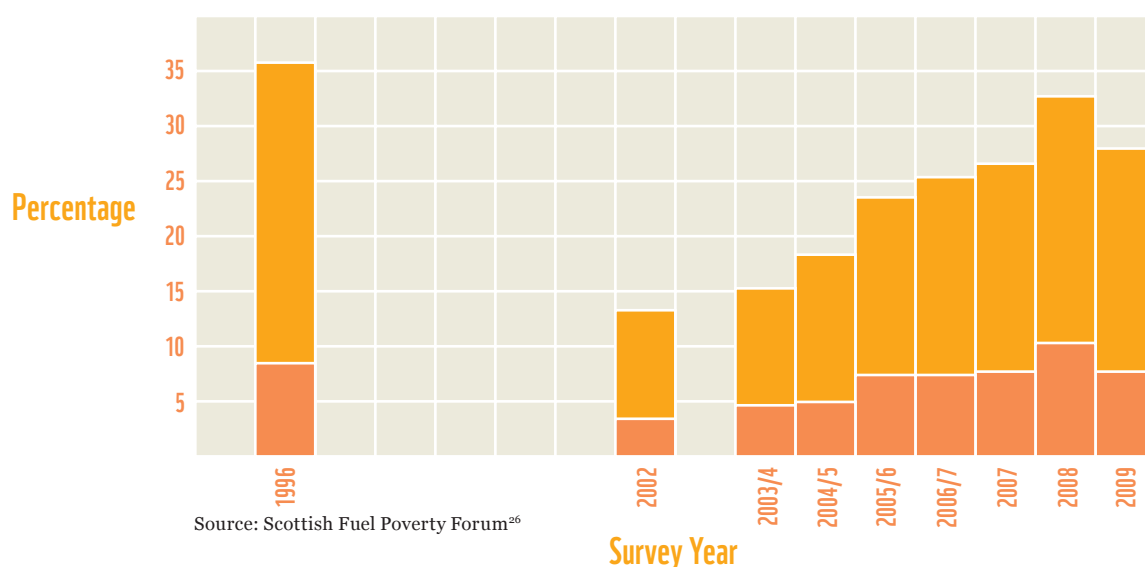
3.3 DELIVERING 2016 FUEL POVERTY TARGETS

The latest Scottish House Condition Survey (SHCS) data published November 2011 indicate that there are 28% fuel poor households in Scotland in 2010, compared to 33% in 2009. Updated estimates based on more recent fuel prices (September 2011) suggest that the number of fuel poor homes in Scotland is around 800,000 or 35% of the households²⁵.

24. *Identifying and Assessing Energy Datasets to Improve the UK and DA GHG Inventories, Final Report*, May 2012, pg 74.

25. www.scotland.gov.uk/Resource/0039/00398798.pdf

FIGURE 6 HOUSEHOLDS IN FUEL POVERTY 1996-2010



Previous analysis carried out by Verco²⁷ (formerly Camco Advisory Services) using the EHS dataset suggests that the number of households in fuel poverty is projected to increase significantly by 2016. Taking into account the projected increase in fuel prices under the DECC's central energy price inflation scenario²⁸, the increase in household incomes as projected by OBR (Office for Budget Responsibility)²⁹, plus the reduction in energy consumption as a result of current policy instruments³⁰ (including ECO), the number of fuel poor households in England is projected to increase to 6.2 million by 2016, compared to 4 million in 2009.

The study estimated that the average grant required per household to get the home out of fuel poverty is around £6.5k. This reflects the level of investment required to upgrade the energy performance of fuel poor homes such that their modelled energy spend does not exceed 10% of the household income (up to a maximum energy efficiency rating of EPC Band B). This is calculated using 2016 projected fuel prices and household incomes. Extrapolating the results for Scotland based on the relative distribution of housing archetypes in the Scottish housing stock gives an average cost of upgrading fuel poor homes of ~£5.3k.

Assuming a proportionate increase in fuel poverty for Scotland by 2016 (as for England) gives a total required investment of £6.3bn by 2016 to upgrade all fuel poor homes.

26. Scottish Fuel Poverty Forum, *Review of the Scottish government's fuel poverty strategy – Interim Report*, May 2012.

27. Camco, *Energy Bill Revolution Campaign Report*, Feb 2012 (available at www.energybillrevolution.org/wp-content/uploads/2012/02/Energy-Bill-Revolution_full-report.pdf)

28. DECC (2011) *Valuation of Energy Use and Greenhouse Gas Emissions for Appraisal and Evaluation*.

29. Office for Budget Responsibility (2011) *November 2011 Economic and Fiscal Outlook*.

30. Committee on Climate Change (2011) *Household energy bills – impacts of carbon budgets*.

DOMESTIC ENERGY EFFICIENCY POLICIES AND FUTURE FUNDING COMMITMENTS

4.1 THE POLICY CONTEXT

In the last five years, housing policy in relation to sustainability issues has undergone considerable change. In August 2007, the Minister for Transport, Infrastructure and Climate Change, Stewart Stevenson, MSP, appointed an independent panel to advise on the development of a low carbon building standards strategy to increase energy efficiency and reduce carbon emissions. The expert panel produced *A Low Carbon Building Standards Strategy for Scotland*, known as 'The Sullivan Report' due to its Chair, Lynne Sullivan. This document set out a vision for the next ten years and provided a route map which aims to lead to low and net zero carbon buildings.

