

Tackling fuel poverty during the transition to a low-carbon economy

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Energy prices are rising as governments implement measures to reduce carbon dioxide emissions and combat climate change. Since price increases can now largely be attributed to imported fossil fuels, the transition to a low-carbon economy is expected to increase levels of fuel poverty. Until the transition is complete, a new approach is required that gives far more attention to the other two main drivers of fuel poverty: low incomes and the energy inefficiency of homes.

Key points

- As energy prices rise, fuel poverty can only be reduced by an intensified focus on the energy efficiency and energy bills of those in fuel poverty, especially low-income vulnerable households.
- The long-term solution to fuel poverty, and one that also supports the objective of reducing carbon emissions, is to increase dramatically the energy efficiency of fuel-poor households' homes.
- Fuel-poor households should be incentivised by the prospect of energy bill rebates.
- Rebates should be conditional on energy efficiency assessments, the implementation of energy efficiency measures, and the promotion of advice on achieving greater reductions in energy bills through broader energy-saving behaviour.

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Fuel poverty – where a household would need to spend more than 10 per cent of its income to attain an adequate level of warmth – is caused by a combination of three main factors: low incomes, expensive energy, and energy-inefficient homes which leak away warmth. Encouraged by falls in energy prices in the late 1990s and early 2000s, which caused substantial reductions in fuel poverty, the previous UK Government adopted targets for the abolition of fuel poverty for so-called ‘vulnerable’ households (pensioners, those with small children and those with disabilities or long-term illness). We now know that the 2010 target was not met, and on current trends neither will the one for 2016. Instead, the numbers of households in fuel poverty have actually started to rise again in recent years.

The main reason for this is the increase in energy prices from 2003 caused by underlying fuel-price rises and government measures to reduce carbon dioxide emissions from the energy system in order to contribute to the global mitigation of climate change. Given the stringent government targets to achieve ever greater reductions in these emissions, which the authors of this paper strongly support, increases in energy prices from this cause are likely to continue. In effect, high, and increasing, prices of fossil fuels are necessary to spur the investment in energy efficiency and low-carbon energy sources that will bring emissions down. This was the justification for the carbon price floor [1] announced by the UK Government in the 2011 Budget.

Underlying fossil fuel prices in world markets are also thought by many commentators to be likely to increase over time. As a result, increasing energy security by reducing fossil fuel usage, an increasing proportion of which now have to be imported, has become an important UK Government policy objective. High fossil fuel prices will also help attain that objective. This paper begins by describing the energy prices context in more detail.

The next section establishes why the dominant approach to fuel poverty reduction over the last ten years will have to be substantially revised if fuel poverty is to be reduced, let alone eradicated, as energy prices rise.

A new approach is required that gives far more attention to the other two main drivers of fuel poverty: low incomes and the energy inefficiency of homes. The Coalition Government in the UK is already taking steps in this new direction, but in our view its priorities are not yet right. The paper sketches out what this new approach might look like. The concluding section summarises the arguments made and sets out our conclusions and recommendations.

Energy costs and the low-carbon transition

The UK energy sector will require a fundamental transformation over the next four decades – both to decarbonise in order to help mitigate climate change, and to become less vulnerable to the volatility of world energy markets. We are likely to see higher energy prices, not only because global fossil fuel prices are widely expected to rise, but also because low-carbon energy sources are currently more expensive than high-carbon alternatives.

Energy prices

Throughout the 1990s and early 2000s, retail energy prices for UK households were low by historical standards. However, from the early 2000s, the price of gas, Britain's main heating fuel, has risen sharply, peaking in 2008, dropping back in the recession and then rising sharply again in 2011. Electricity prices have followed the same pattern, since it tends to be gas that sets the price level of the electricity market.

There are a number of factors which add up to a complex and uncertain picture of future prices. Firstly, the UK is running out of domestic supplies of gas, and energy suppliers will become increasingly dependent on imports. Until very recently this meant imports from a European regional market in which Russia exercised considerable influence, which in turn meant that geopolitical shocks and concerns about long-term investment and supply capacity pointed to high prices. At the same time, for historical reasons, gas prices in Europe are linked to the oil price, and with rising demand in East Asia it seems very likely that the latter will move back to the levels seen in 2008, at least in the medium term (Macalister, 2011). In the 2010 World Energy Outlook, the International Energy Agency projects oil prices will rise to \$113 a barrel (in 2009 prices) by 2030. At the time of writing, the spot price of a barrel of Brent Crude was in the region of \$110–120.

However, gas markets have undergone considerable change in the last few years, with the development of shale gas in the US and the expansion of liquefied natural gas supply leading analysts to predict lower gas prices. Thus the International Energy Agency's latest World Energy Outlook expects gas prices to remain fairly flat to 2020, while the US Government Energy Information Administration (EIA) projects US gas prices to return to 2008 levels only by around 2035 (EIA, 2010). Although the effects of shale gas should not be overestimated (Stevens, 2010), it is also possible that these developments will lead to the de-linking of oil and gas prices in European markets (Stern, 2009).

Overall, these factors mean that energy prices will remain uncertain, and vulnerable to shocks. For example, even with a medium-term outlook of stable gas prices, supply shocks and oil price linkage was enough to drive up wholesale gas prices from the end of 2010, with retail prices following. Recent price increases from five of the big six energy companies have averaged 18 per cent on gas and 11 per cent on electricity supply.

The impacts of climate policy costs and the carbon price

In addition to underlying market uncertainties, energy prices will rise in future because of the need to establish a stable and increasing price for carbon.

