

Beyond the ECO

An exploration of options for
the future of a domestic
Energy Supplier Obligation

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Summary for policy-makers

After 20 years of successfully imposing domestic energy saving obligations on energy suppliers, Government policy-makers face a series of discontinuities in the scale and nature of opportunities for saving energy in our homes. Over the next few years, these will include:

1. The significant constraints on the availability of further low cost housing insulation measures (i.e. cavity walls and under-insulated lofts) to fulfil any energy saving obligation.
2. The opportunities unleashed by the roll-out of smart meters to GB homes for: consumer engagement with their energy consumption; demand reduction; electricity demand response; and improvement of suppliers' understanding of their customers' energy use patterns, which enable tailored interventions.
3. The technological and energy efficiency improvements in appliances and other power-using equipment, in particular LED lighting, which create a range of significant, relatively low cost energy saving opportunities.

Arguably, the current incarnation of the supplier obligation – the Energy Company Obligation (ECO) – fails to respond appropriately to these discontinuities. However, following much criticism and policy changes in late 2013, the ECO is now firmly in place until 2017.

These discontinuities and this policy-making hiatus make this a good time to initiate a re-examination of the rationale for, and design of, the supplier obligation as a policy instrument. To do so, energy supplier SSE commissioned an independent study from the Centre for Sustainable Energy. This is the Policy-makers' Summary of that study; the full report examines these issues in much more detail, and can be found at (LINK TBC).

The policy drivers

All of the major UK and EU energy policy objectives and legally binding targets (on carbon emissions, energy efficiency, energy security and fuel poverty) establish an unambiguous need to (a) improve dramatically the energy performance of our housing stock and the energy using equipment in it and (b) change how and when we use energy in our homes. Combined with a drive to increase the use of intermittent renewable energy sources, these result in a significant reduction in domestic sector energy demand and a need for more responsive electricity demand.

These changes will, in turn, require significant changes in the business models and practices of the companies supplying energy to our homes. Given the central role of energy suppliers in our energy system, it is difficult to imagine a situation in which energy suppliers are not explicitly obligated through policy to be involved in achieving these policy goals. Indeed, because of energy suppliers' current lack of commercial alignment with these goals, it is hard to see how the goals could be achieved if energy suppliers were not somehow obligated to contribute.

This raises the question at the heart of our study: what is it best to obligate energy suppliers to do in order to:

- a. contribute effectively and appropriately to the desired changes in domestic energy demand, and;
- b. stimulate the re-alignment of their business strategies and commercial interests with the UK's long-term energy policy objectives?

Current and past supplier obligations

First imposed on a modest basis in 1994, energy saving obligations placed on GB energy suppliers by successive governments have steadily grown in size, cost and complexity. Over the last decade, these obligations have been the main driver of improvements in the energy performance of the housing stock in GB. The positive result is that most homes now have adequate loft insulation, most homes with cavity walls have had them insulated and compact fluorescent light bulbs (CFLs) are ubiquitous. Key features of these obligations have included:

- A requirement on suppliers to secure the installation of a range of specific 'qualifying' energy saving measures, with obligation targets set and achieved on the basis of predicted (rather than actual) savings for each measure.
- A shift in the list of qualifying measures over time, towards higher cost insulation and heating measures and away from very low cost measures like lighting and appliance efficiency upgrades.

- Suppliers bore whatever costs they incurred in meeting their obligations, an approach designed (generally successfully) to encourage them to find the lowest cost routes to meeting their obligations. Obligations were therefore effectively funded by consumers through their electricity and gas bills, leaving them largely outside political discussions about public spending priorities.
- At least up until the ECO, these costs were typically relatively low per customer and, more importantly, were dwarfed by the fuel bill saving benefits available to those households taking advantage of the subsidised installation of measures.
- To avoid significant regressive impacts, suppliers were required to target a sizeable proportion of each obligation at a defined target group of mainly low income or vulnerable households, principally to ensure that all households had an opportunity to benefit from the obligation, irrespective of their own means. Householders in this group were typically offered measures for free.
- Suppliers were not required to meet their obligations with their own customers and obligations were delivered through offers developed and marketed by their own in-house insulation teams or, more typically, by insulation contractors, local authorities and other agencies.

The latest supplier obligation, the ECO, shifted the obligation towards more complex, high cost insulation measures and added in an obligation (HHCRO) on energy suppliers to install new boilers and other heating improvements in the homes of low income households. This concentrated the benefits of ECO on fewer people than previous obligations, making the distributional impacts far more regressive. The additional HHCRO obligation replaced in England a tax-payer funded scheme (Warm Front) which had similar goals, though such schemes continue in Wales and Scotland.

The official rationale for a supplier obligation

The rationale for imposing an energy saving obligation on energy suppliers is rooted in a market perspective. This holds that, in a competitive domestic energy market, the market is failing if there are unrealised opportunities to save energy which are cheaper than the market cost of supplying energy. Given these opportunities existed (and continue to exist), corrective interventions are needed. With energy suppliers as the key market players, obligating them to realise these low cost opportunities to save energy is the obvious policy response.

To this early and enduring ‘market failure’ rationale, successive Government have added justifications based on a supplier-led model of delivery for domestic energy sector policies. In particular, these held that (a) suppliers operate in a competitive market and therefore will tend to pursue least cost routes to meeting their obligation, and that (b) their scale and brand value would drive supply chain improvements and cost reductions, thus removing risks and transaction costs for individual households.

At least until ECO, large volumes of relatively low cost energy saving measures (particularly loft and cavity insulation and CFLs) ensured the benefits of these obligations could be distributed widely and costs per customer were kept low relative to the average benefits. The explicit effort to reserve a proportion of benefits for a defined group of (principally) lower income consumers also helped to reduce the risk of regressive distributional impacts.

Our full report stress-tests these justifications, both in the context of ECO and in the context likely to face suppliers in 2017 and onwards.

The context for a supplier obligation in 2017

Our report outlines our view, assisted by participants in a stakeholder workshop, of the context for a supplier obligation in 2017, exploring: policy pressures; remaining housing stock energy improvement opportunities; technological and behavioural opportunities; and the state of the energy retail market. As outlined in the introduction above, we identify three discontinuities of particular relevance to the design of a future supplier obligation:

1. Significant constraints on the availability of further low cost housing insulation measures.
2. Opportunities unleashed by the roll-out of smart meters to GB homes.
3. Technological and energy efficiency improvements in appliances and other power-using equipment which create a range of significant, relatively low cost energy saving opportunities.

Together with the necessity for energy suppliers to re-align their business strategies to meet UK's long-term energy policy objectives, these suggest a need for a similar discontinuity in the design and purpose of a future obligation. In particular, it shifts the focus to encouraging suppliers to realise the opportunities created by smart meters and these extensive low cost technological and behavioural interventions.

Where fuel poverty fits – or doesn't fit – into an energy supplier obligation

Until the introduction of the ECO HHCRO, supplier obligations were not designed specifically to tackle fuel poverty. While they had an impact (because measures were installed in homes of fuel poor households), addressing fuel poverty was explicitly not their primary objective. Higher cost measures, like heating upgrades and boiler installations, had been funded from general taxation (and still are in Scotland and Wales). Funding these high cost measures from fuel bills (as now occurs under the ECO HHCRO) tends to have the counter-productive effect of worsening fuel poverty, rather than improving it (because the extra costs carried by the many are not offset by the significant benefits for the few).

This suggests that fuel bills are an inappropriate mechanism for funding these sorts of high cost home improvements for fuel poor households. In addition, energy suppliers are not 'well placed' to deliver these measures, particularly when compared with local authorities and social and private landlords. These measures are urgently need to tackle fuel poverty, but we conclude that it is poor policy making to obligate energy suppliers to procure this work themselves or to use fuel bills to collect funding to enable others to do it.

A rationale for a post-2017 supplier obligation

Our analysis provides a revised rationale for placing an obligation on energy suppliers and to guide its design:

- i. An energy saving obligation should be placed on energy suppliers to deliver any available energy saving measures which are cheaper than energy supply and/or cheaper than other carbon reduction measures favoured by other policy instruments.
- ii. The costs of such a market-correcting intervention can be justifiably recovered through fuel bills because it should result in lower overall costs to consumers than would be the case without such an intervention.
- iii. Energy suppliers need to develop new business models and commercial practices to be aligned with societal energy policy objectives (and the lower but more responsive energy demand which they imply). Policy should assist with – and go 'with the grain' of – this transformation.
- iv. Energy suppliers have direct relationships with their own customers and will increasingly have detailed 'smart' data about energy use in their homes, creating a host of new opportunities to develop new services to help their customers use this data to their own benefit.
- v. As carbon budgets tighten, it will be increasingly important that policy instruments are designed to achieve real reductions in energy use and carbon emissions, suggesting a shift to a need for a future obligation to focus on actual savings achieved, rather than the ex ante predicted savings of past and current obligations.

In addition, we identified four success criteria which any policy instrument in this field should meet:

- Deliverability (including both the likelihood of successful householder engagement and supply chain readiness)
- Verifiability (i.e. how easy or hard it is to test whether the obligation has been met)
- Cost effectiveness (i.e. the costs of achieving the policy's required impact compared with other ways of doing so)
- Fairness/distributional impacts (i.e. how the costs and benefits of policy distribute across the population).

Exploring and evaluating options for a new supplier obligation

We identified five policy options for exploration and evaluation:

- an ECO CERO (as a 'more of the same' counterfactual)
- a new style ECO targeted on suppliers' own customers with qualifying measures focused solely on low cost energy saving measures and interventions
- an Average Customer Demand Reduction Obligation which focuses on achieving actual demand reduction across a supplier's customer base (dispensing with the need for qualifying measures)
- a simple levy-raising obligation to provide funding for others to use to pursue policy objectives
- a taxation-funded approach which leaves costs off fuel bills, as a counterweight to the fuel bill-funded models.

The Summary Table on pages 5 – 6 of this Policy-makers' Summary combines our description of these policies, likely supplier responses to them, and their key strengths and weaknesses with our initial evaluation of them against the rationale and criteria outlined above. In our view, a clear winner emerges.

Conclusions and recommendations: a new supplier obligation for 2017

Our high level evaluation of options for a future supplier obligation provides a strong case for an obligation on energy suppliers to reduce their average customer demand for gas and for electricity. Such an obligation:

- goes directly with the grain of the transformation of energy supplier business models towards the lower, more responsive domestic demand required by broader energy policy objectives;
- ensures energy suppliers have a direct business interest in helping their own customers achieve real energy savings in their homes;
- focuses energy suppliers on low cost energy saving measures and interventions to engage their customers with reducing their energy consumption, resulting in lower overall system cost.

Supplier responses to such an obligation are likely to have wider policy benefits, reducing the risks of policy failure or short-fall in associated areas like smart meter roll-out and efficiency improvements in the stock of energy-using equipment in our homes. In particular, we anticipate it would:

- increase significantly the probability that the consumer benefits of smart meters will be realised in full – and potentially further extended through obligation-driven innovation;
- accelerate the take-up of more efficient appliances, lighting, gadgets and heating controls (because suppliers would have a direct interest in their customers taking timely advantage of such opportunities);
- improve the market attractiveness of lower-than-average consumption households (which tend to be lower-than-average income), create a potentially progressive outcome in the retail energy market.

As importantly, this Average Customer Consumption Reduction Obligation (ACCRO) does not share the drawbacks of other options for an energy supplier obligation, particularly the ECO. Compared with ECO CERO, it: (a) removes the need for energy suppliers to put in place teams to procure complex, high cost building works which have no direct relationship with their core business, and; (b) is likely to have far less regressive impacts through the distribution of costs on bills and energy saving benefits.

We believe these advantages, and the avoidance of the disadvantages of the current ECO policy, combine to make a powerful argument for this approach to be central to a future obligation.

The ACCRO is a clear break with past supplier obligations, and the ECO in particular. As such it reflects directly and appropriately the existing and anticipated discontinuities in the context in which it needs to take effect.

However, other policy interventions will be needed to address the gaps left by this focus on low cost demand reduction. These will need to focus particularly on stimulating the markets for solid wall insulation and other complex insulation measures, and on installing heating, insulation and ventilation improvements in fuel poor households. They will also need to rely on funding mechanisms which do not raise levies on electricity and gas bills. There is a raft of possibilities for achieving these outcomes, none of which is without precedent.

It is important to recall that the reason why other policies are needed is because there is no sound rationale for expecting energy suppliers to deliver these outcomes or to fund them via the regressive mechanism of electricity and gas bills.

Achieving this step change in policy direction for the supplier obligation now becomes a priority in our view. There is further detailed policy design work needed to resolve some of the questions we have raised in our full report. However, this does not appear arduous, at least at first hand and especially when compared with the challenge of addressing the weaknesses in other options. If we can succeed, we will have stimulated an active, innovative market in helping households to reduce their energy demand, and enabled energy suppliers to become the businesses we need them to be.

Summary table of our evaluation of Supplier Obligations and associated policy options

	ECO CERO again	New ECO CERO low cost measures only (Own customers)		Average Customer Consumption Reduction (Own customers)	Levy-raising obligation	Taxation-funded Fund
What is it?	A new ECO CERO, building on the current model, focusing on insulating the remaining hard to treat cavities and, particularly, solid wall homes.	A newly structured ECO CERO in which qualifying measures refocus on low cost simple measures, targeted on a supplier's own customers. Predicted savings (as in CERT/ECO).		An obligation on energy suppliers to reduce existing average customer consumption by a set percentage per year (or over a 5 year period). Own customers and actual savings.	An obligation to raise a levy on fuel bills to provide funding for energy saving activity procured/ nominated by Government, with potential to support specific measures, target groups etc. No obligation on energy suppliers to deliver.	A fund raised from general taxation for energy saving activity procured/ nominated by Government, with potential to support specific measures, target groups etc. Not an obligation on energy suppliers.
Likely supplier responses (in summary)	Provide subsidies, via insulation and building contractors, to secure take up of measures in sufficient numbers and maintain good relationships with reliable installers.	Create or commission interventions to stimulate customer response to smart meter data, take up LED lighting and more efficient appliances, reward demand reduction (subject to adequate evidence for predicted savings).		Make most of smart meter data on behalf of customers, stimulating interventions to enable better home energy management, take up LED lighting and more efficient appliances, reward demand reduction, attract 'lower than average' consumption households.	Raise money from bills in required manner and pay to nominated party. Disband obligation delivery teams.	Some suppliers may decide to bid to use funds, developing specific businesses to do so. Others likely to disband obligation delivery teams.
Key Strengths	Stimulates domestic solid wall insulation market. Builds on existing practice and processes.	Works with the grain of changes needed in supplier business models. Helps ensure other policies (smart meters, product policy) are realised in full. Pushes suppliers to understand own customer base and energy using patterns. Should be relatively low cost (depending on evidence requirements).		Works with the grain of changes needed in supplier business models. Achieves real savings (and focuses energy suppliers on helping customers achieve them). Helps ensure other policies (smart meters, product policy) are realised in full. Pushes suppliers to understand own customer base and energy using patterns. Improves attractiveness of lower than average consumption households. Low cost with plenty of opportunities across customer base.	Creates a funding pot not subject to public spending constraints. Allows probably better placed organisations to deliver complex insulation and heating measures. Provides opportunity to determine which consumers pay levy. Enables Government to procure specific measures for specific groups of household (e.g. fuel poor).	Avoids regressive impacts associated with fuel bills as the source of funds. Enables Government to procure specific measures for specific groups of household (e.g. fuel poor). Allows probably better placed organisations to deliver complex insulation and heating measures. Creates clearer political accountability for priority given to funding for energy saving.
Key Weaknesses	Fails to work with the grain of changes needed in supplier business models. Likely to be highly regressive (high costs & benefits concentrated on a few). Leaves suppliers to tackle market and supply chain barriers to complex insulation measures over which they have little control.	Requires significant evidence base (which doesn't currently exist) for most likely measures so options and innovation curtailed. Reduces likelihood of suppliers commissioning 'area-based' initiatives. Leaves suppliers uninterested in whether interventions achieve actual savings.		Transfers risk of achieving savings wholly to suppliers. Other policies and external factors (like winter temperature) influencing final demand would need to be taken into account. Reduces likelihood of suppliers commissioning 'area-based' initiatives. May lead to inappropriate offers to fuel poor households to reduce demand.	Transfers risk of achieving savings from suppliers to other parties who may be harder to hold to account. Does nothing to encourage suppliers to transform business models or help customers make the most of smart meter opportunities etc. Would be regressive unless protection from costs for low income households.	Requires energy saving funding to compete directly with other public spending priorities for its share of funding. Transfers risk of achieving savings from suppliers to other parties who may be harder to hold to account. Does nothing to encourage suppliers to transform business models or help customers make most of smart meter opportunities etc. May still be regressive if benefits of funded measures concentrate in better-off households.
Possible remedies for main weaknesses	Government takes other steps to develop market for solid wall insulation.	Tackle evidence base requirements by using first 2 years of obligation to collect evidence from practice.		Ensure clear expectations of other policies integrated into target setting, with appropriate adjustments if needed.	Establish robust contracts and penalties for delivery partners and set clear rules for which customers have to pay the levy.	Make political case for societal benefits of taxation-funded energy saving programme.
Fit with supplier obligation rationale						
'Energy saving cheaper than energy supply'					Depends on measures which fund delivers	Depends on measures which fund delivers
'With the grain' of supplier business changes needed						
Business incentives to realise energy savings with customers		Depends on qualifying process and license for innovation				
Real rather than predicted savings		Limited evidence base for savings from different interventions				
Fit with policy success criteria						
Deliverability – household engagement	Market resistance to measures unlikely to be overcome by suppliers				Depends on measures and delivery agent	Depends on measures and delivery agent
Deliverability – supply chains		Some gaps likely but market quick to develop		Some gaps likely but market quick to develop and space for innovation	Depends on measures and delivery agent	Depends on measures and delivery agent
Verifiability		Evidence gaps for savings & challenge to prove behavioural interventions		Potential challenge to disentangle external influences (e.g. weather or 'gadget market' developments')	For supplier contribution but range of delivery agents may make verification hard	Range of delivery agents may make verification hard
Cost effectiveness	Others likely to be better placed to deliver with lower admin need					Depends on mechanism to use get funds used
'Fairness' / distributional impact	High cost measures focus benefits on a few while all carry costs	Low cost measures with potential to distribute benefits widely across customer base		Low cost and could make lower than average demand households (mostly low income) attractive to acquire	Depends on rules on levy raising. Could be:	Positive but impact also depends on who gets benefits
Other comments						Could co-exist with other supplier obligation options, especially Average Customer Consumption Reduction Obligation.