Subsequently in October 2009, the Scottish Government produced *Conserve and Save: the energy efficiency action plan for Scotland*. This sets out in detail the actions the Scottish Government is taking to achieve a step change in reducing energy consumption. Since then two further 'Conserve & Save' reports have been produced on an annual basis continuing on from the findings of the 2009 report, and highlighting the need to drive energy efficiency measures in homes across Scotland in order to meet carbon reduction targets.

Alongside Conserve and Save, *The Report on Proposals and Policies* (RPP) was published as part of a suite of Scottish Government publications. The RPP fulfils the duty placed on Scottish Ministers under section 35 of the Climate Change (Scotland) Act 2009 by detailing policies already in place and further proposals to enable Scotland to meet its annual emissions reduction targets between 2010 to 2022. The Report on Proposals and Policies projects a 36% reduction by 2020 against the 1990 baseline, taking into account the total abatement from both existing and proposed policies.

More recently (February 2011), the Scottish Government published its policy paper, *Homes Fit for the 21st Century*. The paper set out an agenda and vision for housing up to 2020 (building on strategic ideas set out by the Sullivan Report). The '2020 Vision' includes seeing improvements in the quality of Scottish homes with the aim that everyone lives in a warm comfortable environment whether they own, part-own or rent their property. The paper sets out four housing related targets:

- housing all unintentionally homeless households in settled accommodation by December 2012;
- ensuring all dwellings owned by social landlords pass all elements of the Scottish Housing Quality Standard by April 2015;
- that nobody will be living in fuel poverty (as far as is practicable) by November 2016; and
- improved design and better energy efficiency in housing will have contributed to emissions reduction targets by 42% by December 2020 (and energy consumption targets by 12%).

This paper saw the massive potential in meeting emissions reduction and energy efficiency targets by focusing on improving the design and the energy efficiency of housing, (in addition to promoting the use of renewable technologies, which many other policies had focused on). There is also a strong emphasis on new builds as over half a million new dwellings are expected to be built between now and 2050 making up 20% of all new homes by 2050.

The paper announced the development of a *Strategy for Sustainable Housing in Scotland* in 2012, currently out for consultation, with the idea of bringing together

all policies – on climate change, energy efficiency, fuel poverty and planning and the built environment – that contribute to the development of sustainable housing and communities.

The Scottish Government has shown that significant progress has been made especially in the delivery of low cost insulation measures through Scottish programmes which seek to maximise energy supplier obligation investment. However, according to the latest Scottish Housing Survey, there are still 544,000 homes requiring cavity wall insulation as a minimum, and 611,000 homes that have solid walls and require solid wall insulation. According to the Scottish Government, the number of dwellings without loft insulation has more than halved since 2003/04 but that still leaves tens of thousands without and over 60% in need of top up insulation. There are concerns that these policies will fall short of delivering against the medium- to long- term carbon reduction targets. In its response to the Green Deal consultation, WWF argued that the Energy Company Obligation and Green Deal programmes should be required to meet carbon targets in line with/in addition to carbon budgets. Currently, the Government has set overall targets of 42%, with the Report on Proposals and Policies (RPP) stating 36% for domestic homes. WWF and the Existing Homes Alliance Scotland however are calling for a 42% target from the housing sector alone.

4.2 EXISTING AND PLANNED PROGRAMMES FOR DOMESTIC ENERGY EFFICIENCY

In 2011-12, the Scottish Government allocated over £55m to support its energy efficiency and fuel poverty programmes. The two main programmes are the Energy Assistance Package and the Universal Home Insulation Scheme. The Energy Assistance Package is a four stage package which provides funding of up to £6,500 for measures if certain fuel poverty criteria are met. More than £13m was made available for local authorities through the Scottish Government's Universal Home Insulation Scheme (UHS), enabling them to offer energy efficiency advice and free insulation to more than 200,000 households in Scotland. UHS is area specific, with areas that need the greatest support being selected and put forward by the local authorities themselves. The scheme drew in significant funding through the Carbon Emissions Reduction Target (CERT) – around £0.5m for every £1m of available Scottish Government funding. . In 2012-13, the Scottish Government is investing over £65m to fund the Energy Assistance Package and UHS. CERT is due to end in December 2012 and be replaced by the Energy Company Obligation (2012).

4.2.1 National Retrofit Programme

A National Retrofit Programme is being designed to build on the work achieved in the previous programmes and to be the overarching structure for both proposed and future programmes to meet climate change and fuel poverty targets.. The programme aims to use Scottish Government funding to leverage additional funding through ECO and make Scotland the ideal place in Britain for energy companies to invest. At the core of this strategy will be area-based schemes run by local authorities. A national, demand-led programme will also be offered for those not covered by the area-based programmes. The focus will be on fuel poor areas first and the programme will work alongside the Warm Homes Fund. It is projected that it will cover all of Scotland in the next ten years, based on the rate of progress of existing area-based programmes. The Government aims to encourage and facilitate local authorities in using available Green Deal and ECO funding through the NRP.

4.2.2 The Green Deal

The Green Deal is a new finance framework which will provide householders and businesses with the upfront capital to carry out energy efficiency improvements to their properties and repay these loans through their energy bill. The Government has suggested that the national market for Green Deal is expected to be worth £1-2bn/yr.