Climate policies already have an impact on energy bills, mainly through energy supply companies passing through the costs of a variety of instruments. These, and firmly proposed future supplier-related programmes, include:

- carbon pricing in electricity generation via the EU emissions trading scheme and the carbon price floor announced in Budget 2011;
- measures to support the expansion of renewable energy – currently the Renewables Obligation (RO), the Feed In Tariff (FIT) for renewable electricity, and proposed changes to the RO in forthcoming electricity market reforms;
- additional grid investment costs associated with the decarbonisation of electricity passed on to consumers via the price control settlements reached between Ofgem and energy suppliers;
- the smart meter roll out from 2013; and
- the Carbon Emissions Reduction Target (CERT) and Community Energy Saving Programme (CESP) energy efficiency programmes, and the Energy Company Obligation (ECO), which is due to replace them.

In 2011, responding to a slew of articles in the Daily Mail quoting much higher figures, DECC (2011a) (citing DECC and Ofgem) stated that the costs of climate and energy policies in 2010 amounted to around £70–£90 (between 7 and 8 per cent) on typical annual dual fuel household energy bills. This breaks down as 14 per cent for electricity bills and 4 per cent for gas bills.

In the longer term, the Government expects some of these measures to reduce bills because they lead to energy savings, but others will increase bills, relative to what they would otherwise have been. Analysis in the 2009 Low Carbon Transition Plan includes projected increases in energy bills attributable to climate policies ranging from 12 per cent by 2020 on the average domestic bill, to 34 per cent on the average bill for medium-sized non-domestic consumers, based on certain assumptions about the underlying level of fossil fuel prices (DECC, 2009b). In July 2010 the Coalition Government produced revised projections that show much smaller net average impacts, of 1 per cent or less, in 2015 and 2020 (DECC, 2010a).

Preston *et al.* (2010) provide the most detailed modelling of impacts of climate policies on bills across households, using data from the Expenditure and Food Survey (EFS) and basing cost pass through not on the assumption of an equal spread but rather on information about real supplier pricing. They also model the distribution of energy efficiency measures. This study projects an overall impact of climate policies of an 8.5 per cent increase in the average energy bill by 2020. The modelled impacts have a larger proportional impact on poorer households (representing about 2 per cent of household income for households in the lowest decile) than richer households.

Clearly, in all these projections, the impact on any particular households will depend a lot on whether they have benefited from any energy efficiency measures or taken up any renewable energy options.

Although these policies have a cost in the short term, which weighs more heavily on low-income households than on richer ones, in the longer term they should help UK consumers avoid even larger costs. At some point low-carbon energy sources may become cheaper than fossil fuels – the Government’s consultation on electricity market reform projects that household bills in 2025–30 would be 4 per cent lower with the reforms than without them (DECC, 2010b). The worst future outcome for UK energy security – and for UK consumers – would be to be stranded without low-carbon energy sources in the future, when fossil fuel prices are both high and volatile. To avoid this, as well as higher emissions, policy makers need to institute policies, including a high price for carbon now, to incentivise investment in low-carbon energy sources.

The policy impact projections described above include the effects on bills of the carbon price produced in the EU Emissions Trading Scheme (ETS), which is mostly passed through to consumers (Sijm, *et al.*, 2006). However, the ETS carbon price has historically been highly variable and insufficiently robust, and as the Committee on Climate Change (CCC) notes in its most recent report on carbon budgets (CCC, 2010), it has so far failed to provide a signal to encourage low-carbon investments. The committee judges that to drive investment consistent with meeting the pathway of emission reductions to 2050, a carbon price of around €30/tCO₂ (£27/tCO₂) will be needed by 2020, rising to £70/tCO₂ in 2030 (the current price is around €15/tCO₂).

The Government introduced a measure in the 2011 Budget (HMT, 2011) to underpin the ETS carbon price, the carbon price floor, through extending the Climate Change Levy (CCL) [2] and fuel duty to fuels used to generate electricity, which were previously exempt (see HMT/HMRC, 2010 for the prior carbon price floor consultation). The rate for the carbon price floor has been set at £16/tCO₂ in 2013, rising to £30/tCO₂ by 2020, close to the CCC recommendation for that year. The carbon price floor applies to electricity, and will be passed on to all consumers.

The impact of removing household energy subsidy

For domestic customers, electricity and household fuels are taxed at a greatly reduced rate of VAT (5 per cent as opposed to the standard rate, now 20 per cent). This amounts to an environmentally perverse subsidy for energy use and, in purely economic terms, muffles the true price signal that would otherwise be sent to domestic energy consumers.

Removing the VAT subsidy to household energy use is, however, politically a very contentious issue, not only because of its effects on low-income households, but also because such a measure would be highly visible to households in the lower-middle part of the income distribution, whose incomes have been stagnant in recent years and falling in real terms.

A rough picture of the distributional impact of measures such as a carbon tax or the imposition of the full rate of VAT on household energy use can be seen in Table 1, which is based on analysis using the Institute for Public Policy Research's (IPPRs) tax-benefit model [3].

Table 1: Distributional and revenue impacts of VAT reform and a carbon tax (CT)

Decile	1. VAT on energy @ 20%		2. CT @ £16 per tonne	
	£	%	£	%
Poorest	-2.79	-1.3	-0.73	-0.33
2nd	-2.65	-1.0	-0.71	-0.25
3rd	-2.77	-0.8	-0.76	-0.23
4th	-2.69	-0.7	-0.74	-0.20
5th	-2.93	-0.7	-0.79	-0.18
6th	-3.05	-0.6	-0.86	-0.17
7th	-3.22	-0.6	-0.93	-0.16
8th	-3.30	-0.5	-1.03	-0.15
9th	-3.23	-0.4	-1.04	-0.13
Richest	-3.72	-0.3	-1.22	-0.10
Revenue effect	£3.9bn		£1.1bn	

Both measures are highly regressive, with a combined effect of -1.63 per cent of expenditure on the average household in the poorest decile, compared with -0.4 per cent on the average household in the richest decile.

