

Which?

Which? works for you

November 2013



**Affordable
Energy
Campaign**

THE ⁱⁿ BALANCE OF POWER

The challenge of
energy efficiency

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Executive summary

Energy efficiency can play a crucial role in helping people to reduce their energy costs. The Government also wants it to play a central role in helping the UK meet its carbon reduction targets. Yet the Government's current approach will deliver too little at too high a cost to consumers.

For 19 years, successive governments have designed policies with the stated aim of greater adoption of energy efficiency measures in people's homes. They have required energy companies to pass on the cost of these policies to consumers through their bills. There has never been adequate monitoring of either the full cost or benefit of these schemes, but it is likely they will have cost consumers an estimated £8.4 billion between 2008 - 2015. Yet still more than half of Britain's 27 million homes do not have adequate insulation and many consumers don't understand which are the most effective steps they can take to reduce their bills.

Past policies had a number of failings. Our analysis leads us to conclude that the failings are even greater under the current Government's energy efficiency policies - the Green Deal and the Energy Company Obligation - and that this could be at an even higher cost to consumers. The Government has set no targets for its policies but even its own estimates are for a fraction of what was achieved in previous years. And early indications are that the impact of its policies will fall way short of even these unambitious goals.

Evidence is already emerging that the current approach is not helping to deliver the right energy efficiency measures to those who need them most. And the rate at which insulation is being installed has collapsed under the ECO and Green Deal. Ten months after the launch of the Green Deal, only 219 homes had installed measures using Green Deal finance, and only a further 594 were progressing installations at earlier stages.

In its current form, the ECO is also unlikely to be cost-effective. With the exception of limited and inadequate support for low-income consumers, the use of ECO funds to subsidise the most cost-effective energy efficiency measures including loft and easy-to-treat cavity wall insulation is severely restricted. Instead, the largest part of the ECO - the Carbon Saving Obligation - is being used to fund high-cost measures such as solid wall insulation, an approach which is not being taken anywhere else in the world.

This means consumers are footing the bill for a policy which will never be able to deliver the maximum 'bang for buck'. Even worse, consumers are exposed to the cost of this ineffective policy being much higher than expected as it is uncapped and suppliers can use the ECO pot to incentivise consumers to take up pricey measures whether they take out Green Deal finance or not. This focus on using the ECO to subsidise the most expensive measures also leaves it open to the perverse outcome of the fuel poor subsidising the able-to-pay.

The Government must get a grip urgently of both its strategy and the cost of these policies. They are not beyond rescue but nothing short of a radical overhaul of the Green Deal and ECO will be enough to give them a chance of the level of success that is critically needed.

Our analysis of previous policies - in the UK and elsewhere - has revealed a number of factors that have driven success in the past in terms of delivering energy and carbon savings at the lowest possible cost. Current policies have so far adopted too few of these. In particular, local, area-based programmes, endorsed or coordinated by local authorities, housing associations or community groups have shown that they can deliver higher uptake by engaging consumers' interest and gaining their trust. But councils have been given little meaningful financial support to develop or deliver energy efficiency programmes.

We conclude that the Government's strategy of relying on the market-based Green Deal, supported by levies on consumers' bills, will not work. We believe that far more could be achieved for the same total cost by reallocating and making better use of the public money that is already being spent on energy efficiency - whether in the form of levies on consumers' bills or direct from taxation.

Our package of recommendations is designed to deliver greater carbon and energy savings at the lowest possible cost through maximising consumer engagement and action.

Summary of recommendations

Recommendation 1: **The Government must strengthen its strategy with firm insulation targets**

The Government's strategy should set insulation targets and pathways to achieve them, prioritising urgent delivery of low-cost measures. Firm targets should be set for all key insulation measures, starting with delivery of remaining lower-cost, easy-to-treat cavity wall and loft insulation as soon as practical. There should be regular reporting against progress towards these targets.

Recommendation 2: **Existing levels of funding should be reallocated and reprioritised to make policies more cost effective and better focused on those who need support the most. This should include immediate reforms to the ECO and prioritisation of a local, area-based approach**

Existing public funding on energy efficiency (whether from levies that are charged on bills or funding that comes directly from taxation) should be reallocated and reprioritised to make policies more cost-effective and to protect consumers from ECO costs rising unchecked. This reprioritisation should include identifying ways to reduce the amount spent on high-cost measures. Policies should provide help to consumers with the cost of these in the shape of full grants for the fuel poor and partial grants and/or subsidised loans (or subsidised Green Deal loans) for the able-to-pay. Spending should be directed primarily towards the fuel poor, and with a greater focus on local, area-based schemes. By focusing spend in this way, as well as helping those who need it, it will improve the thermal efficiency of some of the leakiest housing stock, as well as providing

support for the able-to-pay by continuing to improve the efficiency of houses more widely.

There should also be immediate restrictions on the amount of money from the Green Deal cashback scheme that can be spent on replacing gas boilers that would be replaced anyway at the end of their natural lifetime; this would encourage the scheme's use for insulation instead and so improve its value for money.

The Government should begin reforming the ECO now by dedicating a significant but fixed proportion of the Carbon Saving Obligation element to easy-to-treat loft and cavity wall insulation, open to all consumers. Widening eligibility to these measures would make the ECO more cost-effective - we estimate it could save between £242 and £363 million a year, while helping at least the same number of households and still meeting the carbon reduction target. However, the share of the ECO for these measures must be fixed so as to provide adequate support for low-income consumers and hard-to-treat measures (see below). Consumers should not be permitted to claim both this ECO subsidy and Green Deal cashback as this could result in subsidy exceeding the cost of the measure.

The Government should direct a greater share of the ECO towards the fuel poor. A greater proportion, more than the current 40 - 50%, should be applied to support the fuel poor in funding both low-cost and high-cost measures. This increased funding could be achieved, for example, by requiring a minimum share of the Carbon Saving Obligation element to be delivered to priority groups of consumers and/or increasing the share of the ECO that is accounted for by the Carbon Saving Communities element.

Energy suppliers should recover ECO costs as fairly as possible - according to the customer's energy consumption rather than as a flat rate per customer, because lower income consumers tend to be low users of energy.

The Government must set up a cost-reduction task force for solid wall insulation. Following the approach taken for offshore wind, the Government should set up an industry-led cost-reduction task force for solid wall insulation. The task force should develop a plan to deliver more affordable and less disruptive solutions for consumers. This plan would inform the national target for solid wall insulation.

Supporting people to make their own contribution to the costs through Green Deal finance or a personal loan should be encouraged by government subsidy. There is merit in the 'pay as you save' loan concept that underpins the Green Deal as a means of financing high-cost measures but research has already found that high interest rates will deter uptake.

Whether a Green Deal or a personal loan scheme, the government should subsidise the interest rate to increase appeal and it should explore the best ways to achieve this as part of the Green Deal review. This would provide the larger net saving that consumers want. And loans must be only one of a wider choice of financing options as they will not appeal to all consumers.

Government should promote and resource a local, area-based approach for advice and delivery. This approach has been shown to be an effective way to get consumers engaged and gain their trust and confidence in the advice and installation of energy efficiency measures. It has also been shown to help achieve economies of scale in delivery and other benefits. It should be focused on the needs of low-income and vulnerable consumers but could also help deliver for the able-to-pay. It should aim to target areas with high proportions of low-income residents and energy-inefficient properties.

The Government should explore how to facilitate the involvement of English and Welsh local authorities in area-based schemes. This should include consideration of opening up the ECO brokerage system to local authorities and housing associations and a form of obligation on energy suppliers to work with local authorities and other community partners.

Government should explore enhanced data matching to help improve targeting of fuel-poor, low-income and vulnerable consumers.

Government should seek to enhance targeting of areas and households in most need by cross-referencing property data from the HEED database with benefits data, where practical.

The Government should ensure that local authorities and public health professionals are able to deliver support on energy efficiency to the most vulnerable in society. Support and guidance are needed from central government and the Department of Health should commit to continuing the Warm Homes Healthy People fund on an on-going rather than ad hoc basis.

Recommendation 3: Whatever the source of funding, the Government should ensure a robust system to measure, scrutinise and control costs

Government should put in place a system of cost scrutiny to ensure that energy efficiency policies deliver value for money for consumers. The National Audit Office (NAO) should be

given the power to monitor and scrutinise energy costs in the round, building on its existing evaluation work. Through this, Ministers should be held accountable for securing the best value for consumers. Because the ECO is outside the government's Levy Control Framework, there are no mechanisms, beyond competition in the retail market, to keep the costs in check.

A system to monitor ECO costs passed through to consumers' bills needs to be put in place by Government as a matter of urgency. The Government should legislate to require suppliers to report to Ofgem both the overall pass-through cost and the cost recovered at a per-tariff level. Ofgem and the NAO should scrutinise whether costs passed through are a fair reflection of suppliers' reported delivery costs.

DECC must put in place a cost control mechanism to ensure that ECO costs for consumers do not spiral out of control, and an early review of ECO costs is needed to inform whether this should be applied. If this review, or a subsequent NAO review, suggests that annual ECO costs may exceed DECC's central estimate of £1.3 billion, DECC must take urgent corrective action to limit the cost risk to householders.

There should be a simple graphic on consumers' annual energy statements, showing the cost of the ECO alongside the costs of other environmental and social policies.

Recommendation 4: Government should stimulate consumer engagement through consistent, national messages and enhanced support for advice agencies and trades

Government needs to put greater emphasis on increasing consumer engagement and awareness, including through consistent national messages about what is most effective. Consumers are yet to be convinced of the need to act and programmes need to give greater emphasis to this. Yet there is a lack of consistent messages at national level to encourage consumers to seek out support. The Government should support the provision and dissemination of consistent, national messages on energy savings and benefits. This could be disseminated through bodies such as the Energy Saving Trust, the Energy Saving Advice Service and energy suppliers.

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Government and advice agencies should place greater emphasis on tailored messaging. Advice agencies and energy suppliers should seek to include in their approaches tailored communications on benefits most relevant to the individual. Tailoring messages about energy efficiency can improve their impact, for example by emphasising the benefit of comfort and warmth for the elderly. Energy suppliers should include information in annual energy statements or elsewhere comparing the customer's energy consumption with similar properties in their neighbourhood.

Builders, plumbers, architects and surveyors should be supported with guidance for customers before home renovation work. They should seek to use independently produced or approved advice materials.

Boiler installers, heating engineers and plumbers must be required to explain better how to use heating controls.

Recommendation 5: **Government must ensure that the 'one year on' review of the Green Deal is comprehensive and identifies the reasons for its low appeal; and it must make changes to the Green Deal now to make it a better and fairer deal**

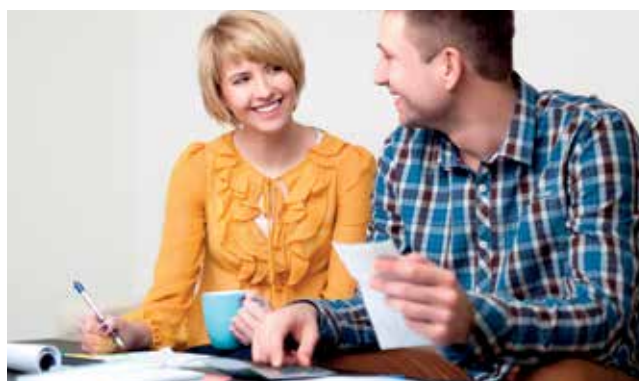
DECC's 'one year on' Green Deal review must include a comprehensive assessment of why appeal is low and reasons for drop-out during each stage of the process. It must make recommendations for addressing these - including identifying an acceptable interest rate - and implement them promptly.

The Government's review must also assess whether consumers are getting quality, value and fair terms at all stages of the Green Deal process, including the assessment phase. The review should evaluate whether energy savings are realised - including expert assessment of a sample of homes on a 'before and after' basis to determine whether the Golden Rule is working. It should also evaluate consumer attitudes and sales practices.

If the review of the Green Deal finds that core concepts of the Green Deal are not working, the Government should convert the Green Deal into a subsidised personal loan scheme. If, for example, transfer between occupants and the complexities it brings is proving too problematic, the Government should not hesitate to convert it into a personal, 'pay as you save' loan scheme. A personal loan would not transfer with the property and would be simpler.

The Government must make changes now to the Green Deal to make it a better and fairer deal. Which? has identified changes that should be made now to reduce the risk of customers losing out financially and of suffering from poor terms - whether they take out Green Deal finance or just have an assessment.

- **The amount that can be lent to low-users of energy should be based on their actual energy usage to reduce the risk that repayments exceed savings.** Current requirements for low-users merely to acknowledge this risk are not adequate consumer protection.
- **Consumer Credit Act (CCA) protection must be reinstated for Green Deal plans of 15 years or more to avoid large repayment fees for long Green Deal plans.** It is unfair and inflexible to expect consumers to pay large fees if, for example, a buyer of their house wants the Green Deal to be paid off. In the short term, before legislation could be changed, government must place robust and enforceable obligations on providers to minimise any early repayment charge.
- **Green Deal quotes should be standardised to enable comparison with other Green Deals and other forms of credit.** Quotes which use similar presentation of prices and charges would help consumers to shop around. Quotes must display the price before and after ECO subsidy is applied to show how installation costs compare.
- **DECC should consider the development of a mechanism to give consumers access to free or low-cost Green Deal assessments from independent assessors.**
- **DECC should consider how the Green Deal consumer protection framework can be extended to non-Green Deal financing,** such as where a consumer has a Green Deal assessment but decides to finance the measures themselves.



Recommendation 6: **Additional incentives are needed for landlords, plus stronger consumer protection for tenants under the Green Deal**

There must be strong consumer protection for tenants under the Green Deal before private rental regulations come into force in 2016 and 2018. There must be robust monitoring of the impact of the regulations on tenants and landlords to ensure they have adequate support. The Government should not discontinue the Landlords' Energy Saving Allowance (LESA) but assess how this incentive could be improved and promoted.

