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Fuel poverty and energy efficiency obligations – A critical assessment of the supplier obligation in the UK [☆]



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HIGHLIGHTS

- First comprehensive analysis of energy savings obligations and fuel poverty.
- Systematic comparison of targeting efficiency of fuel poverty programmes.
- Critical analysis of fuel poverty provisions in British supplier obligations.
- Proposal of a new approach to targeting fuel poverty within energy savings obligations.

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ABSTRACT

Energy efficiency obligations (or white certificates) are increasingly used to reduce carbon emissions. While the energy efficiency obligations were originally intended as carbon reduction and not fuel poverty policies, due to recognition of the potential for regressive outcomes they often include provisions for vulnerable and low-income customers. Intuitively, reducing carbon emissions and alleviating fuel poverty seem to be two sides of the same coin. There are, however, considerable tensions between the two when addressed through energy efficiency obligations, particularly arising from the potentially regressive impacts of rising energy prices resulting from such obligations, but also the complexity of targeting fuel poor households and the implications for deliverability. Despite those tensions, the UK government decided to use energy efficiency obligations, the supplier obligation, as the main policy for reducing fuel poverty. In light of the proposals, this paper provides an analysis of the main tensions between carbon reduction and fuel poverty alleviation within energy efficiency obligations, outlines the fuel poverty provisions of the British Supplier Obligation, assesses its rules for identifying the fuel poor, and provides a critical analysis of the planned policy changes. Based on this analysis, alternative approaches to targeting fuel poverty within future supplier obligations are proposed.

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1. Introduction

Today, fuel poverty is a key driver of British energy policy after it became a distinct issue of public concern following the 1973 oil crisis. The recognition of regressive impacts of rising energy prices led to a distinction of fuel poverty from general poverty (Bradshaw, 1983) because of ‘the crucial role of housing stocks – the house, heating system and other energy using equipment’ (Boardman,

1991, p. 221). Since this time, the UK has adopted a number of different policy approaches for tackling fuel poverty.

In the international context fuel poverty is also referred to as ‘energy precariousness’ (précarité énergétique) in French (Dubois, 2012) or ‘energy poverty’ in the literature on Eastern European countries (Buzar, 2007). Until the time of writing, fuel poverty in the UK was defined as the need to spend more than 10% of household income on all energy use in order to maintain a satisfactory heating regime and other energy services. The original definition of fuel poverty goes back to Boardman (1991). The official definition of fuel poverty used in the UK has been under review by Hills (2012) and is likely to change in the future. When we refer to fuel poverty we mean the old i.e. pre-Hills definition.

While initially intended as a carbon reduction policy, obligations on suppliers to save energy and carbon (in the following just called supplier obligations (SO)) have increasingly been used as a

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means to address fuel poverty, particularly in light of decreasing public budgets and the termination of taxpayer funded fuel poverty policies (Rosenow, 2012; Rosenow and Eyre, 2012, 2013). Intuitively, reducing carbon emissions from homes and alleviating fuel poverty seem to be two sides of the same coin – upgrading the British building stock and making it fit for the 21st century. However, while there are synergies, there are also tensions. Because SOs are paid for by energy suppliers which pass costs through to consumers, there are obvious tensions between using such a policy instrument for reducing fuel poverty. Also, SOs are generally considered as an instrument to reduce energy consumption, whereas fuel poor households tend to underuse energy services.

Still, most of the existing literature on energy saving obligations such as the SO focuses on the mechanics, the economics and the regulatory aspects of energy efficiency obligations. Fuel poverty is, if at all, sparsely mentioned, because of the literature's emphasis of cost, carbon and energy savings, and it is generally assumed that energy efficiency obligations have a positive impact on fuel poverty without providing further evidence (Bertoldi and Rezessy, 2008; Child et al., 2008; Eyre, 2008; Eyre et al., 2009; Giraudet and Quirion, 2008; Mundaca, 2007, 2008; Mundaca and Neij, 2009; Oikonomou et al., 2007). The only paper providing a much more critical view, which is now dated, assessed the entanglement of policy goals such as carbon reduction and alleviating fuel poverty in the British SO but lacked an analysis of how effective the SO is in reducing fuel poverty (Powells, 2009). While the fuel poverty literature contains critical discussions of energy efficiency obligations and their potentially regressive outcomes (Boardman, 2010; Roberts, 2008; Sunderland and Croft, 2011; Thomson and Snell), it lacks a comprehensive analysis of the SO and its fuel poverty implications in detail. The most extensive discussion of fuel poverty and energy efficiency obligations is located in the grey literature at the moment (Ekins and Lockwood, 2011; Hills, 2012).

Given that the SO will constitute the main fuel poverty policy in Great Britain (although there will be additional programmes in the devolved areas), this paper critically assesses the role of fuel poverty within the SO and draws out the key tensions between energy efficiency obligations and fuel poverty policy. It then proceeds with evaluating the effectiveness of energy efficiency

obligations in reducing fuel poverty. This is followed by an assessment of the proposals for future SOs in the UK in terms of their likely impact on fuel poverty, given that for the first time in history this instrument is explicitly used to reduce fuel poverty. Finally, the paper suggests alternative policy approaches to the current proposals.

The findings in this report are based on analysis of policy literature, policy impact assessments produced by Government, responses to Government consultations from a range of stakeholders and statements by energy suppliers. This has been supplemented by interviews with around 15 expert stakeholders representing the views of a range of perspectives on the issue (see Section 7). In many cases claims by the interviewees could be backed up with official documents. However, where no specific evidence is given to support a claim, the reader may assume it was based on the expert interviews the author conducted. Because some interviewees had potential conflicts of interests and their responses may have been biased as a result, further interviews and documents were used as a means of triangulation.

2. Background

In 1994 the UK became the first country in Europe to impose energy efficiency obligations on energy suppliers. The basic approach is that suppliers are obliged to deliver a set amount of carbon savings in homes. They are expected to achieve this by incentivising consumers to install low carbon measures by providing subsidies. The obligations started at a moderate level, but eventually became the main climate change mitigation policy for the domestic sector delivering the largest proportion of overall carbon savings. In 2007 the obligations had become the second most important measure in terms of carbon savings after the EU Emissions Trading Scheme (DTI, 2007).