In principle, the disproportionate extra costs on energy for the poorest households could be fully offset through the benefit system or in some other way. In fact the CCC estimated in its first report (CCC, 2008, p.405) that the cost of such compensation for these households in 2022, as a result of the price increases for household energy (25 per cent for electricity and 28 per cent for gas) resulting from its first three carbon budgets, would be £500 million.

However, reality is more complex for two reasons. Firstly, there is very great variance in energy use within income deciles, so that high energy users in the low-income deciles may not be fully compensated for the energy tax increases, even though this would be true for the decile as a whole. Secondly, government and the energy industry have to date not been able to identify and target these high energy using, low-income households, in order to make sure that they are no worse off from the changes [4].

These issues are considered further in the following two sections: the first – variance in energy use – is one reason why the Government's approach to reducing fuel poverty has failed so far, and this is the subject of the next section. The second – the targeting problem – has been changed by recent improvements in the ability to target high energy-using, low-income households, and provides the underpinning rationale for the new approach to fuel poverty we recommend later.

The limits of the fuel poverty approach to date

The context outlined above – of uncertainty about underlying energy costs combined with the need for a steadily rising price of carbon – poses a major dilemma for social justice.

On the one hand, climate change is likely to have the earliest and worst impacts on some of the poorest people on earth, so the transition to a low-carbon economy is an imperative for social justice, especially internationally (e.g. UNDP, 2007).

But at the same time, the use of energy (especially for providing heat in winter) is a basic need for UK households. There is evidence that, even in periods of low energy prices, low-income households are not able to keep their homes as warm as they would like, and that better off households spend more on energy up to a certain threshold, after which energy spending levels off, implying the existence of a specific desirable minimum amount of energy use (Jamash and Meier, 2010) [5].

In this context, rising energy costs threaten the welfare of poorer households and the right to a decent quality of life in a modern society. A socially just transition to a low-carbon economy and society in the UK requires public policy to deal with the implications of higher prices for access to energy for vulnerable households. These households mainly consist of low-income households, especially those who require greater than average warmth, such as those with older people, the long-term sick and disabled and young children.

The framing of this issue since 1997 has been in terms of reducing the numbers of households in ‘fuel poverty’. The official definition of fuel poverty is as follows:

A household is said to be in fuel poverty if it needs to spend more than 10 per cent of its income on fuel to maintain an adequate level of warmth, usually defined as 21 degrees for the main living area and 18 degrees for other occupied rooms.

(DECC, 2009a)

Steady progress in reducing UK fuel poverty was made through the late 1990s and early 2000s, declining from an estimated 6.5 million households in total (around 5 million ‘vulnerable’ households) in 1996 to around 2 million by 2004. However, this progress was reversed sharply over the second half of the decade, more than doubling between 2004 and 2008 to 4.5 million households and rising to more than 5.5 million in 2009 [6].

The definition of fuel poverty means that the numbers affected are influenced by three main factors: the income level of the household; the price level of household energy; and the thermal efficiency of the building. The policy response has also worked through all three of these factors, through two main routes.

First, one strand of policy has been to seek to reduce the energy bills of vulnerable households through discounts, rebates and price support. Secondly, a number of different programmes have been designed to improve the energy efficiency of the properties in which fuel-poor households live, and many of these programmes have also involved ensuring that these households receive all the benefits to which they are entitled, often with a significant impact on income.

In this section, we look at each of these approaches in turn, and examine why both of them have had only a limited impact on the problem to date.

Fuel poverty strategy – energy related payments, discounts and price support

One form of support aimed at helping tackle fuel poverty is help with energy bills:

- The largest benefit is the Winter Fuel Payment (WFP), a universal payment (£200 for those aged 60–79 and £300 for those aged 80 and over in winter 2011/12) made to all households with someone aged 60 or over, graduated according to age. Spending on the WFP increased from around £200 million in 1997 to around £2.7 billion in 2010. The payment is added to income, rather than deducted from fuel bills, in the calculation of the number of people in fuel poverty.
- A much more targeted payment is the Cold Weather Payment, available only for those on means-tested benefits and where there is an additional factor through age or disability, and triggered only in the event of a prolonged spell of cold weather. The level of support was recently increased to £25 per week, and £427 million was spent on this benefit in 2010/2011.
- Following the surge in oil and gas prices in the summer of 2008, and under pressure from the previous Government, the major energy suppliers agreed to offer ‘social tariffs’ and other financial support on a voluntary basis to vulnerable customers (with varying eligibility criteria). The savings to these customers had reached £130 million by March 2009 (Bird, *et al.*, 2010) and was estimated to have benefited 1.6 million customers in its second year. With this voluntary agreement due to end in March 2011, support to vulnerable customers was made mandatory in the Energy Act 2010, and this will now take the form of a rebate on energy bills of £120 (rising to £140 by 2015) – the Warm Home Discount (WHD), discussed further in the next section of this paper – targeted at pensioners on low incomes (DECC, 2010c). Annual spending on the WHD is expected to be in the region of £310 million by 2014/2015.

The approach of reducing bills, and latterly seeking to directly reduce energy prices for vulnerable, low-income households, is partly driven by the logic of the fuel poverty definition. The formulation of the definition as required expenditure on energy as a proportion of income means that interventions that reduce bills or prices are up to 10 times more effective in reducing the rate of fuel poverty than interventions which increase income. As the previous Government itself observed, classing the Winter Fuel Payment as income reduces by 200,000 the number of households in the UK in fuel poverty, whereas setting the value of the payment against energy bills would remove 1.1 million households from fuel poverty (DECC, 2009a).

Conversely the reversal in the fall in the headline numbers in fuel poverty, and the effective failure to meet the 2010 target, have been mainly determined by changes in energy prices. From the late 1990s up to the mid-2000s, gas and electricity prices were low and stable at a time of sustained economic growth and expanded redistribution through tax credits, although these factors were much less important in determining the headline rate of fuel poverty than energy prices. Prices subsequently rose from 2004, surging in 2008.

