

Jobs, growth and warmer homes

Evaluating the Economic Stimulus of Investing in Energy Efficiency Measures in Fuel Poor Homes

**A Report by Cambridge Econometrics & Verco for
Consumer Focus**

Foreword and Executive Summary

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Foreword from Consumer Focus

Over recent years, successive governments have struggled to face up to the growth in fuel poverty.

The commitment to eradicate fuel poverty was taken in 2001 when Britain was largely self sufficient in gas and household bills were comparatively low. With just under 2 million¹ households in fuel poverty it felt like a challenge that could be met.

Today over six million households cannot afford to keep their homes warm due to a combination of stagnant incomes, higher energy prices and Britain's legacy of old, leaky homes. That commitment feels like it has been consigned to the too difficult and too expensive drawer.

Incomes for those in fuel poverty are unlikely to rise anytime soon. Energy prices seem just as unlikely to fall. It is clear that a step change in the energy efficiency of our housing stock is the only viable solution. But that costs money. More money than any government has been able to commit to date.

This report challenges the assumption that we cannot afford to tackle fuel poverty. It argues that there is a triple win available of warmer homes, greater energy efficiency and economic growth if we can use carbon taxes revenue to benefit consumers, and fuel poor households in particular.

Over the next 15 years £63 billion will be added to consumer energy bills through the carbon floor price and EU Emissions Trading System (ETS). That is an average of £4 billion a year not available for consumers to spend keeping warm, or for companies to invest in cleaner generation and smart grids. If we were to direct this £4 billion toward a major programme to improve the energy efficiency of our homes we could make homes warmer, more affordable to heat and take a major step toward our legally binding carbon reduction targets.

This is the approach being taken by the French Government. It recently announced it will be insulating one million existing homes per year partly funded from the proceeds of auctioning its allocation of EU-ETS allowances².

Cambridge Econometrics and Verco's research shows that an energy efficiency programme is also a more effective way to stimulate the economy – compared to likely alternatives like cutting VAT, reducing fuel duty or investing in capital infrastructure projects such as building roads. It shows that such a programme would also have substantial economic benefits. It would create 71,000 jobs by 2015 and boost gross domestic product (GDP) by 0.20 per cent.

Energy efficiency is on the government's agenda. Its Green Deal is a new finance mechanism that will make it easier for consumers to pay for energy efficiency improvements to their homes.

¹ <http://www.decc.gov.uk/assets/decc/11/funding-support/fuel-poverty/3226-fuel-poverty-review-interim-report.pdf>

Hills Fuel Poverty Review Interim Report

² <http://www.gouvernement.fr/gouvernement/systeme-d-echange-de-quotas-d-emission-de-gaz-a-effet-de-serre-periode-2013-2020-0>

The new Energy Company Obligation (ECO) on fuel suppliers will complement Green Deal and help pay for improvements to the homes of low income consumers and those that are ‘hard to treat’.

However, these policies just brush against the scale of the problem. Government projections indicate ECO will remove between 125,000 – 250,000 households from fuel poverty by 2023³. At best, this represents only 5 per cent of the current number of fuel poor households.

The programme of energy efficiency investment proposed in this report would complement the Green Deal and ECO. Research published for the Energy Bill Revolution demonstrates the social and environmental benefits of the programme – nine out of 10 fuel poor households removed from fuel poverty; quadruple the impact of Green Deal and ECO alone on carbon emissions⁴.

The research is very timely. According to the Office of Budget Responsibility’s most recent report⁵ the UK’s economic activity, as measured by GDP, is 2.6 per cent below the level it would be if employment, consumer and business confidence were at normal levels.

The Government is considering a range of options to help boost the economy. It has already announced plans to stimulate investment in the country’s infrastructure, including an element for new housing. This report makes a strong case for investment in a vital but sometimes overlooked part of the economy’s infrastructure, namely the energy efficiency of our existing housing stock.

Compared to the alternative stimuli policies investigated, the improved performance of the energy efficiency programme is in part due to reduced gas and oil imports. This feeds directly into increased GDP as well as improving the country’s energy security. By reducing the amount of money consumer have to spend on energy there is more money in the wallet to spend on other products and services, which are in part supplied domestically.