There has been a succession of various SOs with changing labels and targets (Table 1). Before 2012, there were two SOs in place: the Carbon Emissions Reduction Target (CERT) follows the legacy of past SOs with a focus on the delivery of low cost energy efficiency measures. The Community Energy Saving Programme (CESP) is much smaller in size (roughly 10% in terms of carbon

Table 1
Chronology of UK supplier obligations.
Source: Based on Rosenow (2013).

Name of scheme	Energy Efficiency Standards of Performance 1	Energy Efficiency Standards of Performance 2	Energy Efficiency Standards of Performance 3	Energy Efficiency Commitment 1	Energy Efficiency Commitment 1	Carbon Emissions Reduction Target	Community Energy Savings Programme	Energy Company Obligation
Abbreviation	EESoP 1	EESoP 2	EESoP 3	EEC 1	EEC 2	CERT	CESP	ECO
Period	1994–1998	1998–2000	2000–2002	2002–2005	2005–2008	2008–2012	2009–2012	2013–2015
Target (lifetime)	6.1 TW h	2.7 TW h	4.9 TW h electricity & 6.1 TW h gas	62 TW h	130 TW h	293 million t CO ₂ =494 TW h	19 million t CO ₂ =47 TW h	20.9 million t CO ₂ 6.8 million t CO ₂ lifetime savings notional heating costs of £4.2 billion
Implicit annual target (lifetime)	1.5 TW h	1.4 TW h	5.5 TW h	21 TW h	43 TW h	~ 104 TW h	~ 15 TW h	~ 30 TW h
Cost of the	£48.1 million	£110 million (indicative)	£500 million (indicative)	£1.2 billion (indicative)	£5.6 billion (indicative)	£0.4 billion (indicative)	£2.9 billion (indicative)	£101.7 million
Cost per household	£1	£1	£2.40	£7.20	£18	£51	£3	£53
Per cent of savings in Priority Group	30% (expected, not compulsory)	65% of expenditure (expected, not compulsory)	67% of expenditure (expected, not compulsory)	50%	50%	40%, 15% in Super Priority Group	Lowest 10% income decile in England and 15% most income deprived areas in Scotland and Wales	25%, 20% in 15% most income deprived areas

savings) and functions similar to CERT but places more emphasis on high cost measures to be delivered in an area-based approach. Total spending per year for both schemes exceeds £1.2 billion adding about £54 to household energy bills (DECC, 2009; Rosenow, 2012). Since January 2013, CERT and CESP have been replaced by the Energy Company Obligation (ECO), a scheme that focuses mainly on high-cost measures such as solid wall insulation and hard-to-treat cavity wall insulation. Note that no actual cost data is available in the public domain and these figures are based on Government modelling.

Energy suppliers are required to deliver a specified proportion of their obligation in a defined group of customers thought to be vulnerable – this group has generally been referred to as the Priority Group in the UK.

There are a number of reasons to believe that placing an obligation on suppliers to improve the energy efficiency of households is an effective policy approach:

1. In theory, competitive market forces mean that suppliers deliver these policies as cheaply as possible (Ekins and Lockwood, 2011).
2. Suppliers' wide range of established touch points with customers, combined with their marketing skills, enable them to deliver improvements on a large scale (Lees, 2007).
3. By engaging in energy efficiency markets, suppliers become more like 'energy service companies' (ESCOs), promoting services to help people reduce and manage their energy usage, and less focused on supply (Eyre, 1998).
4. Funding is not dependent on public expenditure and is therefore resilient to budget cuts (Rosenow, 2011).

There are, however, some strong counter arguments. First, the obligated suppliers are limited in their ability to promote new products and services because they are not well trusted by consumers – one survey found that half of all consumers do not trust their energy supplier (Opinium, 2011). This problem is compounded because consumers are sceptical about why energy suppliers are offering them measures to save energy, when their business is to supply energy (Parag and Darby, 2009).

Second, because the suppliers in general contract third parties to deliver their obligations and because energy efficiency programmes are operated separately from the core activity of selling energy units (Eyre et al., 2009) the impact on their business models is limited. Indeed, despite obligations being in place for 18 years it is clear that there has not been a consistent reorientation towards service-led models across the obligated suppliers.

Finally, because additional consumer-funded environmental policies such as the feed-in tariffs were implemented and energy suppliers are expected to invest in electricity generation, the Treasury now regulates some consumer-funded policies under the so-called 'Levy Control Framework' limiting how much suppliers can pass on to consumers. This might at some point also cover the SO (Treasury, 2011).

There is also the potential for regressive outcomes from suppliers' obligations, which can exacerbate problems of fuel poverty. There are at least two potential sources of regressive outcomes:

- **Cost pass through:** The costs to suppliers of delivering energy efficiency policies are passed on to consumers' energy bills. While those consumers that have their homes improved can benefit from an overall reduction in bills, those who do not receive improvements experience bill increases. If the suppliers' costs are passed through equally to all customers this is regressive because the bill increase constitutes a greater proportion of a poorer household's income. In practice, however, because suppliers can pass on the costs at their own discretion they may spread the cost

unevenly across customers, putting the burden on customers who tend not to switch (Preston et al., 2010). Because less affluent, more vulnerable groups are over-represented in non-switching groups (Boardman, 2010) the potential for regressive outcomes is increased. One attempt to model how this might work in practice found that non-switchers could pay as much as 35% more of passed through supplier costs compared to 'switchers' on direct debit tariffs (Preston et al., 2010).