Under the Green Deal, a charge for energy efficiency improvements is attached to the electricity meter of the property concerned. A Green Deal package must meet the 'Golden Rule' which states that this annual charge must be less than the expected annual savings from the retrofit.

The Green Deal will be supported by the Energy Company Obligation (ECO), worth £1.3bn/yr (please see section below for more details). The ECO obliges energy suppliers to meet CO₂ reduction and affordable warmth targets in the domestic sector. It will work alongside the Green Deal by subsidising measures in low income and vulnerable households as well as in hard to treat homes that require more expensive measures like solid wall insulation.

The Green Deal is due to start on 01 October 2012. However, Green Deal finance is unlikely to be fully available until spring 2013. The Green Deal will be complemented by the Renewable Heat Incentive (RHI) (due to be launched for households in summer 2013). The Green Deal will be pump primed through a government cash-back scheme worth about £20m for Scotland.

4.2.3 ECO

The Energy Company Obligation (ECO) puts an obligation on energy suppliers to meet specific CO₂ reduction and affordable warmth targets through energy efficiency upgrades in domestic properties. ECO will replace the existing Carbon Emissions Reduction Target (CERT) and Community Energy Saving Programme (CESP) supplier obligation schemes in December 2012. In the early years, while customer awareness and take up of Green Deal is low and the market is still becoming established, finance delivered through ECO is likely to dominate the market with the expected value of ECO exceeding Green Deal by several times. It is estimated that ECO funding will be worth around £1.3bn annually across the UK which translates into a pro rata share of around £141m per annum for the Scottish housing sector. ECO will be delivered in one of three ways: Affordable Warmth Obligation, Carbon Saving Obligation and the Carbon Saving Communities Obligation.

1. **Affordable Warmth Obligation:** low income households in the private rented and owner occupied sectors will be eligible for potentially free measures under this stream of ECO. Measures that reduce the notional cost of heating the property will be supported with loft insulation, cavity wall insulation, and heating systems expected to be the most common measures.
2. **Carbon Saving Obligation:** this will target hard to treat homes (i.e. those with solid walls or hard to treat cavities) across all tenures.
3. **Carbon Saving Communities Obligation:** households in all tenures located in the bottom 15% of Lower Super Output Areas based on the Index of Multiple Deprivation (and equivalent index in Scotland) will be eligible for loft, cavity and solid wall insulation. The requirement for 15% of the overall target to be delivered to rural, low income households in settlements with a population size under 10,000 is likely to drive uplift in the value energy companies are prepared to pay for homes in these areas.

The carbon savings and carbon saving communities obligation within ECO can work in conjunction with the Green Deal, or as a standalone funding option.

4.3 FUEL POVERTY FUNDING

The 'fuel poverty' refers to the situation where a household cannot afford to heat its home to an adequate level. The Scottish Government uses the following definition of fuel poverty as set out in the Scottish Fuel Poverty Statement (FPS)³¹ published in 2002: *"a household is in fuel poverty if it would be required to spend more than 10% of its income (including Housing Benefit or Income Support for Mortgage Interest) on all household fuel use"*.

The three main factors which influence fuel poverty are:

- household income –the fuel poverty category is deemed to be those who spend over 10% of their income on heating and lighting their homes);
- fuel prices; and
- the energy efficiency of the home.

According to the Scottish Government, an adequate standard of warmth is defined to be 21°C in the living room and 18°C in other rooms for a period of 9 hours in every 24 (or 16 in 24 over the weekend), with 2 hours being in the morning and 7 hours in the evening. For elderly and infirm households, a higher standard temperature of 23° C in the living room and 18°C in other rooms is required to be achieved for 16 hours in every 24. Extreme fuel poverty is defined as the need to spend more than 20% of disposable income in order to meet these standards.

Rising energy prices are pushing ever more people into fuel poverty. The Scottish Government has pledged to ensure that by November 2016, so far as is reasonably practicable, people are not living in fuel poverty in Scotland. According to the Fuel Poverty Forum, in real terms, the Scottish Government's fuel poverty budget is set to rise by 16% in 2012-13, followed by falls of 3% and 1% in real terms in 2013-14 and 2014-15 respectively.

It is widely accepted that fuel poverty is caused by a combination of three factors: the high cost of fuel, low disposable household income and the energy inefficiency of the home. Of these factors, the first two – cost of fuel and energy market regulation and also income including national minimum wage and welfare benefit levels – are matters reserved to the UK government. The third factor – domestic energy efficiency plus building standards – is devolved to the Scottish Government.

The Energy Assistance Package replaced earlier Central Heating and Warm Deal Schemes which focused on pensioners and is now also targeted at families living in energy inefficient homes and aims to tackle the key causes of fuel poverty (low incomes and fuel costs as well as energy inefficient homes). The EAP is administered by the Energy Saving Trust on behalf of the Scottish Government and spent £31.8m in 2011/12.

There is only a limited amount of funding available for fuel poor homes under ECO affordable warmth obligation - £350m each year of the total £1.3bn ECO pot. The pro rata share of ECO affordable warmth for the Scottish housing sector is approximately £31.8m. The Green Deal also has limited applicability for the fuel poor as it fixes an element of the energy bill effectively locking people into fuel poverty for the duration of the scheme. Green Deal is a long-term loan paid back through a payment attached to the household's electricity bill, which while it might be attractive to better-off families who can afford repayments, it would need to be radically changed to be of benefit to poorer families.