Recommendation 7: **If policies fail to achieve sufficient take-up, government should explore whether a more radical 'Plan B', accompanied with positive incentives, would be acceptable to consumers**

Energy efficiency is too important to be allowed to fail. If our recommendations above are introduced, but take-up of key measures has not risen considerably by 2017, government should explore whether more radical policies, if accompanied by positive incentives, could be made acceptable to consumers. Options include regulation, such as minimum energy efficiency standards on sale of a property, but regulation should be approached with care: the net impact of the overall approach would need to incentivise consumers rather than force them. Options would need to be tested carefully on consumers to ensure acceptability and recognise that, for some properties, there may be real practical limitations regarding what can be achieved.

Recommendation 8: **More frequent revision of EU eco-design product standards and redesign of the EU energy label are needed to encourage energy-efficient appliances**

EU Eco-design Directive product requirements for energy consumption should be raised more frequently by the European Commission and EU Member States to ensure continuous improvement.

The energy label's redesign should be based on consumer need and appliances reclassified so that models on the market are spread across the label bands. The European Commission's review of the Energy Labelling Directive by 2014 must develop a label that is clear and meaningful to consumers. Strong grounds would be needed not to revert to the previous, simple 'A' to 'G' format that research already suggests was preferred by consumers. An 'A' class should genuinely be a top rating with reclassification of appliances across the new bands.

Gas used	Cost split	Charges
Calorific Value 39,200 197 (100s cubic feet) = 6208 kWh	first 1671 at 7.201p next 4537 at 2.488p	£120.33 £112.88
Calorific Value 39,200 132 (100s cubic feet) = 4160 kWh		£31.18 £92.03
Calorific Value 39,400 4 (100s cubic feet) = 127 kWh	first 433 at 7.201p next 3854 at 2.388p	£356.42
Cost of gas used this period VAT at 5% on £356.42		
Total gas charges this period		

The importance of energy efficiency

1.1 Energy efficiency reduces consumers' energy bills and carbon emissions

We all rely on energy to heat and light our homes and to run appliances. But the cost of domestic energy use is rising - the average dual fuel household bill has risen by 24% over the past 4 years¹. Unsurprisingly, energy bills are a top financial concern for consumers and, with the expectation that bills will continue to rise², energy bills are likely to remain a major concern for years to come. Consumers can take action to improve the energy efficiency of their homes through installing measures or changing their behaviour, and these can be among the most cost-effective ways to help them manage their energy costs. Energy efficiency also has an important role to play in tackling fuel poverty as well as improving broader health outcomes³.

However, the full potential of energy efficiency is not being realised. This is despite the fact that consumers have already paid, and will continue to pay, billions of pounds for energy efficiency policies through their bills. Consumers paid an estimated £5.5 billion for the main energy efficiency obligation on suppliers from 2008 to 2012, and are expected to pay £2.9 billion for its replacement policy from 2013 to 2015. This equates to an estimated £8.4 billion in total and £45 - 50 per household per year⁴.

By saving energy we also reduce the need to build and operate new electricity generation capacity. Reducing the need for investment in this costly infrastructure reduces overall energy costs for all energy users including domestic consumers. It is particularly important now given the current renewal challenge. The Government estimates that cost-effective investment in energy efficiency could save in 2020 the same amount of energy generated by 22 power stations⁵ - equivalent to 62% of UK electricity consumed in 2011.

Energy efficiency is also important in that it reduces carbon emissions - primarily carbon dioxide, or CO₂ - and so is an important means of delivering the government's legally-binding carbon reduction targets. Homes' energy use was responsible for 27% of UK greenhouse gas emissions in 2010⁶ and cutting home energy use is critical if the UK is to meet these targets⁷. Well-managed energy efficiency programmes are among the most cost-effective ways to reduce carbon emissions because the value of carbon or energy savings delivered over the

lifetime of the measures generally exceeds their costs⁸.

Examples of economic impact evaluations exist which show that the benefits of programmes can far outweigh the costs⁹. However, as we explain in this report, governments to date have failed to evaluate fully the costs and benefits of national programmes. This is due to inadequate monitoring by government to check that the predicted impacts of programmes have been delivered.

However, it is clear that the types of measures that have been promoted by these programmes are cost-effective and are effective ways to save energy in the home. Energy efficiency gains over the past 40 years are estimated to be saving the average household £1,000 on the average annual energy bill¹⁰. Improved boiler standards are already saving UK consumers with newer boilers £800 million a year¹¹. Yet there is much more that can be done. Only around two-fifths of homes have efficient, condensing boilers¹². And at least 5.3 million homes still need cavity wall insulation which could save them around £130

Table 1 Typical energy bill savings from key energy efficiency measures and behaviours¹⁴

Measure or behaviour	Approx. annual saving
Cavity wall insulation	£133
Loft insulation Full: 0 mm to 270 mm Top-up: 100 mm to 270 mm	Up to £180 ¹⁵ £25
Solid wall insulation Internal External	£273 £273
Draught-proofing	£32
Double-glazing	£113
Replacing boiler Replacing a G-rated boiler Replacing an E-rated boiler	£310 ¹⁶ £97
Hot water cylinder insulation (top-up)	£21
Turning down room thermostat by 1°C	Around £65 ¹⁷
Replacing 5 light bulbs with compact fluorescent lamps	Around £15 ¹⁸
Replacing a 15-year old fridge-freezer, dishwasher and washing machine	Around £60 ¹⁹



a year (Table 1). Significant savings can also be made from behavioural changes; turning the thermostat down by 1°C saves around £65 annually¹³.

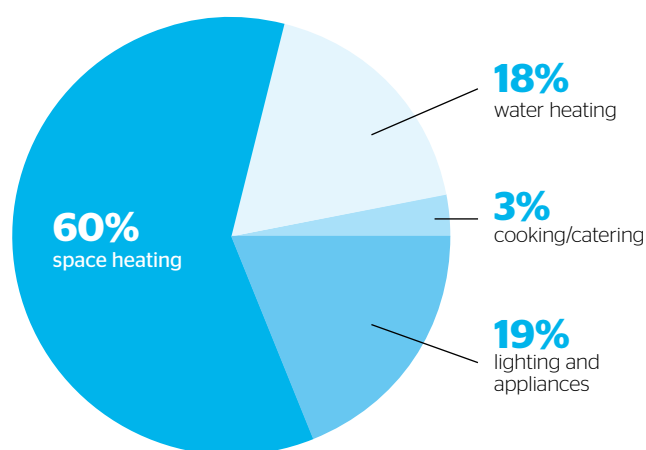
So energy efficiency has an important role in helping consumers to manage their energy bills. It also offers wider economic benefits. Research suggests that economy-wide energy efficiency improvements can lead to increases in GDP and employment and lower prices and inflation, as it allows more to be produced at less cost²⁰. Energy efficiency can act as protection against fossil fuel price spikes, delivering increased energy security and economic resilience²¹. A recent study concludes that investment in an energy efficiency programme is a more effective way to stimulate the economy than an equivalent stimulus package to reduce VAT or fuel duty, or to build roads or other such infrastructure²².

1.2 Energy efficiency is about a combination of measures, products and behaviour

Maximising domestic energy efficiency gains requires a combination of both actions and behaviours in the home. Consumers can install measures such as insulation that make

the property less 'leaky' and replace inefficient boilers and appliances with more efficient ones. But they also need to use these measures effectively - in other words consumers' behaviour also needs to be energy efficient.

Figure 1 UK domestic energy consumption by end use 2011²⁴



Most energy at home is used for heating rooms (60%), followed by lighting and appliances, water heating and cooking (Figure 1)²³.

Consequently, insulation is of primary importance because it reduces heat losses in a home. Most heat is typically lost through the walls and roof of an uninsulated home (Figure 2). Key insulation measures are loft insulation, wall insulation (cavity walls or solid walls – the latter can be insulated internally or externally), lagging of hot water pipes and tanks, and draught proofing. Double or triple glazing is also a form of insulation. As well as insulation, the efficiency of the heating system, which is most commonly a gas boiler²⁵, is also important. As is how energy is used by consumers, for example turning off radiators in unoccupied rooms.

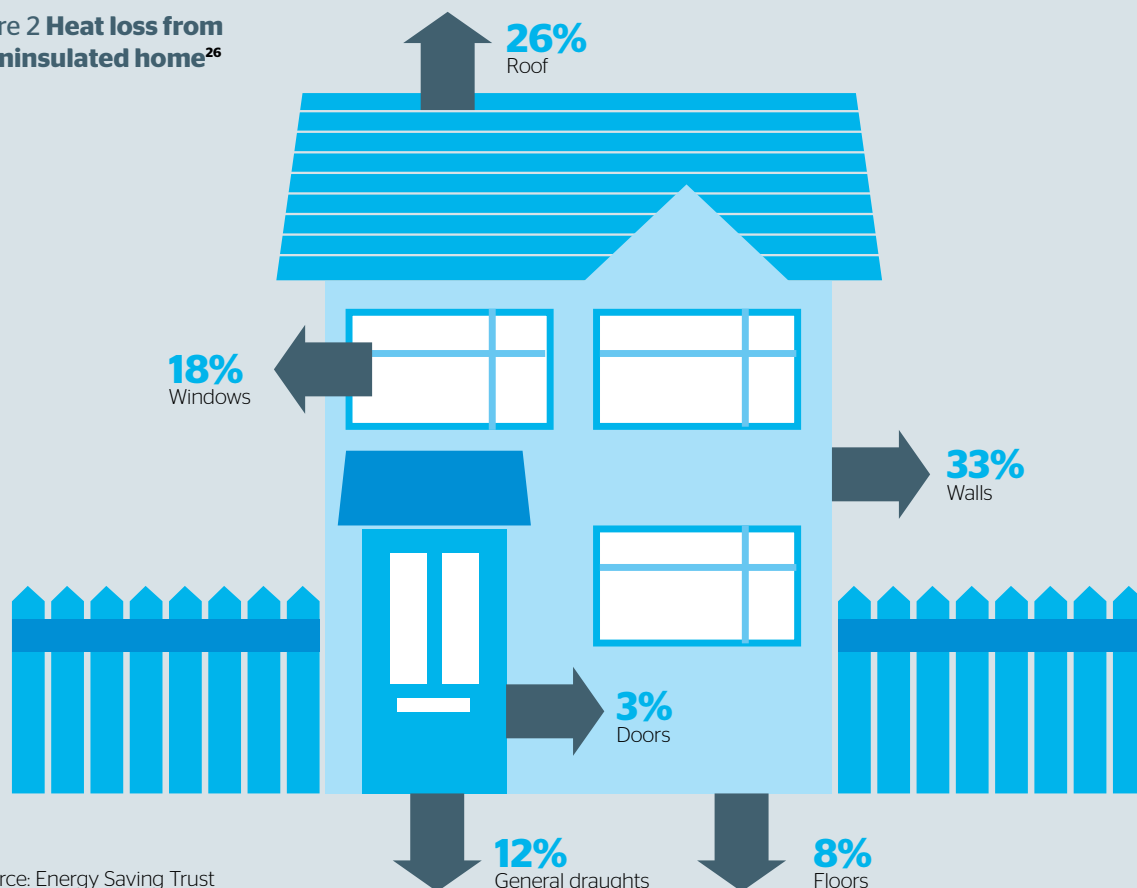
More energy-efficient use of appliances and lighting can be achieved by replacing them with more efficient products. Using them effectively also cuts energy bills – for example turning them off rather than having them on standby (section 4.1.1) or by washing clothes at a lower temperature in a fully-loaded machine.

1.3 Recent policies and the new approach

In recent years, delivery of energy efficiency measures to homes has been primarily through CERT and CESP (Box 1). These were ‘supplier obligations’ with energy suppliers made responsible for meeting carbon reduction targets, which they achieved through delivering energy efficiency measures to homes. Despite being ‘obligations’ on suppliers, consumers paid for these policies through their energy bills – they were not funded by suppliers. And the costs of these policies were not monitored (section 2.3). These have been complemented with improvements to UK Building Regulations on replacement boilers and windows and EU Eco-design regulations on appliances and lighting (Chapter 3).

Energy efficiency policies have also had objectives to reduce fuel poverty. CESP required that energy measures were delivered in low-income areas and 40% of CERT had to be delivered to priority consumer groups including those over 70 and those in receipt of certain benefits. Warm Front was a fuel poverty programme that helped people at risk of fuel poverty improve the energy efficiency of their homes. It provided grants (funded from taxation) for people on low incomes living in properties with poor insulation or without a working heating system. It closed to new applications in January 2013²⁹.

Figure 2 Heat loss from an uninsulated home²⁶



Source: Energy Saving Trust

CERT and CESP have also now ended: the new policies that replace them are the Green Deal (Box 2) and a new supplier obligation, the Energy Company Obligation (ECO) (Box 3). The ECO will – once again – be paid for by consumers through their bills to the tune of an estimated £1.3 billion per year, although actual costs could be much higher (section 5.12). The ECO has three elements. Two elements of the ECO have a target to reduce the amount of carbon emissions from homes and the third element has a target to reduce the cost of heating homes. These two targets are potentially conflicting – if the householder feels they can now afford to have their heating on for longer following installation of a new heating system, higher emissions could be generated than before. The ECO also has the objective of supporting the Green Deal, a new loan-type scheme. The Green Deal is often described as a market product but in reality it relies heavily for support on consumers' energy bills (via the ECO – see Box 3) and on public funds from taxation money, primarily for the Green Deal Cashback scheme.

The new policies of the Green Deal and ECO have been allocated a critical role in helping consumers manage their rising energy costs. In this report we assess how successful the new policies are likely to be in engaging consumers to take action in their homes, applying the lessons from recent policies. We go on to make recommendations for ensuring that all consumers are able to benefit from energy efficiency policies.