- **Targeting of higher income households:** Because they are operating in a competitive market, suppliers aim to deliver their obligations at least cost. This creates an incentive not to focus on low-income households as they will generally require a supplier to provide a greater level of subsidy towards energy efficiency measures than those that are 'able to pay' (typically, suppliers provided 100% subsidy for low-income households and 50% subsidy for able to pay). These cost differences are demonstrated in an evaluation of the second Energy Efficiency Commitment, which ran from 2005 to 2008, which estimated that suppliers spent more than 60% on delivering measures to the low-income group, even though this made up only 50% of the overall target (Lees, 2008).

While the energy efficiency obligations were originally intended as a carbon reduction policy and not for reducing fuel poverty, due to recognition of the potential for regressive outcomes and to make it equitable they have included provisions for vulnerable and low-income customers from the beginning. In theory, progressive benefit allocation achieved by dedicating a specified share of the promoted measures to low-income households can offset the impact of regressive revenue raising, making the policy progressive overall (Eyre, 2008). The irony is that by including provisions for lower income households the overall cost of the policy rises due to the higher subsidy requirements for these households and also the costs in locating those that are eligible. As a result, if not designed carefully and with poor targeting efficiency, these provisions can *increase* the potential for regressive outcomes.

Provisions for low-income consumers also result in a lower carbon saving potential from the policies. Compared to higher income households, low income households take more of the outcomes of energy efficiency improvements in the form of increased comfort (rebound effect) instead of reducing their energy use. This is because they tend to under-heat their homes (Sanders and Phillipson, 2006). As a result, in order to achieve the same carbon reduction, a greater energy efficiency improvement with higher costs is required compared to the able-to-pay.

These trade-offs were subject to controversial debates over the last decade which remain largely unresolved (Rosenow, 2012). This resulted in confusion over the goals of the SO and evolving conflicts around those. While eradicating fuel poverty is mentioned in all the consultation documents after 2000 as one of the objectives of the SO, the primary stated aim of the SO remained the reduction of carbon emissions. This becomes very clear in the EEC 2005–08 consultation document. The document stresses that EEC 2002–05 'was not intended to specifically target the fuel poor' (DEFRA, 2004, p. 7) and that the 'primary aim is to make a significant contribution to the UK's legally binding target under the Kyoto protocol' (DEFRA, 2004, p. 5). This is restated more strongly in the CERT consultation where it is stressed that the SO 'does not have a specific fuel poverty objective', that the PG target was put in place 'for reasons of equity' (DEFRA, 2006, p. 7) and that the SO will 'only ever be able to be a make a limited contribution to meeting our fuel poverty targets' (DEFRA, 2006, p. 29). In evaluating CERT scholars observed a 'discursive shift away from fuel poverty, towards a more 'pure' carbon reduction market' (Powells, 2009, p. 2353).

However, more recent policy objectives are in stark contrast to the rationale behind CERT – with the Energy Company Obligation (ECO – the successor of CERT), Government hopes to ‘achieve the twin objectives of reducing domestic carbon emissions and alleviating fuel poverty’ (DECC, 2012d, p. 26). In the recently published Energy Efficiency Strategy it is restated that the ECO ‘will help alleviate fuel poverty and drive further demand for insulation and other energy efficiency improvements’ (DECC, 2012b, p. 28). This is the first time that tackling fuel poverty has been an explicit objective for the SO.

Despite the ambivalence and the confusion of policy goals, with the termination of Warm Front, a large fuel poverty grants scheme in England, in 2013 and no other dedicated fuel poverty policy in place, the SO now constitutes the only significant fuel poverty policy in terms of spending (Rosenow and Eyre, 2012, 2013). It is therefore worthwhile to explore how the SO contributed to reducing fuel poverty in the past and what the provisions in the ECO look like.

3. Fuel poverty and current energy efficiency obligations

The paper proceeds with a discussion of the social equity provisions in the current obligations and the targeting efficiency of those.

3.1. Social equity provisions

It is important to note that the SO was never intended to be a fuel poverty policy (and some would argue it should not be used for that purpose) and provisions for targeting low-income customers were built into the design of the SO as a means to offset its regressiveness with regard to revenue raising via energy bills. Some stakeholders see the provisions in the SO as a fuel poverty measure nevertheless (Powells, 2009).

Earlier schemes did not define firm targets: EESoP 1 did not set a specific target for disadvantaged customers or those that were in the Priority Group of later schemes. The Office of Electricity Regulation (OFFER) argued that ‘it would not be helpful to set specific quotas for savings to be achieved from projects covering [low-income] customers’ (OFFER, 1994, p. 7). When EESoP 1 started in 1994, OFFER expected that 30% of the savings would be achieved in properties of low-income customers. For EESoP 2, 65% of the total expenditure was expected to benefit low-income households. OFFER once again argued that it would not be appropriate to set a target for low-income households (OFFER, 1998). For EESoP 3, OFGEM expected that about two thirds of all projects would benefit low-income households, but did not set an obligatory target either (OFGEM, 2000). EEC 1 was the first scheme that put in place an obligatory target for vulnerable customers: 50% of all savings had to be achieved within the Priority Group (OFGEM, 2001). The target did not change in EEC 2 (OFGEM, 2004), but under CERT the target was reduced to 40% (OFGEM, 2009b). With the CERT extension from April 2011 to December 2012 a Super Priority Group (SPG) was introduced, requiring suppliers to meet 15% of their total CERT target (37.5% of their PG target) from a subset of low-income households that were considered to be at high risk of fuel poverty (DECC, 2010). They differ from the PG because of stricter eligibility requirements regarding recipients’ household income and the benefits they receive. About 50% of PG households are thought to be in the SPG.

Who is and is not included in the PG depends on the definition of it. The PG definition changed over time. Until EEC 2 it included people receiving certain benefits, most of which are still included in the PG definition currently used in CERT. An important change from EEC 2 to CERT was the inclusion of all people over 70 years old (OFGEM, 2009a). Energy suppliers have an incentive to deliver the obligation as cost-effectively as possible. As a result, they will

make use of the easiest route in order to achieve their PG target. If it is more difficult (and costly) to identify particular households who would potentially qualify for the PG, suppliers will opt to work with households where this is easier (and cheaper). A good example that illustrates this effect is the inclusion of those over 70 in CERT: identifying people over 70 appeared to be easier compared to finding people on benefits. As a result, PG activity in the first year of CERT focussed on the over 70s and not so much on those on low-incomes (OFGEM, 2009b).