The energy efficiency programme has other advantages. It is ‘shovel ready’ - fast to mobilise. It stimulates economic activity and jobs in all regions of the UK. It employs workers in construction and allied sectors where there is surplus capacity – so investment is less likely to ‘crowd out’ alternate economic activity. It will also reduce NHS expenditure on treating cold-related illnesses such as respiratory and coronary diseases.

We believe our research findings have important implications for future Government policy. The economy will benefit from increased economic activity, job creation and reduced imports of gas and oil arising from the energy efficiency programme proposed. And, millions of British families will get ongoing benefits from warmer homes, reduced energy bills and better health.

Mike O’Connor
Chief Executive
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³ DECC (2012), Final stage impact assessment for the Green Deal and Energy Company Obligation

⁴ Camco (now Verco) (2012), Energy Bill Revolution Campaign report, Transform UK

⁵ Office for Budget Responsibility (2012), Economic and fiscal outlook, HM Treasury

Executive Summary

- Summary**
- The UK has just emerged from the middle of the longest double dip recession since reliable economic statistics have been collected. Much of the economy, including the construction industry, is operating below its normal capacity. At the same time the number of households in fuel poverty seems set to increase if fuel prices rise at the rate expected by Government.
 - Significant sums are due to be paid to Government through new carbon taxes – the modelling in this study shows £63 billion will be raised from electricity consumers between 2012 and 2027. Prompted by these twin problems of underutilised economic capacity and vulnerable people’s need, Consumer Focus commissioned Cambridge Econometrics and Verco to model the macroeconomic effects of investing revenue from carbon taxes into installing energy efficiency measures into fuel poor households.
 - The findings suggest there are clear benefits from spending carbon tax revenues on improving energy efficiency in fuel poor households. Such a policy will provide macroeconomic benefits as well as the environmental and social benefits. If the carbon revenue is so invested it could create up to 71,000 jobs by 2015 and up to 130,000 jobs by 2027. It will also remove 87% of the 9.1 million households projected to be in fuel poverty in 2016 from that risk and reduce energy bills in all treated homes by over £200 a year.
 - Crucially, the results suggest investing in such a programme generates greater macroeconomic benefits – more jobs and greater growth – than the same injection of spending through other Government spending programmes or cuts in VAT or fuel duty.
 - The modelling outcomes therefore suggest that investment in the UK housing stock is one of the best investments possible in terms of boosting short-term employment and economic activity, and it also improves medium to long-term economic efficiency by reducing the economy’s dependency on imported gas.
- Approach*
- This report presents an assessment of the economic and environmental impacts of investing in energy efficiency in fuel poor households. Previous analysis has shown that 9.1 million households were at risk of falling into fuel poverty by 2016⁶. The effect of the investment is judged relative to the business-as-usual position as set out in the Office of Budgetary Responsibility’s (OBR’s) economic forecasts and the Department of Energy and Climate Change/Climate Change Committee (DECC/CCC) energy and emissions forecasts. The study assessed the effect of stimulating the economy through spending on energy efficiency in comparison to four other policies that injected the same amount of money into the UK economy:
 - 1) general government investment (or capital) spending programme;
 - 2) general government current spending programme;
 - 3) reduction in VAT; and

⁶ Please refer to the Energy Bill Revolution Report on <http://www.energybillrevolution.org/resources/> for further details.