Box 2 The Green Deal

The Green Deal launched in January 2013. It is a scheme under which the consumer pays for energy efficiency measures over time through a Green Deal finance plan. It is a 'pay as you save' product, at least in theory, whereby the payments consumers make to repay the finance are funded from the savings they make in reduced energy bills.

The Green Deal is not a personal loan but is a charge on the property. Any new occupant of the property, whether owner-occupier or tenant, must continue to make the repayments, while benefiting from the savings on the energy bill.

The 'Golden Rule' of the scheme is that predicted energy bill savings should exceed the size of the regular repayments. But it does not guarantee this – even though it is often used in marketing, it is in fact not a rule but a guideline. The repayments include interest on the finance and are made through the electricity bill (although most savings will be seen through the gas bill). Repayment periods are most likely to be 10 to 25 years.

Measures covered by the Green Deal include insulation, boilers and glazing but not appliances and lighting. In contrast to CERT, it enables financing of high-cost measures such as solid wall insulation and a householder can take out a package of measures.

Box 1 The supplier obligations – CERT and CESP

From 2008 to 2012 the principal supplier obligation was the Carbon Emissions Reduction Target (CERT). Under this programme, energy suppliers were required to deliver measures that would provide lifetime carbon dioxide savings of 293 million tonnes of CO₂, which equates to the total CO₂ emissions that all homes would generate in nearly 4.5 years²⁷. Consumers received help with low-cost measures, principally loft and cavity wall insulation, which were provided at a heavily discounted price or even free.

The smaller Community Energy Saving Programme (CESP) ran from 2009 to 2012 and targeted low-income communities through a 'whole house' approach, often including solid wall insulation. This set out to deliver a smaller carbon reduction target²⁸.

Energy companies delivered these programmes themselves or through partnerships with retailers, housing associations or local authorities. There was a wide variety of schemes.

Box 3 The Energy Company Obligation (ECO)

The ECO started in January 2013 and runs until March 2015³⁰. Energy suppliers must meet their ECO obligations through delivering measures themselves, through partnerships or they can trade with Green Deal Providers (companies accredited to provide Green Deal finance) through a brokerage scheme. There are 3 elements:

- 1 The Affordable Warmth (or Home Heating Cost Reduction) Obligation to help low-income households with basic insulation and heating measures. The obligation is to deliver home heating cost savings to households of £4.2 billion in total. It is estimated to cost energy bill payers £350 million per year³¹.
- 2 The Carbon Saving Community Obligation to deliver insulation measures, mostly loft and cavity wall insulation, in low-income communities. The target is 6.8 million tonnes of CO₂ saved. It is estimated to cost energy bill payers £190 million per year.
- 3 The Carbon Saving Obligation (or Carbon Emissions Reduction Obligation) which supports primarily the high-cost measures of solid wall and hard-to-treat cavity wall insulation. Subsidy from this element of the ECO can be combined with Green Deal finance to enable these measures to meet the 'Golden Rule'. The target is 20.9 million tonnes of CO₂ saved. It is estimated to cost energy bill payers an estimated £760 million per year.

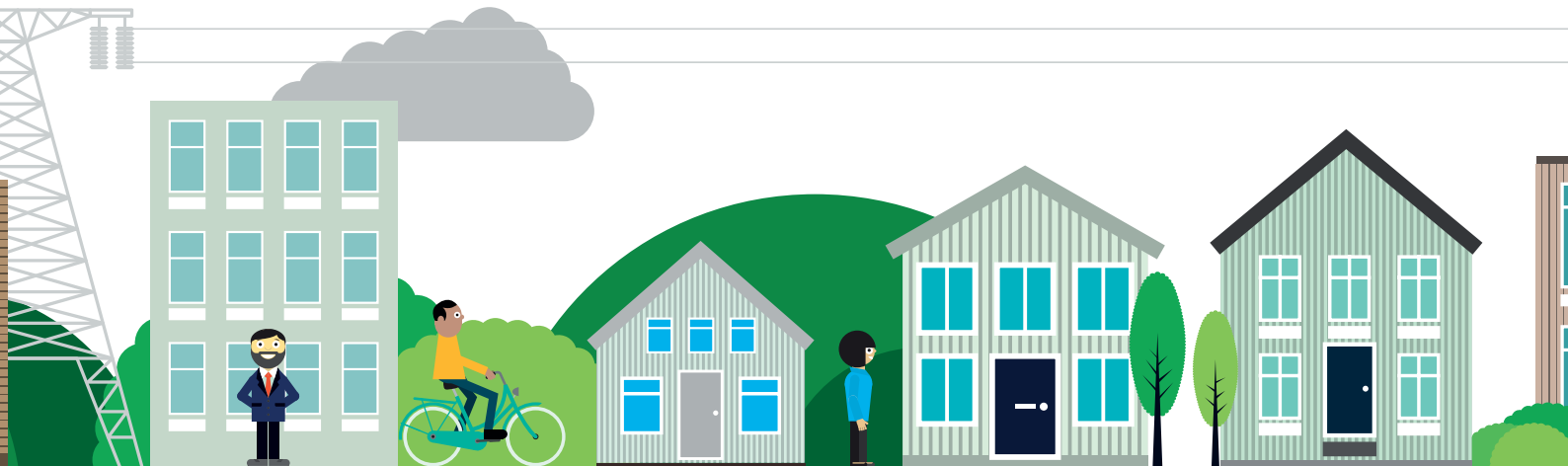
Measuring the success of energy efficiency programmes

Chapter 1 set out the value of energy efficiency and how it is being funded in the UK – by consumers. This spend from bills should be justified and scrutinised in the same way as taxation. As well as monitoring the cost, government should have mechanisms in place to evaluate the effectiveness of these programmes.

This chapter explains how energy efficiency policies should be evaluated. Some relevant criteria are already monitored but additional criteria and more rigorous evaluation are urgently required. The following indicators should be monitored:

- Carbon savings
- Energy savings
- The cost and value for money of policies
- The impact of policies on fuel poverty
- Rates of installation of key insulation measures
- Rates of installation of energy-efficient windows
- Rates of installation of efficient heating systems including condensing boilers
- The level of home energy ratings
- Sales and use of energy-efficient appliances and lighting
- Consumer engagement in energy efficiency and relevant consumer behaviour.

In Chapters 3 and 4 we assess recent policies against these criteria and in Chapter 5 we look ahead to the likely impact of the new policies.



2.1 Carbon savings from policies

What should be measured and why is it important?

Carbon savings must be monitored to enable the government to measure progress towards carbon reduction targets in policies as well as the national, legally binding carbon targets.

True assessment means monitoring actual – not theoretical – CO₂ savings from each energy efficiency programme, as well as aggregate carbon emissions from the domestic sector.

Compliance checks are needed on all types of measures and products installed both in terms of the quality of the installation (e.g. for insulation) and whether energy-efficient products are being utilised (e.g. for energy-saving lightbulbs).

Has this been monitored to date?

Ofgem monitored progress towards the CERT and CESP carbon reduction targets and has the same responsibility for the ECO. Under the monitoring of CERT and CESP, carbon savings were reported by energy suppliers to Ofgem using carbon scores for each measure set by DECC. Allowance was made by DECC for potential underperformance of insulation measures through applying a 'reduction factor' of 50%, as studies suggested that actual savings in the field are less than theoretical savings³². Carbon (and energy) saving calculations under the ECO will continue to allow for this gap, although with updated 'in use' factors³³ from DECC's new analysis of actual energy savings (section 2.2 below). These factors will be applied to individual Green Deal assessments and will help to ensure that the consumer is given a more accurate estimate of the actual savings they are likely to get. The Government has stated that it intends to monitor actual carbon savings resulting from Green Deal and ECO³⁴. Ongoing analysis will be needed to ensure that these factors are set at the correct level and that reported carbon savings reflect the reality.

Under CERT, Ofgem monitored samples of insulation installations and products to check that savings were realised in

practice. However, these compliance checks were insufficient to ensure that carbon (and energy) savings were genuine for products where savings depended on consumers fitting and using them – such as the 453 million lightbulbs distributed under supplier obligations. (We assess the implications of this in Chapter 3.) This particular issue does not arise for the ECO or the Green Deal as appliances and lighting are not eligible for these programmes.

What's missing from current monitoring?

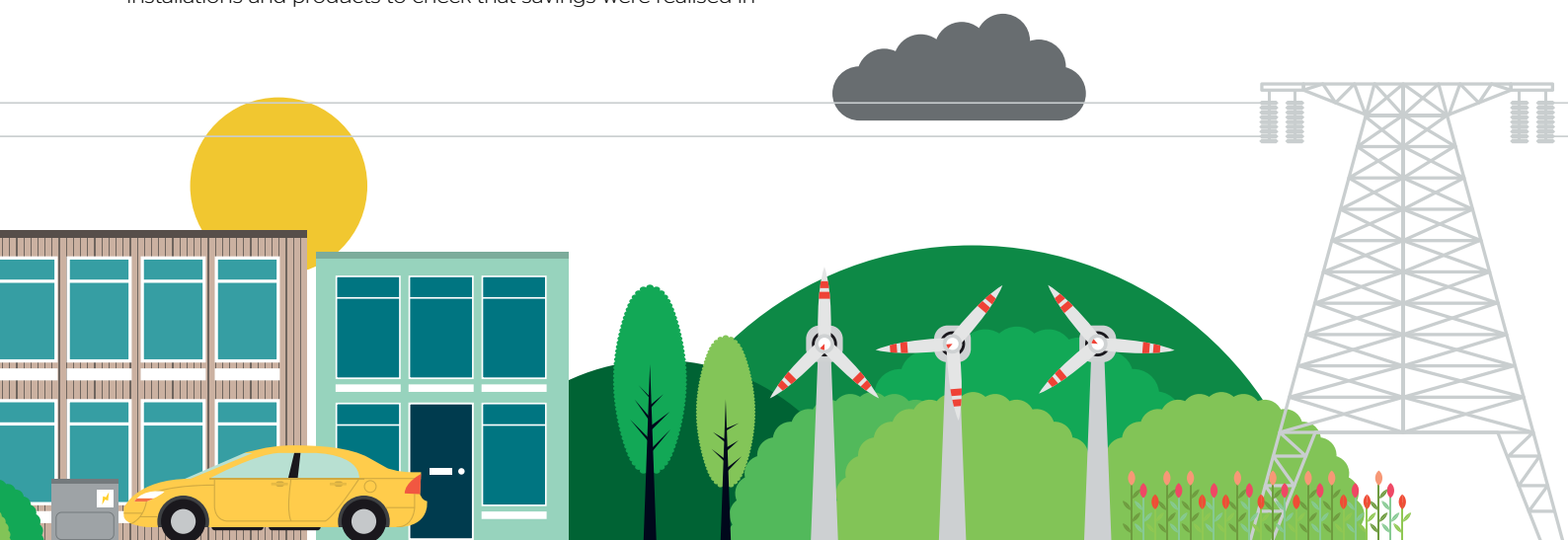
It is not yet clear how the Government will monitor actual carbon savings so that it can measure savings genuinely attributable to the Green Deal or ECO (section 2.2). DECC must urgently clarify this. DECC has stated that because this monitoring will require comparison of pre- and post-installation energy usage, the necessary time lag means that results will only start to be available in 2016³⁵. But 2016 is far too late to inform useful evaluation of the Green Deal, so DECC must ensure that results are available earlier.

2.2 Energy savings from policies

What should be measured and why is it important?

Although there is a correlation between carbon and energy savings, measuring carbon savings alone is not enough. As we move towards more low-carbon forms of energy, carbon savings will become a less-effective proxy for overall reductions in energy consumption.

It is crucial to monitor actual energy savings, not predicted savings, as these determine the eventual reduction in people's energy bills. This requires arrangements to be set up at the beginning of the programme for collection of baseline data to enable analysis of the 'before' and 'after' scenarios. It is not sufficient to evaluate only energy consumption levels because





Insulation is critical for the energy efficiency of homes as it reduces heat loss. Homes that have uninsulated lofts or walls cannot use their energy efficiently, regardless of the household's behaviour

these can be influenced by factors including the weather and changes in household circumstances such as a change in the number of people in the household.

This monitoring will be particularly important for the Green Deal as the level of savings is not guaranteed and customers may expect the 'typical' saving even if this does not apply to them (section 5.5).

Savings must be monitored by government on a programme-specific basis to give policy makers an understanding of what approaches work best and what the problems are. Only then can they make improvements to maximise savings for consumers. Government must also check whether these savings are being sustained, particularly for measures such as smart meters – and the In Home Displays (IHDs) that show how much electricity and gas is being used in the home at a given time – where effectiveness depends on consumers using them.

Has this been monitored to date?

The evaluations of CERT and CESP could not assess energy savings due to the lack of monitoring³⁶. But since 2011 DECC's National Energy Efficiency Data Framework (NEED) has provided new analysis from a number of national data sources³⁷ to show observed savings in gas consumption from key energy efficiency measures³⁸. DECC plans to use NEED data to help monitor actual energy savings from the Green Deal and ECO.

The evidence base is improving around the effectiveness of

smart meters with IHDs in reducing energy consumption. The Government estimates that the annual savings expected from their mandatory national roll-out will be 2.8% for electricity and 2% for gas³⁹. But further government studies are needed to assess the extent to which savings are sustained over time. Given the high costs of this programme⁴⁰, monitoring needs to be strengthened to ensure there is accurate evidence for its benefits. Further trials in homes are ongoing.

What's missing from current monitoring?

It is unacceptable that a monitoring system was not put in place at the outset of the CERT and CESP programmes to monitor the 'before' and 'after' savings attributable to the programmes.

And a comprehensive monitoring system for the Green Deal is not yet in place. DECC has said it will compare pre- and post-installation energy usage⁴¹ and will seek to ensure that all variables are controlled in the analysis to ensure accurate measurement of the energy savings attributable⁴². However, using data from NEED would not appear to be sufficient to exclude other influencing factors, such as changes in household circumstances. In July 2013, DECC stated it was still considering how to monitor the financial savings from Green Deal plans⁴³ and as yet has not published a Green Deal evaluation plan⁴⁴, which is a significant omission and major concern.