CESP only allows projects to be carried out in the lowest 10–15% of areas ranked in Income Domain of the Indices of Multiple Deprivation.¹ DECC provides a list of eligible areas on their website.² Proof that a measure has been provided to a household located within an eligible area is simply the collection of address details for each property receiving a measure.

3.2. Targeting efficiency of social equity provisions in supplier obligations

In order to measure the effectiveness of a policy in terms of fuel poverty reduction its targeting efficiency needs to be taken into account. The targeting efficiency is determined by two factors (Sefton, 2002):

- Coverage (also called horizontal efficiency): the percentage of fuel poor households covered by the policy.
- Leakage (also called vertical efficiency): the proportion of support going to households that are not fuel poor.

We use this definition of targeting efficiency in the following.

As part of the compliance with CERT, suppliers have to prove that at least 40% and 15% are in the PG and SPG respectively. The procedure for doing this demands that suppliers determine the percentage of savings achieved in the Priority Group by various means (OFGEM, 2011). Depending on the type of measure and delivery route, different approaches are used to determine Priority Group membership of households. For example, face-to-face visits require checking documentation proving the recipient is on benefits or above 70. Delivery of measures via retail schemes allows suppliers to monitor recipients by using a questionnaire rather than check their documents.

The literature on energy efficiency obligations generally assumes that the social equity provisions helps in reducing fuel poverty (Bertoldi and Rezessy, 2008; Geller and Attali, 2005; Giraudet and Quirion, 2008; Mundaca, 2008; Oikonomou et al., 2007) and that overall the SO is progressive (Eyre, 2008).

So how successful are current obligations at targeting fuel poor households? The CERT Priority Group achieves a targeting efficiency of 24% (Sunderland and Croft, 2011) and similar figures have been reported for EEC 2 (BERR, 2008). The reason for such a low targeting efficiency is that eligibility for Priority Group funding depends on receiving certain benefits and being above 70. In both groups, those receiving benefits and the over 70s, a large proportion of people are not in fuel poverty with some being well-off.³

For CESP, the targeting efficiency is probably higher (although no numbers exist to date). However, there are some serious concerns about the effectiveness of the rules: in some cases low-income boundaries split streets and even semi-detached

¹ The eligible areas in Great Britain are defined as those with the lowest income decile under IMD in England and the lowest 15% in Wales and Scotland. In England and Wales these areas are referred to as Lower Super Output Areas (LSOA). In Scotland, they are defined as Data Zones.

² http://www.decc.gov.uk/assets/decc/consultations/cesp/1_20090630123736_e_@_deccommunitessareas_oflowincomecesp.pdf.

³ In 2006, only 19% of all pensioner households and 13% of all households on means tested benefits were in fuel poverty (Boardman, 2010).

buildings. Also, according to calculations by BRE of 2009 English Household Survey (EHS) data, only 22.4% of households in the lowest 10% of the Index of Multiple Deprivation areas in England were in fuel poverty compared to the national average of 18.4% (CAG consultants et al., 2011).

Furthermore, those living in privately rented accommodation are the ones most likely to be in fuel poverty (Boardman, 2010), but a recent evaluation of CERT showed that only 5% of households which received assistance from the programme were in the private rented sector compared to the national average of 13% (Ipsos MORI et al., 2011). Not surprisingly, CESP showed similar patterns with a low uptake of measures in the private rented and owned sector (CAG Consultants et al., 2011).⁴ This is particularly worrying because the depth of fuel poverty is greatest in the private rented sector due to poorly insulated homes in this segment of properties (House of Commons Energy and Climate Change Committee, 2012).

Finally, the geography of delivery is unequal too: the CERT evaluation pointed out that the assumed carbon savings do not take into account any variation in climate across Great Britain which can exacerbate other geographical barriers to CERT delivery such as the higher cost for installers to deliver measures in remote rural areas (Ipsos MORI et al., 2011), but also in some urban areas such as London with high proportions of private rented accommodation.

The above demonstrates that current and past obligations had a low targeting efficiency with regard to fuel poverty. However, because the SO was never designed to have a particularly high targeting efficiency, but only to offset the regressive impacts of rising energy bills, this is not that surprising. Still, if the SO is going to play a major role in future fuel poverty policy it is important to understand how effective the SO has been at reaching the fuel poor.

3.3. Targeting efficiency of other policy instruments

How to target the fuel poor more effectively has been an issue since the first fuel poverty policies were introduced (Sefton, 2002) and the debate is nowhere near being resolved. As a result, targeting efficiency of all fuel poverty policies is weak, with less than a quarter of the annual expenditure on fuel poverty received by the fuel poor (Boardman, 2010). The table below illustrates that this applies consistently to all of the main GB fuel poverty policies (Table 2). Only Warm Front post-April 2011 is likely to achieve a high targeting efficiency given that 77% of those eligible are estimated to be fuel poor, mainly a result of including energy performance based indicators rather than simply relying on income based criteria. However, the eligibility criteria for Warm Front were changed again in September 2012 because take-up of grants proved difficult with stricter requirements.

However, overall targeting efficiency remains poor. The reasons for this are manifold. Eligibility for funding from fuel poverty policies is usually determined by whether individuals in the household receive certain benefits, have an income below a set threshold or are over 70 years old. The difficulties with this approach are that each criterion used for identifying the fuel poor only covers a proportion of fuel poor households (figures in Boardman (2010)):

- In 2006, about 50% of all fuel poor households were pensioners, but only 19% of all pensioner households were in fuel poverty.

- In 2006, about 58% of fuel poor households were on means tested benefits, but only 13% of all households on means tested benefits were fuel poor.
- In 2007, about 63% of fuel poor households were on a low-income (60% of average household income), but only 54% of all households on a low-income were in fuel poverty.