In June 2012, the Scottish Government announced its plans for the National Retrofit Programme, which will replace and build upon EAP and UHIS. The Government hopes to work with energy companies (through ECO) to identify £200m each year to help upgrade inefficient properties and those in fuel poverty by providing a range of free or discounted heating and home insulation measures.

31. The Scottish Fuel Poverty Statement (2002) Scottish Government.

In addition, the £50m Warm Homes Fund is intended to be spent over the course of the current SNP government (May 2011 – May 2015). The fund plans to “deliver renewable and energy efficient homes in those communities worst affected by fuel poverty”. The fund will be available to those communities worst affected by fuel poverty across Scotland. Various proposals from the Government are being considered on defining the eligibility criteria for the Fund and the definition by which communities are able to access this finance. The fund was developed from money remaining from a transport project and therefore the longevity of the fund beyond the current Government is uncertain and no commitments have been made for it to continue beyond 2016.

4.4 IDENTIFYING THE SHORTFALL

Whilst the retrofit of existing housing stock does offer significant opportunities for CO₂ reductions, the targets for emissions reductions from homes and the expected investment (in terms of both government funding and private sector investment) to achieve this do not align. The expected investment due to current and proposed policy instruments is summarised in the table below.

TABLE 1 EXPECTED INVESTMENT DUE TO CURRENT AND PROPOSED POLICY INSTRUMENTS

| INSTRUMENT | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | TOTAL (£ MILLIONS) |
|---|---------|---------|---------|---------|---------|---------|---------|---------|-----------------------|
| Proposed National Retrofit Programme | | £65 | £66.25 | £67.6 | £68.9 | £70.3 | £71.7 | £73.2 | |
| Eco – Scottish proportion (based on Scottish homes forming 9.1% of UK housing stock) | £118.3 | £118.3 | £118.3 | £118.3 | £118.3 | £118.3 | £118.3 | £118.3 | |
| Green Deal Promotion – Scottish proportion | £20.1 | | | | | | | | |
| Fuel Poverty and Domestic Energy Efficiency Programmes (UHS, EAP, Boiler Scrappage) | £65 | | | | | | | | |
| Warm Homes Fund (based on proposed £50 spend over course of parliament) | £3.25 | £7.5 | £18.75 | £20.5 | | | | | |
| Total available budget targeted at fuel poverty (£ millions) | £100.25 | £104.5 | £117 | £120.1 | £100.9 | £102.3 | £103.7 | £105.2 | £853.95 |
| Total available budget (£ millions) | £184.7 | £190.8 | £203.3 | £206.4 | £187.2 | £188.6 | £190 | £191.5 | £1,543 |

Assumptions

National Retrofit Programme – assumption shows proportionate increase based on initial funding figures from Scotland’s Sustainable Housing Strategy.

ECO – total budget (£1.3bn per annum) is shown as it is proportioned across individual elements (hard to treat homes, Affordable Warmth Target, Upgrade of dwellings). The Scottish proportion of this total has been calculated based on Scotland accounting for

9.1% of total UK housing stock, suggesting a representative proportion of the £1.3bn would be £141.4m. An assumption has been made that the same level of funding will continue.

Green Deal – similarly, the initial provision (to kick-start uptake) of £200m for the UK has been apportioned to reflect Scottish housing stock.

The proportion of budget available for fuel poverty includes 27% of the Scottish ECO budget – approximately £32m in year one (2012/13), and all available funding from UHIS, EAP and the Warm Homes Fund, as well as all of the available funding under the NRP. However, it should be noted this is a generous estimate because while the NRP is fuel poverty focused, not all of the funding will go to fuel poor households, given the area based nature of the scheme. The total available budget for fuel poverty to 2016 – the date of the target – is £.54bn.

The total available budget per year shown is a total for apportioned Scottish funding and Scottish only schemes – the total available ECO budget per annum for the UK is £1.3bn. This has been apportioned by percentage of Scottish housing stock (9.1%) giving Scotland an approximate funding allocation of £118.3m per annum.

