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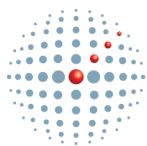
## Energy Bill Revolution Campaign Report – Executive summary



# climatechangesolutions

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## 1 Executive summary

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This research assesses the impact of the Government's new flagship energy efficiency policies – the Green Deal and Energy Company Obligation (ECO) – on carbon emissions, fuel poverty and job creation. It also evaluates how much more could be achieved if carbon tax revenues were recycled to households to make their homes more energy efficient and bring them up to current new build standard.

### Key findings

- The Government projects that on average 100,000 homes a year will take up the Green Deal between 2013 and 2027 in the absence of any subsidies or other incentives. A further 260,000 households a year are expected to take up measures funded by the ECO between 2013 and 2022. This represents a reduction in the installation rates of basic energy efficiency measures compared with previous schemes. For instance, figures published by DECC<sup>1</sup> indicate that annual installations of cavity wall insulation will on average drop by a third between 2013 and 2022, compared with those installed between 2008 and 2010.
- As a result, without greater financial support, the Green Deal and ECO risk falling short of delivering against the Government's legally binding CO<sub>2</sub> reduction targets under the fourth carbon budget and the Government's legally binding 2016 fuel poverty targets.
- Under the Government's central energy price inflation scenario, we project a potential increase in the number of fuel poor households in the UK of 40% between 2011 and 2016, from 6.4m to 9.1m, even after taking account of the energy bill reductions generated by ECO-funded energy efficiency improvements.
- Additional incentives and subsidies are required to meet CO<sub>2</sub> reduction and fuel poverty targets, and deliver whole house retrofits to future-proof our existing homes against fuel poverty.
- The Government will raise around £64bn in carbon tax revenues by 2027 (the end of the fourth carbon budget) from the EU Emissions Trading Scheme and the Carbon Price Floor mechanism. This is an average of £4bn per year over this period. Recycling of this revenue into energy efficiency programmes would have a transformational impact in terms of reducing CO<sub>2</sub> emissions and fuel poverty, and on job creation.
- The recycling of carbon taxes would help achieve the Government's target in the fourth carbon budget period, saving up to four times as much carbon as the Green Deal and ECO combined.
- If the carbon tax revenues were allocated to tackle fuel poverty, all 9.1m fuel poor homes could be upgraded by 2027. This equates to 600,000 homes receiving energy efficiency measures worth on average £6,500 every year. The recycled carbon tax revenue would cut their household energy bills by £310 per year. It would remove 87% of these households from fuel poverty and raise the energy efficiency standard of the remaining 13% to that of a home built today.
- Alternatively, recycling of the carbon taxes could, for example, halve the number of fuel poor households, plus work with the Green Deal to upgrade up to a third of the non-fuel poor households to the same energy efficiency standard as a newly built home today.

<sup>1</sup> *The Green Deal and Energy Company Obligation (Draft) Impact Assessment, Annex E, Figure 42*

- The recycling of carbon tax revenues would support between 30,000 and 50,000 direct jobs related to the installation of the measures, and between 120,000 and 200,000 indirect jobs in the wider economy. Compared with the Green Deal and ECO, the recycling of carbon taxes would support up to four times as many jobs in the economy.

## Introduction

This research was commissioned by Transform UK, The Co-operative Group and Consumer Focus to assess the environmental, social and economic benefits of using carbon taxes to make existing homes more energy efficient.

The UK Government has a statutory obligation to eradicate fuel poverty as far as is reasonably practicable by 2016 in England and by 2018 in Wales. The Scottish Government has also set a target to eliminate fuel poverty as far as is reasonably practicable by 2016. However, rising energy costs are driving increasing numbers of households into fuel poverty.

In addition, the UK Government has a statutory obligation to reduce CO<sub>2</sub> emissions by 80% below 1990 levels by 2050<sup>2</sup> and is setting intermediate five yearly carbon budgets as advised by the Committee on Climate Change. The fourth carbon budget will require greenhouse gas emissions to be cut by 50% over 1990 levels by 2023-2027. Given that buildings account for 37% of UK greenhouse gas emissions<sup>3</sup> and homes account for 25% of UK greenhouse gas emissions, driving down energy demand in buildings is critical to meeting the ambitious medium and long term targets.