1 Introduction

For the last 20 years, suppliers of gas and electricity to domestic consumers have been obligated to install energy saving measures like loft and cavity wall insulation in homes across Great Britain. These supplier obligations, set first by regulators and then by successive governments, have steadily grown in scale and delivered unprecedented volumes of installations. As a policy instrument, they have been the principal contributor to the significant improvement in the energy performance of the existing GB housing stock since the mid 1990s.

Funded directly by energy suppliers (and therefore from consumers' electricity and gas bills) the obligation costs to date have been dwarfed by the benefits achieved through more efficient homes, resulting overall in lower average fuel bills that would have been the case without the obligations.

Mainly as a result of this success, most of the potential to install simple low cost insulation measures in our homes has been realised. Combined with other current and forthcoming policy and technological developments, like the roll out of smart energy meters to domestic customers and the improvements to LED lighting, this changes the context in which a future supplier obligation will take effect.

These changes were, at least to some extent, in the minds of policy-makers as they developed the Energy Company Obligation (ECO), the latest incarnation of the supplier obligation which has been in place since January 2013. This obligation addressed this emerging new context by focusing only on the higher cost, more complex measures (like 'hard to treat' cavities and solid wall insulation) which are required to improve the energy performance of the housing stock still further.

The ECO also placed a completely new obligation on energy suppliers to install boilers in low income households with certain qualifying characteristics, with the explicit intention of reducing their fuel bills and tackling fuel poverty. In England (though not Scotland or Wales), this replaced a government-procured scheme (Warm Front) to achieve much the same objective which had been funded from general taxation rather than fuel bills.

After much criticism and a series of changes one year into its operation, the Energy Company Obligation is now in place until 2017. Which makes late 2014 a good time to stand back and consider what comes after 2017.

The context in which any supplier obligation will take effect will have changed further by then, suggesting the need to entertain different options for a future supplier obligation. This window of time provides an opportunity to revisit and revise the rationale for imposing such an obligation on energy suppliers and examine what implications this has for its future purpose and design. Why are we obligating energy suppliers to save energy in our homes? What should any obligation be cajoling or compelling energy suppliers to become as businesses? How do we best secure the needed changes in domestic energy performance and business behaviour through a supplier obligation?

To consider these issues, SSE commissioned the Centre for Sustainable Energy (CSE) to explore the future of an energy supplier obligation from 2017 and produce an independent report outlining our analysis, findings, conclusions and recommendations. This is that report. Its independence results from editorial control resting solely with CSE. A workshop with stakeholders provided some external perspectives on ideas we were exploring (see Appendix for participants) and SSE staff have commented on matters of factual and historical accuracy and likely commercial responses to policy options.

There is inevitably a need to limit the scope in such an endeavour. We acknowledge that, by only examining the future of a supplier obligation, we have side-stepped many other existing policies and future policy options which are needed to meet overall energy policy objectives for the domestic sector. Where possible we have identified what issues will be requiring other policy action if our recommendations for a new type of supplier obligation were adopted. Nevertheless, considering the purpose of a supplier obligation as a policy instrument in its own right, including an examination of its potential limitations, remains a legitimate endeavour.

The structure of this report reflects its aim of opening up discussion on the purpose and design of a future energy supplier obligation. [Chapter 2](#) describes the broader energy policy context, covering carbon emission targets, and security and affordability objectives, and examines their implications for energy demand in the domestic sector. [Chapter 3](#) provides a brief history of the supplier obligations over the last 20 years. This necessarily separates obligations before ECO and ECO itself because the latter represents something of a discontinuity with previous obligations. We then explore the rationale provided for the obligation and stress-test this against reality and experience, leading to a revised but robust rationale for future obligations.

[Chapter 4](#) engages in some futurology, painting a picture of the policy pressures, the likely state of the housing stock in terms of energy performance, probable technological developments (such as smart meter roll-out), and developments in the retail energy market. This identifies several discontinuities which are examined in terms of their implications for a future supplier obligation. A theme which runs through this and other chapters is to consider what the UK's broader energy policy objectives – which lead to significantly lower domestic energy demand – require of energy suppliers in future, in terms of business practices and commercial drivers. In this context we also challenge the increasingly common expectation that energy suppliers – and, by implication, energy bills – should be funding the high costs of the home improvements (like new heating and solid wall insulation) needed to tackle fuel poverty.

The rationale and success criteria which guide our assessment of different policy options are detailed in [Chapter 5](#). These provide a framework for the assessment in [Chapter 6](#) of the strengths and weaknesses of four different options for a future energy supplier obligation from 2017 onwards. In our view, one clear 'winner' emerges from that process and our conclusions and recommendations in [Chapter 7](#) reflect this and the implications for broader energy policy.

2 UK energy policy objectives

Obligations on domestic electricity and gas suppliers¹ to save energy – or, to be precise, install energy saving measures – in homes across Great Britain have been a consistent and increasingly significant instrument of energy policy since 1994. Over the intervening 20 year period, and particularly in response to strengthening evidence of the need to curb the carbon emissions driving climate change, the objectives of UK energy policy which this instrument has been serving have become clearer and, in some cases, enshrined in law.

These policy objectives relate to reductions in carbon emissions, improvements in energy efficiency, maintenance of energy security, and the eradication of fuel poverty. They represent the broad policy context to which recent, current and any future domestic energy saving obligation on energy suppliers are ultimately intended to contribute. These are summarised below with particular reference to their implications for the need to secure domestic energy saving and/or domestic energy demand response.

2.1 A legal commitment to reduce carbon emissions: the Climate Change Act

The Climate Change Act of 2008 established a target for the UK to reduce its emissions by at least 80% from 1990 levels by 2050. This is broken down into five-year 'budgets', the first four of which are enshrined in law. The second carbon budget period started in 2013 and will run until 2017. The fourth carbon budget, 2023-27, will require that the UK's carbon emissions are 50% lower than 1990 levels by 2027.

The Government's Carbon Plan, published in December 2011, found that meeting the UK's goal of reducing emissions by 80% by 2050 relative to a 1990 baseline is likely to require reducing emissions from buildings to near zero by 2050². Significant progress towards reductions in the buildings sector are needed much earlier to compensate for slower progress in other carbon emitting sectors (most notably transport).

While some of these reductions are expected to be delivered by reducing the carbon intensity of both electricity generation and sources of heat used in homes (particularly through the use of more renewable energy sources), most of them are expected to result from reductions in energy use in our homes. These reductions will be a result of improved energy performance in the building fabric, heating systems and appliances and gadgets, and more efficient and responsive energy using behaviours by the occupants.

2.2 A legal commitment to improve energy efficiency: EU target

In 2007 the EU set a target to reduce its primary energy consumption by 20%, relative to business as usual projections. This was developed in the 2012 Energy Efficiency Directive which imposed obligations on Member States including:

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- 1 The shorthand 'energy supplier' will be used in this report, meaning licensed GB electricity and gas suppliers. There has yet to be an energy saving obligation placed on suppliers of oil, LPG, coal or other unmetered fuels for domestic heating (currently the main heating fuel for 6.4% of the GB housing stock).
 - 2 HM Government, 2011, The Carbon Plan: Delivery our low carbon future Presented to Parliament pursuant to Sections 12 and 14 of the Climate Change Act 2008, London: HMG. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47613/3702-the-carbon-plan-delivering-our-low-carbon-future.pdf

- Setting indicative targets for primary energy consumption in 2020
- Meeting binding energy saving targets through the deployment of a supplier obligation and/or equivalent policy measure/s;

The UK chose a target of an 18% reduction in final energy consumption, relative to the 2007 business-as-usual projection. This is equal to 129.2 million tonnes of oil equivalent. The National Energy Efficiency Action Plan³ breaks the savings down among policies, with the supplier obligations of CERT, CESP and ECO being responsible for 28% of total savings between 2010 and 2020.

2.3 Energy security objectives

A steady, reliable supply of energy at an acceptable price is essential to the stable functioning of a country and is therefore always a key concern of government. Energy security is often framed in terms of a need to maintain a mix of different sources of supply, reflecting their reliability (geopolitically and/or technologically) and their price stability and predictability. However, energy efficiency contributes to security of supply by reducing the amount of energy required for a given standard of living and level of economic production. This is particular the case in the domestic sector because of the important role gas plays, both in heating homes and in generating electricity, and the vulnerability of gas to supply disruption and price volatility.

2.4 Fuel poverty

Fuel poverty policy is a devolved responsibility and so each national administration has a different fuel poverty policy. In **England**, the government is currently consulting on a new fuel poverty reduction target and strategy. The proposed target is that as many fuel poor homes as is reasonably practicable will achieve a minimum energy efficiency standard of SAP Band C, by 2030.

There are two proposed interim targets:

- as many fuel poor homes as is reasonably practicable to Band E by 2020 and
- as many fuel poor homes as is reasonably practicable to Band D by 2025

It is proposed that the target will be measured using a methodology which uses the English House Condition Survey to assess the distribution of properties into different SAP bands, with adjustments for policy actions which reduce the price of fuel (such as the Warm Home Discount).

The consultation was published on 22nd July 2014 and closed on 7th October 2014, so it will be some time before this target becomes legally binding. The consultation includes a strategy, but not to the level of detail of policies which would have to be developed to meet this target.

The target does not appear to lend itself to a quantitative obligation on suppliers or other parties as it does not have a target number (but instead has the 'reasonably practicable' clause) and is measured using a sampling methodology.

3 DECC, 2014a. *UK National Energy Efficiency Action Plan*. London: DECC. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/307993/uk_national_energy_efficiency_action_plan.pdf

Scotland's fuel poverty policy is to ensure that by November 2016, so far as is reasonably practicable, people are not living in fuel poverty in Scotland⁴. To help to achieve this target it has the Home Energy Efficiency Programmes for Scotland, which are area-based schemes designed and delivered by local authorities.

Wales' fuel poverty policy is 'to get rid of fuel poverty, as far as is practical:

- in vulnerable households by 2010
- in social housing by 2012
- in all households by 2018⁵

To help to achieve these targets, Wales has a scheme called Nest, which is funded by the Welsh Assembly and managed by British Gas. It provides free energy efficiency improvements for privately owned or rented homes which have SAP ratings of F or G, where one of the householders is in receipt of at least one of a specified set of means-tested benefits.

The interactions between domestic energy demand reduction and fuel poverty reduction are complex. They can be antagonistic goals. For example, an increase in the price of energy will tend to reduce domestic energy consumption but will exacerbate fuel poverty (in terms of people's experience, although not according to the new Low Income High Costs measure in England, which uses relative energy prices). These goals can also be complementary: increasing the energy efficiency of the housing stock reduces domestic energy consumption *and* reduces fuel poverty. However, this becomes more complicated if energy efficiency is funded through energy bills because then unit prices of energy will go up, moving those households which do not receive energy efficiency improvements more deeply in fuel poverty. This issue is explored further in Section 4.3 below.

2.5 The implications of these policy objectives for domestic sector energy demand and energy supplier business models

This combination of objectives implies unprecedented changes in the way our energy system works over the next two to three decades. These include the need for both (a) huge improvements in the energy performance of our buildings to reduce overall demand for energy and (b) changes in when and how we use energy (including in our homes) to improve the efficiency and flexibility of, in particular, the electricity system. The latter will be needed to optimise the use of the intermittent renewable energy sources like wind and solar that are expected to contribute significantly to the decarbonisation of our electricity supply.

These changes will, in turn, require significant changes in the business models and practices of the companies supplying energy to our homes. Aligning their commercial fundamentals with these implicit policy goals of radically lower overall domestic sector energy demand and far greater demand responsiveness is a key challenge.

4 Scottish Government, 2014. *Scottish Government's Fuel Poverty Policy*. [online] Available at: <http://www.scotland.gov.uk/Topics/Built-Environment/Housing/warmhomes/fuelpoverty>

5 Welsh Government, 2010. *Fuel Poverty Strategy*. [online] Available at: <http://wales.gov.uk/topics/environmentcountryside/energy/fuelpoverty/strategy/?lang=en>

In this context, and given the central role of energy suppliers in our energy system, it is difficult to imagine a situation in which energy suppliers are not explicitly obligated through policy to be involved in achieving these goals. Indeed, because of energy suppliers' current lack of commercial alignment with these goals, it is hard to see how the goals could be achieved if energy suppliers were not somehow obligated to contribute. In addition, the government has indicated that it intends having an energy supplier obligation until at least 2022.⁶

The question is therefore what is it best for energy suppliers to be obligated to do in order to:

- c. contribute effectively and appropriately to the desired changes in domestic energy demand, and;
- d. stimulate the re-alignment of their business strategies and commercial interests with the policy objectives outlined above.

In the next chapter we review how energy supplier obligations have been used as a policy instrument in GB since their introduction in 1994 and the rationale of successive governments for their design and intended impact. We will then examine in Chapter 4 the likely context by 2017 in which the next energy supplier obligation will need to act and explore what this means for the design of a future energy supplier obligation.