PROJECTED CONTRIBUTION FROM GREEN DEAL

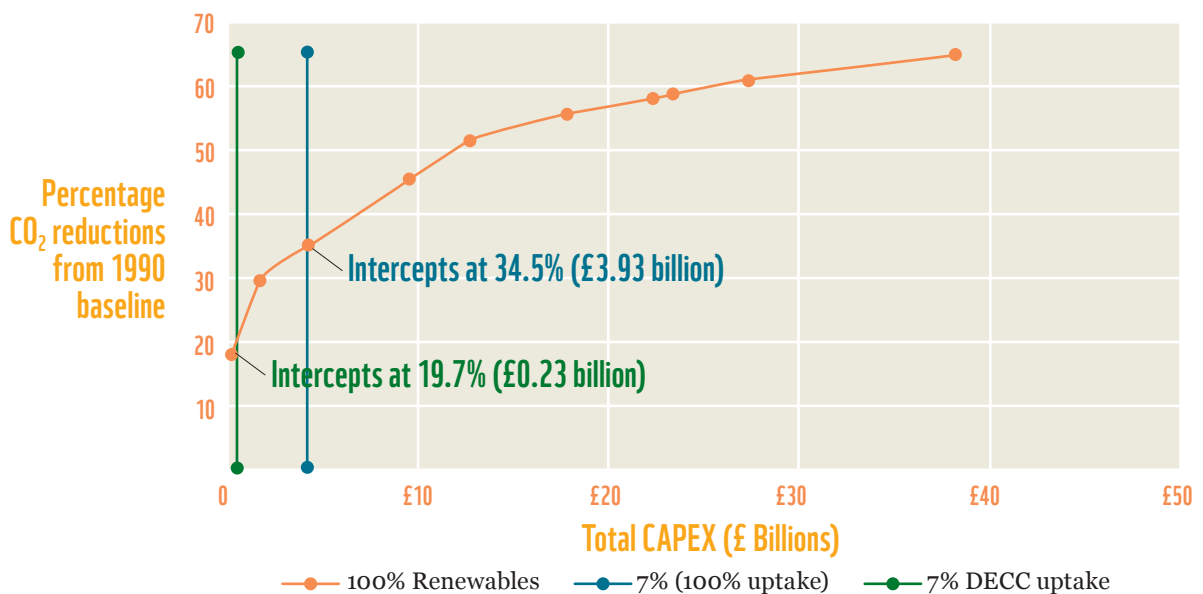
5.1 GREEN DEAL

Figure 7 below shows the maximum technical potential for Green Deal (blue line) and the contribution that Green Deal is likely to make between now and 2020 based on uptake (green line). The technical potential is worked out based on a 7% interest rate and 20 year contract length. This suggests that measures that work within the Green Deal 'Golden Rule' could deliver a 34.5% reduction over the 1990 baseline, an additional 17% over and above

the 18% emissions reduction achieved to date against 1990 baseline³². However, it is acknowledged that a lower interest rate and longer contract length could potentially increase the overall technical potential and vice versa.

Factoring in the likely uptake for Green Deal brings down the figure to 19.7%, contributing under 2% to the emissions reduction achieved to date³³ against 1990 baseline. The assumption on uptake rates is based on data published by DECC in the Green Deal and ECO (draft) Impact Assessment. Assuming Scotland gets its pro-rata share of the ECO subsidy (around £141m per annum) and that it is invested into the most cost-effective energy efficiency measures in the housing stock as per the eligibility criteria, the total CO₂ savings from both Green Deal and ECO would be ~10%, delivering a reduction of 28% by 2020.

FIGURE 7 GREEN DEAL CONTRIBUTION TO EMISSIONS REDUCTION TARGETS



32. Based on 2009 Scottish domestic sector data.

33. Based on 2009 Scottish domestic sector data.

CONCLUSIONS

The analysis has indicated that a significant level of investment is required from both public and private sector to meet a 42% climate change emissions reduction target by 2020, to the tune of £7.7bn. Even to meet the Government's less ambitious projection of 36% by 2020

for the housing sector would require £4.6bn. The level of investment to meet the 2016 fuel poverty targets is estimated at £6.3bn. In contrast, the level of funding available under existing and proposed carbon reduction and fuel poverty policies between now and 2020 is around £1.5bn and £0.85bn respectively, a fraction of the required level. Private sector investment through Green Deal is likely to contribute only marginally to these targets; around quarter of a billion investment is expected based on uptake rates published by DECC. Even under a relatively optimistic scenario based on Scottish weather data, the level of investment required to meet the 42% target is five times the level of funding likely to be available, while the 36% ambition set in the RPP would require 2.7 times the investment.

This suggests that the level of ambition for most policy instruments aimed at energy efficiency in the domestic sector needs to be reviewed. Otherwise, there is a very real danger that these policies will fall well short of delivering the short to medium term carbon reduction and fuel poverty targets. Consideration needs to be given to achieving a good balance between regulation and incentives. Setting minimum energy performance standards for private sector housing, similar to those being considered for social housing, will play a pivotal role in delivering against both environmental and social targets. These should be coupled with appropriate incentives, such as interest rate subsidy, stamp duty and council tax rebates, all aimed at improving the uptake of the National Retrofit Programme and Green Deal. In addition, the Scottish Government should work at the UK level to support the recycling of carbon taxes from EUETS and carbon price floor into domestic energy efficiency offering a potential revenue stream to fund either grants for fuel poor or appropriate incentives for other households. This will ensure that the impact on fuel poor and low income households is less regressive compared to, let's say, a bigger supplier obligation funding pot as a large proportion of these carbon taxes are already reflected in consumer energy bills.