2.3 Cost and value for money of policies

What should be measured and why is it important?

It is crucial to know how much policies are costing, particularly as consumers are paying for them. Monitoring and evaluation of the costs and benefits is needed to show whether policies are cost-effective - delivering maximum 'bang for buck' energy savings - and value for money for consumers. Demonstrating the cost of reducing carbon (£/tonne of CO₂ saved) enables policy makers to decide whether the policy is the best way to achieve the objective relative to alternative approaches.

Has this been monitored to date?

There is a serious lack of monitoring and quantification of the costs of energy efficiency programmes in the UK and internationally⁴⁵. Energy efficiency measures have been shown to cut consumption and the programmes to deliver these measures are commonly accepted to be cost-effective (section 1.1 above). There are a few examples of cost-evaluations of programmes but at a national level there has been insufficient cost monitoring of programmes. No monitoring system was put in place to measure the costs of delivering CERT and CESP and evaluate their cost-effectiveness.

What's missing from current monitoring?

The lack of data and cost reporting systems must be addressed urgently. Under CERT and CESP suppliers were not required to report how much it cost them to deliver the programmes or to disclose how costs were allocated to consumers in their bills. Because of this lack of evidence, the evaluations of CERT and CESP could not assess how costs compared to those expected or how these costs were passed on to householders⁴⁶. This must not continue for the new policy of the ECO. The impact on bills for the average consumer and on the fuel poor must be made clear.

DECC has put in place a more robust monitoring system for ECO than existed under CERT. This includes monthly reporting by suppliers to Ofgem of cost data as well as of the number of measures delivered⁴⁷. This is an improvement but suppliers still have discretion as to how they pass on costs: although the ECO targets are set according to energy sales volume, there is no requirement on suppliers to pass on costs in line with their customers' consumption. Nor are suppliers currently required to report costs passed through to consumers' bills. DECC has been reported as stating that it wants energy companies to report delivery costs and costs passed through and for this data to be published⁴⁸. DECC must urgently put this system in place and commit to publication of the findings. These costs should then be scrutinised independently of government to assess cost-effectiveness and value for money.

2.4 Impact on fuel poverty

What should be measured and why is it important?

Energy efficiency of homes is an important factor influencing fuel poverty⁴⁹; energy efficiency programmes are one of the most cost-effective ways to address it⁵⁰. CERT, CESP and Warm Front all had fuel poverty objectives, as the ECO now does. For example, CERT required a minimum percentage of the carbon savings target to be delivered to low-income and vulnerable households.

As well as measuring the positive impacts of energy efficiency programmes towards alleviating fuel poverty, government must measure the negative impact when policies are paid for out of bills. Costs for CERT and CESP were likely to have been borne disproportionately by low-income households because government assumed that energy suppliers passed on costs to consumers on a flat rate per customer, rather than according to energy consumption⁵¹. This is a regressive way to fund social programmes as low-income consumers spend a much higher proportion of their income on energy⁵². And, as stated above, suppliers remain free to decide how they pass on ECO costs - there is no requirement on them to pass on costs in line with their customers' consumption.

Has this been monitored to date?

The progress against CERT and CESP targets of delivering measures to low-income households was monitored by Ofgem, with reports published regularly during and at the end of the programmes. There were also regular progress reports on the Warm Front programme. DECC now plans to monitor a breakdown of the households receiving funding from the ECO Carbon Saving and Carbon Saving Communities obligations by income decile⁵³. It also plans to monitor Green Deal take up by the fuel poor. These reports have been and should be sufficient to show the number of measures delivered under policies and the number and profile of people helped. But there is no way of knowing what proportion of CERT spending went to fuel poor households because of the lack of cost monitoring. And the cost-effectiveness of the targeting of these households is also unknown.

Similarly, there has been no monitoring of the impact of the costs of CERT and CESP on the energy bills of the fuel poor, even though they have cost consumers billions of pounds.

What's missing from current monitoring?

The Government must monitor what proportion of ECO spending is benefiting fuel poor households. It must also put in place robust cost-monitoring systems - including of how costs are passed through - to measure the impact on bills of low-income households as well as consumers overall (section 2.3).

2.5 Number and quality of insulation installations

What should be measured and why is it important?

Insulation is critical for the energy efficiency of homes as it reduces heat loss. Homes that have uninsulated lofts or walls cannot use their energy efficiently, regardless of the household's behaviour. Reflecting this, government previously set targets for the insulation of lofts, cavity walls and solid walls although the current status of these is unclear (Chapter 5). It is necessary to monitor the number of installations of key types of insulation (solid wall, cavity, loft and floor⁵⁴) as these are among the most effective measures. These must be measured overall and by programme.

In addition to monitoring the number of insulation installations, it is necessary to assess the quality of the installation. With a low-quality installation, a consumer is likely to save less on their energy bills than they expected and fail to get value for money. Consumers may also face problems that could require expensive remedial work. Quality problems need to be reported early to enable prompt, corrective action.

Accurate information on how many homes remain without insulation and how much of this remaining potential is easy-to-treat (i.e. cheaper) or hard-to-treat (more expensive) is needed to assess the level of need and cost, and so the best form of financial support. This requires numbers of new installations, as well as baseline data, on uninsulated homes.

Has this been monitored to date?

There was regular monitoring by government, Ofgem and the Energy Saving Trust of the number of installations of loft, cavity wall and solid wall insulation under each of the CERT, CESP and Warm Front programmes⁵⁵. Government and Ofgem will continue this monitoring under the ECO. Under the Green Deal, numbers of installations are reported by Green Deal certification bodies⁵⁶ but DECC has not yet published information on how it will collate these or report on them.

There was also monitoring of the quality of insulation installations under CERT. Energy suppliers were required to provide to Ofgem on a regular basis the results of checks by independent monitoring agents on a sample of insulation installations⁵⁷. Yet only at the very end of CERT did Ofgem publish 'failure rates' (i.e. incidence of problems with the quality of installation and failure to follow procedures) for loft and cavity wall insulation (section 3.5)⁵⁸. This meant there was no transparency or public scrutiny during the programme. Even then, this data did not include a failure rate for 'major' failures – such as insulation blocking air vents, as opposed to minor issues such as cosmetic flaws – or a comparison of performance across energy suppliers⁵⁹.

A similar quality monitoring regime is in place for the ECO. For the Green Deal, the Green Deal Oversight Body and Certification Bodies will conduct audits of Green Deal providers (Box 7, Chapter 5) and installers respectively⁶⁰ but DECC must clarify how it will ensure that procedures for checking samples

of installations are robust.

Across the wider housing stock, housing surveys estimate the levels of insulation by type and tenure of property, such as in the private rental sector or in flats. Yet there has been considerable debate over some of the assumptions made about the proportions of the remaining uninsulated homes which are easier- or harder-to-treat, and therefore the accuracy of the Government's estimates of how many lofts and cavities remain to be insulated and at what cost (section 3.5).

What's missing from current monitoring?

While the quality of insulation installations has been monitored, the reporting of the findings has been insufficient. There must be better reporting of the scale of problems under the Green Deal and ECO and the impact of these problems, such as lost savings. This should be combined with a mechanism to identify the reasons for problems. This can enable systemic failures to be remedied by government. Unlike with CERT, Ofgem must make available full data during the ECO programme on the 'failure rates', including rates for major problems.

On the number of uninsulated homes that remain, expert, independent assessment is required of all the evidence available and the Government's recent methodological changes (section 3.5). This is needed to provide a clearer picture of how many homes require easy- and hard-to-treat insulation as the costs to consumers are very different in each case.

2.6 Installation of energy-efficient windows

What should be measured and why is it important?

10 to 20% of heat is lost through single-glazed windows in an uninsulated home, so it is necessary to monitor the number of installations of double- and triple-glazing. CERT and CESP provided funding for replacement windows but – unlike other types of insulation – many windows were replaced outside these programmes for reasons other than energy efficiency, such as noise reduction. So in order to provide a broader indication of the rate of replacement, it is necessary to monitor progress in the housing stock generally as well as through energy efficiency programmes.

Has this been monitored to date?

Window replacements were recorded under CERT and CESP, and this will continue through Ofgem's monitoring of the ECO. An indication of the rate of glazing improvement in the housing stock is included in the English house condition survey⁶¹. This measurement is sufficient in England but additional monitoring may be required in Scotland, Wales and Northern Ireland.



It is important to monitor boiler replacement rates because space and water heating account for such a high proportion of energy use and gas-fired boilers are by far the most common heating system

2.7 Installation of efficient heating systems such as condensing boilers

What should be measured and why is it important?

It is important to monitor boiler replacement rates because space and water heating account for such a high proportion of energy use and gas-fired boilers are by far the most common heating system⁶². This requires measurement of the overall rate of replacement of old boilers with new, efficient ones. Because the amount of energy used for heating depends not just on the efficiency of the heating system but also on whether it is used effectively, monitoring must extend to heating controls. It should include: the rate of installation of heating controls; the number of homes remaining without a full set of heating controls (a timer/programmer, a room thermostat and thermostatic radiator valves); and whether consumers are using them effectively.

This monitoring should be complemented with measurement of the overall energy use for space heating and hot water. This must be split by gas and non-gas heating. A significant number of consumers have heating systems powered by other fuels, such as electricity and oil, and they tend to pay much higher costs⁶³. In future, more consumers are likely to move to renewable heat sources, such as heat pumps. To track the proportion of consumers paying higher costs in homes not heated by gas, as well as the progress towards low-carbon technologies, it is necessary also to measure the amount of non-gas fuel consumed.

Has this been monitored to date?

The government monitored the rate of replacement of heating systems and heating controls through housing surveys, and under schemes such as CERT, CESP and Warm Front. Numbers of boilers and other heating systems installed will continue to be reported to Ofgem under the ECO. Under the Green Deal, numbers of installations are to be reported by Green Deal certification bodies⁶⁴ but DECC has not yet published information on how those are to be collated and reported in aggregate. The Committee on Climate Change monitors rates of boiler installation as part of its monitoring of progress towards meeting carbon budgets⁶⁵.

At an aggregate level, government also monitors the type of heating systems in homes⁶⁶ and the amount of energy consumed, including by fuel⁶⁷.

What's missing from current monitoring?

Although there is data on how many homes have installed heating controls in recent years, there is a lack of baseline data on the number of households who remain without them⁶⁸. A recent literature review found that sources disagree on estimated savings of controls and vary in their estimate of the costs of controls and thus their cost-effectiveness⁶⁹. For example, the Energy Saving Trust estimates that installing a room thermostat saves on average £70 a year but DECC's recent estimates are of typical savings of only £25 a year⁷⁰. A consistent evidence base needs to be developed by government, with help from industry, on the costs and benefits of controls. This will require monitoring of the effectiveness of different types of controls in practice in consumers' homes. This should complement the new work that DECC has started to assess the potential of advanced heating controls⁷¹.

2.8 Home energy ratings

What should be measured and why is it important?

Home energy ratings measure the energy performance of homes based on an in-home assessment of the property. They are useful as a general indicator of the efficiency of the individual property and the housing stock as a whole, and so of the success of policies promoting insulation, boilers and glazing. At an aggregate level they are useful to identify the most inefficient homes, including by the type of property and tenure, such as private rental. This can help design policies to target 'leaky' homes. At an individual property level, they are used by home buyers and renters as these ratings are included in Energy Performance Certificates (EPCs) which must be made available to people buying or renting a property⁷² and which are to be used in Green Deal assessments (Box 7 in Chapter 5 below). EPCs recommend measures that could be installed and provide indicative estimates of the costs and savings from doing so.

Has this been monitored to date?

EPCs are lodged on the national EPC register and individual EPCs are available to registered users. The ratings also form part of government housing surveys which show the energy performance of the UK's housing stock⁷³.

What's missing from current monitoring?

The home energy ratings are theoretical, modelled ratings, which assess only the energy performance of the building not the actual energy consumption of the people who live in it. They use the government's Standard Assessment Procedure (SAP) methodology⁷⁴ which assumes 'typical' levels of occupancy and heating behaviour and most versions of SAP exclude use of electricity from appliances. As such, the EPC is of limited quality and as a result these ratings are not necessarily an accurate indicator of total energy used or the savings that would be realised in the individual home if the individual followed the recommendations on the EPC. Prospective home buyers or renters need to be aware that these savings estimates are only indicative (section 5.5 below).

2.9 Sale and use of appliances

What should be measured and why is it important?

It is important to measure how many appliances are sold, how they are used and how much energy is used as a result. People are buying more appliances and gadgets⁷⁵ and using them more⁷⁶. This means higher electricity bills even though individual appliances are more efficient. This requires monitoring of sales by category of appliance and in aggregate, and monitoring of sales of energy-efficient appliances as a proportion of sales of their product category. Measuring the latter shows the success of policies to encourage consumers to buy products that are more efficient and so have lower running costs⁷⁷.

The sale and use of appliances also impacts levels of carbon



emissions. The Committee on Climate Change includes market penetration of efficient 'cold' and 'wet' appliances – i.e. fridges and freezers, washing machines and dishwashers – in its residential indicators.

Has this been monitored to date?

Government collects sales data for some categories of appliances, and uses modelling to estimate sales for others⁷⁸. Government uses this data to estimate the electricity consumption by appliances, in total and by product type, and reports this regularly⁷⁹.

DECC, Defra and the Energy Saving Trust have recently conducted a useful survey of appliance use which provided insights into how many appliances homes have, and how often they are used and left on standby⁸⁰. A further study is planned⁸¹.

What's missing from current monitoring?

The Committee on Climate Change found no data to assess the sale of 'cold' and 'wet' energy-efficient appliances for 2011 or 2012 due to a lack of monitoring by government⁸². The Government responded that it does not routinely monitor sales, except to inform negotiations when relevant regulations are being reviewed⁸³. Monitoring of market penetration of efficiency appliances across the range of products would enable the fuller picture that is needed.