6 DECC, 2012. *Final Stage Impact Assessment for the Green Deal and Energy Company Obligation*. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42984/5533-final-stage-impact-assessment-for-the-green-deal-a.pdf

3 A brief history of supplier obligations in Great Britain⁷

The use of an energy saving obligation on energy suppliers to deliver energy efficiency improvements at scale to homes across Great Britain has been a central feature of national energy policy since the third incarnation of Energy Efficiency Standards of Performance (EESoP3) was launched in 2000.⁸

The details of the purpose, scale and costs of each supplier obligation to date are captured in Table 1 (on page 10 & 11). Rather than dwell on this detail, which has been examined in depth elsewhere,⁹ this chapter examines at a more general level how the obligations developed, the operational tactics adopted and the underlying rationale provided by successive governments for their chosen approach. Because of the step change represented by the shift in approach from up until and including the CERT obligation to the ECO, we have discussed each 'set' of obligations separately.

3.1 Obligations before ECO: growth, low cost measures, benefits outweighing costs

As evidence of successful and cost-effective delivery from the early obligations emerged and policy commitments to reducing carbon emissions strengthened, so too did the expectations of energy saving obligations on energy suppliers as a delivery mechanism. With a housing stock in the late 1990s/early 2000s largely lacking adequate basic insulation measures (in cavity walls and lofts) and slow to take up more efficient lighting options, the opportunities for installing such low-cost-high-impact energy saving measures were extensive. They were also widely available at a lower cost per saved kWh than the cost of supplying a kWh of gas or electricity to the home.

As examined in Section 3.3 below, obligating energy suppliers to deliver these measures at scale fitted with an emerging government rationale relating to the efficient functioning of a market in energy services and the role of energy suppliers in delivering consumer benefits.

Driven by these early successes, the evidence of cost-effectiveness, and latterly in the face of rising energy prices and supply company profits, the Government steadily but significantly increased the targets set in subsequent supplier obligations [Energy Efficiency Commitments (EEC) 1 and 2 and the Carbon Emissions Reduction Target (CERT)]. This can be seen in the red line in Figure 1 below (RH y axis).

Suppliers risked heavy penalties if they failed to meet targets. So each put in place dedicated teams to deliver their obligations and, to be sure of securing take-up at sufficient volumes, funded subsidies to reduce or remove installation costs to householders. The teams commissioned activity from insulation installers (including, in some cases, their own insulation contracting businesses), retailers and other delivery partners. Commissioning timetables and late decisions about transitional arrangements between obligations regularly led to supply chain complaints that they experienced either 'feast or famine'. Many installers struggled to manage these two extremes (and particularly the transition between) and, as a result, have steadily lost confidence in official pronouncements about business opportunities being created by the obligations.

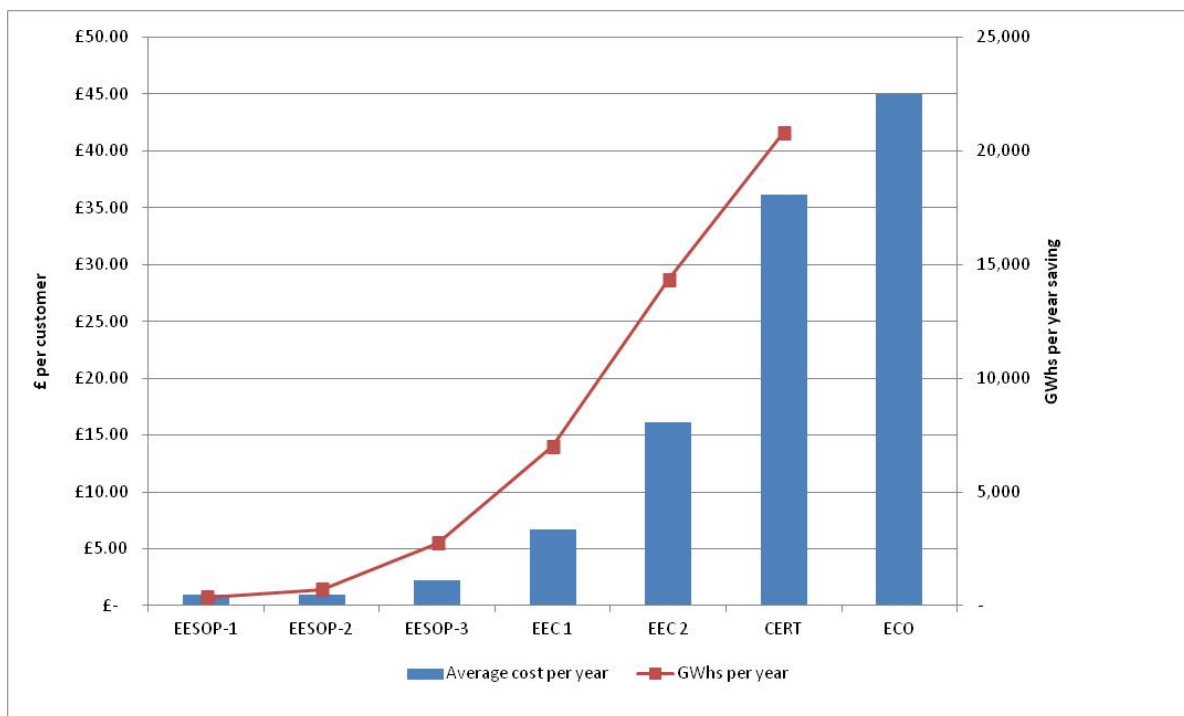
7 This history has been documented extensively by both Jan Rosenow (2012) and Mallaburn and Eyre (2014) and this summary relies heavily on their more detailed work.

8 Between 1994 – 1999, EESoP1 and EESoP2 had set requirements on energy suppliers to participate and/or commission energy saving initiatives, but targets and levels of funding were such that activity was very limited. That said, these early experiences and the evidence of very low cost energy saving opportunities underpinned the nature and scale of future obligations.

9 See Footnote 7

Administrative and data requirements were kept relatively light by avoiding any need to assess the actual savings delivered by each measure installed.¹⁰ Instead, technical guidance for each obligation (provided by Ofgem as the Government’s selected administrator) specified the savings deemed to be delivered by each measure in different types of property. Overall targets were typically set in ‘lifetime’ kWh (or – more recently – tonnes of CO₂) and the savings associated with each measure and its presumed lifetime were similarly expressed. The technical guidance also detailed the energy saving measures which qualified, all of which were physical rather than behavioural energy saving measures (with the exception of a modest allowance in CERT for the provision of energy advice to a householder in their home). There were various attempts across the more recent obligations to stimulate the installation of innovative and/or more expensive energy saving measures (such as solid wall insulation) but these were only ever a very small component of the overall targets and did not sustain meaningful levels of activity.

Figure 1: Average annual energy saving target and cost per customer for GB energy saving obligations (1994 - 2017)



Importantly, the rules did not require suppliers to install measures in their own customers' homes. While most suppliers promoted their insulation and energy saving schemes to their own customers, this obligation structure also enabled a wide range of delivery approaches, including street-by-street (i.e. door-to-door) marketing by insulation contractors and partnerships with local authorities and charitable organisations. All suppliers commissioned at least some insulation schemes with little or no associated branding, perhaps aware of the evidence of consumer doubts about energy suppliers offering subsidised energy saving measures.¹¹ Suppliers were also reticent to associate publicly with installers because of the risk that any installer-related quality and customer service issues could create reputational damage and complaints for the supplier.

¹⁰ That said, the evidence requirements to demonstrate a household’s qualification for the ‘defined group’ (typically evidence of age or qualification for certain benefits) were more challenging.

¹¹ Evidence of what would best be called ‘cognitive dissonance’ caused for consumers by energy suppliers trying to sell them energy saving can be found at <http://www.cse.org.uk/downloads/file/pub1033.pdf>

The result was that the rate of installation of lower cost insulation measures – cavity and loft - and the market for more efficient compact fluorescent light bulbs (CFLs) grew very significantly. Insulation supply chains, which had been rather limited and lacking a ‘customer care’ ethos, were scaled up and galvanised into action. Local authorities and charities helped to build public confidence in the offers of subsidised or free insulation with energy suppliers' funding (usually designed by installers or managing agents).

To give a sense of the scale of delivery, between April 2008 and December 2012 (the period over which CERT ran), there were 3.29 million cavity walls insulated and 5.96 million lofts insulated to modern standards (either from scratch or topped up from 100mm). As explored further in Chapter 4 below, by the end of CERT in 2012, most un-insulated cavities in GB had been insulated, most lofts were insulated to reasonable levels, and most homes were using at least some of the CFLs that had been given away in their millions by energy suppliers and their agents.

Common to all of these supplier obligations had been that the costs of meeting them were met by energy suppliers, and therefore by consumers through the prices paid on their gas and electricity bills. As the targets for measures installation increased, so too did costs per customer (see blue blocks in Figure 1 above, and left hand y axis).

An historical lack of requirement for reporting of actual costs per customer has made it hard to be certain about impacts on bills – or about exactly how suppliers had recovered costs across their customer base. Nevertheless, evaluations have tended to suggest supplier costs turned out to be lower than originally anticipated by the Government’s impact assessment during policy design.

Either way, up to and including CERT, the predicted total costs of the obligations were consistently lower than the total anticipated fuel bill savings which would result from the installation of the required energy saving measures. Clearly, some households would pay for the obligation but not benefit from subsidised measures, but, on average, fuel bills will have been lower rather than higher as a result of the obligations. Indeed, a household only needed to fit and use three of the free CFLs which were very widely distributed between 2006-10 to save enough energy to offset the annual cost imposed by EEC and CERT.

With an eye to concerns about social justice and potentially negative distributional impacts, each obligation was structured so that a proportion of the benefits (i.e. the energy saving measures) were reserved for a defined group of (principally) lower income households. The explicit logic was that all bill-payers contributed to the cost of the obligations so all bill-payers should have an opportunity to participate in their benefits, irrespective of means.

This defined group policy led suppliers to develop partnerships which enabled them to target these qualifying households (for example with charities supporting vulnerable older people). It also meant that suppliers funded higher subsidies on measures for these groups, creating a split in offers between ‘able to pay’ households (who typically still had to contribute themselves to the partly subsidised cost of measures) and the qualifying defined group who typically received measures at no direct cost to them.

This approach ensured that the obligations also helped to reduce fuel poverty (since some of the ‘defined group’ were fuel poor), even though their focus and measurement was structured in terms of energy or carbon savings. Tackling fuel poverty through heating and insulation improvements had been more the purpose of a series of government-funded schemes for low income households (HEES, Warm Front etc) (see also Section 4.3). That said, the introduction in 2009 alongside CERT of the Community Energy Saving Programme (CESP) focused on delivering deeper retrofit in low income areas and the energy saving obligation started to be considered more explicitly an instrument of fuel poverty policy.

Table 1: Features of the supplier obligation over time (adapted from Rosenow 2012)

Name of scheme	EESop 1	EESop 2	EESop3	EEC 1
Inception year	1994	1998	2000	2002
Period*	1994-1998	1998-2000	2000-2002	2002-2005
Target (lifetime savings)	6.1 TWh	2.7 TWh	4.9 TWh Electricity and 6.1 TWh Gas	62 TWh
Implicit annual target	1.5 TWh (lifetime)	1.4 TWh (lifetime)	5.5 TWh (lifetime)	21 TWh (lifetime)
Target group of suppliers	Public Electricity Suppliers (PESSs)	Public Electricity Suppliers (PESSs)	All licensed gas and electricity suppliers with at least 50,000 domestic customers	All suppliers with over 15,000 gas and / or electricity domestic customers
Coverage	Domestic and small business electricity customers	Domestic and small business electricity customers	Domestic and small business electricity and gas customers	Domestic electricity and gas customers
Cost of the programme**	£101.7 million	£48.1 million	£110 million (indicative)	£500 million (indicative)
Indicative Annual expenditure	£25 million	£24 million	£55 million	£167 million
Indicative expenditure per customer	£1 per franchise customer per year allowed through the supply price control	£1 per franchise customer per year allowed through the supply price restraint	£1.20 per customer per fuel per annum, indicative in target setting model	£3.60 per customer per fuel per annum, indicative in target setting model
Allowance for R&D and monitoring	3%	0.42%	0.5% for monitoring and 0.25% for R&D	not applicable
Percent of savings in Priority Group	30% (expected, not compulsory)	65% of expenditure (expected, not compulsory)	67% of expenditure (expected, not compulsory)	50%
Carry over	None	None	None	10%
Trading	None	None	None	None
Mix of measures	Requirement to use variety of measures	Requirement to use variety of measures	Requirement to use variety of measures	Not prescribed
Measures delivered***:	As percentage of energy savings:	As percentage of energy savings:	As percentage of energy savings, split into gas and electricity obligations:	As percentage of energy savings:
Insulation	59%	35%	Gas: 70%, Electricity: 21%	56%
Lighting	32%	45%	Electricity: 62%	24%
Appliances	4%	16%	Electricity: 17% appliances	11%
Heating	n/a	n/a	Gas: 30%	9%
Other	5%	4%	n/a	n/a
Administering body	OFFER	OFFER	OFGEM	OFGEM
Target setting body	OFFER	OFFER	OFGEM	DEFRA

* from 1st April in start year to 31 March in end year, part from CERT which continued until 31st of December in end year

** Until EESop 3 costs were regulated and capped, for later schemes associated costs were only modelled, not regulated (these are labelled 'indicative')

*** Derived by CSE from relevant evaluations by Defra and Ofgem

Name of scheme	EEC2	CERT	ECO (revised)
Inception year	2005	2008	2012
Period*	2005-2008	2008-2012	Jan 2013- April 2017
Target (lifetime savings)	130 TWh	293 million t CO ₂	CERO: 26.4 MtCO ₂ ; CSCO: 12.8 MtCO ₂ ; HHCRO: £7.8bn savings
Implicit annual target	43 TWh (lifetime)	~ 104 TWh (lifetime)	Variable, dependent on households receiving measures
Target group of suppliers	All suppliers with over 50,000 gas and / or electricity domestic customers	All suppliers with over 250,000 gas and /or electricity customers	All suppliers with over 250,000 gas and /or electricity customers
Coverage	Domestic electricity and gas customers	Domestic electricity and gas customers	Domestic electricity and gas customers
Cost of the programme**	£1.2 billion (indicative)	£5.5 billion (indicative)	£4.622 billion (aindicative)
Indicative Annual expenditure	£400 million	£1,159 million	£880 million (averaged cost over whole programme)
Indicative expenditure per customer	£9 per customer per fuel per annum, indicative in target setting model	Average £51 impact on dual fuel bills in 2012, followed by average £24 bill reduction from 2013	Implied cost of £48 per customer (following revisions)
Allowance for R&D and monitoring	not applicable	not applicable	not applicable
Percent of savings in Priority Group	50%	40% in Priority Group, 15% in Super Priority Group	Carbon savings: 25% Cost savings: 100%
Carry over	Unlimited	Unlimited	Unlimited (probably)
Trading	Yes	Yes	Yes
Mix of measures	Not prescribed	Minimum levels for some measures (68% from insulation)	Not prescribed, although some measures must be delivered with others
Measures delivered***:	As percentage of energy savings:	As percentage of carbon savings:	As percentage of measures delivered as approved at end of July 2014 ¹²
Insulation	75%	66.3%	55%
Lighting	12%	17.3%	n/a
Appliances	5%	5.9%	n/a
Heating	8%	9%	45%
Other	n/a	1.5%	n/a
Administering body	OFGEM	OFGEM	OFGEM
Target setting body	DEFRA	DEFRA and then DECC (from October 2008)	DECC

12 Ofgem, 2014. *Energy Companies Obligation (ECO) Compliance Update*. Available at: <https://www.ofgem.gov.uk/ofgem-publications/89750/ecocomplianceupdateseptember2014.pdf>

3.2 The Energy Company Obligation (ECO): three obligations and the end of low cost measures

The design of the ECO changed a number of features of the supplier obligations which had been in place prior to 2012, particularly for its immediate predecessor CERT. The ECO was split into three different obligations (Carbon Emissions Reduction Obligation – CERO; Home Heating Cost Reduction Obligation – HHCRO; Carbon Saving Communities Obligation – CSCO), each meeting different policy objectives:

- The ECO-CERO acknowledged the change in the types of energy saving measure which now needed to be installed in the owner-occupier housing stock to continue to reduce carbon emissions in line with Climate Change Act carbon budgets. This led to ‘easy’ cavity insulation and loft insulation being removed from the list of qualifying measures and created a shift towards so called ‘hard-to-treat’ cavities (which had not been cost-effective under CERT when compared with ‘easy’ cavities) and solid wall insulation as the main anticipated measures. This was a clear step away from the implicit ‘lowest cost measures first’ approach embedded in the selection of qualifying measures for earlier supplier obligations.
- With the HHCRO, the ECO introduced a more explicit heating improvement programme for certain low income households, with the obligation measured as ‘reduction in bills’ and thereby a far clearer purpose of tackling fuel poverty. In England, this was a direct substitute for the government-funded Warm Front scheme which was scrapped, though similar tax-payer funded schemes continue in Scotland and Wales.
- The CSCO continued the approach started under CESP of stimulating area-based approaches to low carbon retrofit, focused on deprived areas (with a proportion reserved for rural deprived areas) and with requirements (as in CESP) to deliver multiple measures in each home in an attempt to stimulate ‘whole house’ approaches to energy efficient retrofit.