However, if, as argued earlier, energy prices are now likely to be high into the foreseeable future, partly to signal the need to decarbonise the energy system, this is not a desirable approach, nor a sustainable approach.

This point can be clearly seen in the current context. The Warm Home Discount will offer a payment of £120 a year to the target group. But winter 2010/11 has seen energy price rises in the region of 5 per cent or more, with projections that the average 2011 bill will be more than £1,200, as against a 2010 average of a little over £1,000, an increase that more than offsets the benefits of the WHD. Clearly, the WHD will help those who receive it, but it provides no guarantee that vulnerable households will be able to keep warm. Low-income households often pay more for their energy than do better off households, because they do not pay by direct debit and often are on pre-payment meters (PPMs although not all PPM customers are fuel poor). Save the Children UK estimates that low-income families may pay up to £250 a year more for energy (Save the Children UK, 2010).

Instead, (and as is widely recognised – see Bird, *et al.*, 2010) the difficulty and long-term cost of achieving the goal of ensuring affordable warmth through the low-carbon transition will be minimised only by improving the energy performance of the housing in which low-income households live. We now turn to attempts to date to bring about this improvement.

Fuel poverty strategy – Energy efficiency schemes

From the late 1990s, there have been growing efforts to improve the energy efficiency of the UK's housing stock through a variety of schemes, some of which were targeted specifically at priority groups (mainly low-income households):

- The largest of these is a scheme delivered through energy suppliers which was known as the Energy Efficiency Standards of Performance (EESOP, 1994–2002), then the Energy Efficiency Commitment (EEC, 2002–2008), and most recently the Carbon Emissions Reduction Target (CERT, 2008–2012). Spending on these schemes rose from £250 million under EESOP 1 in 1994–1997 to £3.2 billion in 2008–11 under the CERT scheme. A little over half the effort in meeting the CERT target (£1.8 billion) was reached through measures installed in the homes of a 'priority' group – households in receipt of means-tested benefits or disability-related benefits or where the householder is aged 70 or over.
- Publicly funded schemes which are specifically and wholly aimed at reducing fuel poverty (Warm Front in England, and related programmes in the devolved administrations). Total spending on these schemes stood at £470 million in 2009/2010.
- The Decent Homes refurbishment scheme for social housing in England and similar schemes in the devolved administrations. These schemes include some measures to improve thermal efficiency, although they have been criticised as inadequate. The DCLG (Department for Communities and Local Government) claims that Decent Homes spent £4 billion on heating and insulation improvements between 2000 and 2008, with an additional £2 billion spent between 2008/2009 and 2010/11 (Bird, *et al.*, 2010).
- More recently, a new pilot scheme focusing on deprived areas and the hardest to treat housing has been launched. The Community Energy Saving Programme (CESP) will run until December 2012 and is expected to cost around £350 million.

These schemes have undoubtedly been important and have helped improve some of the UK housing stock. However, a major problem from the point of view of tackling fuel poverty is that they have not been very effective in reaching those with the worst problems.

Broadly, there are two targeting problems. One is simply that energy efficiency policy and fuel poverty policy have been blurred together, and the schemes with the largest resources (e.g. CERT) have not had the reduction of fuel poverty at the core of their design. Much of the resource goes to households who do not need the help, and are able to pay for the measures themselves. In future, it is likely that there will be a clearer division between energy efficiency policy for those able to pay (in the 'Green Deal') and for those in need of support (in some form of Energy Company Obligation). Both these measures are included in the Energy Bill 2011, which was going through Parliament at the time of writing.

However, the second and more difficult problem is that schemes expressly designed to help those in fuel poverty have had difficulties in targeting support in practice. Finding the fuel poor is one of the major reasons why progress has been so slow. Although fuel-poor households often include the elderly, young children or long-term sick or disabled, only a minority of all households with these characteristics are in fuel poverty, so just using these characteristics to target support is very inefficient.

For these reasons, it was judged that the most cost-effective method of identifying vulnerable households in Warm Front was to use means-tested benefits such as Jobseeker's Allowance or Working Tax Credit, Child Tax Credit, Disability Living Allowance, Pension Credit, Council Tax Benefit or Housing Benefit as an eligibility criterion. However, in examining Warm Front in 2009, the House of Commons Public Accounts Committee found that the scheme was in practice poorly targeted despite these eligibility criteria, mainly because other eligibility criteria were also included, such as receipt of non-means tested benefits and being over 60 (Public Accounts Committee, 2009). As a result, the Committee found that nearly 75 per cent of households entitled to a grant are unlikely to be in fuel poverty, whilst the scheme is only available to 35 per cent of all those households likely to be in fuel poverty, in part perhaps because it only applied to private housing. The Committee also found that the scheme did not prioritise those with the most energy-inefficient accommodation, especially in rural areas.

However, even if interventions such as Warm Front were focused more tightly on households in receipt of means tested benefits, they would still not necessarily reach all households unable to afford a minimum level of warmth. As Ekins and Dresner (2004) and White and Thumim (2009) demonstrate, there are limits to the degree to which the benefits system can be used to compensate low-income households for the income effects of a carbon price. This is partly because not all low-income households are on means-tested benefits (about 30 per cent of households in the lowest income decile are not on means-tested benefits either because they are ineligible or because they do not apply) and partly because, as Ekins and Dresner (2004) established, while energy use rises with income on average, there is a considerable variation in energy use *within* deciles.

Targeting problems are exacerbated by the dynamics of poverty in the UK, which make the fuel poor a moving target, in two senses.

Firstly, quite a large group of households move in and out of poverty quite quickly, whether the measure is income poverty, being under financial strain, or some measure of material deprivation (Tomlinson and Walker, 2010; Smith and Middleton, 2007). Up to one-third of UK households experience financial strain, finding it difficult to manage, within a five-year period. There is a much smaller group of households who are constantly moving in and out of poverty over a five-year period, and an even smaller group (about 5 per cent of UK households on the income poverty measure) who are chronically poor – i.e. remain poor over a five-year period. Those who are most vulnerable to the effects of cold – pensioners, the long term sick and disabled, and young children – are over-represented amongst this persistently poor group of households (DWP, 2010).