2.10 Consumer engagement and behaviour

What should be measured and why is it important?

For these policies to be a success, consumers need to be open to changing their behaviour. They need to be receptive to installing energy efficiency measures and then take action to

do so, as well as buying replacement products that are more efficient and using them in the most effective way – such as by not heating unused rooms and not leaving appliances on standby. This requires a significant amount of consumer engagement and the level of this must be monitored and evaluated. Monitoring must assess whether claimed willingness to act is translating into action and show which consumers have changed their behaviour and how. It should include assessment of how satisfied consumers are with the measures they have installed, the effectiveness of the advice given by installers, and whether consumers are using products and controls effectively.

This is essential to show whether the programmes are addressing the full range of consumer barriers, financial and non-financial, and encouraging consumers to take them up. This will be particularly important for the Green Deal given its novelty and complexity. This evaluation should complement monitoring of numbers of measures and products. For example, even with efficient boilers, gas consumption can vary dramatically between comparable households with much of the variation influenced by behavioural factors⁸⁴.

Has this been monitored to date?

DECC runs regular surveys to track public attitudes to energy, including questions on energy efficiency. These surveys are limited in the insights they can provide into behaviour, as what consumers claim does not always reflect the reality. However, recent research by DECC has strengthened the evidence base regarding which behavioural changes can save most energy and what approaches work in changing behaviour⁸⁵.

It is at the level of individual programme evaluation that monitoring has been lacking. Without the necessary baseline data for a control group as well as those affected by the policy, the retrospective CERT evaluation was unable to conclude whether consumers would have taken action in the absence of the programme⁸⁶.

What's missing from current monitoring?

Government will monitor a range of Green Deal indicators such as consumer awareness. However, it has not committed to monitor 'drop out' rates during the Green Deal process nor reasons for consumers not progressing. DECC is committed to monitoring consumer satisfaction⁸⁷ but, at the time of publication, was still considering the methodology for doing so even though the Green Deal was launched in January 2013.

2.11 Conclusions

Which? recognises the importance of monitoring carbon emissions, but emphasis has been placed on this at the expense of getting a full and complete picture of the success of energy efficiency policies. Our assessment of monitoring to date and for the new policies is summarised in Table 2.

The costs of these policies – and whether they are delivering value for consumers – should be at the heart of the government's monitoring. They must be monitored as

Table 2 Key indicators for energy efficiency programmes

Indicator	Monitored to date	To be monitored
Carbon savings	✓	✓ but clarity needed on actual savings
Energy savings	✗ partial, lack of baseline for programmes	✓ but clarity needed on actual savings
Cost and value for money	✗	✓ delivery costs ✗ costs passed to consumers - no commitment
Impact on fuel poverty	✗ partial, not negative impact on bills	✗ partial, not negative impact on bills
Number of installations	✓	✓
Quality of installations	✓ but lack of transparency	✓ greater transparency needed
Consumer engagement and behaviour	✗ partial, lacking at programme level	✗ partial, unclear for Green Deal

rigorously as would be the case if they were funded by taxation, and this must be open to public scrutiny. Not enough attention has been paid to the effectiveness of individual policies and programmes in delivering energy and energy bill savings. Monitoring of the number of measures installed has been more extensive, but even there a clear picture is lacking of whether uninsulated homes could benefit from cheaper or more expensive insulation.

DECC has promised to put in place more robust monitoring of ECO delivery costs. However, it has still not made clear what is being monitored and what will be reported. And we have yet to see a commitment from DECC to measure costs passed through to consumers in their bills. The scope of planned Green Deal evaluation and reporting is also largely unknown, even though the Green Deal was launched in January 2013. At the time of publication, DECC had not published any evaluation plan. This is a huge omission for the Government's flagship energy efficiency policy. It is essential that monitoring is able to determine whether Green Deal customers are seeing the energy savings that they are promised.

In the following chapters we assess the success of recent policies against the indicators described in this chapter.

How well have policies worked to date?

In the previous chapter we set out the criteria needed to assess the success of energy efficiency policies. These criteria are important not just to determine whether government policies are meeting their carbon reduction and fuel poverty objectives but also to ensure that the most cost-effective options are pursued. This is particularly important given that consumers foot the bill for these policies. These criteria can provide certainty that real savings are being provided to consumers and that policies are delivering value for money overall.

The key criteria are:

- Carbon savings
- Energy savings
- The cost and value of policies
- The impact of policies on fuel poverty
- Rates of installation of key insulation measures
- Rates of installation of energy-efficient windows
- Rates of installation of efficient heating systems including condensing boilers
- The level of home energy ratings
- Sales and use of energy-efficient appliances and lighting
- Consumer engagement in energy efficiency and relevant consumer behaviour.

Below we assess the progress of recent policies against each of these criteria. The policies we have analysed include the supplier obligations CERT and CESP (see Box 1), also Warm Front, the UK building regulations that require efficient boilers and windows, and EU product standards for appliances and lighting (3.9 below). This chapter does not assess the new Green Deal and ECO policies which started in 2013. They are assessed in Chapter 5.

3.1 Due to inadequate monitoring it is not possible to be confident of the true level of carbon savings

The total carbon reduction target for CERT was 293 million tonnes (lifetime) of CO₂; for CESP it was 19.25 million tonnes⁸⁸. Four suppliers met the main CERT target and two suppliers, British Gas and SSE, achieved just under 99% of their main target for CERT. Two suppliers, British Gas and Scottish Power, fell short of their CESP targets by some margin (section 3.4 below).

However, the monitoring that was in place does not provide enough certainty on whether the reported carbon savings were achieved in practice. This was a particular problem where products required consumers to install them, such as energy-saving light bulbs or low-flow shower regulators, or to change their behaviour, such as real-time displays (energy monitors). The compliance checks did not confirm whether consumers actually installed and continued to use these products. The only check was a questionnaire sent by suppliers to a small sample (1%) of consumers asking whether they had installed or intended to use the measures.

The results of monitoring were also clearly acted on far too late. The complete failure of this approach is best illustrated through the compact fluorescent lightbulb (CFL) debacle. Nearly 304 million CFLs were distributed under CERT. These CFLs were in addition to the 148.8 million distributed under the supplier obligations in place in 2002-08⁸⁹, giving a total of 453 million lightbulbs distributed, or an average of 17 per household⁹⁰. For some time, these could be distributed through mail-outs even if consumers did not request them. This means that they might not have been wanted or suitable for the consumers' light fittings. Action was eventually taken to restrict and then remove CFLs from the programme but it came too late. And even now, due to the lack of cost monitoring, there is no way of knowing the amount of CERT subsidy spent on these products - so it is impossible to tell, but unlikely, that it provided



value for money.

CERT also subsidised the sale of 30.5 million energy-efficient televisions⁹¹. Even though the claimed carbon savings were small, the extent to which the money spent here led to genuine, additional carbon savings must be doubtful. For example, the consumer might have bought a more efficient appliance anyway or the subsidy might even have encouraged them to buy a larger or additional product such as a second or third television, which would have increased the level of carbon emissions.

3.2 The actual energy savings achieved are still uncertain

The total amount of energy used by all UK homes has increased: this is partly due to the increase in the number of homes and the continuing trend for smaller households⁹². But, at a per household level, there has been an overall reduction of 20% in total energy consumption since 1990⁹³. A key

contributor has been the 20% reduction in the amount of energy used per household for space heating since 1990 (section 3.7)⁹⁴.

However, the evaluation of CERT and CESP found that there was not enough evidence available to assess the actual impact of measures installed through these programmes on household energy use⁹⁵. Only around half of CERT customers surveyed said that the insulation measures had reduced their energy bills. But this could be because rises in energy prices over recent years made it difficult for them to judge whether real savings had actually been made⁹⁶.

More recent data shows the observed, actual savings from households that had installed measures in 2008 and 2009, including through CERT, CESP and Warm Front. Savings were considerably lower than expected. For example, actual savings from cavity wall insulation were 1,700 kWh per year which was only 56% of the 3,012 kWh expected at the start of CERT and CESP⁹⁷. Cavity wall insulation reduced gas consumption in practice by around 10% on average and loft insulation only reduced gas consumption by about 3%⁹⁸.

The CERT and CESP evaluations were not able to say to what extent factors such as poor quality of installation were

responsible for actual savings from these particular measures being lower than expected⁹⁹. This lack of evidence is a major obstacle to assessing the success of the programme. Evaluation is needed to determine whether, for example, loft savings were lowered by poor quality installation and to assess how standards could be improved in the future. There is a particular lack of evidence on the actual savings from solid wall insulation¹⁰⁰: this was one of the main measures installed under CESP and is one of the key measures needed in millions of homes.

3.3 Complete lack of monitoring means it is impossible to judge cost and value for money

CERT, in theory, delivered energy efficiency to the consumer at low-cost because it incentivised energy suppliers to meet their carbon reduction targets at lowest cost or be penalised in the retail market. It did lead to a focus on lower-cost and cost-effective measures, such as loft and cavity wall insulation. This is appropriate given that CERT was funded from energy bills. However, no-one knows how much CERT cost because there was no cost monitoring: the government did not require suppliers to report their costs of delivery, what they passed on to consumers or how they did this. The evaluations of CERT and CESP for government were not able to find sufficient data on costs to draw any conclusions on actual costs or the costs passed on to consumers in their bills¹⁰¹. The Government estimates that CERT cost £5.5 billion over the period 2008 to 2012, and cost households on average £51 per year at the end of the programme¹⁰² but given there is no system to record the costs this estimate is speculative.

It is unacceptable that there was no cost-reporting system. For consumers, these costs were unavoidable and essentially a form of taxation. It is impossible to know what the impact was on consumers' bills, during a period when bills increased significantly and consumers were subjected to increasing financial stress.

It also means that the cost-effectiveness of these policies cannot be assessed and their value for money compared with other policy options is not known: we assess this further, along with the implications for the ECO, in Chapter 5. Assessed solely on the basis of the cost to deliver carbon savings (i.e. without taking account of wider benefits to society such as health benefits), and using the speculative estimate of a £5.5 billion cost for CERT, its cost per tonne of carbon saved would be around £18¹⁰³. This is consistent with the few cost figures publicly available from suppliers for CERT – not independently assessed – with one example being in the range of £11 to £22 per tonne of CO₂ saved¹⁰⁴. This compares favourably with a rare instance of a programme evaluation which included a cost assessment: the 2010 boiler scrappage scheme in England. Although popular, this was much more expensive, at an

The government estimates that CERT cost £5.5 billion over the period 2008 to 2012, and cost households on average £51 per year at the end of the programme

estimated cost (to the public purse as this was funded through taxation) of £204 per tonne of CO₂ saved¹⁰⁵.

Finally, it has been reported – but again not independently assessed – that the cost to energy suppliers of finding customers under CERT was £230 per installation, and even up to £500 for an eligible customer contact in one of the low-income or vulnerable priority groups¹⁰⁶. This £500 is as much as the cost of installation of easy-to-treat cavity wall insulation (section 5.12 below), which raises questions over these costs being proportionate.

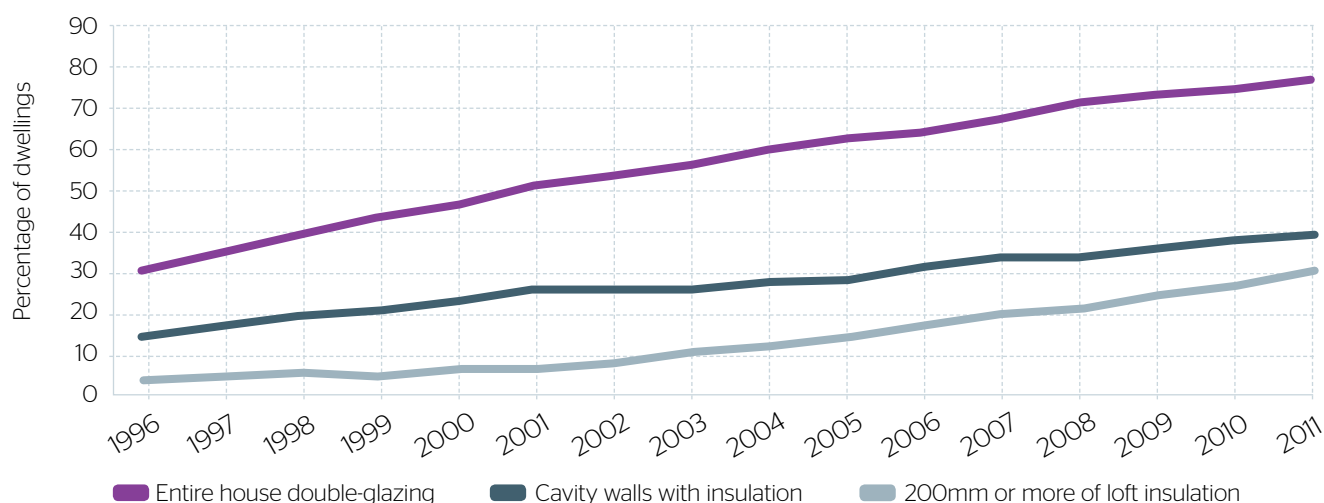
In conclusion, it cannot simply be assumed that CERT is cost-effective or that energy efficiency programmes delivered through suppliers are necessarily the best approach. .

3.4 Several energy suppliers fell short on fuel poverty targets for the CESP and CERT programmes

Three of the major energy suppliers failed to meet their CESP targets for the delivery of energy efficiency measures in low-income areas. Two failed their targets by some margin, with British Gas meeting only 62.4% of their target and ScottishPower 70%¹⁰⁷. One supplier, SSE, failed to meet its CERT target for delivery of measures to the 'Super Priority Group' of the most vulnerable consumers. Therefore, even though consumers paid for these policies out of their bills, they did not receive the help they should have done. This is likely to have had an impact on progress towards national fuel poverty targets for 2016, with targets for 2010 already having been missed¹⁰⁸.