To eradicate fuel poverty and to deliver against the CO<sub>2</sub> reduction targets set in the fourth carbon budget, the energy performance of the existing housing stock will need to be improved radically.

This report sets out the findings of the analysis undertaken to understand:

- the adequacy of the Government's proposed Green Deal and ECO policies in delivering against CO<sub>2</sub> reduction and fuel poverty targets;
- the scale of investment required to bring households out of fuel poverty and the investment needed to future-proof homes against fuel poverty by making them as energy efficient as a home built today;
- the revenues from carbon taxes between now and 2027, the end of the fourth carbon budget;
- the benefit that the recycling of carbon tax revenues can bring in terms of fuel poverty eradication, CO<sub>2</sub> savings and jobs.

<sup>2</sup> *The Climate Change Act 2008*

<sup>3</sup> *DECC (December 2011) The Carbon Plan: Delivering our low carbon future*

## Modelling the impact of Green Deal and ECO

The Green Deal is the Government's flagship policy to reduce CO<sub>2</sub> emissions from people's homes and small businesses. Green Deal providers will finance and install energy efficiency improvements from the end of 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. Only measures that meet the 'Golden Rule' can be installed under the Green Deal, which means that the value of the charge imposed by the Green Deal provider has to be less than the predicted energy bill saving – so the customer should be no worse off after improving their home.

The ECO sets targets for energy companies to install energy efficiency measures in either hard-to-treat homes or those occupied by low income and vulnerable households. The policy is set for a ten year period from 2012 – 2022. As with previous energy company obligation schemes, such as CERT and CESP, the cost of delivering ECO will be passed on to household energy bills.

This study analyses the the environmental, social and economic benefits of the Green Deal and ECO using DECC's own estimates on uptake rates.

### CO<sub>2</sub> emissions

DECC's analysis<sup>4</sup> suggests that 1.5m homes are likely to take up the Green Deal by 2027 – an average of 100,000 homes per year. The ECO is projected to deliver installations in a further 260,000 homes per year until 2022.

Overall, the Green Deal and ECO are expected to deliver fewer basic energy efficiency measures compared with historic installation rates under CERT and CESP. For instance, figures published by DECC<sup>5</sup> indicate that annual installations of cavity wall insulation will on average drop by a third between 2013 and 2022 compared with those installed between 2008 and 2010.

Together, Green Deal and ECO will deliver carbon emission savings of 4 - 4.5MtCO<sub>2</sub> per year by 2027. The Government's Carbon Plan indicates that in order to meet the fourth carbon budget (2023-2027), additional savings of 5 -15MtCO<sub>2</sub> will be needed each year in the building sector over this period. This means the extra carbon savings required from buildings are up to four times greater than the carbon savings projected to come from both the Green Deal and ECO combined.

### Fuel poverty

Households are defined as being in fuel poverty if they need to spend 10% or more of their income on fuel in order to heat their homes to an adequate level. Detailed modelling carried out using the English Housing Survey<sup>6</sup> dataset indicates that there are currently 4.5m households in fuel poverty in England. Across the UK, there are estimated to be 6.4m households in fuel poverty currently compared with 5.5m households in 2009.

Taking into account the projected increase in fuel prices under the Government's central energy price inflation scenario<sup>7</sup> the modest increase in household incomes as projected by OBR<sup>8</sup>, plus

<sup>4</sup> Data on uptake of Green Deal and ECO as published in 'The Green Deal and Energy Company Obligation (Draft) Impact Assessment', Annex E, Figure 42. Figures derived based on uptake rates from 2013-2022 and then extrapolating the trend forward to 2027.

<sup>5</sup> The Green Deal and Energy Company Obligation (Draft) Impact Assessment, Annex E, Figure 42

<sup>6</sup> English Housing Survey, 2009

<sup>7</sup> DECC (2011) Valuation of Energy Use and Greenhouse Gas Emissions for Appraisal and Evaluation

<sup>8</sup> Office for Budget Responsibility (2011) November 2011 Economic and Fiscal Outlook

the reduction in energy consumption as a result of current policy instruments<sup>9</sup>, the analysis finds that the number of fuel poor households would increase to 6.2m in England and 9.1m in the UK by 2016. These figures take into account the impact of the ECO subsidy on household energy consumption.