- 4) reduction in fuel duty.
- Each of these was assessed using Cambridge Econometrics' model of the UK economy, MDM-E3.
 - Three scenarios for spending on energy efficiency were modelled:
 - **Energy Efficiency All (EE-All):** This spends just under 95% of the revenues raised from carbon taxes and allows investment in all 9.1m households at threat of fuel poverty, therefore largely eradicating fuel poverty.
 - **Energy Efficiency Targeted (EE-T):** This spends just under 35% of the revenue collected from carbon pricing, and the revenues are targeted at the 6.8m fuel poor homes that can be treated for less than £10,000. This eradicates fuel poverty in 75% of the households projected to fall under fuel poverty by 2016.
 - **Energy Efficiency Targeted with early action (EE-EA):** in this scenario again the 6.8m fuel poor are targeted but the spending is brought forward, using 100% of the carbon pricing revenues in 2013-19 and a share of the revenue in 2020. By 2020 6.8m homes are removed from fuel poverty.
 - For each energy efficiency scenario, we developed a comparable scenario whereby the same amount of government investment is injected into the economy, but spread across standard government investment projects (GK-All, GK-T, GK-EA).
 - Against the Energy Efficiency Targeted (EE-T) scenario we also compared the impact of increasing government spending, reducing VAT and reducing fuel duty by equivalent amounts.
 - Tables ES.1 and ES.2 show the key characteristics and summary results for the main scenarios, compared to the other government investment scenarios.

Table ES.1: Summary of Short-Term Modelling Results

SUMMARY OF SHORT-TERM MODELLING RESULTS				
<i>For 2015</i>	EE-All	GK-All	EE-T	GK-T
Annual carbon price revenue (£m 2008 prices)	2786.60	2786.60	2786.60	2786.60
Annual fiscal stimulus (£m 2008 prices)	2618.00	2618.00	963.00	963.00
Total Homes Treated ('000s)	1094.90	n/a	821.20	n/a
Annual jobs created ('000s FTE)	71.00	64.50	26.60	23.60
GDP impact %	0.20	0.21	0.08	0.08
Annual energy bill savings per household treated (£ 2008 prices)	237.40	n/a	231.30	n/a

Table ES.2: Summary of Long-Term Modelling Results

SUMMARY OF LONG-TERM MODELLING RESULTS				
<i>For 2027</i>	EE-All	GK-All	EE-T	GK-T
Annual carbon price revenue (£m 2008 prices)	6,794.80	6,794.80	6,794.80	6,794.80
Annual fiscal stimulus (£m 2008 prices)	6,382.80	6,382.80	2,349.10	2,349.10
Total Homes Treated ('000s)	9,100.00	n/a	6,825.00	n/a
Annual jobs created ('000s FTE)	129.40	105.20	52.00	38.50
GDP impact %	0.38	0.36	0.16	0.13
Annual energy bill savings per household treated (£ 2008 prices)	212.00	n/a	216.10	n/a

- Short-term findings*
- Investing in energy efficiency measures in fuel poor households has a similar or more positive macro-economic impact than an equivalent stimulus package either through increases in government current spending (e.g. NHS, education) or government capital spending (e.g. roads, building hospitals), or reductions in VAT or fuel duty. Each of the three spending options causes an increase in economic output, but investment in energy efficiency has the added and persisting benefit of also reducing natural gas imports. If households spend less on energy imports, they are able to spend more on other products and services, which are in part supplied domestically. Energy security is also improved.
 - The positive impact of the energy efficiency investment on GDP (between 0.08% and 0.2% in 2015, compared to the baseline) is also reflected in jobs. In 2015, the EE-T and EE-All scenarios create 26,600 and 71,000 jobs, respectively. The difference is because spending in the latter is almost three times greater. These jobs are created firstly in the construction industry and its supply chain but the jobs diffuse throughout the economy.
 - The impact on jobs in the short term is broadly similar to the GK-all scenario. Figure ES.1 shows the impact of the fiscal stimulus in 2015 on jobs across the various scenarios. In the bottom two scenarios the fiscal stimulus is £7,138m, while in the other scenarios the fiscal stimulus in 2015 is £963m.
 - The modelled increase in employment is broadly consistent to findings from other countries. In 2009 the German KfW eco-refurbishment programme stimulated nearly €8bn of private and public sector investment in energy efficiency building, leading to 128,000 additional jobs. This compares to our finding that around £2.6bn of investment in 2015 would stimulate 71,000 jobs. This is a similar number of jobs per unit of investment.
- Long-term findings*
- In the longer term, improved energy efficiency and a reduced dependency on gas imports serves to increase GDP by 0.38% and jobs by 129,400 in 2027, in the EE-All scenario. By way of comparison, an equivalent general government investment programme would provide an increase of 105,200 jobs, which suggests that the additional stimulus of shifting from imported energy to domestic goods and services is contributing a further 24,200 jobs. These extra jobs arise from a permanent improvement in the country's gas self-sufficiency.