The lack of evidence on the costs of the supplier obligations means it is impossible to evaluate what impacts the CERT and CESP programmes have had on the energy bills of those living in fuel poverty. Nor have Ofgem or the Government published any data on how much was spent on efforts to target those consumers. As stated above (section 3.3), energy suppliers have reported that they have had to pay high costs for finding CERT customers in the priority low-income groups but this data has not been collated and independently assessed.

Figure 3 Insulation measures, England, 1996-2011



3.5 Installation of insulation – progress has been made but more remains to be done

Insulation measures accounted for two-thirds of total carbon savings under CERT¹⁰⁹, with CERT being a key contributor to the steady but slow progress in introducing loft and cavity wall insulation in the British housing stock (Figure 3 illustrates this for England¹¹⁰).

Between its start in April 2008 and its close at the end of December 2012, CERT had delivered nearly 3.9 million professionally-installed loft insulations (i.e. excluding DIY loft insulations) and nearly 2.6 million cavity wall insulations¹¹¹, accounting for around 24% and 19% respectively of all British homes insulated with these measures¹¹². Table 3 shows the number of insulation measures installed in Great Britain under CERT, CESP and Warm Front to December 2012.

Yet there have been problems with the quality of these installations. At the end of the CERT programme Ofgem published data on ‘failures’ which consisted primarily of problems with the quality of installation: almost 11% of the sample of homes monitored showed one or more insulation failures¹¹³. However, data was not provided on how many of these failures were major and what the effect was on energy savings. As a result it is not possible to judge fully the scale or impact of poor-quality work.

Even with millions of installations completed, there is considerable remaining potential for these, often low-cost, measures. DECC estimates that, as at July 2013, as many as 7.4 million homes with lofts (which is 31% of homes with lofts) and 5.3 million homes with cavities (which is 27% of homes with cavity walls) could benefit from insulation¹¹⁵. This remaining loft insulation is mostly ‘top-up’ which delivers lower savings to

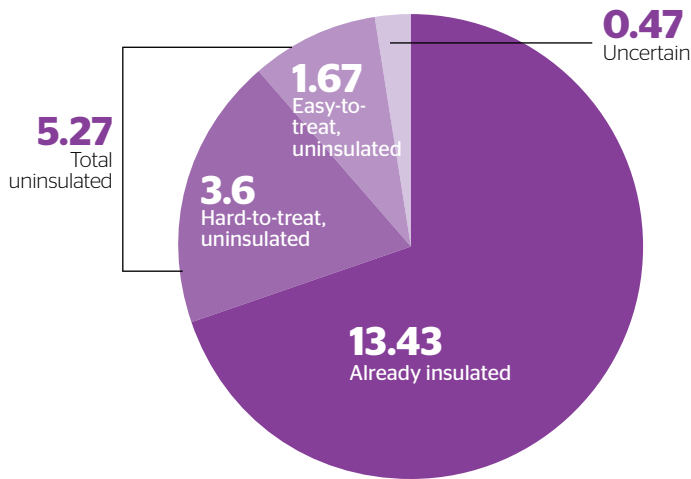
Table 3 Progress in insulating GB homes under CERT, CESP and Warm Front – April 2008 – December 2012 (Thousands)¹¹⁴

	TYPE OF INSULATION		
	CAVITY WALL	LOFT	SOLID WALL
Uninsulated homes in 2008	8,390	13,010	7,925
Insulated homes in 2008	10,030	10,150	65
Number insulated under CERT, CESP and Warm Front	2,600	5,450	139
Proportion insulated in 2008	54%	44%	1%
Proportion insulated in December 2012	70%	68%	3%

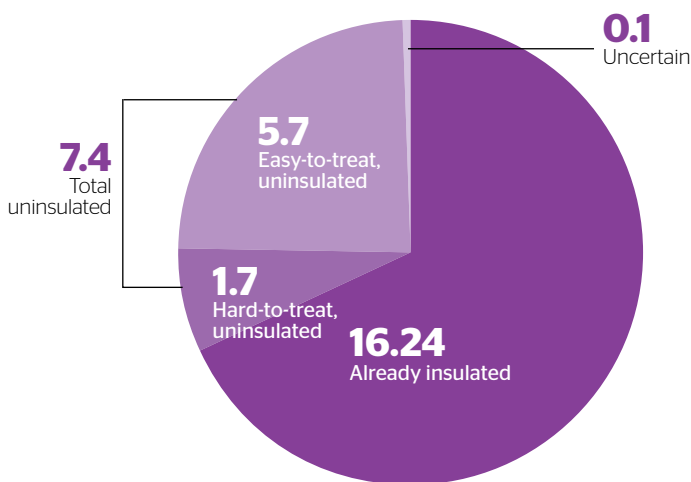


Figure 4 Remaining insulation potential

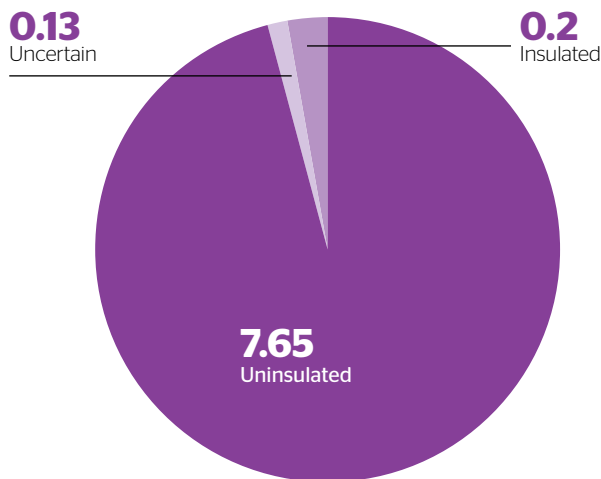
Cavity Wall Insulation, April 2013 (in millions of homes)¹²¹



Loft Insulation, April 2013 (in millions of homes)¹²²



Solid Wall Insulation, April 2013 (in millions of homes)¹²³

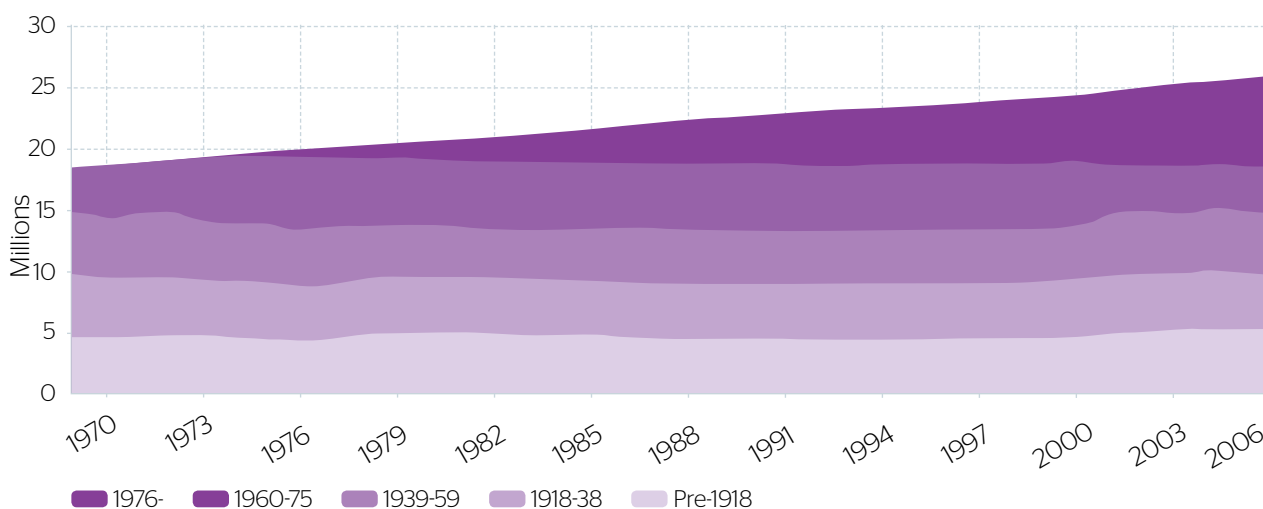


householders (Figure 4 and Table 1) but is still beneficial. Professional insulation of lofts under CERT prioritised lofts with less than 60mm thickness of existing loft insulation, as these received a higher carbon score¹¹⁶. DECC estimates that only 1% of homes with a loft now have no loft insulation at all¹¹⁷.

But by no means can all of these homes be insulated at low cost. Many remaining homes are hard-to-treat, partly because delivery of insulation under CERT has focused on the 'standard', cheaper lofts and cavities¹¹⁸. DECC estimates that 1.7 million lofts (around 23% of the remaining potential) and 3.6 million cavity walls (around 68% of the remaining potential) are hard-to-treat – such as in high-rise buildings, or properties which require remedial work first – or even in some cases unfillable (Figure 4). And DECC estimates that of the 1.7 million easy-to-treat cavity walls left, 0.9 million have 'limited potential'¹¹⁹. However there is a lack of clarity over the remaining potential for lofts and cavities, with recent debate over the accuracy of these estimates and whether they could underestimate the remaining potential¹²⁰.

Solid walls are much more expensive, and disruptive, to insulate and very little progress has been made. Around 30% of the total housing stock has solid walls, yet just under 3% of these have been insulated¹²⁴. CERT delivered 59,000 solid wall insulations (section 3.6 below)¹²⁵, and although CESP had a greater focus on solid wall insulation it was a relatively small and short-lived programme and only delivered 80,000 installations¹²⁶. This has left around 7.7 million homes with uninsulated solid walls¹²⁷. Policies have provided little support for consumers in solid-walled homes, even though the UK has one of the oldest housing stocks in Europe¹²⁸, with around two in five homes built before 1938 (Figure 5). Homes built before the 1920s or 30s typically have solid walls, as do some newer homes. Recent research shows that UK homes rank as poorly as 11th out of 15 in European countries for being 'leaky' and poorly maintained¹²⁹.

Although there has been progress in recent years on loft insulation and cavity wall insulation, even now, after years of heavily subsidised or even free measures¹³¹, at least 14 million out of the 27 million¹³² homes in Britain (around 54%) are not properly insulated¹³³. Installation of measures has also tended to be patchy in terms of parts of the country and types of households. CERT delivery has been low in London and rural areas, for example, where delivery costs have tended to be higher¹³⁴. The CERT evaluation survey suggests that private tenants were only around one-third as likely to have taken up CERT offers than owner-occupiers¹³⁵. This shows that CERT failed to overcome the 'split incentive' where energy efficiency measures primarily benefit the tenant but require investment by the landlord. Other policies have benefited private rented homes, such as the Housing Health and Safety Rating System¹³⁶, but overall the impact has been insufficient.

Figure 5 Age of Great Britain's housing stock¹³⁰

3.6 Regulations continue to drive improvements in glazing

For double and triple glazing, the main driver for improvements has been the Building Regulations under which replacement windows must be double-glazed unless impractical. By 2010, 90% of UK homes had some form of double glazing, which is much higher than for any other insulation measure (Table 3 above)¹³⁷. Since 1983 the proportion of homes with 80% or more of their rooms double-glazed has increased nine-fold, from 9% to 82% in 2010¹³⁸. This is a considerable increase, however, the lack of published data on failure rates of double glazing under CERT (section 2.6) means that it is not possible to judge the quality of installations under this programme.

3.7 More homes have better boilers but many homes still lack full controls

Under Building Regulations new and replacement gas central heating boilers fitted in England and Wales must be high efficiency condensing boilers, unless there are exceptional circumstances¹³⁹. Similar regulations are in force in Scotland¹⁴⁰. As a result of boiler and heating system replacements, average boiler efficiency in homes across the UK has increased from 49% to 77% since 1970¹⁴¹. For example, in England in 2011 38% of homes (8.6 million homes) had a condensing or condensing-combination boiler, up from around 3% in 2004¹⁴².

CERT, CESP and Warm Front all supported the installation of new boilers. To accelerate replacements further, governments in England, Wales and Scotland also ran a boiler scrappage scheme but the evaluation of the English scheme showed that it was an expensive way to save carbon at an estimated cost of £204 per tonne of CO₂ saved (section 3.3 above). The Committee on Climate Change predicts that natural replacement of boilers will lead to their target of replacement of 12.6 million old, inefficient boilers by 2022 to be met ahead of schedule¹⁴³. This suggests that additional scrappage schemes will not be necessary, but progress must be monitored.

On heating controls, progress is less clear. Although nearly 1.45 million sets of heating controls were installed under CERT¹⁴⁴, a survey suggests that 70% of homes in England lack a full set of controls, 30% of homes have no room thermostat that enables consumers to control the temperature in the home and 3% have no controls at all¹⁴⁵. However, although the remaining potential is undoubtedly large, another report suggests that there is still a lack of clear data on how many homes remain without heating controls¹⁴⁶.

As well as the 20% reduction in energy used per household for space heating since 1990 already mentioned, the total amount of energy used for space heating across all homes reduced by 21% over 2004 to 2009¹⁴⁷. But it is not yet clear whether this is a long term trend. Evidence suggests a continuing decline in the amount of energy used for heating hot water too, consistent with reduced heat loss from stored hot water, better lagging of tanks and pipes, and the adoption of more energy-efficient boilers¹⁴⁸.

3.8 Home energy ratings show continued but patchy improvement and highlight where emphasis is needed

The average energy efficiency rating of UK homes has continued to improve, from 40.2 in 1990 to 54.7 in 2010¹⁴⁹. The number of homes in the most inefficient rating bands (F and G) also continues to fall: for example, in England the proportion fell by nearly three quarters between 1996 and 2011¹⁵⁰. The social housing sector has the smallest percentages of homes in these bands: only 3% of local authority and 2% of housing association homes, compared with 8% of owner occupied and 11% of private rented homes. Part of the reason for the lower standards in the private rental sector will be that CERT benefited relatively fewer private rental properties (as set out in 3.5).