Secondly, some low-income households, especially those headed by lone parents and the unemployed, and those in private rented accommodation, are also more likely to move from one home to another. Almost one-fifth of households where the head was unemployed or otherwise inactive moved house within a year in 2008, and 40 per cent of private renters did so (DCLG, 2010).

These considerations suggest that the only way of reducing fuel poverty is to improve greatly the ability to target those who are financially unable to keep warm with a flexible approach that can determine relatively quickly when households are in this situation and when they move in and out of it.

A new approach

The official recognition in 1997 that some people could not afford to heat their homes properly was a major step forward. Substantial efforts have been made over the last 13 years to tackle the problem. However, in 2010 the UK was further away from the target of eliminating fuel poverty in vulnerable households than a decade before. In his Ministerial Foreword to the Warm Home Discount consultation paper, Chris Huhne wrote: “For over five years the battle has been lost against fuel poverty.” (DECC, 2010c)

At the same time, the approach of the current Government is likely to be somewhat different from the last. Not only are the fuel poverty targets to be reviewed, but also the very definition of fuel poverty itself (DECC, 2010c), with the review being conducted by Professor John Hills [7]. Public funding for Warm Front is to be phased out, and has already been reduced from 2011 onwards. As noted above, the Coalition Government proposes to separate out low-income households from the able-to-pay in energy efficiency policy, with loans repaid on-bill for the latter group through the Green Deal, and some form of an obligation on energy companies (i.e. a successor to the priority group effort under CERT) for the former from 2013 onwards, and is currently legislating to this effect with the 2011 Energy Bill.

In this context, there is now an opportunity to undertake the rethinking of policy which future energy price trends and climate policy imply is needed, but there is also the need to ensure that, in the desire to achieve a reduction in the national debt and the government deficit, low-income households are not left in a position where they cannot afford to heat their homes to an acceptable level. In this respect it is worth noting that new spending through the introduction of the Warm Home Discount, which is described below, will be largely or wholly offset by reductions in spending on Warm Front, which following the 2010 Spending Review, is to be reduced from £345 million in 2010/2011 to £110 million in 2011/2012 and £100 million in 2012/2013. At the same time, the eligibility criteria have been tightened, with some improvement in the match with fuel poverty.

We propose that attempts to ensure that everyone should have access to a minimum standard of warmth through the transition to a low-carbon economy be based on two main principles:

- better targeting through the maximum use of available information; and
- a three-pronged approach to interventions, which prioritises energy efficiency improvements, while assessing bills and giving advice on behaviour change where appropriate, and if necessary, making payment of an energy-related benefit.

In this section we develop these two principles in more detail.

Better targeting of support

The modelling described above indicates that a rise in electricity prices, in this case by analysing what would happen if VAT were increased to 20 per cent but equally a rise in prices due to other factors, renders households in lowest income deciles significantly worse off. Many of these represent the priority group that needs public support, especially in the light of recent price increases averaging 18 and 11 per cent for gas and electricity respectively.

However, as noted above, a major problem with existing schemes has been targeting low-income households (and especially those in chronic poverty) especially since low-income households do not always identify themselves to take up the support and efficiency measures that are available.

Until recently, fuel poverty interventions have had to rely on referrals from local authorities, social services or charities such as Age Concern. However, in 2010, and following enabling legislation in the 2008 Pensions Act, the Government and the major energy suppliers carried out a trial Energy Rebate Scheme in which data on the 300,000 poorest pensioners (customers over 70, or with a partner over 70, receiving the Guaranteed Credit-only element of Pension Credit, living at home, and not already in receipt of a discounted or social tariff) was matched to the customer records of the energy companies, who then provided an £80 discount on their electricity bills (DECC, 2010c).

A little over half the records (around 180,000) were matched precisely, meaning the forename, surname and address format was the same in both datasets. The Government hopes that a ‘fuzzier’ approach to matching (for example, based on surname rather than both names or less precise address format matching) might achieve more like a 70 per cent matching rate (DECC, 2010c). It is being proposed that this data matching methodology be used for the Warm Home Discount.

This is an important development. The proposed Warm Home Discount was opened for consultation in December 2010 (DECC, 2010c), the Government response to which was published in February 2011 (DECC, 2011b). It is worth describing it in some detail because of its relevance to the recommendations which will be made in this paper.

WHD builds on both the voluntary agreement with energy suppliers and the Energy Rebate Scheme mentioned above. It will use the data-matching methods developed under the latter to pay a rebate on energy bills over four years to a Core Group of those on some aspects of Pension Credit. The rebate will start at £120 in year one and rise to £140 in year four. The rebate will also be paid to a Broader Group, which is not firmly defined but may include households in receipt of Income Support, Income-based Jobseeker’s Allowance, or Income-related Employment and Support Allowance, and other defined benefits. Energy suppliers will be expected to find households among their customers who fall into the Broader Group in order to pay them the rebate. While funding for the Broader Group will be limited at first, it will rise substantially over the four-year period.

Two other kinds of spending are permitted under the WHD: on a ‘legacy’ group of households, which provides for the smooth transition from the voluntary agreement to WHD (and which has fallen away by year four of WHD) and industry initiatives which would improve targeting of the measures, deliver energy efficiency advice and measures (such as through the Home Heat Helpline at www.homeheathelpline.org.uk, which the energy suppliers already fund), and offer benefits entitlement checks and other fuel-debt management services.