Figure ES.0.1: Short-term Employment Impact, 2015

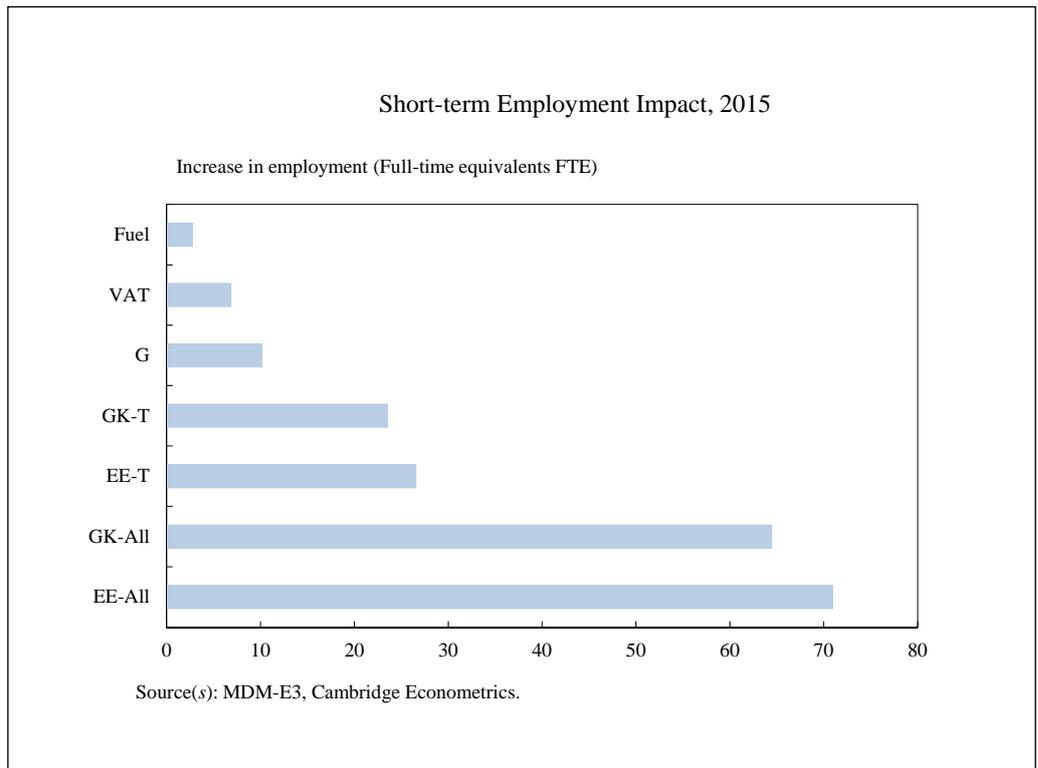
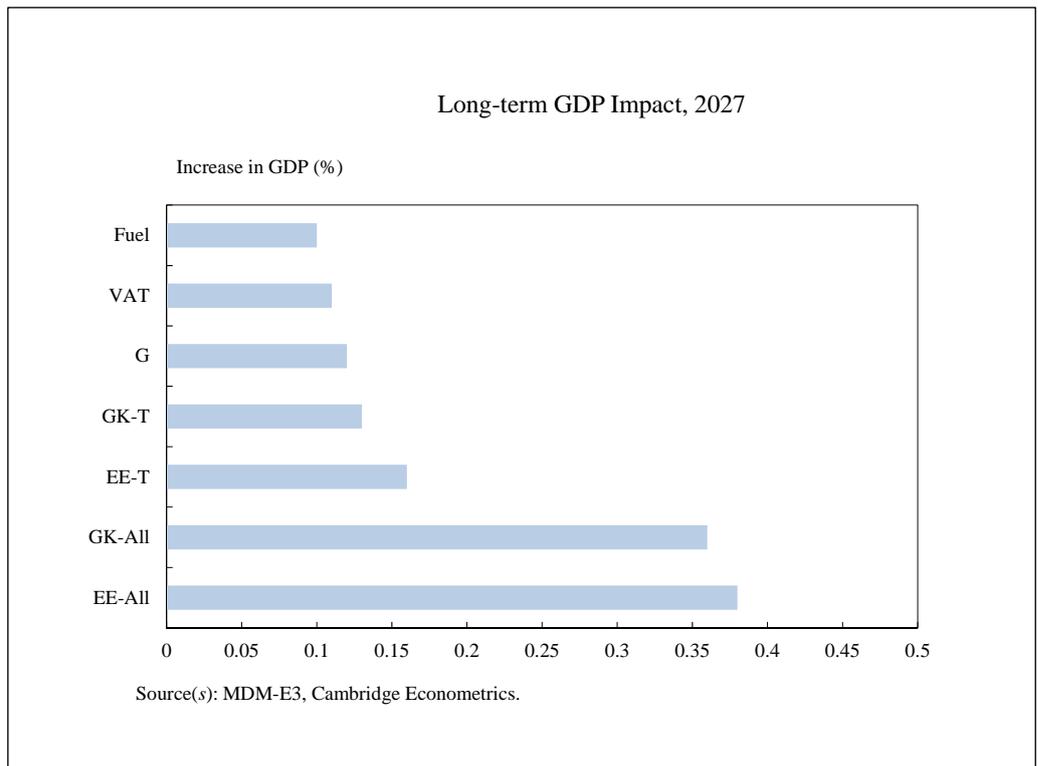