Therefore, despite progress across the housing stock and including a large fall in the number of the most 'leaky' homes, improvements have been patchy and new policies need to address the private rental sector in particular. Landlords have made little use of the Landlords' Energy Saving Allowance - where landlords making energy saving improvements can reduce the amount of tax they pay - with low awareness among landlords of this financial incentive¹⁵¹.

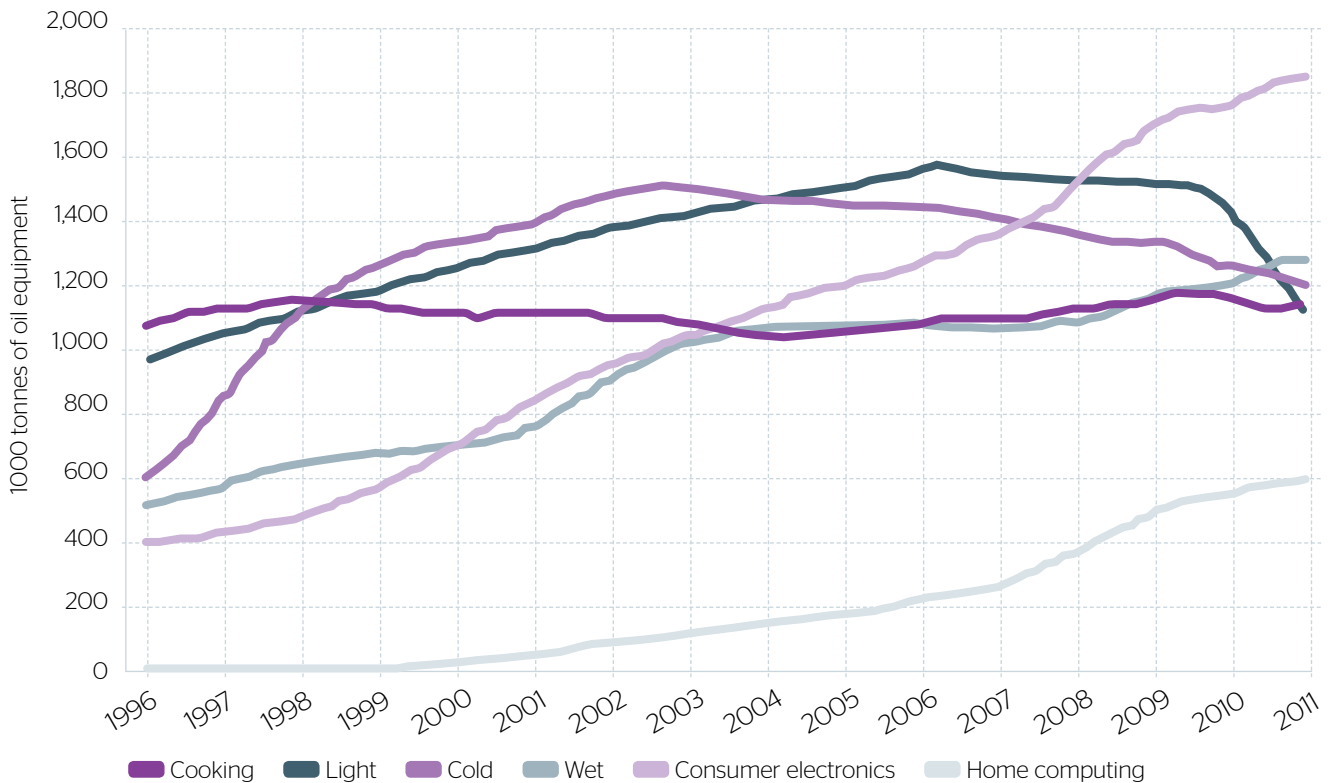
3.9 Regulations to improve the energy efficiency of appliances are not realising their full potential


Electricity consumption in the home from appliances has tripled over the last 40 years, showing an average annual growth of nearly 3% a year. This increase continues but the annual rise may be slowing¹⁵². This increase has been due to more electronic gadgets in homes, increased use of them and greater use of cold appliances to store food¹⁵³.

The biggest increases have been in consumer electronics and home computing, up by 74% and 356% respectively since 1990 (Figure 6)¹⁵⁵. However, use from cold appliances and lighting is now declining due to EU Eco-design regulations (Box 4), with most incandescent bulbs now withdrawn from sale.

The Committee on Climate Change found that UK uptake of energy efficient 'cold and wet' appliances was low in 2010 but, for 2011, due to a lack of monitoring by government or industry, they could not make an assessment¹⁶¹. A more recent report estimated that energy efficient 'cold' appliances made up only 30% of UK sales in 2011, lower than several other European countries, for example compared to 88% in Germany¹⁶². This suggests that sales of efficient appliances are lower in the UK

Figure 6 UK electricity consumption by household domestic appliance, 1970 - 2011¹⁵⁴





Electricity consumption in the home from appliances has tripled over the last 40 years, showing an average annual growth of nearly 3% a year

Box 4 The role of EU eco-design regulations and labelling

EU eco-design regulations set standards for appliances and products such as washing machines, dishwashers, fridges and freezers, electronics such as televisions, and lighting¹⁵⁶. This includes minimum energy consumption performance standards. These regulations work in tandem with the EU energy label which helps consumers to identify the most energy efficient products - the label ratings are based on the energy efficiency requirements.

In 2010 the label changed from a simple A to G format to add new 'beyond A' categories of A+, A++ and A+++; even though Which? research found that UK consumers preferred the old format which they found useful and easy to understand¹⁵⁷. And consumer research subsequently confirms that, when A is at the top of the label scale, it is much more compelling to consumers than when A+++ is top. This shows that this change has weakened the impact of the label on encouraging purchases of more efficient products¹⁵⁸. Because new washing machines, fridges and freezers, for example, already have to be rated at least A+ to be placed on the market, the label changes also mean that 4 out of 7 bands on the A+++ to D scale label for fridges are already empty. Consumers surveyed thought if a label class was shown on the label, that products in that class were still available on the market¹⁵⁹. Yet this is not the case: many classes on the label are redundant.

When replacing appliances it is important that they are efficient models where possible. The 'best in class' A+++ fridge-freezers currently available use only 1/3 of the electricity of the average fridge-freezer found in households, which alone could reduce electricity demand by almost 10% per year in an average household¹⁶⁰.

than elsewhere in Europe but it is not possible to judge this conclusively in the absence of fuller data on UK sales of appliances.

It is too early to judge the full impact of EU product regulations on the UK market. The first regulations only took effect in 2009 and for several products they have yet to come into effect. Government considers that, for the majority of products that have regulations in place, too little time has elapsed for any meaningful impacts to be discerned in the market¹⁶³.

Yet it is clear that regulatory requirements for some products are not being set high enough in the first place, failing to take account of technological developments. An independent report found, for example, that requirements for televisions are at a lower level than many products already on the market and could have been more ambitious¹⁶⁴. There are already washing machines on the market that exceed the A+++ rating by 20%¹⁶⁵. Only one product category has progressed since 2008 beyond the first set of requirements¹⁶⁶: this contrasts with Japan where revisions to energy efficiency requirements are implemented more quickly under a 'top runner' approach that reflects technological progress and rewards competitive innovation¹⁶⁷.

Further, the development of regulations has taken four years on average for each type of appliance. Regulations for boilers and water heaters were discussed for over seven years and agreed four years behind schedule¹⁶⁸. Limited resource in the Commission has been found to be a significant contributory factor for these major delays¹⁶⁹.

These factors strongly suggest that the full potential of regulations is not being achieved. As a result, some new appliances on sale are less efficient than they could be.

The potential of the EU energy label - which informs consumers about the energy rating of appliances - is also not being fully realised. Consumer research suggests that the change to an 'A+' format has weakened the impact of the label in encouraging purchases of more efficient products (Box 4). Often, the energy label is not even displayed as required. Mystery shopping by the National Measurement Office in 2012 found that, of the appliances assessed in stores, 34% of labels were missing while 6% were mislabelled¹⁷⁰. Even though clear evidence of reduced running costs (i.e. energy bills) was the most important single consideration that UK consumers said would change their behaviour towards more energy efficient products¹⁷¹, this information is not displayed on the label (where there are practical difficulties in doing so¹⁷²) or at the point of sale.

3.10 Consumer engagement - progress has been limited

Even with continuing concern over energy bills and many years of energy supplier obligations, energy efficiency is still not at the forefront of people's minds. For example, our research has found that many people who have taken some action to save energy in the past two years, but have not installed insulation, think they are already doing enough. Within the same time

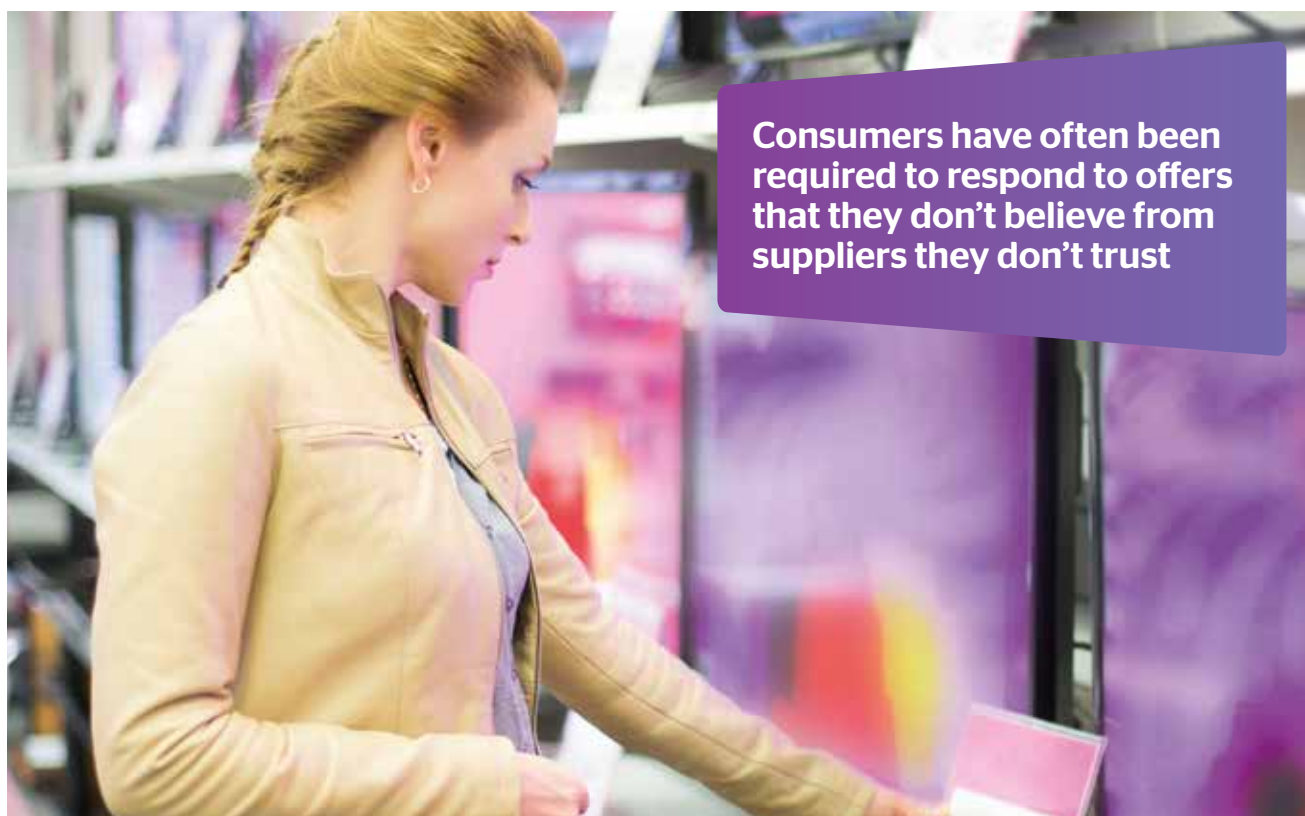
frame, a significant 17% of consumers say they have not taken any form of action to save energy, even zero-cost behavioural changes¹⁷³. We show in Chapter 4 that consumers have low awareness and understanding of the benefits that they can realise, what actions have most impact, and how they can go about realising the benefits.

The recent evaluations of CERT and CESP for DECC found that it was difficult to say conclusively whether measures would have been installed by consumers in the absence of the programmes. But they concluded that the programmes did help address barriers to uptake of measures such as access to capital and that without the programmes it is unlikely many householders would have been able to seek out or install energy efficiency measures¹⁷⁴. However, the survey of CERT also found that only 3% and 2% respectively of CERT customers who had installed cavity wall or loft top-up insulation said that this had prompted them to take other steps to reduce their energy use. Only 5% and 4% said it had made them think about how much energy they use. This suggests that the programmes have failed to raise awareness in the round, across the wider range of actions.

CERT offers were delivered in many different ways, and some were more effective than others. Many of the households interviewed in the evaluation expressed cynicism towards the national energy efficiency offers marketed directly by energy suppliers via television, billboards, or via their bills or on accompanying leaflets. Consumers presumed there must be a 'catch' as they could not understand the rationale for these companies to help consumers reduce their energy use¹⁷⁵. Scottish Power mailed 1.3 million customers with a free insulation offer and received only 929 responses¹⁷⁶. Organisations involved in delivering CERT and householder respondents agreed that concentrated marketing within a small local area, with backing from their local authority, was the most effective delivery route for CERT measures. Local authority endorsement was crucial to reassure householders of the scheme's credibility and to drive uptake¹⁷⁷. We explore in Chapter 4 which types of organisations are trusted by consumers on energy efficiency, and the importance of local, community-based marketing.