The figures are dated but the overall picture remains the same (Hills, 2012). The result of the above is that only a fraction of total fuel poverty spending goes to fuel poor households as illustrated before and that a significant proportion of fuel poor households do not receive any assistance, particularly those who are not on means tested benefits or above 70.

4. A new approach to tackling fuel poverty: the Energy Company Obligation (ECO)

From 2013 a new obligation on energy suppliers, the Energy Company Obligation (ECO), will be introduced. A specific objective of this policy is to tackle fuel poverty, thereby marking a major shift from previous supplier obligations that have focused primarily on reducing carbon emissions. Moreover, with the tax-funded energy efficiency programme, Warm Front, coming to an end in March 2013, the main responsibility for improving the energy efficiency of fuel poor homes will lie with the suppliers. This brings to the fore the tensions that arise from using supplier obligations to tackle fuel poverty, which were raised in Section 2.

In this section we examine in detail the design of the ECO, focusing in particular on the Government's faltering ambition for tackling fuel poverty and the potential for regressive outcomes from the policy.

4.1. The Energy Company Obligation (ECO)

The ECO commenced on January 1st 2013 and will run to 31st March 2015 and includes two carbon saving targets, one of which will include a rural sub-component, and a target for tackling fuel poverty. The obligations are:

- A total carbon saving target of 27.8MtCO₂ split into 20.9MtCO₂ for the Carbon Saving Obligation target and 6.8MtCO₂ for the Carbon Saving Communities target, of which at least 1MtCO₂ must be delivered to rural households.
- The Home Heating Cost Reduction Obligation (Affordable Warmth) target will require energy suppliers to achieve a total reduction in lifetime notional space and water heating costs of £4.2 billion for low-income and vulnerable households.

As was the case with previous supplier obligations, suppliers will be expected to provide subsidies to consumers to incentivise them to install measures. They will also be able to contract third parties to support them in fulfilling their obligations.

While the ECO is a novel supplier obligation because of the primacy it gives to tackling fuel poverty, it is also novel because of its approach to achieving carbon savings. Every major energy supplier obligation, both in North America (York, 2008) and Europe (Eyre et al., 2009) (including previous obligations in the UK), has been designed to promote delivery of the minimum cost energy savings through the cheapest available measures. THE ECO turns this experience on its head by focusing mostly on high cost measures such as solid wall insulation and hard-to-treat cavity wall insulation (DECC, 2012d).

Low cost energy efficiency measures are to be delivered through the Green Deal, which will work alongside the ECO. The Green Deal is a market-based instrument that will enable households to install

⁴ The reason for low take up in the private rented sector is widely known as the landlord-tenant dilemma resulting from the fact that the landlord does not benefit financially from energy efficiency improvements. Additionally, there are other than financial barriers such as hassle (for example the landlord may use the loft space and be unwilling to clear it), the tenant may not ask the landlord in the first place, and the tenant is not in a position to make decisions about altering the building.

Table 2

Targeting efficiency of main GB fuel poverty policies, various years.

Sources: 1: BERR (2008); 2: NAO (2009); 3: DECC (2011); 4: Boardman (2010); 5: Lees (2008); 6: Sunderland and Croft (2011); 7: at least a high as PG because SPG is part of PG; 8: CAG consultants et al. (2011); 9: Hills (2012), based on archetypal modelling for hypothetical supplier funded rebates; 10: Probert et al. (2012).

Scheme name	Targeting efficiency	
	% of recipients that are fuel poor	% of fuel poor that are eligible
Warm front		
Pre-April 2011	26 ¹ –40% ²	35 ² –53% ³
April 2011–Sep 2012	Not known	77% ³
Winter fuel payments	19% ⁴	50% ⁴
Supplier obligation		
EEC 2005–08 PG	22% ¹	58 ⁴ –70% ⁵
CERT 2008–12 PG	24% ⁶	Not known
CERT 2008–12 SPG	> 24% ⁷	Not known
CESP 2009–12	> 22.4% ⁸	Not known
ECO affordable warmth	37.2% ¹⁰	51.8% ¹⁰
ECO carbon saving communities	26.9% ¹⁰	12.4% ¹⁰
Warm home discount	28% ⁹	Not known

energy efficiency measures at no-upfront cost. Instead, measures will be paid for automatically out of the energy bill savings they achieve for a household. In some cases households are likely to be given the option of receiving partial subsidies towards high cost measures through the ECO and making up the rest of the costs with Green Deal financing.

The ECO broaches new territory for supplier obligations by focusing on high cost carbon saving measures. Other schemes promoting high cost measures have taken a different approach, for example the successful KfW scheme in Germany was based around a loan programme (Kuckshinrichs et al., 2010; Rosenow, 2011; Schroeder et al., 2011). We discuss issues this may raise below.

4.2. Faltering ambition for tackling fuel poverty

The enhanced responsibility being placed on the suppliers for tackling fuel poverty with the ECO, while at the same time as Warm Front, the only energy efficiency scheme in England funded by the exchequer, is abandoned, raises a fundamental question about the Government's approach. Are energy suppliers, whose core skills lie in energy trading, generation,⁵ marketing and customer fulfilment, best placed to tackle what is in many ways a complex, social welfare problem? Moreover, the Government's commitment to tackling fuel poverty appears to have faltered.

It is widely accepted that improving the thermal efficiency of fuel poor homes, as will occur through the ECO, is a better approach for tackling fuel poverty than providing only financial assistance to the fuel poor (Boardman, 2010; Ekins and Lockwood, 2011; Hills, 2012). This is because energy efficiency improvements provide a long-term, sustained solution for households suffering from fuel poverty, whereas financial support offers only short-term respite and must be provided on a repeat basis. As a result financial assistance policies are significantly less cost-effective at tackling fuel poverty than energy efficiency policies (Hills, 2012).

However, there are many more families in Great Britain that are fuel poor than will receive support through the ECO. The Government has stated that the ECO will result in 125,000–250,000 households being taken out of fuel poverty by 2023 (DECC, 2012c).