In addition, the (approximately) simultaneous introduction by Government of the Green Deal, with its innovative ‘pay-as-you-save’ financing mechanism and quality assurance and warranty systems, created the opportunity to reduce the need for suppliers to subsidise measures for ‘able to pay’ households. Subsidising measures even for so-called ‘able to pay’ customers had become commonplace in EEC2 and CERT, in spite of the cost-effectiveness to the households of installing the insulation measures promoted under these obligations without subsidy.

This explicit interest in linking ECO and Green Deal to reduce subsidy costs created a significant increase in the administrative and data requirements associated with delivering ECO. Rather than the simple ‘deemed savings’ approach of previous obligations, the ECO rules required a detailed assessment (the Green Deal Assessment) to be completed for each property so that any measure’s predicted savings could be calculated specifically for that property and its occupancy characteristics.¹³

¹³ Note that the savings were still modelled and predicted rather than actual. The prediction simply used more property specific information to develop the predictions than the deemed savings in CERT. Of course, because the underlying model is the same, it is the case that, on average and across a large enough sample of properties, predicted savings based on these property specific details would be the same on average as if ECO had used ‘deemed’ savings for each qualifying measure based on more generic dwelling types.

However, the ECO's first year was dogged by these complex administrative processes and uneven progress by the obligated companies. Complaints (both in the media and from the companies) about the impact on costs to consumers led to the Government reducing targets and changing which measures qualified for inclusion (reintroducing 'easy' cavities and loft insulation top up). As a result, there was a significant hiatus in activity in 2014. The anticipated integration with Green Deal did not materialise and the Government resorted to direct tax-payer funded grant subsidies outside ECO (in the Green Deal Home Improvement Fund) to stimulate the market in solid wall insulation which had been largely untouched by supplier activity in the first year.¹⁴

3.3 The 'official' rationale for imposing an energy saving obligation on energy suppliers

The original justification for an obligation on energy suppliers to run and/or commission energy saving initiatives was derived from the free market economics perspective which has been a dominant feature of energy policy since the late 1980s. There was extensive evidence showing that saving energy was cheaper than supplying it, particularly from the regulatory practice of 'least cost energy planning' in the United States. A well-functioning market should therefore result in energy suppliers helping their customers to save energy rather than just supply it to them to use. The newly privatised energy suppliers in Great Britain's emerging competitive market were not doing this. As a result, and with some encouragement at the time from the energy efficiency and environmental lobbies, this was interpreted by regulators (at OFFER and OFGAS) in the early 1990s as a market failure which required corrective intervention.

There were early arguments about the legal remit of the regulators to address this market failure on anything other than a token basis. However, such 'market failure and correction' thinking underpinned the early Standards of Performance and has continued to be a core justification for the supplier obligations ever since.

Over the years, and particularly since the election of the Labour government in 1997, successive governments have developed and pursued strongly a 'supplier led' model of delivery for domestic sector energy policies, including and in particular as a justification for successive energy supplier obligations.¹⁵ This held that:

- Suppliers were well placed to deliver energy saving messages and interventions because of their existing customer relationships (and associated consumption data) and trusted brands.
- Suppliers were in a competitive market and therefore faced pressures to keep their costs down and service standards up, or risk having higher tariffs than their competitors and losing customers.
- By acting as 'bulk' buyers of energy saving measures, suppliers could stimulate supply chain improvements and cost-reductions and drive up standards, removing risks and transaction costs for individual households (for example in selecting a trustworthy contractor).

14 CSE, 2014. *The ECO: an evaluation of year 1*. Available at:

http://www.cse.org.uk/downloads/file/eco_evaluation_final_april_2014.pdf

15 This supplier-led rationale was outlined clearly in the 2007 consultation on the introduction of CERT. The consultation document itself is no longer online but the same text can be found in the explanatory memorandum to the CERT order:

http://www.legislation.gov.uk/uksi/2008/188/pdfs/uksiem_20080188_en.pdf [Accessed 20.08.14]

In addition, the availability of large volumes of relatively low cost energy saving measures (loft and cavity wall insulation, compact fluorescent light bulbs etc) ensured that the benefits of the measures-based supplier obligations (i.e. the measures installed in homes) could be distributed widely to consumers. Alongside explicit effort to ensure a proportion of the benefits was reserved for a defined group of principally lower income consumers (see above), this prevalence of low cost measures reduced the distributional impact of the obligation since most people received benefits (even if they were just a few free or heavily discounted CFLs).

Another key feature of the supplier obligation was its funding by energy suppliers (and therefore through household electricity and gas bills). This ensured it was explicitly not tax-payer funded and the costs were not included in public spending or, more recently, the levy control framework. While the rationale for this choice has never been officially and explicitly spelled out (even though it flows naturally from the market failure analysis), it served two key purposes.

Firstly, it kept the cost of this increasingly large energy saving programme outside the normal interdepartmental battles over government spending priorities. While HM Treasury was consistently interested in the size of the obligation and the costs (and benefits) it was imposing on household bills (particularly those of lower income households), there is no evidence it sought to reduce obligation targets or costs in order to protect another department's spending priorities.

Secondly, as there was no requirement on energy suppliers to show the cost of the obligation on consumer bills, it kept the cost hidden from consumers. Arguably, while the costs of delivery were lower than the beneficial reductions on bills which the energy saving measures achieved, the costs were effectively negative for the average consumer and were therefore appropriately hidden.¹⁶ However, recent debate on the costs of a range of policies which are recovered through energy bills has drawn public attention to these costs (but, often and rather unhelpfully in the media, not to the associated longer-term societal and individual benefits) and has drawn political attention to the costs of ECO in particular.

As mentioned above, when large numbers of easy measures were being installed, many people were benefitting and the costs per customer were relatively low. As the ECO has shifted to more expensive measures, average costs per customer are higher, but also the benefits (i.e. the savings resulting from the measures) are more concentrated on fewer households. This has resulted in higher obligation costs on everyone's energy bills while fewer people are receiving the benefits of the policy: in this setting the costs become more visible but the benefits become less visible.

3.4 Stress testing the 'official' rationale: is it valid?

This rationale for imposing energy saving obligations on energy suppliers deserves some stress testing, both in terms of its validity at any point in the history of the obligations and, particularly, in the current context of household energy use and housing energy performance. (In the next chapter we will explore its validity in the domestic energy context which can be expected to exist in 2017).

¹⁶ This is because showing the obligation costs on bills while not being able to reveal the specific benefits in bill reduction (relative to what the bill would have been without the obligation's impact) would suggest incorrectly to consumers that the obligation had an average net cost, rather than an average net benefit.

In testing the validity of the different elements of the rationale, there are two key questions worth asking:

- Does it apply accurately to energy suppliers and the markets in which they operate?
- Does it apply uniquely and/or most effectively to energy suppliers, as opposed to other actors who could potentially be influenced by policy to deliver the same outcomes?

- **A failure in the market for energy services?**

The original 'market failure' justification for imposing energy saving obligations on energy suppliers can be considered broadly valid provided a key condition applies: it is cheaper to save a unit of electricity or gas in our homes than it is to supply that unit of electricity or gas to those homes. This was certainly the case while there were ample opportunities to insulate cavity walls and lofts at low cost (with ready customer take-up) and improve the efficiency of lighting in our homes.

However, with the ECO dropping these lower cost measures and focusing on more expensive measures like harder to treat cavities, solid wall insulation and heating system installations, it is not obvious that this 'saving is cheaper than supply' justification remained valid for the ECO in its original incarnation. By removing cheaper measures from the list of qualifying measures, it also effectively abandoned an approach which had characterised supplier obligations before the ECO; lowest cost measures first.

The fact that there has been such a market failure does not necessarily lead to the conclusion that energy suppliers should be the parties obligated to take actions to compensate for the market failure. There are other actors – from landlords and householders themselves to local authorities and insulation contractors – who, in theory, could have been compelled or cajoled into taking such actions.

However, true to the market-oriented thinking from which this justification emerged, the choice of energy suppliers (over other possible actors) was driven initially by the logic that energy suppliers were the market players whose imperfect behaviour needed correcting. It would therefore be the job of the market regulators to impose the correction upon them.

In the 2000s, as the obligations became larger and a more significant component of energy supplier activities, commentators and policy-makers¹⁷ started to discuss the prospects for the energy supply companies to transform themselves into 'energy service companies' or ESCos. Under this business model, suppliers would make their profits by selling their customers an optimised package of energy saving improvements and energy supply. Such transformations could be interpreted as the market failures finally correcting themselves within the business models emerging in the market.

Indeed, some of the energy suppliers appeared to be following this path in the mid to late 2000s, acquiring insulation and heating companies and undertaking a reasonable proportion of their own obligation delivery 'in house' through these new business units, with strong branding designed to appeal to their existing and potential customers. However the commercial and operational challenges of such approaches to suppliers' 'business as usual' business models appear to have undermined these emergent strategies, with signs of a level of retrenchment to core supply business (albeit with an

17 E.g. Department of Trade and Industry (2003) Chapter 3

obligation delivery team). In such a setting, it makes sense for a supplier to focus obligation delivery on its competitors' customers to reduce their energy sales volumes rather than its own.

More recently, with legally binding carbon emission reduction targets in place, this 'cost of saving vs cost of supply' market failure argument translates into one focused on whether the energy saving measures included in the obligation are 'lower cost to reduce carbon emissions than other carbon reduction options being pursued by policy'. The question becomes one of how well the 'market' for carbon emission reductions is operating.

However, the market in carbon emission reductions is entirely a construct of policy. Unlike for gas or electricity, markets left to their own devices won't put a price on carbon or choose higher cost but lower carbon sources of power. It requires policies to create the conditions in which emission reductions will take place. In this context, strictly speaking it is a policy failure, rather than a market failure, if the combination of policies driving carbon emission reduction favours measures which are more expensive (in terms of the cost to reduce carbon emissions) than other measures.

- **Trusting consumer relationships, informed by consumption data?**

It is reasonable to say that since electricity and gas markets opened to competition in the 1990s, energy suppliers have managed to behave in ways which have systematically undermined public trust in their brands. This has included: aggressive door-step selling; profit levels widely perceived to be unduly high; opaque pricing strategies with low 'tempter' rates only available to new customers, and; poor customer service and complaints handling.

All the main energy suppliers have, over time, been tarred with the same brush and the net result is a pervasive lack of public trust in energy suppliers as honest, customer-focused service providers.

On top of this, there was strong evidence in the early 2000s¹⁸ that energy suppliers were not trusted specifically as 'purveyors of energy saving', even though the energy saving obligations were designed in the hope that they would be stimulated to become such enterprises.

This 'trust problem' may have been why most suppliers appear to have delivered the bulk of their obligations over recent years through schemes designed and marketed to the public by insulation contractors or other third parties (local authorities, managing agents etc) with little or no energy supplier branding. As mentioned above, this strategy may also have been driven by the fact that the obligations could be delivered to any households, not just a supplier's own customers (which only represented part of a much larger market).

In addition, there is little or no evidence that energy suppliers have been systematic in their use of the data they held on their customers' energy consumption to inform or target their obligation delivery. Early efforts during EESoP by some suppliers to use customer data to segment their customer base and target energy saving offers quickly subsided in favour of marketing and sales activities led more directly by installers. Indeed, the lack of requirement to focus on their own customers and the use of

18 Roberts, S. et al, 2004, p.23. *Consumer Preferences for Improving Energy Consumption Feedback*. Bristol: CSE. Available at: <http://www.cse.org.uk/downloads/file/pub1033.pdf>

deemed savings for measures installed¹⁹ probably undermined what could otherwise be considered a valid justification for imposing an energy saving obligation on energy suppliers.

- **Competitive market pressures on the costs of obligation delivery and quality of service**

One of the central justifications for obligating energy suppliers to save energy is that energy suppliers operate in a competitive market and they are therefore strongly incentivised to control costs. Their costs are revealed in their tariffs and customers are free to switch to any licensed supplier. Therefore, the theory goes, inefficient companies with higher-than-average costs of obligation delivery will find themselves losing customers. The same competitive market logic applies to maintaining, at the very least, high enough standards of customer service to avoid customer dissatisfaction.

For this justification to be true, it must be the case that both (a) the companies face stronger competitive market pressures than other potentially obligated actors and (b) the cost differential between efficient and inefficient obligation delivery is sufficiently large to make noticeable differences to the overall supplier cost bases and therefore to their tariffs.

While there have been questions raised about the strength of competition within the retail energy market (which has culminated in the current Competition and Markets Authority referral), it is probably the case that energy suppliers face stronger competitive pressures than other potentially obligated parties, such as local authorities and/or housing associations and other landlords.

However, in the overall cost structure of average domestic electricity and gas bills, the official estimates of the costs of obligation delivery remained below 2% of total bills until the ECO took them up to nearer 5% in the last year. Yet, even with an estimated 5% contribution to the average household fuel bills, it is difficult to imagine that differences in the cost of obligation delivery between suppliers could amount to more than $\pm 20\%$. Such differences would produce a barely noticeable $\pm 1\%$ change on the total bill.

In other words, even if we conclude that energy suppliers face stronger competitive pressures on their costs than other potentially obligated parties, the cost differential between efficient and inefficient delivery is unlikely to be of sufficient size to be revealed to the market in tariffs.

This is not to say that there aren't pressures on obligation delivery costs. However these may work in different directions.

Firstly, the pressure in a commercial company to maximise profits to serve shareholder interests will ensure that, within company spending plans, there is likely to be a strong downward pressure on budgets to fulfil obligations and avoid unnecessary costs (whilst also avoiding the risk of financial penalties for non-compliance). Ultimately this is competition in the market for capital (between not just energy suppliers but with other companies in the same investment class) which creates genuine pressures to manage costs.

Secondly, there have been occasional signs of competitive pressures between energy suppliers to secure the installation of measures in homes on a timely basis (to manage the risk of under-performance and associated penalties). This creates periods of competition to secure delivery

¹⁹ Deemed savings made it irrelevant how much energy a customer was using either before or after installation.

partnership arrangements with reliable insulation contractors with proven track records. Because contractors rather than suppliers have tended to control the selling process to householders, contractors have sought to maximise the subsidies on measures they receive from suppliers to give their sales force the best deal in the market to offer householders. This may have had a tendency at times to push up the costs of obligation delivery: there is certainly evidence of increasing subsidies in the second half of CERT.²⁰

Overall, the pressures for energy suppliers to control the costs of obligation delivery do not come from consumer choices in a market where tariff differentials reveal efficient or inefficient obligation delivery. The differentials are too small. Instead they come more from internal commercial pressures driven by shareholder interests, probably experienced in annual budgeting cycles rather than persistently. Nonetheless, these are genuine pressures of obligation delivery costs resulting from competition between companies for capital.