APPENDIX A MODELLING ASSUMPTIONS AND DATA SOURCES

| MODELLING PARAMETERS FOR ESTIMATING INVESTMENT REQUIRED TO MEET CO ₂ REDUCTION TARGETS | | |
|---|--|--|
| MODELLING PARAMETERS | SOURCE /ASSUMPTION | REFERENCE |
| TECHNICAL MODELLING OF ENERGY SAVINGS | SAP 2005 software. | www.projects.bre.co.uk/sap2005/ |
| COST OF ENERGY EFFICIENCY MEASURES | EST Housing Energy Model 2010. | www.energysavingtrust.org.uk/uk/Publications2/Local-authorities/Strategy-development/The-Energy-Saving-Trust-Housing-Energy-Model-assumptions |
| 2020 CARBON FACTOR FOR GRID ELECTRICITY | Analysis carried out by SKM for Scottish Government. | SKM, Scottish Generation Scenarios and Power Flows: An analysis, Nov 2011. |
| 2020 CARBON FACTOR FOR GRID ELECTRICITY FOR SENSITIVITY ANALYSIS | DECC (UK projections) Analysis carried out by SKM for Scottish Government (125% and 48% renewable energy generation by 2020). | Inter-departmental Analysts' Group (IAG) DECC, Valuation of energy use and greenhouse gas emissions for appraisal and evaluation, October 2011. SKM, Scottish Generation Scenarios and Power Flows: An analysis, Nov 2011. |
| MODELLING PARAMETERS FOR ESTIMATING INVESTMENT REQUIRED TO MEET FUEL POVERTY TARGET | | |
| AVERAGE COST OF UPGRADING FUEL-POOR HOME | Analysis carried out by Verco (formerly Camco) for the Energy Bill Revolution campaign. | Camco, Energy Bill Revolution Campaign Report, Feb 2012 available at www.energybillrevolution.org/wp-content/uploads/2012/02/Energy-Bill-Revolution_full-report.pdf |
| MODELLING PARAMETERS FOR ESTIMATING GREEN DEAL POTENTIAL | | |
| INTEREST RATE TO CONSUMER | 7% | Verco assumption. |
| CONTRACT LENGTH | 20 years. | Verco assumption. |
| ENERGY PRICE INFLATION WITHIN GREEN DEAL PLAN | None.. | Verco assumption. |
| PROJECTED UPTAKE FOR GREEN DEAL | DECC; pro-rata figures for Scotland. | DECC, The Green Deal and Energy Company Obligation (Draft) Impact Assessment, 2011. |

APPENDIX B COMPARISON OF EST AND DEMSCOT CAPITAL COSTS

| MEASURE | CAPITAL COST (£) | | | ASSUMED VAT RATE | DEMSCOT COSTS ³³ |
|---|------------------|----------|----------|------------------|-----------------------------|
| | FLATS | TERRACED | SEMI/DET | | |
| CAVITY WALL INSULATION | £ 160 | £ 210 | £ 621 | 5% | £ 500 |
| LOFT INSULATION (POOR - 60MM) | | £ 410 | £ 465 | 5% | £ 500 |
| LOFT INSULATION (GOOD - 165MM) | | £ 336 | £ 366 | 5% | |
| INTERNAL INSULATION | £ 5,256 | £ 5,703 | £ 7,137 | 5% | £ 5,500 |
| EXTERNAL INSULATION | £ 3,834 | £ 7,666 | £ 11,036 | 5% | |
| FLOOR INSULATION | | £ 1,675 | £ 2,210 | 5% | |
| INSULATED DOORS | £ 541 | £ 538 | £ 538 | 20% | |
| PRIMARY PIPEWORK INSULATION | £ 101 | £ 101 | £ 101 | 5% | £ 30 |
| DOUBLE GLAZING | £ 1,248 | £ 1,560 | £ 1,872 | 20% | £ 3,700 |
| REDUCED INFILTRATION A - TO 5M ³ /M ² .H | £ 240 | £ 240 | £ 240 | 20% | |
| REDUCED INFILTRATION B - TO 1.5 M ³ /M ² .H (INCL. HEAT RECOVERY) | £ 3,500 | £ 3,500 | £ 3,500 | 20% | |
| DRAUGHT PROOFING - TO 10M ³ /M ² .H | £ 101 | £ 101 | £ 101 | 5% | £ 30 |
| TRIPLE GLAZING (WHERE NO DOUBLE GLAZING PACKAGE ALREADY INCLUDED) | £ 1,522 | £ 2,134 | £ 2,134 | 20% | |
| LOW ENERGY LIGHT BULBS | £ 10 | £ 20 | £ 28 | 20% | £ 60 |
| HEATING CONTROLS | £ 419 | £ 419 | £ 419 | 5% | £ 300 |
| INSULATED DOORS | £ 444 | £ 444 | £ 444 | 20% | |
| FOAM INSULATED DHW CYLINDER | £ 1,446 | £ 1,446 | £ 1,446 | 20% | £ 2,500 |
| CONDENSING BOILER REPLACEMENT (GAS) | £ 3,500 | £ 5,000 | £ 6,500 | 5% | £ 8,400 |
| HEAT PUMP (AIR SOURCE) | £160 | £160 | £160 | £160 | £160 |