⁵ The obligated suppliers are all vertically integrated with significant capabilities in energy generation.

The number of households in fuel poverty according to the current definition is 20–40 times this figure (DECC, 2012a), and 11–22 times when using the Hills review definition (Hills, 2012).⁶ Assuming the same effort continued after 2023, it would take 100–400 years to take all households out of fuel poverty (depending on the definition used).

Therefore, even with the change in definition of fuel poverty proposed in the Hills review (Hills, 2012), the Government appears less than committed to deliver on its statutory obligation to eradicate fuel poverty by 2016 as far as reasonably practicable (DTI, 2001).

Furthermore, the funding available for tackling fuel poverty has fallen dramatically. Analysis by the Association for the Conservation of Energy (ACE) shows that the funding available for energy efficiency improvements will drop 29% from 2012/13 to 2013/14, following from reductions of 17% and 18% in the previous 2 years (ACE, 2012). The analysis also suggests that if all aspects of fuel poverty policy are included (i.e. both energy efficiency and financial assistance programmes) spending in 2013/14 will be £1.25 billion lower than in 2010/11, which is a 28% reduction.

The ECO will be the main policy instrument for delivering a long-term, sustainable solution to fuel poverty for affected households. While it is clearly insufficient to address the scale of this problem, more worryingly there is a possibility that the ECO may actually make fuel poverty worse as illustrated in the following.

4.3. Distributional outcomes from the ECO

As was explained in Section 2, there are tensions between suppliers' obligations and fuel poverty. Of primary concern is how obligations result in higher energy bills that can affect all consumers while only some households receive measures to offset these increases. It is because of this tension that the ECO may result in regressive outcomes.

DECC's analysis of the distributional impacts of the ECO on energy bills in 2020 shows a slight increase across all households but with a broadly similar impact across the majority of groups. DECC concludes: 'this indicates that, despite the potential for costs being recouped through bills to be regressive, the average impact across income groups is broadly proportionate as a percentage of average income in each income decile group' (DECC, 2012c, p. 67).

DECC goes on to state that the majority of households in each group are those who do not receive a measure and for these households the resulting average increase in bills is a greater proportion of average income for those in lower income groups than those in wealthier groups. In other words, if we only consider those people who have not had a measure installed by 2020, which is the majority of people, the impacts of the ECO are regressive. It is also worth noting that the Fuel Poverty Review commissioned by DECC concluded that, even if the proposed definition is adopted, Green Deal and the ECO 'would be expected to increase fuel poverty' (Hills, 2012, p. 112).

Another reason why outcomes from the ECO may be more regressive than DECC's analysis suggests is the assumption they have made about how suppliers pass costs through to consumers. The ECO marks a change in approach for how suppliers are allocated responsibility for delivering obligations, which DECC assumes will affect how they pass costs through. Previously, suppliers were allocated responsibility based on the number of

⁶ A new indicator was proposed in the Hills review, the Low Income and High Costs (LIHC) indicator, which will be less sensitive to varying energy prices but may also have some drawbacks. People would be defined as living in fuel poverty if: (a) they have required fuel costs that are above the median level and (b) were they to spend that amount they would be left with a residual income below the official poverty line (Hills, 2012).

customer accounts they had. In the ECO responsibility will be allocated on a per kW h basis. If suppliers pass their costs through on a per kW h basis to consumers in line with DECC's analysis, the outcomes are more progressive than if costs are passed through equally to each customer (ACE, 2011). However, suppliers have discretion about how to pass through costs and they have an incentive to pass greater costs through to customers who are least likely to switch, thereby enabling them to offer better deals to more cost-sensitive customers.⁷ Because vulnerable and low-income groups are over-represented among non-switchers (FDS, 2008) there is, therefore, the potential for outcomes from the ECO to be more regressive than DECC predicts. There are licence conditions in place that should ensure suppliers offer tariffs that are reflective of their costs, which would mean their costs are passed through on a per kW h basis to consumers. However, as is discussed in the recent IPPR report, *The True Costs of Energy* (Platt, 2012), whether because the regulator is ineffectual or the policy is simply too complex, these requirements are not being effectively enforced.

In addition, the official Impact Assessment of the ECO and Green Deal⁸ points out that energy suppliers are likely to deliver expensive measures in larger properties. For example, uptake of solid wall insulation in large detached houses is expected to be 24% of the technical potential by 2022 compared to only 15% in small detached homes (DECC, 2012c). Larger properties are occupied predominantly by households on higher incomes, which means fuel poor households are less likely to benefit as a result (DECC, 2012a).

4.4. Factors affecting the cost of ECO

The distributional outcomes of the ECO may also be different to what DECC suggests because there is a large degree of uncertainty about the costs of delivering the ECO. DECC's distributional analysis is based on the 'central cost' assumptions for the policy in which suppliers spend £760 million on the Carbon Saving target, £190 million on the Carbon Saving Communities target, and £350 million on the Affordable Warmth obligation every year (DECC, 2012c). However, because it is the targets that are fixed and not the suppliers' expenditure, energy suppliers could spend more or less to reach the target.

DECC has analysed how different factors could affect suppliers costs, resulting in 'low', 'central' and 'high' uptake scenarios. If the uptake of measures through the ECO is low and suppliers need to provide higher than expected subsidies for measures, the initial impact of the ECO on bills is much higher than the central estimate suggests. If the uptake of measures is high, then the opposite is true. The Impact Assessment shows that DECC assumes there to be a significantly greater risk of costs being higher than lower.

A range of factors that could affect the ECO costs in the period up to March 2015 were analysed by DECC. Low energy prices, which would decrease the financial attractiveness of energy efficiency measures and is a factor largely out of the Government's control, would have the most impact on the annual cost of the policy, pushing it up by almost 70%. However, in terms of regressive impacts lower energy prices would at the same time benefit all consumers and in

particular low-income households. Low uptake of measures also has a very significant effect, raising the cost by over 40% (DECC, 2012c).