- **Market ‘bulk buying’ power to reduce costs and risks on behalf of consumers**

It is clear, particularly from the early obligations, that energy suppliers were instrumental in improving standards of customer service, quality assurance and supply chain efficiencies in the cavity wall and loft insulation industries. At these early stages (and since), energy suppliers were particularly keen to protect their reputations and avoid association with poor quality installations or customer service.

Suppliers also exerted strong pressure on costs right through the supply chains for the energy saving measures which qualified for the obligation. For example, it is likely that their bulk purchasing of CFLs generated sufficient additional manufacturing demand to secure permanent reductions in prices.

However, energy suppliers are not the only organisations with such bulk-buying power. Local authorities, housing associations, gas and electricity distribution network operators, and retailers such as supermarkets and DIY chains all have this potential, as does the government itself. This rationale, while valid for energy suppliers, is therefore less convincing in singling them out to deliver an energy saving obligation.

3.5 The revised rationale after stress testing

The stress testing in Section 3.4 above has reinforced, reframed or rejected different aspects of the rationale which has been presented to justify successive energy supplier obligations. The resulting revised rationale can be summarised as follows:

An energy saving obligation should be placed on energy suppliers to deliver any available energy saving measures which are cheaper than energy supply and/or cheaper than other carbon reduction measures favoured by other policy instruments.

This is justified (if such lower cost energy saving measures are available) because:

- a. there is market and/or policy failure and energy suppliers are the key actors in this market and policy arena;

²⁰ See DECC 2014e (page 95) <https://www.gov.uk/government/publications/evaluation-of-the-carbon-emissions-reduction-target-and-community-energy-saving-programme>

- b. in a market in which domestic energy demand needs to be significantly reduced for a number of policy reasons, energy suppliers appear to need active policy intervention to drive changes in their business models to suit this emerging reality (since they do not seem to be doing this of their own accord).

Unlike other potentially obligated parties, energy suppliers do face reasonably strong pressures on delivery costs, though these are principally derived from shareholder-serving internal cost controls rather than cost-driven consumer tariff choices in the supply market.

There is little merit to date in the argument that suppliers' customer relationships and access to consumption data provide a strong justification for imposing an energy saving obligation on energy suppliers. However, this justification would stand and have significant strength if the obligation related to actual (rather than theoretical) savings achieved in their own customers' homes (rather than any household).

The ability of energy suppliers to secure 'bulk buying' benefits and associated cost and risk reductions for householders is undoubtedly valuable but far from unique to energy suppliers. This justifies ensuring policy organises energy saving activity at scale, but it does not necessarily point to energy suppliers above other potential 'procurers' of this scale, including the government itself.

There is an additional rationale which has emerged over time as a result of what has become routine policy practice of obligating energy suppliers to install energy saving measures and their unquestionable success in delivering low cost insulation and lighting measures at scale. This is that energy suppliers have become used to being obligated to deliver energy saving measures and therefore understand how to put in place the staff, resources and partnerships to meet their obligations. However, this rationale can only be sustained if the context in which they are operating continues to suggest the effectiveness of that sort of activity by energy suppliers, particularly relative to other possible approaches to achieving similar policy outcomes. Otherwise it simply represents lazy 'more of the same' policy making.

4 The context for policy action in 2017

In considering options for an energy supplier obligation in 2017 it is important to consider the context in which it would be operating. This chapter therefore outlines our view, informed by the stakeholder workshop, of: the likely policy pressures; the main energy saving measures which are still needed to improve the housing stock; technological and behavioural opportunities, and; the state of the energy retail market.

While it is inevitably an imperfect forecast of the future, this broad-brush picture is intended to provoke consideration of the conditions in which a new energy supplier obligation would be introduced in 2017, and therefore of its purpose and design.

- **Policy pressures in 2017**

With the second carbon budget ending, pressure will be growing to ensure the delivery of the third carbon budget and (potentially) further long-term commitments made at EU and international levels.

The fuel poverty targets for each GB nation will either have been missed already or be fast approaching. Legislative approaches will have been taken to secure improvements in the private rented sector where the majority of remaining fuel poverty will be found.

There will be continuing concerns about energy security and electricity capacity margins, which will continue to tend to focus on supply side solutions.

Public spending will be further constrained and there will be continued political pressure on the costs recovered through fuel bills to cover various obligations and policies to meet low carbon and energy security objectives (including Feed in Tariff, Carbon Floor Price, Renewables Obligation, EU ETS). This will tend to focus on curbing the costs of policies where policy benefits are concentrated on a relatively small number of households (particularly if they are relatively well-off households) and where the costs are both material (in terms of impacts on bills) and borne by all consumers.

- **Housing stock energy efficiency improvement opportunities and priorities in 2017**

Largely as a result of previous supplier obligations (including the revised ECO) and social landlord investment programmes, the easier, lower cost measures (cavities and loft insulation) will have mostly been completed in the social housing and owner occupier sectors. Remaining opportunities are in the private rented sector (where Energy Act 2011 legislation for minimum energy performance is due to come into force) and amongst those owner-occupier households which have proved highly resistant to past offers of heavily subsidised measures (and therefore with high transaction costs to fulfil the remaining potential for these measures).

The key insulation measures required to make further improvements to the housing stock of all tenures are the remaining hard to treat cavities and solid wall insulation. These are expensive to install, householders are generally resistant to the disruption involved and supply chains remain fragmented and relatively undeveloped (particularly for solid wall insulation).

Low carbon heating – either off-gas renewables in rural locations or through heat networks where proactive local authorities exist – will be beginning to be a familiar option for some households.

Table 2 below shows the forecast remaining insulation potential in Great Britain at the end of March 2017. This is based on figures for current levels of installations and the revised projections for installations under ECO and the domestic Green Deal to 2017.^{21,22}

Table 2: Forecast remaining potential for key insulation measures in 2017

Number (millions)	Cavity wall	Solid wall	Lofts
Total properties	19.3	8	23.8
Insulated as at end March 2014	13.8	0.257	16.4
Un- or under-insulated at end March 2014	5.5	7.743	7.4
Forecast take up to end March 2017	0.995	0.102	0.514
Remaining potential at April 2017	4.505	7.641	6.886

Table 3 below provides a breakdown of the un-insulated cavity walls as at the end of March 2014²³:

Table 3: Breakdown of uninsulated cavity walls (as at march 2014)

Number (millions)	Insulated		Uncertain ⁱ	Remaining potential ⁱⁱ				Total properties
	Insulated	Insulated or equivalent		Limited potential ⁱⁱⁱ		Not insulated		
				Easy to treat	Hard to treat ^{iv}	Easy to treat	Hard to treat ^{iv}	
End of:								
March 2014 (provisional)	10.71	3.05	0.48	0.94	0.5	0.7	2.9	19.28

i. Uncertain means the properties where it is not known whether they are insulated; ii. Remaining potential may include some properties which cannot be insulated or which would not be cost-effective to insulate; iii. Limited potential: although these properties are not fully insulated it is likely that they already have a relatively good thermal performance; iv. Hard to treat will include cavities which are unfillable.

It is likely that if cavity wall insulation is installed as forecast during the revised ECO to 2017, then effort will tend to focus on the remaining easy-to-treat standard cavities, leaving principally the more expensive 'hard to treat' cavities until 2017 onwards. That said, people with easy-to-treat opportunities for both cavity wall and loft insulation have most likely already been exposed to various free or heavily discounted offers through previous obligations. These households – or possibly their landlords – are therefore hard (and therefore potentially expensive) to persuade to take up the measure. They are therefore likely to require a very different approach from the mass market, door-to-door selling of heavily subsidised offers which has characterised suppliers' obligation delivery to date.

21 DECC, 2014b, p. 33. *Domestic Green Deal, Energy Company Obligation and Insulation Levels in Great Britain, Quarterly report*. London: DECC. Available at: <https://www.gov.uk/government/statistics/green-deal-energy-company-obligation-eco-and-insulation-levels-in-great-britain-quarterly-report-to-march-2014>

22 DECC, 2014c, para 84. *The future of the Energy Company Obligation: Final Impact Assessment*. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/335098/20140721_The_Future_of_ECO_consultation_Final_IA.pdf

23 DECC, 2014d, Table 2.6. *Data tables: Green Deal, ECO and Insulation Levels, up to March 2014*. Available at: <https://www.gov.uk/government/statistics/green-deal-energy-company-obligation-eco-and-insulation-levels-in-great-britain-quarterly-report-to-march-2014>

- **Technological and behavioural opportunities in 2017**

The roll-out of smart meters has the potential to engage households with their energy use in ways unavailable until now. By 2017, we anticipate that approximately 25% of households will have smart meters installed (with installation rates increasing). However, innovation in terms of technical and behavioural interventions which use the smart meter data to stimulate energy saving activities and responses in the home will be confined to a relatively small group of technologically literate 'early adopters'.

Time-of-use tariffs and associated interventions to trigger demand response enabled by smart metering will be actively being promoted, though on a limited scale and with varying degrees of enthusiasm by suppliers. This is because market trading and settlement issues will still be in the process of being resolved to enable the system benefits of demand shifting to be captured by suppliers to underpin the structures of such tariffs.

Smarter heating controls for new heating installations and for retrofit of existing controls will be more common, with growing familiarity and readiness to specify as standard across the heating trade.

Energy savings available from replacing key appliances and power-using equipment with newer versions which meet the latest standards will remain very significant, though replacement rates are likely to be lower than anticipated by government in its carbon budgets and low income households will be largely unable to participate. There will also be significant opportunities for savings from mass replacement of halogen lighting with modern LED-equivalents, though cost differentials will remain a barrier to mass take-up.

Internet access and digital capabilities will have improved across the population, though a subset of more elderly, lower income consumers will be unable to access the associated benefits (e.g. online tariffs, smart meter services etc).

- **The energy market in 2017**

Given current trends we anticipate that, by 2017, there may be around 12 electricity and gas suppliers with more than 250,000 domestic customers each (the current threshold for being obligated). As a result, the retail market will be more competitive. However, there will be continued mistrust of the 'big 6' energy suppliers as energy prices continue to rise, in spite of efforts to rebuild trust and a 'settlement' explicitly in consumers interests following the outcome of the Competition and Markets Authority inquiry.

Total domestic electricity and gas demand (and average demand per household) will continue on its downwards trajectory. As is the case currently, this will be partly as a result of continuing improvements in home energy efficiency, and partly as a result of consumer efforts to reduce consumption in the face of higher prices.

We anticipate the first signs of demand response finding its way into the domestic electricity market on the back of the smart metering roll-out (aggregating responses from many households to manage generation intermittency, time of use tariffs, plus some localised response initiatives to manage network issues).

Community and local authority energy activities will continue to grow, fuelled in part by increased interest in localised rather than centralised energy solutions as well as local economic development, investment and social priorities.

4.1 Implications of this 2017 context for a new supplier obligation

There are three discontinuities between the context in which previous energy supplier obligations have been developed and that outlined above which we anticipate will face energy suppliers, consumers and policy-makers in 2017.

4. The significant constraints on the availability of further low cost housing insulation measures (i.e. cavity walls and under-insulated lofts) to fulfil any energy saving obligation.

The next phase of energy efficiency improvements in the fabric of the housing stock will have shifted to complex, expensive measures like solid wall insulation which are more like multi-skilled building work than the quickly installed, relatively low-skilled cavity and loft insulation activity. The costs per kWh saved or per tonne of carbon avoided of such measures are relatively high and policy benefits are inevitably concentrated on a few beneficiaries. If policy costs are recovered through energy bills, this would therefore be likely to have a significant (and regressive) distributional impact.

5. The opportunities unleashed by the roll-out of smart meters to GB homes for: consumer engagement with their energy consumption; demand reduction; electricity demand response; and improvement of suppliers' understanding of their customers' energy use patterns, which enable tailored interventions.

Realising these opportunities is a key goal of the smart meter roll-out and broader energy policy objectives. Enabling consumers to secure these benefits is also fundamental to the case made for the roll-out of smart meters (indeed, the case fails without them). Current policies anticipate that this will be achieved as a result of 'the market' responding to these opportunities. However, there are serious risks attached to this strategy, particularly given the constraints on access to smart meter data, the need to engage consumers effectively, and the central role played by energy suppliers in the roll-out, some of whom currently appear less-than-enthusiastic about this market potential.

6. The technological and energy efficiency improvements in appliances and other power-using equipment, in particular LED lighting, which create a range of significant, relatively low cost energy saving opportunities.

The government's plans for meeting the UK's carbon emission targets has a strong dependence on both the pace of improvement in the energy performance of the technology we use in our homes and the rate at which we replace our existing appliances and gadgets with the new more efficient models.²⁴ While an EU-wide 'product policy' programme of improving energy efficiency standards is in place to drive the pace of improvement and influence consumer choices towards

24 See HM Government (2011) and DECC (2014f)

more energy efficient new goods, there is currently no obvious policy effort to sustain the required rate of replacement of the existing stock.

Historically this rate of replacement has been linked with the state of the economy and the associated willingness (or not) of consumers to spend or borrow to replace our appliances and gadgets. Given the importance of realising this potential to the achievement of our carbon emission targets, there are some risks associated with leaving this key dimension of that potential – the rate of replacement – to such unreliable factors.

Bringing these three discontinuities and their potential policy implications together with the revised rationale for an energy supplier obligation outlined in Section 3.5 above suggests to us a policy direction for a future energy supplier obligation which would itself be a discontinuity with past obligations.

In particular, the lack of low cost insulation measures suggests that the market/policy failure justification could not be used for a new obligation which set a requirement for the installation of the higher cost measures. However, it could continue to justify an obligation which re-focused energy supplier activity on low cost energy saving measures. And there are significant other low cost energy saving opportunities in technologies other than insulation, as well as in behavioural and technical interventions such as those associated with smart meters, which could potentially be used to fulfil such an obligation.

The opportunity created by smart meters for energy suppliers to develop tailored energy saving interventions for their customers would reinforce the rationale that suppliers are ideal candidates for an obligation because of their knowledge of their customers' consumption patterns. However, this would suggest an obligation which focuses energy saving activities on a supplier's own customers rather than the population as a whole. Depending on obligation design, this could also address the risk that this energy saving opportunity goes unrealised by creating a strong incentive for energy suppliers to be actively involved.

The non-unique ability of energy suppliers to secure bulk-buying benefits persists though it is probably more relevant to the high volume lower cost energy saving opportunities mentioned above than the bespoke building work implied by the more complex insulation measures like solid wall insulation which are 'next in line' for improving the energy performance of the fabric of the housing stock. Evidence from the positive impact on CFL costs, take-up, and usage from earlier obligations suggests this ability could be usefully applied to technologies such as LED lighting.

These discontinuities also have implications for the 'more of the same' rationale, which we believe no longer holds. The shift in skills required and installation timetables going from cavity and loft insulation to solid wall insulation creates a need for profound changes in suppliers' measures delivery commissioning practices. It shifts from essentially procuring a mass market 'commodity' to requiring more bespoke, crafted solutions with far more complex site and customer management issues. This means that energy suppliers' previous experience and partnerships (which in the past have justified 'more of the same') are far less transferable to a new obligation than they have been in the past.

It could be argued that this was already the case, at least in part, at the time of the development of ECO. However, its implications for the rationale for imposing a further obligation (i.e. ECO) on energy

suppliers (as opposed to achieving those policy objectives through other means) do not appear to have been considered by DECC in any depth at the time.

To be clear, these conclusions are not intended to suggest that it isn't important for policy-makers to ensure that there is accelerated progress towards, for example, insulating solid wall dwellings. This will be necessary to meet future UK carbon budgets. But the conclusions do suggest that imposing an obligation to insulate solid wall dwellings on energy suppliers is very difficult to justify and that other approaches to achieving these outcomes will be needed and would be more likely to be successful.