This is a potential rise in fuel poverty of 40% in the UK. It is equivalent to one in three households in the UK being in fuel poverty by 2016. In Scotland, Wales and Northern Ireland, the fuel poverty problem is expected to be much more pronounced with the risk that over one in two households may be in fuel poverty by 2016.

## Jobs

It is estimated that the Green Deal and ECO has the potential to create an eco-refurbishment market of ~£27bn over the next 15 years, supporting around 255,000 person years of employment or around 17,000 direct jobs<sup>10</sup>.

## Summary impact of the Green Deal and ECO

The study concludes that without further support the Green Deal and ECO policies will fail to ensure that the fourth carbon budget reduction target is met. In addition, the target of eliminating fuel poverty by 2016 will also be missed and there is a high risk that fuel poverty will in fact increase.

## Level of carbon tax revenue

For this study, two main sources of carbon taxes have been analysed – the auctioning of carbon allowances under the EU Emission Trading Scheme (EUETS), a regional cap-and-trade initiative, and the introduction in the UK of the Carbon Price Floor (CPF) mechanism, a policy setting a minimum cost of carbon which is due to come into force in the UK in 2013<sup>11</sup>. Both of these policies increase the cost of household electricity.

The total combined revenue from the EUETS and CPF mechanism from 2011 to 2027 (the end of the fourth carbon budget) is projected to be £63.8bn. Of this, around £52.8bn (81%) is projected to be raised from the EUETS and £11bn (17%) from the carbon price floor<sup>12</sup>. Annual revenues increase each year, rising from £2.3bn in 2013 to £6.8bn by 2027. On average, the carbon tax revenues are estimated to be around £4bn per year between now and 2027.<sup>13</sup>

The projected revenue available from carbon taxes can potentially quadruple the level of funding available for energy efficiency improvements under ECO, raising the total potential funding from £1.3bn/year to an average of £5.3bn/year over the next 15 years.

<sup>9</sup> Committee on Climate Change (2011) Household energy bills – impacts of carbon budgets

<sup>10</sup> The analysis assumes that all homes projected to take up Green Deal finance with or without ECO have energy efficiency measures installed that work within the 'Golden Rule'.

<sup>11</sup> The CPF introduces a minimum cost of carbon for large electricity producers. A support rate is set on top of the cost for an allowance under the EUETS. The carbon price would begin at £16/tCO<sub>2</sub> in 2013. It will rise by £2/tCO<sub>2</sub> per annum until 2020. From 2020 – 2030 the price will increase by £4/tCO<sub>2</sub> per annum.

<sup>12</sup> The revenue projections are based on DECC's central scenario on carbon price forecasts and long-term sector emission trends, also published by DECC.

<sup>13</sup> It should be noted, however, that these price projections are very optimistic relative to market price projections. During the last six months of calendar 2011, carbon allowance (EUA) prices fell by nearly 40%, while UN Certified Emission Reduction (CER) prices fell by over 60% within the EUETS. Market analysts for UBS (Union Banque Suisse) and Deutsche Bank (DB) project EUA prices during Phase III of the EUETS as not rising about €15 during the entire period, which are 20-40% lower than UK Government projected prices. Other market analysts, such as SGS and Barcap (Barclays Capital) are slightly more bullish, but, their projections are still 20-30% below the latest DECC EUA price projections.

The costs of carbon taxes are passed on to consumers and are reflected in their bills, particularly their energy bill. Carbon taxes<sup>14</sup> constitute around 1.7% of consumer energy bills today and are expected to rise to 3.3% by 2027. The recently published Committee on Climate Change report analysing the impact of carbon targets on household energy bills suggests that energy bills in 2020 can broadly be kept at 2010 levels if targeted policies successfully deliver energy efficiency improvements in homes<sup>15</sup>. However, the carbon tax revenue is not currently being recycled back into energy efficiency to bring down household fuel bills and fuel poverty proof the building stock.

## Recycling carbon tax revenues

There are clearly many ways in which the carbon revenue could be spent. Three scenarios have been investigated to illustrate the impact of recycling carbon tax revenues on carbon emission reduction, fuel poverty and job creation.

**Scenario 1:** a highly targeted energy efficiency grant programme that upgrades all homes projected to be in fuel poverty in 2016 – i.e. 9.1 million homes. Under this scenario, the fuel poor home will receive on average a grant of £6.5k to remove the household from fuel poverty.