Figure ES.0.2: Long-term GDP Impact, 2027



- Figure ES.2 shows the long-term impact on GDP of the various scenarios. In the longer term the energy efficiency impact, which serves to increase overall economic efficiency and reduce import dependency on natural gas, leads to larger increases in GDP than scenarios with an equivalent fiscal stimulus.

*Modelling
assumptions:
Available revenues*

- The revenue raised in the UK through auctioned EU Emissions Trading System (ETS) allowances and the carbon floor price is substantial. By 2027⁷ it is estimated to account for an accumulated £63.1bn (2008 prices).
- If nearly all (93.9%) of the £63.1bn revenue from the carbon floor price is invested in fuel poverty measures, fuel poverty could be largely eradicated. Even the most hard-to-treat households which require funding levels of more than £10k (around 25%) could be removed from fuel poverty. (Around 13% of households with very low incomes will still be in fuel poverty and will need additional income to support them.)
- Alternatively, if the revenue is only spent on homes requiring less than £10,000 of investment, 6.8m households (or 75%) could be removed from fuel poverty by 2020, as shown in the EE-EA scenario.

Wider benefits

- Investment in energy efficiency measures in fuel poor households could reduce total household energy consumption by 5.4% in 2027; this would represent annual fuel bill savings in 2027 for previously fuel poor households of on average £212 (2008 prices) per household.
- This programme has an impact on the UK's carbon targets, reducing emissions of carbon dioxide by 4 MtCO₂ pa by 2027. However, even with this reduction, the UK is likely to miss its fourth carbon budget on current policy and so more measures would be required.
- In summary, these results suggest that investment in energy efficiency in fuel poor homes provides social, economic and environmental benefits beyond those that would be expected from the alternative measures considered in this study:
 - **Economic benefits:** Investing the money in fuel poor households has a better outcome on growth and employment than the alternative options modelled
 - **Social benefits:** Between 75% and 100% of the households that would have otherwise been in fuel poverty are removed from fuel poverty, improving the quality of millions of lives of some of the most vulnerable members of society and reducing health care costs
 - **Environmental benefits:** UK household direct CO₂ emissions fall by more than 5% compared to baseline by 2027 contributing to the UK's legal commitment to reduce greenhouse gas (GHG) emissions by 2050
- Few policy options can claim to offer such clear benefits in each of these three pillars of sustainable development.

⁷ 2027 is the last year in the fourth carbon budget period and is therefore the last year of investment for most of the scenarios.