There was a shared sense amongst stakeholders we interviewed for this project that the projections within the ECO for uptake of solid wall insulation are optimistic. This is because they felt that the supply chain is not yet ready to deliver on the scale expected of it and that there is little demand from consumers for the measure. If these views are correct this could mean the costs of the ECO will be at the higher end of the estimates. This could also mean the rates at which the cost of the measure comes down may be slower than DECC has assumed, again pushing up costs. However, it is hard to talk about this with any degree of certainty since the solid wall insulation industry is in its infancy.

A final source of uncertainty over the costs of the ECO, that may have been under-estimated by DECC, is the cost of identifying people that are eligible for support under the Affordable Warmth target (AW). The AW within the ECO aims to address fuel poverty. Suppliers will be required to achieve a total reduction in lifetime notional space and water heating costs of £4.2 billion for low-income and vulnerable households. The Government expects suppliers to spend around £350 million delivering AW each year (DECC, 2012c), but again, there is much uncertainty about this estimate.

The main risk for cost increases in AW arises due to the way the policy is targeted. The low-income and vulnerable groups that will be eligible for measures under AW are very similar to those that are eligible under the SPG category for CERT. Suppliers' recent experiences with CERT suggest that identifying and providing measures to the households specified under AW could be challenging and result in high costs. Most suppliers have struggled to achieve their SPG targets and because of this some failed to achieve their overall CERT targets within the obligation period, which ended in December 2012. This was the first time that a supplier has failed to deliver on their obligations.

However, an evaluation of a past supplier obligation, the Energy Efficiency Commitment, found that the cost to suppliers of delivering the policy was 23% less than the Government had expected (Lees, 2008). We cannot foresee how the various factors discussed here will affect the costs of the ECO or if the Government has similarly over-estimated costs for this policy. But we can observe that several factors have the potential to affect costs and, as a result, the distributional outcomes of the policy.

By drawing on experiences from delivering past fuel poverty policies, including those relating to cost, we can inform the implementation of the ECO to mitigate against the likelihood of cost increases and regressive distributional outcomes. This is the subject of the next section.

5. Discussion

Whether energy efficiency obligations should be used for reducing fuel poverty is the subject of ongoing debate and some argue that revenue-raising for carbon and fuel poverty policies via energy bills is generally undesirable (Boardman, 2010; Stockton and Campbell, 2011). Others take the view that energy efficiency obligations are primarily an environmental programme, which should contain social equity provisions in order to address any regressive impacts, but not be used to tackle fuel poverty (Lees, 2008). Fuel poverty should, in their view, be targeted by taxpayer-funded policies rather than consumer-funded.

However, the UK Government has decided that they will constitute the main policy instrument, particularly in England, for years to come. The question is therefore how the current approach to addressing fuel poverty in the SO can be improved in order to make a contribution to the alleviation of fuel poverty.

⁷ In practice we believe it unlikely that suppliers consider how the costs of specific policies are passed through and that it is a common misconception that suppliers account for these costs separately to others. A more realistic commercial approach is for suppliers to aggregate the costs of policies together with other business costs on the one side, and to offer tariffs in the market based on the margin they require above these aggregate costs and in relation to customer segments they are targeting, and the tariffs offered by other suppliers.

⁸ In the UK, Impact Assessments are published at different stages of the legislation making process and analyse the impact of a proposed policy in detail.

The current situation is far from being satisfactory: first, only a fraction of the beneficiaries of the obligations are fuel poor, and for those in fuel poverty that do not benefit it is making the situation worse. Only 37.2% of those eligible for Affordable Warmth and 26.9% of households who will benefit from the Carbon Saving Communities obligation are likely to be fuel poor (Probert et al., 2012). Second, the rules for establishing AW membership are tedious and costly for suppliers increasing any regressive impacts of the SO whilst being intrusive for households.

What are the alternatives to the existing approach? There is clearly a case to try and improve the targeting efficiency of policies so that more resources reach fuel poor households. However, the desire to improve targeting efficiency must be balanced with the need to ensure that policies remain deliverable because, as was discussed in the last section, highly prescriptive targets that are challenging to achieve (such as the SPG target under CERT) can lead to significantly higher costs. Ideally, the rules should be both less burdensome for suppliers (reduces overall scheme cost and hence regressive impacts) and have an increased targeting efficiency (reaches more of the fuel poor) while still achieving significant carbon reductions.

5.1. The need for better proxies

In theory, extensive surveys of household income, energy costs and the types of buildings could be carried out to establish where the fuel poor live. However, the administrative burden of such an approach would be significant. Also, surveying households' incomes, energy costs and the type of building raises concerns about data protection and is intrusive. Furthermore, changing circumstances such as moving in and out of employment and having children would require repeated surveying, increasing the overall burden (Hills, 2012).

For those reasons, proxies are used to identify households with a high likelihood of being in fuel poverty. Past policies focused on benefits and age-based criteria in order to find the fuel poor with unsatisfactory results. There is substantial evidence that other proxies relating to the type of properties the fuel poor live in could significantly improve targeting (Boardman, 2010; Hills, 2012):

- Energy efficiency: Fuel poor households are concentrated in the worst buildings in terms of thermal insulation.
- Location: Rural households are at a higher risk of being fuel poor.
- Solid wall: A higher proportion of fuel poor households live in non-cavity houses.
- Off-grid: Properties off the gas grid have higher energy costs and households in those properties are more likely to be fuel poor compared to on-grid homes.

Making use of such proxies can increase targeting efficiency shown by the impact assessment of the April 2012 amendments to the eligibility criteria for the Warm Front scheme: by limiting support to only households living in properties with a SAP rating below 55, the targeting efficiency increased from 53% prior to April 2012 to 77% (DECC, 2011).⁹ However, the eligibility criteria for Warm Front have been changed again in September 2012 because take-up of grants proved difficult with stricter requirements. The Hills review also shows that if well-designed the SO can, in theory, achieve high levels of targeting efficiency comparable to well-targeted taxpayer-funded programmes (Hills, 2012).