**Scenarios 2 & 3:** a notional 50:50 split of the revenues between fuel poor households and non-fuel poor households. For the non-fuel poor households the recycled tax revenue will be used to top up Green Deal finance. Two different incentives are modelled to increase Green Deal take up – either an annual saving on the energy bill to raise energy savings above Green Deal repayment cost (scenario 2) or an upfront cash back incentive (scenario 3). Under both Scenarios 2 and 3, the fuel poor homes will receive the same level of financial support as in Scenario 1. The non-fuel poor homes would receive on average a subsidy of £5.4k under Scenario 2 and £5.1k under Scenario 3.

## CO<sub>2</sub> emissions

The recycling of this revenue could achieve between two and four times the CO<sub>2</sub> savings that can be realised through the Green Deal and ECO alone. It could deliver between 50% and 100% of the carbon savings required from the building sector to meet the fourth carbon budget target.

Under scenario 1, the recycled carbon taxes would save 7.7MtCO<sub>2</sub> annually by 2027, reducing the carbon budget gap by at least 50%. This takes into account the fact that part of the predicted energy savings in fuel poor homes will be used to heat homes to the required level of comfort. The average fuel poor home would reduce its carbon emissions by 20%.

Scenarios 2 and 3 will provide between 17.8MtCO<sub>2</sub> and 18.8MtCO<sub>2</sub> of savings in 2027 respectively, filling 100% of the carbon budget gap. The average non-fuel poor household would reduce its carbon emissions by 45%.

## Fuel poverty

If the carbon revenues were allocated solely for tackling fuel poverty (scenario 1) this could help upgrade every fuel poor home. An average grant of £6.5k per household would be enough over the next 15 years to remove from fuel poverty 87% of the 9.1m households projected to be in fuel poverty by 2016. The homes that remain in fuel poverty do so because their income is especially low. These properties would be upgraded to new build standards (EPC Band B) to minimise the household's exposure to high fossil fuel prices.

<sup>14</sup> Calculations relate to the impact of EUETS and CPF only, and exclude other carbon policies that may impact household energy bills.

<sup>15</sup> The Committee on Climate Change (December 2011), *Household energy bills – impacts of meeting carbon budgets*

In the two alternative scenarios, in which the carbon revenues are split between improving homes of the fuel poor and non-fuel poor, the number of households in fuel poverty could be more than halved, removing 4.9m households from fuel poverty.

### **Future-proofing homes against fuel poverty**

Under Scenarios 2 and 3, the carbon taxes can be used to upgrade between a quarter and a third of the non-fuel poor homes to current new build standards.

### **Household energy bills**

For fuel poor households, the recycling of carbon taxes will reduce their energy bill on average by £310 each year, representing a reduction of approximately 20%<sup>16</sup>.

Non-fuel poor households will see their energy bill reduced by £150/year or around 10% under Scenario 2. Annual bill savings would rise to £360 by 2027 if energy prices increase in line with DECC projections. Under Scenario 3, the household would be offered a £500 cash back incentive and in addition would see a reduction in energy bills on average by £100 between now and 2027, rising to £210 by 2027.

### **Jobs**

Between 30,440 (scenario 1) and 50,425 (scenario 3) full-time additional direct jobs could be created between now and 2027 by recycling the carbon revenues. Indirect jobs created in the supply chain would bring the number of total jobs in the wider economy to between 120,000 and 200,000 over 15 years. This is as much as four times the number of jobs likely to be supported by the Green Deal and ECO.

## **Conclusion**

The recycling of carbon tax revenues can bring multi-fold environmental social and economic benefits compared with the Green Deal and ECO alone. When focussed at fuel poor homes, it has the potential to nearly eliminate fuel poverty. Alternatively, over the next 15 years it could halve the numbers of homes in fuel poverty and fuel poverty proof up to a third of the non-fuel poor homes by bringing them up to current new build standards. Depending on how the revenue is recycled, it could quadruple the carbon emissions savings and number of jobs supported in the building sector compared with the Green Deal and ECO.

<sup>16</sup> Reduction in bill savings based on modelled energy consumption before and after energy efficiency measures, calculated using SAP 2005.





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