Before turning to the options for a new supplier obligation, we need to consider what sort of businesses we need energy suppliers to become so that they play an effective and appropriate role in meeting the UK's energy policy objectives while maintaining commercial viability.

This is because helping suppliers become these businesses could provide a strong design objective for a new supplier obligation. Indeed, an obligation which does not work 'with the grain' of these changes is potentially counterproductive when considered over the longer term and with broader policy objectives in mind.

4.2 Exploring what we need energy suppliers to become and what needs to change

As described in Chapter 2, the over-arching energy policy context for the UK sets a downward trajectory towards much lower domestic sector electricity and gas demand and increases the need for responsive electricity demand. Yet we need energy suppliers to continue to be commercially viable.

This suggests we need energy suppliers to develop their business models and commercial practices so that they are more fully aligned with this emerging reality of lower kWh sales volumes.

Such business models are likely to include suppliers being involved commercially in opportunities to develop services and interventions to support and enable household demand reduction and demand response.

An example would be using smart meter data to develop commercially viable services which help their customers live more energy efficient lives and make the most of energy saving opportunities in their homes. These services could range from more sophisticated and user-sensitive heating controls to automated appliance management to reduce demand peaks and optimise performance. Sales of such 'smart' services and associated technologies could potentially compensate for the reduction in sales volumes and reduce the need to raise unit prices to sustain revenues and margins.

While there are occasional signs of such practices emerging (or being piloted) and of 'be-energy-smart-in-your-home' style marketing activities, it is not at all obvious that that these developments are currently taking place on any systematic basis within our main energy suppliers or as part of a broader repositioning of commercial strategies in these companies.

Instead, we could characterise the dominant mainstream energy supplier domestic sector business model as 'selling kWhs in volumes which make commercial sense in terms of supply contracting, system balancing and trading risks'. As a result, suppliers tend towards a relatively 'steady state' domestic customer base (to match long-term contracts and reduce exposure to short-term price volatility). Marketing activity focuses on price and/or price certainty (fixed tariffs) and/or quality of

service (of which ‘smart’ is a component), all with the goal of reassuring (and retaining) existing customers and acquiring new customers, principally to replace those lost to competitors following largely similar strategies.

This dominant model also features, tacked on to the core business, an in-house team to deliver the energy saving obligations with, as mentioned above, largely internal pressures to control costs. With the changes from CERT to ECO, this has effectively become a building work procurement team with a significant administrative resource (to manage ECO reporting requirements).

As a result of this dominant business model, we cannot expect to see energy suppliers establishing, as a core offering, a service to help customers manage their own consumption.

Moreover, energy saving obligations to date have, by and large, left this model unchallenged. Indeed, it could be argued that recent developments in the obligation design have reinforced the core model and its obligation delivery appendage. As detailed above (Section 3.4) the obligation creates no focus on working with the supplier’s own customers. More recently it has explicitly excluded many of the low cost energy saving opportunities which would be obvious components of such a service offering.

This analysis reiterates the point made in Section 2.5 above, that energy suppliers appear to need active policy intervention to drive changes to become the sorts of energy suppliers which our wider energy policy objectives suggest we need. Energy suppliers do not seem to be doing this of their own accord and that puts at risk the very achievement of those policy objectives.

Some large suppliers may protest that this characterisation unfairly represents how they are developing their business models and the direction of their strategic thinking. If that is the case for some companies, it does not remove the argument for policy intervention to secure change across the market as a whole.

Instead it creates some reassurance that policies pushing suppliers in this direction will go more ‘with the grain’ of their business and are therefore likely to be far easier and cheaper for them to respond to and deliver. Such suppliers should therefore embrace such interventions in their own and wider society’s interests.

In the next two chapters we examine the nature of such policy intervention and how it influences the future shape of a supplier obligation.

4.3 Where fuel poverty fits – or doesn’t fit – into an energy supplier obligation

For most of the 20 years in which an energy saving obligation has been placed on energy suppliers in GB, it has not been designed specifically to tackle fuel poverty. Clearly, as mentioned in Section 3.1 above, any policy which leads to energy saving measures being installed in fuel poor households will tend to have an impact on fuel poverty.²⁵ However, this was explicitly not its purpose.

²⁵ However, its overall impact on fuel poverty will depend on the policy’s impact on fuel bills (taking account of both its benefits and its costs), particularly for those households in, or close to being in, fuel poverty.

Indeed, initial consultation documents for CERT²⁶ state that the obligation did not have ‘a specific fuel poverty purpose’, that the Priority Group existed ‘for reasons of equity’, and that the supplier obligation ‘will only ever be able to make a limited contribution to meeting our fuel poverty targets’. For reasons we explore below, this was for sound reasons which, in spite of the changes introduced by ECO, remain applicable and highly relevant to the design of a future supplier obligation.

The existence of a defined group (such as the Priority and Super Priority Groups in CERT) was often loosely referred to by commentators as the ‘affordable warmth’ group, giving the impression that addressing fuel poverty or delivering affordable warmth was the purpose of this group. Until the introduction of the ECO HHCRO obligation, it was explicitly not the purpose, as evidenced above from the CERT consultation. The original and sustained purpose of this defined group was to ensure that everyone paying the costs of policy through their bills had an opportunity to participate in its benefits, irrespective of their means.

The defined or ‘qualifying’ group therefore focused on low income groups, usually on specific benefits and typically (in EEC1 and 2 and early stage CERT) about 30% of households. It also reserved a certain proportion – in CERT 40%²⁷ – of the total target (i.e. energy saving measures installation) to be met in those qualifying homes or, in earlier obligations, a large proportion of total expenditure to be spend in those qualifying homes (c. two thirds in EESoP 2 and 3).

Given the rationale adopted and developed over the years for the supplier obligation, this made sense. The obligation was focused on widely applicable and low cost, easy-to-install, high impact insulation measures and efficient lighting. The additional cost of subsidising these measures to secure take up by the qualifying group was therefore modest, particularly when compared with the energy saving benefits the measures delivered to a large proportion of all households (and of the qualifying group in particular).

The approach also complemented the various national schemes explicitly designed to tackle fuel poverty and funded from general taxation. These, such as Warm Front in England, addressed some aspects of the poor energy performance of housing occupied by low income households, typically providing free new heating systems and linking these with a referral to (or from) one of the many CERT-funded schemes providing free insulation measures.

The ending in January 2013 of Warm Front in England and therefore of a general taxation funded heating installation scheme for low income households coincided with the introduction of the ECO HHCRO (see Section 3.2 above). While imposed on energy suppliers (rather than procured by central

26 Defra (2006) The Energy Efficiency Commitment April 2008 to March 2011: Initial Consultation Available from http://webarchive.nationalarchives.gov.uk/20130123162956/http://www.defra.gov.uk/corporate/consult/ee_c3/consultation.pdf (NB at this time the supplier obligation was still referred to as EEC, before later being changed to the Carbon Emissions Reduction Target) Subsequent consultation documents did reframe this approach somewhat by emphasising more the impact of CERT on fuel poverty.

27 This approach was rather undermined during CERT by the expansion of the Priority Group to include all households with someone over 70 years old, irrespective of income. This expansion, lobbied for by energy suppliers to make meeting the Priority Group target easier, meant that an estimated 43% of all households qualified for this group. However, the expansion in qualifying households was not accompanied by an increase in the share of the total target to be met in those groups. With this share left at 40%, it is arguable that the expanded qualifying group may have secured less than its ‘fair share’ of the total obligation benefits, in spite of this being the policy purpose.

government) and structured differently from Warm Front, HHCRO's objective was to secure the installation of new heating systems and, particularly, the replacement of broken boilers in low income households. Indeed, its scoring system was constructed to ensure this was the primary means for meeting the obligation's 'fuel bill savings' target.

This marked a step change in policy direction – a discontinuity with the past policy. For the first time the mechanism of a supplier obligation was focused on high cost measures and, in the HHCRO, had an explicit 'fuel bill reduction' goal. And for the first time, these types of home improvements in England were being funded through energy bills rather than from general taxation. A similar charge could be laid at the door of the CSCO component of the ECO.

There appears to have been no detailed attempt by DECC in its explanations of its policy proposals to justify this specific change, even though it marks fundamental shifts (a) towards a far more regressive approach to how such improvements were funded and (b) in what the supplier obligation required of energy suppliers.

On (a), our indicative analysis (derived from Preston et al 2014) suggests that, unlike previous obligations, the HHCRO puts more people into fuel poverty during the obligation period than it is likely to remove from it through the bill savings it achieves in those homes which receive improvements. This is because the benefit of having a heating system/new boiler installed are concentrated on a relatively small number (fewer than 500,000 households) while the relatively high costs of delivering these measures pushes up bills for everyone, including all of the millions of low income, fuel poor households who do not benefit.²⁸

This seems counter-productive for a policy explicitly intended to address fuel poverty, particularly when compared with the progressive impact achieved through a similar scheme funded from general taxation. For this reason, it is difficult to believe the HHCRO was introduced for any other reasons than to remove the cost from public spending and hope to 'hide' it on fuel bills.

In terms of future obligations, this impact certainly begs the question of whether it is appropriate or fair for fuel bills to be used as the (or even 'a') funding mechanism for high cost home improvements like installing a heating system or replacing a broken boiler for low income households. Our view would be that it is not.²⁹

On (b) above (the change to what an obligation required of energy suppliers), this raises a second central question (unanswered by DECC's policy proposal documents) of whether energy suppliers are

28 Evidence from CSE's own experience of HHCRO is that prices per point being offered by energy suppliers fell to levels (8 or 9p per point) which would require householders to contribute their own funds towards the cost of a new boiler. This suggests that, while the cost of delivery of HHCRO are lower (by the size of the householder contributions), the policy benefits are potentially now being received only by better off households within the qualifying group who may not be the most in need (or by creating stress on the domestic finances of the more in need). This is a rational commercial response by suppliers (and contractors in the supply chain) to manage the cost of obligation delivery, but would appear to be having a perverse influence on the obligation's fuel poverty alleviation purpose.

29 A view reinforced by the fact that half of all fuel poor households in England (on the new 'low income high costs' definition) are in homes owned by private (33%) or social (16%) landlords.

well-placed (or even better placed than others) to deliver heating and other high cost home improvement measures in the homes of the fuel poor.³⁰

To be 'well-placed' would be to have: (i) easy access to information to identify these homes; (ii) direct, or, through partnerships, indirect, ability to 'recruit' such households to receive the measures; (iii) staff resources and appropriate experience to procure delivery of the measures in question, and; (iv) ideally a strong existing business or organisational reason for undertaking the task.

A brief analysis of these requirements suggest that energy suppliers are not "well-placed" – indeed are poorly placed – particularly when compared with local authorities and social and private landlords who do all three routinely (though not necessarily to meet fuel poverty objectives). The fact that, following ECO HHCRO, suppliers will have acquired staff resources and experience in this field and therefore meet criterion (iii) , does not mean it makes sense to sustain this policy in the future. Aside from the shortfalls on the other 'well-placed' criteria, energy suppliers particularly fall down on (iv), even taking into account to ways in which energy suppliers need to change to become aligned with the new policy-driven realities.

In conclusion, requiring energy suppliers to install heating and high cost insulation measures in the homes of the fuel poor through an obligation funded from fuel bills is misdirected. It works 'against the grain' of the direction in which the UK's broad energy policy objectives require energy suppliers to change. In addition, this approach is highly regressive (potentially exacerbating fuel poverty rather than reducing it). This is particularly true when compared with installations funded by general taxation or by the landlords who own half of the homes occupied by fuel poor households in England.

As mentioned elsewhere in this report, this is not to underplay the huge importance of improving the energy performance of the building fabric and heating systems in the homes of the fuel poor. As the UK's new Fuel Poverty Strategy makes clear, this is at the heart of tackling fuel poverty. We are simply concluding that it is poor policy-making to require energy suppliers either to do this themselves or even just be required to collect through fuel bills the funding to enable others to do it.

In addition, it is not to say that energy suppliers should not be contributing (and be required to contribute) to efforts to tackle fuel poverty. There is undoubtedly a wide range of fuel-poverty related service quality, payment method and tariff design issues which energy suppliers are uniquely 'well placed' to address. But this is not the territory of an energy saving obligation on energy suppliers.

³⁰ Or even to deliver the measures in just the low income households which meet the income, benefits and household composition qualifying criteria which qualify them under the HHCRO rules.

5 The rationale and success criteria for a new supplier obligation

Any new supplier obligation needs to be backed by a strong and convincing rationale and aligned with long-term policy objectives. In addition, it would need to meet a set of criteria relating to its efficacy as a policy instrument to achieve the desired impact.

As discussed in Section 4.2 above, it should also aim to help suppliers make the business model transformations required to sustain their commercial viability in a market with much lower domestic energy demand and greater need for demand responsiveness. We would suggest that aligning more precisely the commercial interests of those organisations at the heart of our energy system with society's energy policy objectives and priorities should be a central ambition for policy design.

This chapter outlines both the rationale for a new supplier obligation and its primary purpose and the success criteria which any policy instrument should be designed to meet.

5.1 The rationale and other policy considerations

Revisiting the revised rationale outlined in Section 3.5 above and taking account of the context in which we can anticipate the policy will be operating from 2017 onwards (detailed in Chapter 4), the following rationale emerges for placing an obligation on energy suppliers and for guiding its design:

- i. An energy saving obligation should be placed on energy suppliers to deliver any available energy saving measures which are cheaper than energy supply and/or cheaper than other carbon reduction measures favoured by other policy instruments.
- ii. The costs of such a market-correcting intervention can be justifiably recovered through fuel bills because it should result in lower overall costs to consumers than would be the case without such an intervention.
- iii. These energy saving opportunities exist (and are enhanced by the introduction of smart meters), even though these opportunities are not included in the measures currently qualifying for ECO.
- iv. Energy suppliers face pressures on delivery costs (derived principally from internal cost controls though increasingly from market pressure driven by reducing kWh sales volumes).
- v. Energy suppliers need to develop new business models and commercial practices to be aligned with societal energy policy objectives (and the lower but more responsive energy demand which they imply). Policy should assist with – and go 'with the grain' of – this transformation.
- vi. Energy suppliers have direct relationships with their own customers and will increasingly have detailed 'smart' data about energy use in their homes, creating a host of new opportunities to develop new services to help their customers use this data to their own benefit. However, there is a risk that some energy suppliers will not find this an attractive option, given their current business models, or that they are quickly discouraged by limited initial customer interest. This, in turn, creates the risk that the benefits of the smart meter rollout will not be realised by consumers. This suggests that any future supplier obligation should encourage energy suppliers to help their own customers make the most of the opportunities unleashed by smart meters, and to overcome any obstacles to customer engagement they encounter in the process.

- vii. Energy suppliers have the buying power and resources to achieve energy saving activity at scale (and can therefore achieve associated economies of scale and supply chain innovations).
- viii. To limit distributional impacts, any obligation should focus on widely available low cost measures and look to find ways to ensure that these benefits can be accessed by all, irrespective of means.
- ix. Policy design should reflect the significant discontinuities identified in Section 4.1 above. These point away from ‘more of the same’ in future obligation design, whatever successes the obligations have achieved to date.
- x. Our analysis (in Section 4.3) of the use of an energy saving obligation on energy suppliers with the express purpose of tackling fuel poverty suggests it is misplaced. This is because the focus of such effort needs to be on relatively expensive housing improvements, which means the impacts are highly regressive if costs are recovered through energy bills and energy suppliers are relatively poorly placed to deliver such improvements.
- xi. As carbon budgets tighten, it will be increasingly important that policy instruments are designed to achieve real reductions in energy use and carbon emissions, suggesting a shift to a need for a future obligation to focus on actual savings achieved rather than *ex ante* predicted savings which may not be being achieved in practice.

5.2 The success criteria

The success criteria for any policy instrument should include:

- deliverability (which includes both the likelihood of successful householder engagement and supply chain preparedness)
- verifiability
- cost effectiveness
- fairness/distributional impacts.