⁹ Note that from September 2012 the criteria have changed again, now the maximum SAP rating is 63.

5.2. An alternative policy approach: targeting by 'Low Income, Low Efficiency Area' (LILEA)

One approach that could efficiently target fuel poor homes while keeping costs down is for energy efficient improvements to be provided to all homes in an area that is known to include a large proportion of low-income residents and include energy inefficient homes (originally proposed by Boardman (2010, 2012)). We refer to this approach as a 'Low Income, Low Efficiency Area' approach, or LILEA.

A Low Income, Low Efficiency Area approach (LILEA) would cross reference available data on property characteristics¹⁰ and incomes to identify target areas at a geographic scale of street level or above. If all households in these areas are provided with energy efficiency measures this might mean some more affluent households receive support. But fuel poverty is geographically concentrated (Fahmy et al., 2011) and regional fuel poverty statistics show that in some postcode areas almost 50% of households are in fuel poverty,¹¹ indicating that a well-targeted LILEA approach could achieve significantly higher targeting efficiency than current policies without the need to check people's benefits entitlements, and the administrative burden and difficulties described before.

Second, individual households have sometimes been reluctant to take up measures under the CERT SPG target because they have felt stigmatized, as interviewees have pointed out, a phenomenon that is not uncommon when targeting individual households rather than an area (Liddell et al., 2011). This would cease to be an issue under the approach outlined here because all households in an area would receive support. Also, the costs to suppliers of identifying households as eligible for support would disappear. Furthermore, there are significant cost efficiencies to be achieved by improving multiple properties in an area at once, as was described above. And research has shown that households are more likely to install measures like solid wall insulation if a neighbour has installed it first (Banks and White, 2011), so an area-based approach can also help to increase levels of uptake.

Councils would be well placed to identify target areas for this type of approach by drawing on their local knowledge and seeking opportunities to integrate schemes with other regeneration and development initiatives, maximising economies of scale and making best use of available resources.

Under future SOs, energy companies could be required to carry out activities in those LILEAs only. No checking of individual households would be required with lower administrative cost, the social stigma of receiving measures for free and sharing data on income and benefit receipts would not apply, and the targeting efficiency of the obligations would increase substantially. Further research into the practicalities of such an approach is needed, but it seems to be a promising route. LILEA is an innovative approach and should be piloted to assess its efficacy before being more widely implemented. As a first step, the Carbon Saving Communities Obligation (CSC) sub-target within the ECO could be reformed to enable local authorities to identify priority geographical areas for support. The proposed approach could be trialled, with suppliers focusing their activities in these areas, and outcomes, in terms of uptake of measures and the number of recipients that are fuel poor, monitored. Over time, if the new approach proves successful, the Government could improve the interaction between the CSC and Affordable Warmth obligation

¹⁰ There is not currently a comprehensive national database of individual property characteristics, although proxy data sets can be used and aggregated to neighbourhood level relatively effectively compared to assessing individual households and houses. One source of data is the Homes Energy Efficiency Database (HEED).

¹¹ http://www.decc.gov.uk/en/content/cms/statistics/fuelpov_stats/regional/regional.aspx.

(AW) sub-target within the ECO. CSC could be expanded so it is of a larger scale than AW, and AW could be made into a primarily reactive instrument, providing measures for those who fall outside designated areas and/or are in distress.

6. Conclusions

Historically, energy efficiency obligations have mainly been used to reduce carbon emissions, although they contained provisions for social equity. The decision of the UK Government to make the SO the only significant fuel poverty policy in place in England marks a radical transition. This paper highlighted a number of tensions between energy efficiency obligations and fuel poverty objectives, particularly arising from the potentially regressive impacts of rising energy prices resulting from such obligations, but also the complexity of targeting fuel poor households and the implications for deliverability.

If not considered, those issues can obstruct attempts to use the SO as a fuel poverty policy and also have negative impacts on its overall effectiveness. Our research indicates that the majority of the support available to fuel poor homes through the next phase of the SO, the ECO, is insufficient to make a significant contribution to alleviating fuel poverty or may go to homes that are not fuel poor because the policy is poorly targeted.

A promising approach to improve the targeting of resources and reduce costs is to target areas that contain high proportions of low-income households and energy inefficient properties, referred to here as the 'Low Income, Low Efficiency Area' approach (LILEA). If the SO constitutes the main fuel poverty policy in the future, such an approach should be trialled and, if successful, replace the existing method of relying on unsatisfactory proxies such as benefits entitlements and age.

7. List of stakeholders interviewed

Name of interviewee	Position	Organisation	Date
William Baker	Head of Fuel Poverty Policy	Consumer Focus	09/10/2012
Sophia Gkioussou	Policy and External Relations Manager	Energy UK	09/10/2012
Peter Smith	External Affairs Manager	National Energy Action (NEA)	08/10/2012
Dave Timms	UK Climate and Energy Campaigner	Friends of the Earth	05/10/2012
Marcus Brooks	Green Deal Team	Department of Energy and Climate Change	10/10/2012
Sally Andrews	Pensioner Welfare Division	Department for Work and Pensions	10/10/2012
Ute Collier	Team Leader, Buildings, Carbon Footprint and Devolved Administrations	Committee on Climate Change	11/10/2012
Steve McBurney (& Will Broad)	Head of Energy Efficiency, Environmental Programmes	OFGEM	11/10/2012

Pedro Guertler	Head of Research	Association for the Conservation of Energy	11/10/2012
Alistair McGirr, Steven Milward, Alice Gunn	Public Affairs Delivery of CERT/ CESP Policy Unit	Scottish and Southern Energy	12/10/2012
Abigail Burridge	Senior Advisor	Local Government Association	15/10/2012
Eoin Lees	Independent Consultant	Eoin Lees Energy	12/10/2012
Andrew Burke	Policy Officer, Sustainable Environments	National Housing Federation	15/10/2012
Chetan Lad	Head of CERT and Policy	British Gas	24/10/2012

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