WHD will identify and target support to the fuel poor to an unprecedented extent. However, it is limited in two key ways. First, the Core Group leaves out for automatic support other important vulnerable groups, including low-income households with members who are long-term sick, disabled, or aged under 16 (Save the Children UK, 2010). Current legislation restricts the data-matching exercise to pensioners. Widening the data-matching criteria to include these other groups would both require new legislation to include the receipt of other benefits, and would increase the risk of mis-matching. At the same time, the wider benefits system (but not Pension Credit) is undergoing reform, which would require any new criteria to be changed almost immediately. However, to avoid a situation in which it is left to energy suppliers to identify and help these non-pensioner groups on a voluntary basis, the Government should speed up the technical and legislative effort to ensure that all vulnerable households are included.

Secondly, the Government response to the WHD Consultation discussed but failed to make a firm link between a WHD payment of a rebate on energy bills for the Core and Broader Groups, and whether these Groups could benefit from energy efficiency measures, which would make them less dependent on such rebates for affordable warmth in the future. This is despite the fact that, in its response, the Government recognised that “in the long term measures to improve home energy efficiency and heating systems will make a more sustained difference to a household’s ability to heat their home affordably” (DECC, 2011, p.11), but it then backs off from making this an essential element of the WHD approach. According to the Association for the Conservation of Energy, Section 9 of the Energy Act 2010 was amended at Report Stage to include specific powers for energy suppliers to provide not just financial benefits to vulnerable consumers, but also benefits “in the form of goods or services” [8]. As yet, these new powers have not been invoked to link WHD payments to energy efficiency provisions, for example through the new Energy Company Obligation (ECO) that is included in the 2011 Energy Bill. This is a major missed opportunity, both in itself and because it fails to link in with other important developments in data availability on the energy performance of housing, which could prioritise interventions for those with the largest bills, with low incomes and in the worst housing.

This new data availability is coming about through the development by the Government of two new ‘data frameworks’ – the Home Energy Efficiency Database (HEED) run by the Energy Saving Trust, and the National Energy Efficiency Data (NEED) framework, which is being developed by DECC (http://www.decc.gov.uk/en/content/cms/statistics/en_effic_stats/en_effic_stats.aspx).

HEED contains information on installation of energy efficiency measures (such as insulation) and on the Energy Performance Certificate (EPC) ratings of homes in Scotland and Northern Ireland (but not England or Wales), along with basic data such as housing type, age and size.

NEED combines HEED data with energy use data, adjusted for weather conditions. It is being developed primarily for background analysis to inform the Green Deal, allowing real world (as opposed to modelled) analysis of the impact of different kinds of measures, such as loft insulation, cavity wall insulation and new boilers.

Both datasets might potentially be useful for prioritising energy efficiency measures for target groups, and could in theory be linked to data on benefit recipients. For example, benefit recipients living in properties rated F and G in an EPC would almost certainly be in fuel poverty.

In their current form HEED and NEED have key limitations. For example, not only does HEED not include EPC ratings from England and Wales, but EPC ratings will be available only for properties that have been put up for sale. The dataset will not cover the homes of many people living in fuel poverty, especially pensioners, who do not move.

Nevertheless, the HEED and NEED datasets will grow in coverage over time, and, together with the matching experience gained through the Energy Rebate pilot, they provide a basis for targeting energy efficiency and other support to those who need it in a way that has not been available until now. It may be some time before HEED and NEED are actually used for the automatic targeted support through data matching that is planned for the Core Group under WHD, but it would surely be invaluable for adding a mandatory energy efficiency element to that support.

In addition to targeting support to individual households, the dynamics of poverty point to two other, complementary approaches.

One is based on the fact that poverty over the last four decades has become increasingly spatially concentrated in large cities. According to Dorling *et al.* (2007) there are now some areas (roughly of the scale of a quarter of a borough) where, on a broad measure of poverty, more than half the households are poor. This implies that area-based targeting, as explored in the CESP, may be a good complementary approach to individually targeted energy efficiency interventions. An evaluation of the CESP is currently under way, and if it proves positive, this approach should be expanded.

A second type of complementary targeting arises out of the fact that poor households (i.e. those living on less than 60 per cent of median income) are also almost twice as likely as the wider population to live in private rented accommodation (DWP, 2009), which is also the least efficient housing stock and the most difficult circumstances in which to make improvements via fuel poverty schemes. Just under a quarter of poor households were private tenants in 2008.

The over-representation of poor households in the private rented sector, the poor state of the housing stock in that sector, and the split incentives for improving that stock means that a separate approach for the sector makes sense. A voluntary support scheme for landlords has been in place for a number of years, but take up has been very low, implying that regulation is now needed. In the 2011 Energy Bill the Government is proposing to regulate to drive-up the energy efficiency performance of the private rented sector from 2015, if a review to be held in 2014 shows that voluntary improvements have not been made under the Green Deal. Landlords would be required to install measures for which there is funding available through the Green Deal or the new ECO. In theory this approach should eradicate the worst performance (F and G SAP-rated), but it doesn't guarantee a minimum standard.

Finally, since the most expensive form of heating is through the use of electricity, Economy 7 tariffs may be a further way of identifying priority households, especially in rural areas.

A three-pronged approach to interventions

The fact that it is now becoming increasingly possible to identify those who cannot afford to heat their homes adequately, to assess the energy performance of the homes in which they live, and to target appropriate support to them, suggests a three-pronged approach to interventions that both gets to the root of the fuel poverty problem and gives interim support as required while that problem is being resolved. The key to long-term affordable warmth (especially in an era of rising fuel prices) is the improvement of home energy efficiency and that is therefore the first mentioned, and most important, of the interventions, which may be summarised as follows.