Each of these is explored in turn below.

- **Deliverability**

It is clearly vital that any policy instrument, including a supplier obligation, is deliverable by those whom it targets. In relation to a supplier obligation, this includes:

- a. the likelihood that suppliers or their agents can persuade householders to install or undertake the required energy saving measures and/or to respond with appropriate new energy use patterns to supplier interventions.
- b. the preparedness of whatever supply chains would be needed to enable suppliers to secure the measures or interventions necessary to meet the obligation.

In considering deliverability, it can be assumed that the required impact will be achieved (by virtue of the obligation setting an impact target and stiff penalties for failure). This criterion is therefore more about how easy it will be to achieve that target (based essentially on likely householder and supply chain willingness and readiness to be involved). It also feeds back into how high (or low) it might be reasonable to set the target and/or how it might develop over time.

- **Verifiability**

Being able to measure and verify whether a policy has delivered its intended goal is a central requirement of policy-makers. In the case of a supplier obligation, this would mean ensuring there are functioning administrative systems and processes in place to record and monitor activities and measure (according to a standardised methodology) their contribution towards the intended obligation target.

- **Cost-effectiveness**

Policy cost effectiveness can be assessed in a variety of ways but at its heart would be evidence that a particular policy approach has lower overall costs per unit of desired impact achieved than other means of achieving the same impact. The relevant costs to include in a cost-effectiveness assessment of a supplier obligation would be both the costs to the supplier of delivering the obligation and also any knock on costs imposed on others. This should be considered, where possible, against the costs imposed by another approach to achieving the same impact and the costs imposed by failing to achieve that impact.

- **Fairness/distributional impact**

Different policies have different impacts in terms of how they distribute across the population both their costs and access to their benefits (such as the installation of an energy saving measure). It is important to understand, consider and compare such distributional impacts because (a) policies with more regressive impacts may be considered more 'unfair' and therefore potentially politically unsustainable and (b) two different policies achieving broadly the same energy saving outcome may have very different distributional impacts.

It is well documented that any policy whose costs are recovered through electricity and gas bills will tend to be regressive compared with one where the costs are met from general taxation.³¹ This is because (a) low income households on average have to spend a larger proportion of their disposable income on gas and electricity than better off households and (b) our general taxation system is progressive, in that those with higher incomes will tend to pay a higher proportion of their income in taxes (income, VAT, other duties etc) than lower income households.

It will also be the case that, where costs are distributed widely but benefits are concentrated on a few, the distributional impacts will be far higher, unless those benefits are very carefully targeted on the poorest, most needy households and/or lower income households are protected in some way from those costs.

31 See, for example, Preston et al (2013) and Preston et al (2014)

6 Exploring and evaluating options for a new supplier obligation

Having explored and revised the rationale for a supplier obligation and how its design needs to respond to the context likely to exist in 2017, we can now explore options for a new energy saving obligation on suppliers and evaluate them against this rationale and success criteria.

We focus here on options which are relevant to an energy saving obligation on energy suppliers. We fully recognise that there are other policies required to fulfil overall energy policy objectives as they relate to the domestic sector, particularly (given our conclusions in Section 4.3) in relation to fuel poverty. But our focus here is on options for a future supplier obligation and it is beyond the scope of this study to examine all possible (or even all plausible) policy options.

That said, we do endeavour to highlight gaps in delivery which we believe are 'left over' depending on the shape taken by of a supplier obligation. And we have evaluated a policy option which raises funds for energy saving activities from general taxation as an alternative to supplier obligation approaches to funding which recover costs from fuel bills.

We have identified four options for a new supplier obligation to explore and evaluate in this Chapter, plus the option which raises funds for energy saving activities from general taxation:

1. Another ECO CERO, broadly extending the current policies as a 'more of the same' counterfactual.
2. A new-style ECO targeted on individual supplier's own customers with a set of 'qualifying measures' which focus solely on low cost energy saving measures and interventions which realise smart meter consumer engagement and energy management opportunities.
3. An Average Customer Demand Reduction Obligation which is intended to stimulate the same activities as 2 but which removes the need to define 'qualifying measures' since the target focuses on actual demand reduction across a supplier's domestic customer base and leaves the choices of intervention (and the risk of whether they deliver) to energy suppliers.
4. A simple 'levy-raising' obligation on suppliers to provide funding (in effect through a levy on bills) for others to use to pursue policy objectives, as a counterweight to the supplier-led delivery models.
5. A taxation-funded approach which leaves costs off fuel bills, as a counterweight to the fuel bill funded models.

These are each described below in broad detail and examined for key strengths and weaknesses.

We recognise that the broad detail inevitably leaves questions unanswered and, as noted by workshop participants, it is the nature of these policies that the 'devil is in the detail'. While it is not the purpose of this study to provide a detailed policy prescription, we have attempted to provide further insight by suggesting how perceived (and actual) weaknesses might be addressed in the policy design process.

The five options are then evaluated against the rationale and success criteria outlined above and compared in tabular form (Table 4 on page 42). This evaluation exercise was particularly assisted by the discussions and insights shared by stakeholders at the workshop held as part of the study.

6.1 ECO CERO (more of the same)

What is it? A new ECO CERO, building on the current model, focusing on insulating the remaining hard to treat cavities and, particularly, solid wall homes.

How would it be achieved and measured? The obligation would be set to stimulate a pre-determined number of the key measures, potentially simplified from current ECO practices by using 'deemed savings' to make administration simpler and customer offer clearer at an earlier stage in the sales process. Achievement is through the installation of these measures and measurement is by the obligation administrator reviewing evidence of installation submitted by suppliers. There may also be an associated requirement to deliver a proportion in lower income homes (for reasons of equity).

What are suppliers most likely to do if faced with such an obligation?

- a. Provide large enough subsidies to the insulation and building contractors with whom they work to create an offer for the qualifying measures which they can sell to householders in sufficient volumes.
- b. Seek to maximise the contribution to the cost of the measure from the building owner (landlord or owner occupier), though not at the expense of losing key relationships with reliable, good quality contractors by offering lower subsidies than other suppliers.
- c. Manage the obligation within a largely stand-alone business unit.

Strengths

- Stimulates the solid wall insulation market (as the next 'big' insulation measure required in the UK housing stock) with a known number of installations.
- Builds on existing practices and resources within supply businesses as a result of current ECO.
- Creates some certainty for the relevant supply chains of volumes of work required over the period (subject to risk of policy change and supplier procurement behaviour).

Weaknesses

- Fails to work with the grain of the changes which broader energy policy objectives require of energy suppliers' future business practices.
- Likely to be highly regressive, given high costs of measures and therefore concentration benefits on a few while all consumers carry the cost.
- Provides no incentive or business case for suppliers to help customers realise low cost energy saving interventions and make effective use of smart meter data.
- Expects suppliers to tackle market barriers to solid wall insulation and other complex insulation measures and challenges within the supply chains over which suppliers have no direct control or influence and which they are not 'well placed' to address.
- Leaves suppliers and supply chain uninterested in whether measures achieve the energy/carbon savings assumed in policy assessment and required for carbon budget planning.

Possible remedies for main weaknesses

Other steps could be taken by Government to develop the market for solid wall insulation, to reduce the burden on energy suppliers. This could include, for example, setting housing energy performance standards which require solid wall insulation in the least energy efficient housing or by supporting initiatives to guarantee product performance, reduce costs to consumers, and to 'normalise' it as a home improvement.

6.2 New ECO with low cost qualifying measures for own customers

What is it? A newly structured ECO CERO which, rather than high cost complex measures, has as its qualifying measures the low cost simple energy saving measures and the behavioural interventions which help customers make good use of smart meter data and low cost technologies. The obligation would be targeted on a supplier's own customers.

How would it be achieved and measured? The obligation would be set to achieve a level of savings based on an anticipated mix of measures and interventions. Each type of measure or intervention would need to be assigned their predicted eligible savings, so that the contribution to the overall target of each intervention delivered by an energy supplier (or its delivery partners) would be known in advance. Suppliers would submit evidence of the number and nature of interventions secured and evidence that the interventions were undertaken in the homes of their customers (at the time of intervention). There may also be an associated requirement to deliver a proportion of such a new-style ECO CERO in lower income homes (for reasons of equity).

What are suppliers most likely to do if faced with such an obligation?

- a. Create or stimulate/commission from others interventions and offers designed to enable better home energy management (particularly with the use of smart meter data), having secured 'eligible predicted savings' values for them from the obligation administrator.
- b. Support specific low cost energy saving measures (like LED replacement for halogen lighting) and remaining potential for low cost insulation and heating control improvement measures.
- c. Provide financial and other rewards to customers for demand reduction (provided these meet the impact evidence requirements to qualify as measures under the obligation).
- d. Relocate obligation delivery closer to main business activities though retain some separation to manage administrative requirements.

Strengths

- Works with the grain of the changes which broader energy policy objectives require of energy suppliers' future business practices by focusing them on energy saving with their own customers.
- Helps to ensure low cost energy saving measures and opportunities represented by smart meters are realised (which may not happen without such a policy intervention), subject to an adequate evidence base of the likely energy saving impact of different types of intervention.
- Pushes suppliers to understand their own customers and their energy using patterns in detail and develop tailored approaches to stimulate demand reduction.
- Should be relatively low cost (certainly cf existing ECO) and have a large number of 'measures' to distribute widely across the customer base, reducing the risk of a regressive impact.

Weaknesses

- Requires significant evidence base (which does not currently exist) to for the obligation administrator to establish predicted 'eligible savings' for the sorts of behavioural interventions which energy suppliers would be likely to use, so may limit options available and curtail innovation (which would be particularly unhelpful as smart meter data opens up a wide range of new but largely untested opportunities).

- Reduces the likelihood that suppliers will themselves commission ‘area based’ or ‘broad cast’ initiatives (since they tend not to have high concentrations of customers in given areas). It would not prevent this but create some challenges for any organisation trying to do this as they would need to ‘sell’ the outcomes to each supplier whose customers have taken it up.
- Depending on evidence requirements, may leave suppliers and supply chain uninterested in whether measures and interventions actually achieve the predicted energy/carbon savings (as suppliers carry no risk if qualifying measures do not deliver).
- Sustains a requirement for extensive administrative function to document evidence that interventions have taken place in households that are customers.

Possible remedies for main weaknesses

To address the challenges of meeting evidence requirements to predict eligible energy savings from qualifying measures, the first year or two of the target could be collecting that evidence from interventions undertaken to inform eligible savings in future years.

To deal with weaknesses associated with the obligation being focused on ‘own customers’ this requirement could be avoided. However, this would potentially undermine the ‘going with the grain’ strength of this policy option and leave the obligation delivery separated from core business practices.

6.3 Average customer demand reduction obligation

What is it? An Average Customer Demand (or ‘Consumption’) Reduction Obligation would obligate energy suppliers to reduce their existing average customer demand by a set percentage per year (or over a 5 year obligation period).

How would it be achieved and measured? The obligation would be measured against actual average customer demand across a supplier’s own domestic customer base. While the % reduction for the obligation might be the same for all suppliers, using actual average customer demand as both the starting and finishing point will reflect the different existing customer bases. To avoid creating a disincentive for having customers in colder parts of the country, it would make sense to set and measure the obligation on the basis of ‘degree day corrected’ data.

What are suppliers most likely to do if faced with such an obligation?

- a. Make the most of smart meter data on behalf of their customers and create or stimulate/commission from others interventions and offers to enable better home energy management.
- b. Support specific low cost energy saving measures (like LED replacement for halogen lighting) and any remaining potential for low cost insulation and heating control improvement measures.
- c. Provide financial and other rewards to customers for demand reduction (and penalties in tariff structures for high consumption, particularly where household data suggests profligacy rather than high need).
- d. Seek to acquire lower-than-average consumption customers who help to lower overall average.
- e. Integrate obligation delivery into core business practices (e.g. customer service processes, billing messaging, marketing etc)

Strengths

- Works ‘with the grain’ of the changes which broader energy policy objectives are creating for energy suppliers and their business models, creating a strong commercial driver to build demand reduction into the heart of business practices.
- Achieves real savings, providing energy suppliers with a direct business incentive to work with their customers to reduce demand (rather than just install measures).
- Helps to ensure low cost energy saving measures and opportunities represented by smart meters are realised in full (which may not happen without such a policy intervention).
- Significantly improves the market attractiveness of low consumption households, which, on average, are lower income. It also improves the market attractiveness of homes with renewable energy systems such as PV or wood-fuelled boilers (which therefore have a lower demand for mains electricity or gas).
- Pushes suppliers to understand their own customers and their energy using patterns in detail and develop tailored approaches to stimulate demand reduction.
- Should be relatively low cost (certainly cf existing ECO) and have a large number of ‘measures’ to distribute widely across the customer base, reducing the risk of a regressive impact.

Weaknesses

- Transfers risk of achieving savings to energy suppliers, over which they may argue they have only limited control (because households can do what they want and buy whatever gadgets they like).
- On the other hand, achievement of the obligation cannot be distinguished from the impact of other national and EU policies which also reduce demand, potentially creating ‘free’ contributions to the achievement of a supplier obligation from these other policies.
- Final customer demand, particularly for gas (as heat), is very weather dependent so achievement in any year may be compromised by a cold winter – or significantly enhanced by a mild one (suggesting a need to temperature correct consumption data for obligation monitoring and/or average over the full obligation period).
- May create disincentives for engaging with households with electric heating unless there are different ‘strands’ within the obligation, so may need to create different classes of customer (eg by main heating source or Economy 7 etc).
- Reduces the likelihood that suppliers will themselves commission ‘area based’ or ‘broad cast’ initiatives (since they tend not to have high concentrations of customers in given areas). It would not prevent this but create some challenges for any organisation trying to do this as they would need to ‘sell’ the outcomes to each supplier whose customers have taken it up.
- Reducing demand for some fuel poor households may be relatively easy to achieve if rewards are on offer, but may be the result of lower internal temperatures and other deprivations, with associated greater risks to health and wellbeing.
- Setting obligation targets will need to take account of all other policies which may reduce final demand so as to ensure suppliers have something ‘extra’ to do.

Possible remedies for main weaknesses

The target set could be linked to binding Government undertakings to improve energy performance standards for appliances and buildings and support wider domestic sector energy saving activity in line

with an agreed programme. Failure by Government to deliver on these commitments would either reduce the target or reduce penalties for underachievement by suppliers

Suppliers are likely to transfer the risk of savings achievement to delivery partners (as they have done under ECO) where they use them, or to customers (through performance reward structures).

To avoid perverse effects on the attractiveness of different types of customer, the obligation could be disaggregated into different classes of customer (such as Economy 7 customers who are using electricity for heating) with special protections for low income or fuel poor households.

6.4 A levy-raising obligation

There is some interest amongst stakeholders in the option of removing energy suppliers from the delivery end of the obligation (where our analysis shows they are not 'well placed' to deliver if the measures being obligated are complex building works). This option has the interesting effect of testing the important policy question: *are fuel bills the right way to fund energy saving activities, particularly if energy suppliers are not involved in delivering that activity?*³²

What is it? An obligation on energy suppliers to raise a certain amount of money (which would effectively create a levy on bills) which is then used to fund action by parties nominated or procured by Government or others (such as local authorities, a central agency etc)

How would it be achieved and measured? The obligation would be achieved by energy suppliers providing the required amount of funding to the nominated delivery agency or fund manager. This could either be set by Government as a levy of a certain amount per kWh or per customer (or certain types of, for example, high consuming customers) or it could be left to the energy suppliers how they choose to recover the cost of the obligation. Delivery of the energy saving measures would sit outside the responsibility of the energy suppliers.

What are suppliers most likely to do if faced with such an obligation?

- a. Raise the money from customers through bills in the manner required and pay it to the nominated party.
- b. Disband obligation delivery teams.