34. Source: <http://www.scotland.gov.uk/Publications/2009/10/08143041/4>

APPENDIX C POLICY SUMMARY

| SCOTTISH GOVERNMENT EXISTING POLICIES | | | | | |
|--|---|-------|----------|--|--|
| POLICY | BRIEF DESCRIPTION & TARGET AREA | START | END | POLICY PROGRESSION (OR TARGETS MET TO DATE) | TARGET SPEND IN FUTURE YEARS (£M) |
| HOMES FIT FOR THE 21ST CENTURY – SCOTTISH GOVERNMENT HOUSING POLICY | The Government's strategy and action plan for the decade to 2020. The over-arching aim is a housing system that provides affordable housing for all. Four main targets make up the strategy around homelessness, social housing standards, fuel poverty, and climate emissions reduction. | 2010 | 2020 | | |
| ENERGY EFFICIENCY ACTION PLAN (EEAP) | The plan sets a framework for energy efficiency and micro-generation that furthers Scottish climate change, economic and social agendas. Target to cut final energy consumption by 12% across the economy. | | | Target area: to reduce end-use Scottish final energy consumption by 12% by 2020. | |
| REPORT ON PROPOSALS AND POLICIES | Projected 36% reduction in carbon emissions from homes by 2020 | 2010 | On-going | | Scottish Government funding for Fuel Poverty and EE programmes tops £57.5m over 2011-12; 2012-13 figure rises to £65m. NB: If this 12% rise is replicated until 2020, expenditure in 2020 would be circa £143.7m with a total expenditure between 2012 and 2020 of £799.5m. |

| POLICY | BRIEF DESCRIPTION & TARGET AREA | START | END | POLICY PROGRESSION (OR TARGETS MET TO DATE) | TARGET SPEND IN FUTURE YEARS (£m) |
|---|--|---------------|------------|--|---|
| ENERGY ASSISTANCE PACKAGE (EAP) | <p>The Scottish Government's Energy Assistance Package is designed to help those at most risk of fuel poverty. Each of the four stages of the package offers different levels of advice and support, depending on the circumstances of the householders.</p> <p>Tenants in social housing are eligible for stages one and two of the package, which offer advice on energy efficiency and income maximisation. Some funding was also allocated to local authorities and RSLs under the Social Sector Stage 3 stream.</p> | 2009 | March 2013 | <p>67,144 households received initial advice.</p> <p>Over 26,000 households in social rented housing were receiving energy efficiency measures in 2009/10.</p> <p>Over 11,500 households were receiving heating system measures (63% through EAP; others carried over from earlier programmes) in 2009/10.</p> | <p>A benefit and tax credit check, and access to the lowest-cost energy rates. People can get up to £1,500 extra per year.</p> <p>Supported by a £37.7m budget in 2011/12.</p> |
| SCOTTISH HOUSING QUALITY STANDARD (SHQS) | <p>The Scottish Housing Quality Standard (SHQS) was introduced in February 2004 and is the Scottish Government's principal measure of housing quality in Scotland.</p> <p>Scottish Government has set a policy target for those landlords to bring their stock up to every element of the standard (where applicable) by April 2015.</p> | February 2004 | On-going | <p>Nearly two thirds of those non-compliant homes now only fail in only one criterion. 41% of landlords are already near to, or fully comply with, the Standard; 46 landlords (all of them RSLs) fully comply, and 30 (29 RSLs and 1 council) have non-compliance rates of less than 5%.</p> | <p>From 2011 to 2015, landlords expect to invest at least £1.3bn in their stock to meet the SHQS target:</p> <p>RSLs project they will invest around £500m in their houses to meet the Standard.</p> <p>Local authorities anticipate investing about £800m.</p> |
| WARM HOMES FUND | Aimed at supporting renewables and energy efficiency for fuel poor communities. | 2012 | On-going | | <p>Target spend £50m (in 2012-13 only £6.5m available to Warm Homes Fund, also to be shared with Future Transport Fund).</p> |

| POLICY | BRIEF DESCRIPTION & TARGET AREA | START | END | POLICY PROGRESSION (OR TARGETS MET TO DATE) | TARGET SPEND IN FUTURE YEARS (£M) |
|--|---|-------|-------------------|---|--|
| UNIVERSAL HOME INSULATION SCHEME | <p>Scottish Government is investing over £16m to fund UHIS throughout 2012-13 (see below).</p> <p>The scheme, administered by local authorities, offers a range of free home insulation measures including loft and cavity wall insulation.</p> <p>Estimates of Home Insulation Levels in Great Britain is captured from data gathered under the Carbon Emission Reduction Target (CERT) scheme.</p> <p>In Scotland, households have received over 327,400 free or subsidised professionally installed cavity wall or loft insulation measures from April 2008 to September 2011. More than 1 in every 10 homes has received support.</p> | 2008 | March 2013 | | Investing over £16m to fund UHIS throughout 2012-13. |
| BOILER SCRAPPAGE SCHEME | <p>The Scottish Boiler Scrappage Scheme may have ended; similar discounts still available from nationwide boiler suppliers including British Gas and Carillion (formally EAGA Heat).</p> <p>A £2.5m scheme offering 6,000 households vouchers was launched in June 2011.</p> <p>This is in addition to over 6,800 vouchers paid in support of householders and private landlords in 2010-11, supported by over £3m.</p> | | Vouchers on-going | | Home Energy Scotland provides £400 vouchers per household. |
| ENERGY SAVING SCOTLAND ADVICE CENTRES | Regional advice centres providing free, independent help and advice. | | ongoing | | |