Improve the energy performance of homes

- The experience of energy efficiency measures installation has grown enormously over the last decade with the expansion of EEC/CERT and Warm Front. Supply chains are in place, there are many more trained auditors and installers, and much has been learnt about the effectiveness of different measures (most recently through the NEED data analysis).
- A whole-house approach to the worst performing housing is needed, with a comprehensive package of measures based on a full audit, and not shying away from hard-to-treat properties (i.e. more like CESP than CERT).
- Heating energy use has to be at the core of the intervention. Where they are on the gas grid, low-income households are much less responsive to changes in gas prices than to changes in electricity prices, implying a reluctance to reduce heating below a minimum (Jamasp and Meier, 2010), so it is increasing thermal efficiency that will have the greatest impact on reducing fuel poverty and increasing comfort. Households not on the gas grid, which use electricity for heating, are among those most likely to be in fuel poverty (CSE, 2010) although oil and LPG are also much more expensive than mains gas.

Look at bills, encouraging changed behaviour where appropriate

- Where the energy use of low-income households, as revealed by targeting as discussed above, appears high, an assessment should be offered and advice given about avoiding waste if this appears to be significant.

Prioritising target households for smart metering could be an important part of the package, as they would get households off pre-payment tariffs. At the same time, such meters could help households set and aim at specific energy usage or bill totals within a week or a month, so that they gain greater awareness and control over their budgets.

Give still vulnerable households an energy-related benefit

- Where it is clear that households will still not be able to afford sufficient warmth, despite energy efficiency measures and advice (and especially where there are special needs related to age, disability or young children) households would need to receive an energy rebate (or, under exceptional circumstances, an alternative relevant intervention, such as an offer of re-housing in cases of under-occupancy).
- The introduction of the Warm Home Discount is a step towards such an approach, although it is currently linked to a single subset of target groups and is not linked at all to any characteristic of the dwelling.
- There will be a trade off between a standard benefit, cheap to administer but less well targeted, and a benefit that is better targeted to the circumstances of the recipient, but more expensive to administer, although this trade off will become less pronounced as some of the targeting methods discussed above are further developed and refined.
- Over time the total bill for benefits such as energy bill rebates would be contained because they would no longer be paid to vulnerable, low-income households that had taken steps to improve thermal efficiency and were living in appropriately sized homes and taking care, because of high energy prices, that the energy they used was not wasted.

A final point concerns the resources required. A recent review by IPPR and National Energy Action of estimates of the cost of eliminating fuel poverty through energy efficiency measures suggests figures in the range of £20–30 billion for England (and up to £64 billion for the UK) (Bird, *et al.*, 2010). This compares with a combined annual average spend on Warm Front, the CERT priority group and CESP of around £1 billion a year in the period 2008–2011.

Clearly, therefore, doubling the annual spend to roughly £2 billion would suggest that fuel poverty in England could be eliminated within 10–15 years. Total spending by households on energy in 2010 was a little over £30 billion, so the additional cost of £2 billion, gross of any energy savings resulting, would represent £80 on an average annual energy bill of £1,200.

There is clearly therefore a case for increasing the level of spend on raising the energy performance of the housing stock in which poorer and vulnerable households live. Not only is this the correct approach but it will also yield savings on future levels of rebates and benefits to those households and other costs, including the demands on the health service and costs to the economy produced by related health problems.

Delivery and finance

Who delivers energy-related interventions, and how they are financed, are related issues.

Both the previous and current UK Governments have required the energy suppliers – the companies that actually deliver energy to homes – to deliver and finance most home-related energy programmes. These companies then pass on the costs of measures to their whole customer base. This is also the approach to be adopted by the Warm Home Discount.

The main advantage of this approach from the point of view of delivery is that the energy suppliers are already in regular contact with their customer base, through billing and meter reading procedures, and know how much energy they consume. This, and the experience that energy suppliers have now acquired in delivering energy efficiency measures through such programmes as CERT, means that they are better placed in respect of delivery than, for example, the network companies, who Helm (2008) suggests should take on the delivery and financing of measures. The main disadvantage of using energy suppliers in this way may be that customers do not understand why they should wish to deliver energy efficiency measures to them, rather than sell them energy, and therefore because of a lack of trust be less inclined to take up these measures as a result.

On the financial (and political) side, the main advantage from the government point of view is that this approach does not require explicit taxation and public expenditure. It is also likely that energy suppliers, with their regular customer contacts, can deliver energy programmes more cheaply than a public agency could, even with the costs of monitoring and evaluation by the energy regulator, Ofgem.

But there are disadvantages to this financial approach. First, there is some lack of transparency about costs. Most energy consumers do not realise that their bills include a payment to make other homes more energy efficient, nor is it clear precisely what this payment is for the different suppliers. Perhaps energy consumers would pay more attention to the energy efficiency of their own home if they realised that they were contributing to the energy savings of others. But they may also object to paying for benefits going to others.

Second, this approach inserts a basically social problem into a competitive market (which is one reason why the Government wants to move away from amending pricing, via the social tariffs of the voluntary agreement) towards a rebate on energy bills (through WHD). The approach shies away from making an explicit political case for eliminating fuel poverty through collective action.

Third, and probably most importantly, because of the structure of energy supply pricing, the cost pass through itself tends to be regressive – not only do the extra costs represent a higher proportion of the incomes of poorer households, but these households tend anyway to pay more per unit of energy because they do not pay by direct debit (usually the cheapest way to pay bills), and many use PPMs (a more expensive way) (Save the Children, 2010; CSE 2010) [9]. The use of data matching to target households should reduce the costs of installing measures somewhat (by reducing the costs of finding the customers that need them), but not dramatically.

While it would be less regressive to finance at least some of the measures via the tax system, the arguments for continuing to use the energy suppliers for both delivery and finance of the measures seem compelling, especially as the new targeting techniques, through data matching, open up the possibility of paying energy benefits through the energy suppliers as well, as is proposed for the WHD. In principle, any household should be able to contact their energy supplier to be included in the WHD Broader Group for an automatic payment of the WHD rebate.