32 Of course, there is an interesting corollary to this obligation which tests the opposite question which should also be considered when thinking about future energy supplier obligations: *if money was raised from other sources (e.g. general taxation) would we ask energy suppliers to use that money to deliver an energy saving target?* This is examined in part in the taxation funded approach in Section 6.5.

Strengths

- Creates a funding pot for a large scale energy saving programme which is not subject to public spending constraints.
- Allows other probably better placed organisations to take responsibility for using the funding to deliver the required energy saving measures into homes.
- Provides opportunities to determine which consumers pay the levy, thus creating the potential to avoid regressive impacts.
- Enables Government to determine and procure precise levels of energy saving activity and measures and to target installations to maximise alignment of energy saving activity with wider energy policy objectives (such as tackling fuel poverty).

Weaknesses

- Transfers the risk of achieving take-up of energy savings from energy suppliers to other parties who may be harder to penalise or hold to account if they fail to achieve targets.
- Provides no incentive or business case for suppliers to help customers realise low cost energy saving interventions and make effective use of smart meter data, risking the realisation of the anticipated benefits.
- Does nothing at all to encourage energy suppliers to transform their business practices to reflect broader energy policy objectives.
- May be highly regressive if either the levy raising or the distribution of policy benefits is not ensuring lower income households have some protection.

Possible remedies for main weaknesses

To address the risk that other parties may be harder to penalise, the Government would have to ensure it had robust contracts with delivery partners which created motivations to avoid failure similar to the potential for very heavy fines on energy suppliers for failure to comply.

To address the risk of distributional consequences, the levy rules could require that it is only collected from certain types of customer (assuming suppliers had the information to make these distinctions) or above certain levels of consumption.

6.5 A general taxation-funded energy saving fund

Given one of the key current roles played by a supplier obligation is to provide funding for domestic energy saving measures, it is valuable to consider an alternative to this approach in the form of funding raised from general taxation. As mentioned in Footnote 32 on page 38, this raises the question: *if money was raised from other sources (e.g. general taxation) would we obligate energy suppliers to use that money to deliver an energy saving target?* For the purposes of this analysis, we have assumed that energy suppliers would NOT face such an obligation but would have the opportunity to bid for funds.

What is it? A fund for domestic energy saving activity focused on supporting the delivery of complex and high cost insulation and heating measures raised from general taxation (and explicitly not fuel bills). There are various options for how the fund would be used to deliver energy savings with the

most likely option being a Government-run competition for proposals to deliver particular insulation and heating improvement measures identified by government, with bids likely to come from installers, local authorities and other agencies.

How would it be achieved and measured? The fund's scale would be subject to decisions by Government, based on perspectives of it as a spending priority relative to other public spending choices. It is likely that access to use funds would be subject to a procurement competition and associated delivery contracts, with Government seeking costed delivery proposals for a specified number of certain types of measure in certain types of household (e.g. new boilers in vulnerable low income households or solid wall insulation installations in a mix of higher and lower income households). The Government could choose whether this was via a single national supplier or scheme manager (as in Warm Front) or as a competition encouraging a wider number of different types and scales of initiative (e.g. more local, area-based initiatives, as in the current Green Deal Communities scheme). Measurement of delivery would be by evidence of installation (as in ECO).

What are suppliers most likely to do if faced with the opportunity to bid into this fund?

- a. Some suppliers may decide to bid for opportunities to deliver schemes, developing specific businesses based on their existing obligation delivery teams and building on existing relationships with contractors, local authorities etc.
- b. Other suppliers would disband obligation delivery teams.

Strengths

- Avoids regressive impacts associated with fuel bills as the source of funds (because taxation is more progressive than fuel bills), though distribution of benefits (i.e. subsidies for measures) between households would determine overall distributional impact.
- Enables Government to determine and procure precise levels of energy saving activity and measures and to target installations to maximise alignment of energy saving activity with wider energy policy objectives (such as tackling fuel poverty).
- Allows other probably better placed organisations (than energy suppliers) to take responsibility for using the funding to deliver the required energy saving measures into homes.
- Creates clearer political accountability (i.e. Government) for level of priority given to funding energy saving programmes since energy suppliers and fuel bills would no longer be available as an alternative (though see also first 'weakness' below).
- Potentially works alongside some other supplier obligation options (particularly Average Customer Consumption Reduction Obligation).

Weaknesses

- Requires energy saving funding to compete directly with other public spending priorities for its share of funding (though see also 4th 'strength' above).
- Transfers the risk of achieving take-up of energy savings from energy suppliers to other parties who may be harder to penalise or hold to account if they fail to achieve targets.
- Provides no incentive or business case for suppliers to help customers realise low cost energy saving interventions and make effective use of smart meter data, risking the realisation of the anticipated benefits.

- Does nothing at all to encourage energy suppliers to transform their business practices to reflect broader energy policy objectives.
- May still be regressive if benefits of funded measures are concentrated in better-off households, even though costs would be funded in a relatively progressive manner.

Possible remedies for main weaknesses

The main weakness of this general taxation funded fund is the exposure of this expenditure to prioritisation within Government public spending rounds. However, if there is no longer a convincing rationale for energy suppliers to recover money from energy bills for certain types of energy saving activity (including, as outlined in Section 4.3, high cost measures for fuel poor households), the imperative would be for those who believe such funding and the activity it supports are a high priority to make their political case and hold political decision-makers to account.

Clearly, there is a risk that such a case and associated lobbying would not be successful and funding would not be forthcoming. But this ‘re-politicisation’ of public funding for energy saving improvements (and associated fuel poverty benefits) would create an opportunity to make more transparent the relationship between the costs of such a programme and its wider societal benefits (such as positive impacts on health and wellbeing).

6.6 Evaluating the policy options against the rationale and success criteria

Taking account of the strengths and weaknesses outlined above, these four options and the taxation-funded fund can be assessed against the rationale and success criteria which were drawn up in Chapter 5.

Our evaluation is shown in Table 4 below. We have used what we hope are reasonably obvious indicators for our positive and negative judgements with respect to each option and each element of the rationale and each criteria.

This is inevitably a relatively crude and subjective exercise and we should be clear that there is not a wealth of detailed analysis behind each judgement. But such detail is not really the point at this early stage in considering the purpose and design of a future supplier obligation to come into effect in 2017. The point is to have opened up previous and existing thinking to critical scrutiny, to consider what is needed in the context likely to exist in 2017 and beyond, and to guide further consideration and analysis as post-ECO supplier obligation policy design develops.

Our evaluation of these options, however crude, does produce a clear overall ‘winner’: an Average Customer Demand Reduction Obligation. In Chapter 7 below we examine the implications of this and draw out our conclusions from this exercise and our recommendations to policy makers.

The evaluation also reveals many positive features of a general taxation-funded energy saving fund, though, unsurprisingly, this approach does not meet the rationale for an energy supplier obligation. If such a fund’s focus was to support the installation of the more complex and expensive insulation and heating improvements (which we have argued are ill-suited to a supplier obligation), this fund could sit well alongside an energy supplier obligation which focused energy supplier efforts on low cost measures and demand reduction interventions.

Table 4: Evaluation of options against rationale and success criteria

Option	Fit with supplier obligation rationale →				Fit with policy success criteria →				
	'Energy saving cheaper than energy supply'	'With the grain' of supplier business changes needed	Creates business incentives to realise energy savings with customers	Real rather than predicted savings	Deliverability – household engagement	Deliverability – supply chains	Verifiability	Cost effectiveness	'Fairness' / distributional impact
ECO CERO again	👎👎👎	👎👎👎	👎👎	👎	👎 Market resistance to measures unlikely to be overcome by supplier role	👍👍	👍👍	👎 Others likely to be better placed to deliver with lower administrative requirement	👎👎 High cost measures focus benefits on a few while all carry costs
New ECO CERO low cost measures only (own customers)	👍👍	👍👍	👍👍 Depends on qualifying process and license for innovation	👎👎 Limited evidence base for savings from different interventions	👍	👍 Some gaps likely but quick to develop	👎 Evidence gaps for savings and challenge to prove behavioural interventions	👍	👍 Low cost measures with potential to distribute benefits widely across customer base
Average Customer Consumption Reduction (own customers)	👍👍👍	👍👍👍	👍👍👍	👍👍	👍👍	👍 Some gaps likely but quick to develop and space for innovation	👍 Potential challenge to disentangle external influences (e.g. weather or 'gadget market' developments')	👍👍	👍👍 Low cost and could make lower than average demand households (mostly low income) attractive to acquire
Levy raising obligation	? Depends on measures which fund delivers	👎👎👎	👎	👎	👍 Depends on measures and delivery agents	👍 Depends on measures and delivery agents	👍👍 For supplier contribution	👍	👍? Depends on rules on levy raising. Could be 👍👍👍
Taxation-funded fund	? Depends on measures which fund delivers	👎👎👎	👎👎	👎	👍 Depends on measures and delivery agents	👍 Depends on measures and delivery agents	👎 Range of delivery agents may make verification hard	? Depends on mechanism to use get funds used	👍👍 Positive but impact also depends on who gets benefits

7 A new supplier obligation for 2017: conclusions & recommendations

The high level evaluation in Chapter 6 of options for a future supplier obligation provides a strong case for an obligation on energy suppliers to reduce their average customer demand for gas and for electricity.

Such an obligation:

- goes directly with the grain of the transformation of energy supplier business models towards lower, more responsive domestic demand which is ultimately required by broader energy policy objectives;
- ensures energy suppliers have a direct business interest in helping their own customers achieve real energy savings in their homes;
- focuses energy suppliers on low cost energy saving measures and interventions to engage their customers with reducing their energy consumption, resulting in lower overall system cost.

Supplier responses to such an obligation are likely to have wider policy benefits, reducing the risks of policy failure or short-fall in associated areas like smart meter roll-out and efficiency improvements in the stock of energy-using equipment in our homes. In particular, we anticipate it would:

- increase significantly the probability that the consumer benefits of smart meters will be realised in full – and potentially further extended through obligation-driven innovation by suppliers and their partners;
- accelerate the take-up of more efficient appliances, lighting, gadgets and heating controls (because suppliers would have a direct interest in their customers taking timely advantage of such market opportunities);
- improve the market attractiveness of lower-than-average consumption households (which tend to be lower-than-average income), create a potentially progressive outcome.

As importantly, the Average Customer Consumption Reduction Obligation (ACCRO)³³ does not share the drawbacks of other options for an energy supplier obligation, particularly the ECO. Compared with ECO CERO, it: (a) removes the need for energy suppliers to put in place teams to procure complex building works which have no direct relationship with their core business, and; (b) is likely to have far less regressive impacts through the distribution of costs on bills and energy saving benefits.

We believe these advantages and the avoidance of the disadvantages of the current ECO policy combine to make a powerful argument for this approach being central to a future obligation.

Clearly, and as highlighted in exploring its potential weaknesses in Chapter 6, the design of the ACCRO requires further work, including a need to address the following questions:

³³ Alternative names which perhaps capture a stronger sense of the change and challenge implied in this new approach include CREDO (Customer Reduced Energy Demand Obligation) or HERO (Household Energy Reduction Obligation).

- i. How to set a demand reduction target in the supplier obligation which reflects associated policies and market trends which will also reduce domestic energy demand and so 'leaves something for suppliers to do' in addition?
- ii. How to control for external (non-policy) factors like winter temperatures and regional differences (and whether using degree day correction is an adequate safeguard)?
- iii. Whether there is a need to segment the obligation to cover different types of customer (for example by main heating fuel) to avoid perverse outcomes (such as suddenly making Economy 7 customers unattractive because they typically use more than average)?
- iv. How to protect low income households from reducing their demand in response to supplier incentives and avoid the risk that this results in a colder home?
- v. Should the obligation extend to other purveyors of fossil fuels for heating (coal, heating oil and LPG) to avoid 'leakage' from gas and electricity demand to higher use of these other fuels?
- vi. Given this is effective a cap on electricity and gas demand, should suppliers be allowed to trade their obligations with each other in line with more typical 'cap and trade' policies?
- vii. Would it make sense to include an 'average customer peak demand' reduction target for electricity (to serve different system needs and policy objectives) as well as an average consumption reduction target?

This study was not intended to answer all of these questions but we can address some briefly here.

Our perspective is that policy makers should be relatively relaxed about whether energy suppliers are getting 'free' demand reductions towards their obligation as a result of the impact of other policies. As long as the obligation is set to ensure these impacts are achieved in full 'and some', this effect is the natural corollary of setting an obligation which 'goes with the grain' of the wider changes required by energy policy. It will also help to keep policy costs down while reducing the risk that these other policies will fall short of their own anticipated impact (because suppliers will have an interest in helping those policies working effectively).

We recognise that there are some potential challenges associated with protecting the interests of low income consumers from being targeted by supplier incentive-based schemes to cut demand (e.g. payment or discounts if household demand reduction targets are met). Of course, it cannot be assumed that low income households have no opportunities to reduce demand (particularly for electricity) without reducing their comfort and wellbeing.

However, there is some risk that, faced with such incentives, some households will cut back essentials like heating without balancing this with steps to reduce heat loss from their home (through insulation, ventilation control etc) which would give them the same warmth for lower demand. This problem could possibly be addressed by only allowing energy suppliers to promote such schemes to households on low incomes (or a set of qualifying benefits) whom they know live in homes which have had cavity walls and lofts adequately insulated. Such initiatives could also potentially be tied with other support and help which suppliers should be providing to such households (see end of Section 4.3)

7.1 Breaking the pattern of previous obligations and addressing resulting gaps in policy

The ACCRO is a clear break with past supplier obligations, and the ECO in particular. As such it reflects directly and appropriately the existing and anticipated discontinuities in the context in which it needs to take effect (see Section 4.1).

Most markedly it shifts suppliers away from the obligation they have faced for much of the last two decades to procure the installation of basic insulation improvements in GB's housing stock. And in contrast with the demands of ECO, energy suppliers would not in future be responsible for procuring the higher cost more complex insulation and heating improvement works that dominate ECO CERO, HHCRO and CSCO.

As a result, the ACCRO would change radically those aspects of the policy-driven overall need to improve the energy performance of the housing stock which a supplier obligation can be expected to deliver. In particular, it means that alternative policies would be needed to ensure the delivery of the following developments necessary to meet broader carbon reduction, energy efficiency and fuel poverty targets and to contribute to energy security ambitions:

- The stimulation of consumer take up and supply chain readiness for solid wall insulation and other complex insulation measures
- Installation of heating improvements, boiler upgrades, complex insulation measures and ventilation management in the homes of fuel poor households
- Funding mechanisms for the above which do not rely on levies on electricity and gas bills (particularly in England) (one example of which is explored in Section 6.5 above)

There is a raft of possibilities for achieving these outcomes, none of which is without precedent: from further development of general taxation funded subsidies and funding for local authorities to deliver area-based complex insulation initiatives³⁴ to tough minimum energy efficiency standards for rented accommodation and a general taxation funded scheme for England to address the poor energy performance of homes occupied by fuel poor households.

It is important to recall that the reason why other policies are needed is because **there is no sound rationale for expecting energy suppliers to deliver these outcomes or to fund them via the regressive mechanism of electricity and gas bills**. Energy suppliers are not 'well placed' to deliver these outcomes, particularly when compared with others, and they go against the grain of the business transformation which society needs of energy suppliers in order to meet wider energy policy objectives.

Achieving this step change in policy direction for the supplier obligation now becomes a priority in our view. There is further detailed policy design work needed to resolve some of the weaknesses identified and answer the questions outlined above. However, these do not appear arduous, at least at first hand and especially when compared with the challenge of addressing the weaknesses in other options. If we can succeed, we will have stimulated an active, innovative market in helping households to reduce their energy demand and enabled energy suppliers to become the businesses we need them to be.

34 As currently with Green Deal Home Improvement Fund and Green Deal Communities respectively

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Disclaimer: Please note that participation in the workshop does not reflect any agreement by participants or their organisations with the content, conclusions and recommendations of this report.



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