SCOTTISH GOVERNMENT FUTURE POLICIES

| POLICY | BRIEF DESCRIPTION & TARGET AREA | START | END | POLICY PROGRESSION (OR TARGETS MET TO DATE) | TARGET SPEND IN FUTURE YEARS (£M) |
|--|--|-----------------------|-----|--|---|
| SCOTLAND'S SUSTAINABLE HOUSING STRATEGY | Sets over-arching vision for 'warm, high quality, affordable, low carbon homes. Themes include: National Retrofit Programme, Role of Standards, Financial Market Transformation, New Build Market Transformation, Skills and Training. | From late 2012 | | | Spend as set out for National Retrofit Programme. |
| NATIONAL RETROFIT PROGRAMME | National programme to meet fuel poverty and climate change emission reduction targets. Focus on area-based schemes, local authority-led, with national demand-led programme in parallel. Aim to maximise ECO investment. | From April 2013 | | | Combined energy efficiency spending pot of £200m per annum. Includes Scottish Government funding and expected share of ECO. |
| ENERGY EFFICIENCY STANDARD FOR SOCIAL HOUSING | Builds on SHQS and sets new energy efficiency standard for 2020. It will help to reduce energy consumption, fuel poverty and the emission of greenhouse gases. It will make a significant contribution to reducing carbon emissions by 42% by 2020 and 80% by 2050 in line with the requirements set out in the Climate Change (Scotland) Act 2009. | | | | No additional funding available. |

UK GOVERNMENT EXISTING POLICIES

| POLICY | BRIEF DESCRIPTION & TARGET AREA | START | END | POLICY PROGRESSION (OR TARGETS MET TO DATE) | TARGET SPEND IN FUTURE YEARS (£M) |
|-------------|---|-------|--------------------------------------|--|---|
| CESP | CESP targets households across Great Britain, in areas of low income, to improve energy efficiency standards, and reduce fuel bills. There are 4,500 areas eligible for CESP. CESP is funded by an obligation on energy suppliers and electricity generators. It is expected to deliver up to £350m of efficiency measures. | | End 2012 | CESP commenced on 01 September 2009 and British Gas launched the first 'live' CESP scheme in Walsall in January 2010. As of 30 September 2011, there were over 160 live CESP schemes. | |
| CERT | The Carbon Emissions Reduction Target (CERT), regulated by Ofgem, requires all domestic energy suppliers with a customer base in excess of 250,000 customers to make savings in the amount of CO ₂ emitted by householders. Suppliers meet this target by promoting the uptake of low carbon energy solutions to household energy consumers, thereby assisting them to reduce the carbon footprint of their homes. Estimates of Home Insulation Levels in Great Britain is captured from data gathered under the Carbon Emission Reduction Target (CERT) scheme. | 2008 | Extended March 2011 to December 2012 | The scheme extension to 2012 will start a massive and urgent increase in home energy insulation, paving the way for the Green Deal starting in October. Energy suppliers are now required to deliver measures that will provide overall lifetime carbon dioxide savings of 293 MtCO ₂ by December 2012, superseding the target of 185 MtCO ₂ by March 2011. | According to DECC, if taking into account the costs, CERT has a positive Net Present Value to society of approximately £17bn. |

UK GOVERNMENT FUTURE POLICIES

| POLICY | BRIEF DESCRIPTION & TARGET AREA | START | END | POLICY PROGRESSION (OR TARGETS MET TO DATE) | TARGET SPEND IN FUTURE YEARS (£M) |
|--|---|--------------|----------|--|---|
| ECO (ENERGY COMPANY OBLIGATION) | <p>The Energy Company Obligation (ECO) will take over from the existing obligations the Carbon Emissions Reduction Target (CERT) and the Community Energy Saving Programme (CESP).</p> <p>These existing obligations are due to end in December 2012 and the ECO will take over in addressing energy efficiency in the domestic sector.</p> <p>Two elements: 'Carbon Saving Obligation' and 'Affordable Warmth Obligation'.</p> | October 2012 | On-going | <p>Annual funding pot for ECO is £1.3bn. £760m is dedicated to meet the carbon saving target, focusing on hard to treat homes, e.g. those with solid walls.</p> <p>£540m is proposed to meet the Affordable Warmth target:</p> <p>£350m of this is to deliver heating and insulation measures to around 270,000 low income and vulnerable households by 2015.</p> <p>£190m will be available to upgrade dwellings in the poorest areas (including social housing), with loft and cavity wall insulation.</p> | £1.3bn set aside for ECO funding per annum. |
| GREEN DEAL | <p>The GD intends to make it possible for homes and business owners to have energy efficient improvements installed in their properties at no upfront cost to the owner, tenant or landlord.</p> <p>Green Deal Finance – loans of up to approx. £10,000.</p> <p>Payback recouped by instalments over 25 years or less.</p> <p>Once Green Deal measures have been installed, repayments will appear on the customer's electricity bills as a separate charge.</p> <p>The amount of finance that a Green Deal Provider can attach to a customer's estimated electricity bill will be limited by the Golden Rule principle, which limits the amount of finance for any given measure to the estimated energy bill savings that are likely to result from the installation of the proposed measure.</p> | October 2012 | On-going | | |

100%
RECYCLED

Delivering Scotland's climate change and fuel poverty targets in numbers

25%

Housing sector accounts for 1/4 of Scotland's carbon emissions.

£1.5BN

Government's projected investment on fuel poverty and domestic energy efficiency to 2020.

£6.3BN

Total investment required to eradicate fuel poverty by 2016.



£7.7BN

Total investment required to achieve 42% cut in climate emissions from housing.

OVER 800,000

Households living in fuel poverty.



Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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