However, there is also clearly room for some role for Local Authorities (and civil society groups such as Age Concern) in targeting, as now. The increasing concentration of poor households in geographical areas, discussed above, implies that the area-based approach piloted by CESP should be retained in some form in the ECO.

The levels of the energy benefits (the rebates on energy bills which will be paid to the Core Group and Broader Group through the WHD) is also an issue, especially if, through the ECO, the energy suppliers are required to greatly increase their provision of energy efficiency measures to these groups, as is being proposed. But the solution to this is to increase the money available for financing the measures, so that the level of the energy benefits can be increased to the Core and Broader Groups (which should be defined to contain virtually all fuel-poor households), to compensate for the extra costs passed through by energy suppliers for the extra energy efficiency measures they are installing. One possible way to make this extra finance available would be through reform of Winter Fuel Payments, which currently represent by far the largest item of expenditure in the household energy area (with annual spend now in the region of £2.7 billion). As a universal benefit above an age threshold, they are very poorly targeted and are received by many households that are nowhere near fuel poverty.

Replacing Winter Fuel Payments by an enhancement of the energy bill rebates to the Core and Broader Groups would enable more money to be spent on energy efficiency measures more quickly, while fully protecting low-income vulnerable households from the extra costs. In due course, energy bill rebates could be at two levels – a lower level for eligible households that have already had extensive energy efficiency measures installed, and a higher level for those that have not, on condition that they go on a list for the installation of such measures at the earliest opportunity.

Summary and conclusions

This paper has argued that there are compelling reasons for revising the approach being taken by the UK Government to fuel poverty.

Energy prices need to go up substantially because of the pressing and statutory need to reduce carbon emissions, and are being driven up further by world markets. This means that fuel poverty can only be reduced by an intensified focus on the energy efficiency and energy bills of those in fuel poverty, especially low-income vulnerable households.

The long-term solution to fuel poverty, and one that also supports the objective of reducing carbon emissions, is to increase dramatically the energy efficiency of fuel-poor households' homes. To the extent that such households are less likely to take up offers of loans under the proposed Green Deal programme, we concur with the Fuel Poverty Advisory Group's view that the proposed ECO for delivering energy efficiency improvements should be devoted to low-income and vulnerable households. While this has always been part of the approach to reducing fuel poverty, difficulties in identifying fuel-poor households so that they could be targeted for measures meant that it was relatively expensive. Far fewer homes were improved in terms of energy efficiency than was necessary to counteract rising energy prices, so the number of fuel-poor households rose.

The data-matching techniques to be used to identify the Core Group for the WHD have greatly reduced the cost of identifying a major sub-set of the fuel poor. The prospect of a sizeable rebate on energy bills should ensure that low-income vulnerable households in the Broader Group are more willing to identify themselves (for example, through the Home Heat Helpline) to their energy suppliers. A condition for the receipt of the energy bill rebates should be that both Groups are given, through the ECO, an energy efficiency assessment of their homes followed by the energy efficiency measures that are revealed by the assessment as desirable, and advice on how to use any equipment that has been installed. Advice should also be given on how to achieve greater reductions in energy bills through broader energy-saving behaviours, which will be further encouraged by the high and rising price of energy.

The energy bill rebates would be paid through the WHD to all who are eligible for them even as the process of energy efficiency upgrading, and the changing of energy behaviours, was being implemented. They may need to be increased above the levels proposed in the WHD, and this could be paid for through reform of the Winter Fuel Payments. Once the energy efficiency upgrading of households in the Core and Broader Groups was widespread, perhaps a lower rebate could be paid to households in energy-efficient homes, while a higher rebate was given to households still waiting for home improvement. Fuel poverty would be much reduced even while most houses were energy inefficient, as now, by payment of the enhanced energy bill rebates. Over time it would be reduced much further by low-income households needing to use less energy to keep warm, providing the realistic prospect of the effective abolition of fuel poverty by the end of the decade.

The approach suggested in this paper – targeting measures, rebates and advice to fuel-poor, vulnerable households – should have both significant social and environmental benefits as it should reduce bills and emissions. But in addition (and in conclusion) a successful approach of this sort helps clear the way for highly probable and probably permanent increases in the price of energy. If poor and vulnerable households are made resilient to energy price rises in this way, then the signal to better off households can be clearer and the take up of measures such as the Green Deal hopefully more significant.

Notes

1. A carbon floor plan is a charge levied on polluters for the right to pollute. The idea is to make investments in low-carbon technology more commercially attractive than pollution.
2. The CCL is paid by businesses but some part of it and the carbon price floor payments are and will be passed through to consumers in the prices of products and electricity.
3. The IPPR tax-benefit model uses data from the Family Resources Survey and the Food and Expenditure Survey to model the estimated effects of changes to the UK personal tax and benefit system for different types of households.
4. While the authors of this paper are not arguing that VAT on domestic fuels and electricity should be increased, it is worth noting that recent price increases announced by most of the large energy companies and averaging 18 per cent on gas and 11 per cent on electricity prices will have an effect almost identical to the imposition of the full rate of VAT.
5. In 2006, for example, annual energy spending rose with household income up to a threshold of £850 per year for households on around £25,000 (a little over the median).
6. See <http://www.decc.gov.uk/assets/decc/Statistics/fuelpoverty/2181-annual-report-fuel-poverty-stats-2011.pdf>
7. See the announcement of the review in March 2011 http://www.decc.gov.uk/en/content/cms/what_we_do/consumers/fuel_poverty/hills_review/hills_review.aspx
8. www.ukace.org/index.php?option=com_content&task=view&id=608&Itemid=47.
9. In 2009 Ofgem introduced new licence conditions to require cost-reflective charging for PPM, and by 2011 found that PPM charges had greatly decreased (Ofgem, 2011). For instance, the average dual fuel PPM bill according to Consumer Focus will be £1,253 by October 1 2011 when all the increases announced will have taken affect; the average standard credit dual fuel bill will be £1,273.

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