Low awareness of offers (and eligibility) was a key barrier to higher uptake. Householders who had installed measures said that once they were aware of the low or subsidised cost (and predicted fuel cost savings), they felt they had little to lose in taking up measures¹⁷⁸. The key factor in success of CESP schemes for households in private sector housing was that the measures had been offered free¹⁷⁹.

Finally, the EPC is intended to help engage consumers buying or renting a property with the energy efficiency of their property. It aims to encourage buyers to purchase more efficient properties and new occupants to install measures. However, research found that only 17% of respondents had acted on the recommendations¹⁸⁰.



Consumers have often been required to respond to offers that they don't believe from suppliers they don't trust

3.11 Conclusions – progress has been made but too slowly and at uncertain cost

Some progress has been made in improving the energy efficiency of consumers' homes. Under CERT, CESP and Warm Front much low-cost insulation in particular was installed. Yet there is still a considerable amount left to do. Although much of the remaining potential in these homes is more expensive, 7.4 million homes with lofts could still benefit from loft insulation and 5.3 million homes still have uninsulated cavity walls. Around 97% of solid-walled homes (7.8 million homes) remain uninsulated. This has important consequences not just for fuel bills but for fuel poverty and health. Government needs to put in place policies that finish the low-cost measures and support consumers in hard-to-treat properties. Product regulations and energy labelling are also failing to realise their full potential with some energy efficiency requirements set too low by the European Commission and EU Member States and not revised frequently enough.

There must be stronger monitoring by government of the impacts of all policies, with greater honesty with consumers – particularly on who benefits and who pays. There has been a complete lack of monitoring of the cost of the supplier obligations and how much consumers have paid for them. This spend is in the order of billions of pounds and should have been justified and scrutinised in the same way as taxation. This is even more important given the large, and continuing, rises in

energy bills that many consumers struggle to pay. The cost and cost-effectiveness of the government's approach is therefore unknown, at least outside the companies who deliver the policies – and even they won't have an overview of the whole market. The cost-effectiveness of these policies has not been subject to scrutiny or public debate and the only price constraint – competition in the retail market – is known to be ineffective¹⁸¹.

While the supplier obligations are likely to have been a key driver in the improvements that have been realised, even there, there is a lack of transparency over the quality of installations and the energy savings achieved. The energy savings appear to have been lower than expected at the outset of the policies, with a lack of clarity as to why this is. Delivery has also been patchy in terms of types of property and geographical areas. CERT was focussed on lower-cost measures and this was appropriate because it was funded from bills. However, policies to support consumers with the higher cost of hard-to-treat insulation, for example, solid wall insulation and non-standard loft and cavity wall insulation, have been lacking. In Chapter 5 we assess the implications of this for the new policies of the ECO and the Green Deal.

Even though consumers have funded the supplier obligations these have failed to engage them sufficiently, not least because consumers have often been required to respond to offers that they don't believe from suppliers they don't trust. In the next chapter we explore consumer attitudes and barriers such as low trust and how people can be engaged more effectively, not just to install measures but to change their behaviour. We start by explaining why low consumer engagement is a problem.

Consumers' role: expectations versus reality

Chapter 3 highlighted that, although progress has been made through energy efficiency programmes in recent years, much remains to be done. Many low-cost measures as well as a great deal of more costly, hard-to-treat measures have yet to be installed. There is also scope to make significant savings on gas and electricity bills if consumers can be persuaded to change their behaviour. One of the reasons that this has not happened is because there has been an unrealistic expectation of consumers - an assumption that they will be willing and able to act. Many consumers have not taken up the offers available to them to date, even where these were for low-cost insulation. It is imperative that energy efficiency policies address the full range of barriers facing consumers.

This chapter examines the reality of the situation and the barriers to engaging consumers and encouraging them to act. We highlight approaches that have successfully overcome these barriers in the past.

Figure 7 How much thought, if any, would you say you give to saving energy in your home?

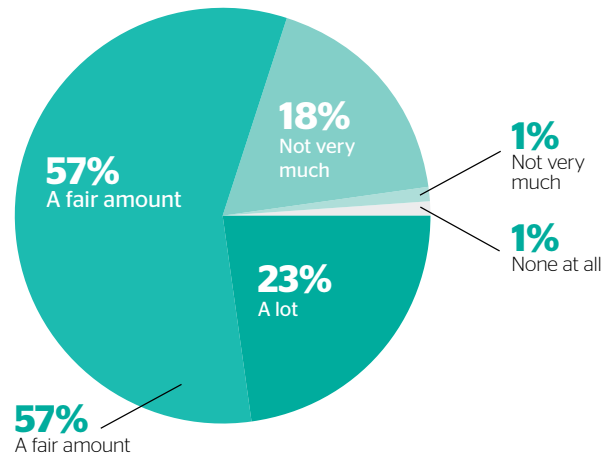
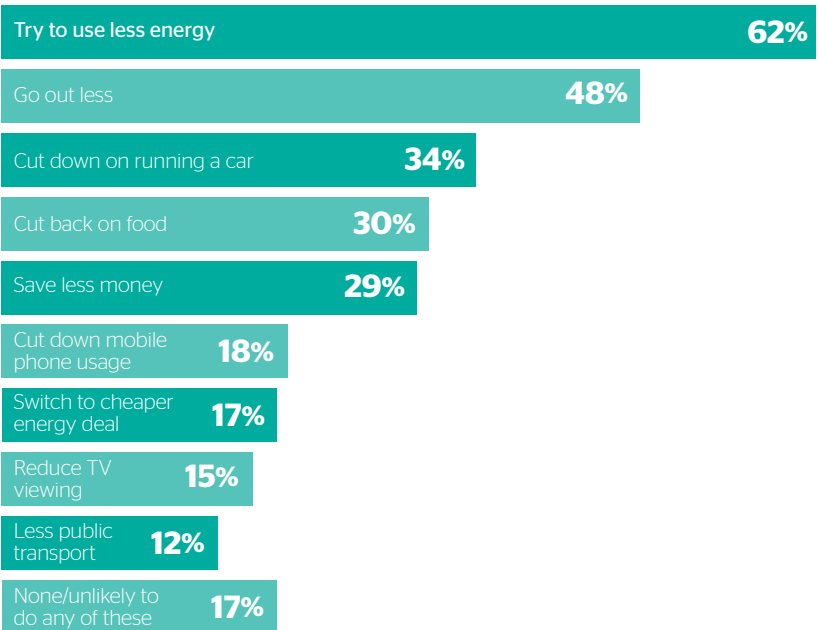


Figure 8 Actions consumers are likely to take in the next month to save money on household finances¹⁸⁴



4.1 The context - energy costs are a high concern but this does not translate into action often enough

4.1.1 Consumers worry about the cost of energy and want to use less

Which? consistently finds that the cost of energy is a top financial concern for consumers¹⁸², and recent research for Which? found that people are thinking about saving energy and say that this is important to them¹⁸³:

- 80% of people say that they give 'a lot' or 'a fair amount of thought' to saving energy - with only 1% saying they give no thought to it at all (Figure 7)
- 90% of people say that saving energy is important to them: 42% say that it is very important and 48% say that it is fairly important.

Consumers even say they are more likely to try to use less energy than to take any other action to reduce household expenditure (Figure 8): 62% say they are likely to try to use less energy. 4 in 10 consumers say they can't guard against rising costs by reducing the energy they use as they have already cut down. By contrast, only 17% say they might switch to a cheaper energy deal.

Although consumers want to use less energy, this is not being fully translated into action. However, that is not to say that

Table 5 Comparison of claimed and actual uptake of key measures

	TYPE OF INSULATION		
	LOFT	CAVITY WALL	BOILER UPGRADE
Claimed - June ¹⁹⁰ 2011 to June 2013	23% of households = 6.1 million	14% of households = 3.7 million	15% of households = 4.0 million
Actual - 2011-2012 ¹⁹¹	2.7 million	1.1 million	2.6 million



Table 4 Actions taken to save energy in the home in the last 2 years¹⁸⁶

Measure	All consumers	Home owners	Private tenants
Use energy saving light bulbs	58%	58%	53%
Turn lights and appliances off	52%	52%	54%
Use central heating less often	42%	40%	42%
Set the central heating temperature lower	41%	42%	31%
Wear more clothes to keep warm	40%	40%	41%
Use appliances more economically	39%	39%	37%
Have showers not baths	38%	38%	35%
Use energy efficient appliances	30%	31%	27%
Install loft insulation	23%	29%	8%
Upgrade to a more efficient boiler	15%	18%	5%
Install cavity wall insulation	14%	18%	4%
Install solid wall insulation	4%	4%	2%

people are not taking any action: 79% of people say they have done something over the past two years to save energy¹⁸⁵. The most common actions are the simplest and lowest-cost behavioural actions such as using energy-saving light bulbs or turning off appliances rather than having them on standby (Table 4).

However, many more consumers could make behavioural changes at little or no cost which could save them significant amounts on their energy bills. For example, a recent study estimated that homes spent £50 - £86 a year on electricity use from appliances being on standby¹⁸⁷. There are also significant savings from reducing heating use: just turning down the thermostat by 1°C could save £65 a year¹⁸⁸.

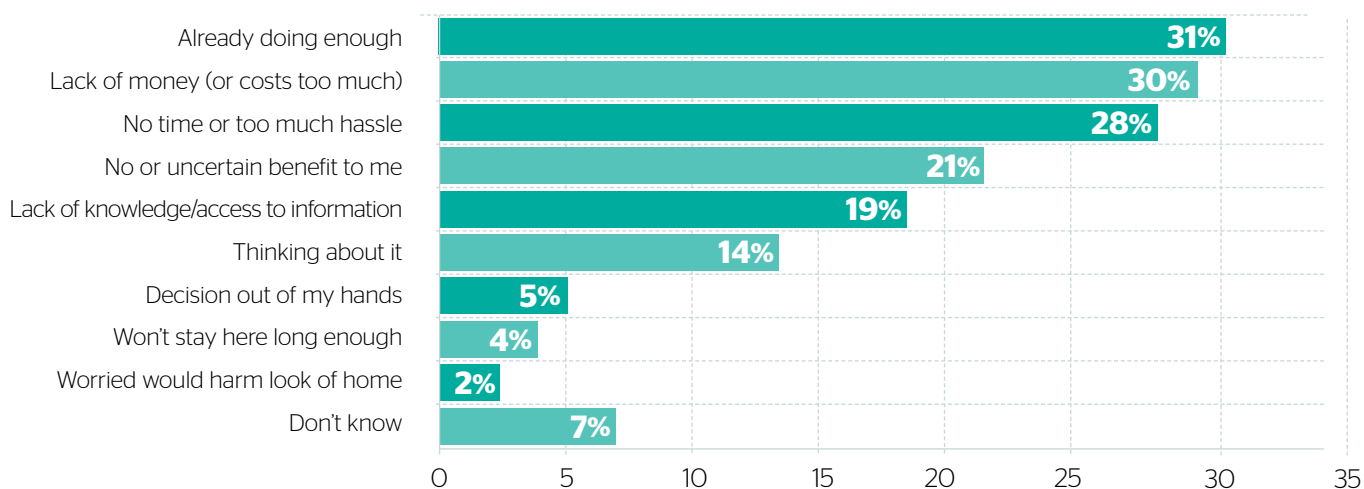
Worryingly, our research shows that a significant 17% of people¹⁸⁹ have not taken any form of action to save energy, even zero-cost behavioural changes. Consumers need to make these changes as well as installing measures such as insulation in their homes.

In relation to the key measures needed, our research also indicates some over-claiming by consumers (Table 5). This could be due to over-optimism and/or to consumers believing that they acted in the last two years when they actually did so earlier.

As Chapter 3 set out, millions of homes remain without adequate levels of insulation. The Government estimates that 14 million out of the 27 million homes in Britain are not properly insulated¹⁹². As many of the measures needed are the more

Figure 9 **Barriers to homeowners installing insulation**¹⁹⁴

Why consumers have not installed insulation in the last two years



costly and disruptive measures to install, the challenge of getting consumers to take action is even greater.

4.1.2 Why more people don't take more action

Expecting consumers to act without considerable help and support, both financial and non-financial, is unrealistic. Research for DECC found that the top reasons consumers gave for not doing more to make their homes energy efficient were a lack of money, followed by thinking they were already doing enough¹⁹³. Which? research found the same two principal barriers for homeowners who had not installed insulation (Figure 9). But these are just two of a range of barriers that stop consumers from acting.

4.2 Barriers to consumers changing their behaviour

Most people claim to be taking steps to reduce their energy use and these steps are predominantly behavioural.

4.2.1 Behavioural actions: awareness is low about what is most effective

Not only do most consumers claim to be taking action but people's stated confidence is high in terms of what behaviours and measures are most effective: 70% of people in our latest survey said that they are confident that they know the most effective ways to save energy in the home¹⁹⁵. But many consumers fail to identify the most effective steps they can take. When asked what they thought the most effective ways were to save energy, more consumers (46%) mentioned 'turning lights and appliances off rather than putting them on standby' than mentioned 'set the central heating temperature lower' (39%) or 'use central heating less often' (28%)¹⁹⁶. Although all these actions are worthwhile, the heating actions tend to be

more effective: turning down the thermostat by one degree could save on average around £67 per year, whereas turning off lights saves around £19 per year¹⁹⁷.

Other research confirms that people aren't aware of the importance of reducing energy used for heating even though it accounts for most of the energy used in the home. The two most common actions that people said come to mind when they hear the phrases 'saving energy' and 'energy efficiency' are turning off appliances and switching off lights¹⁹⁸. Research for government also found that energy efficiency was conceptualised by most as being concerned with electricity (turning off lights and appliances) rather than using less gas. Most participants underestimated how much energy they used for heating and few seemed to be attempting to reduce gas consumption¹⁹⁹. As such, it is important to raise people's awareness of reducing heating usage and how they can achieve this.

Improving consumers' awareness of what is most effective appears to increase the likelihood of consumers making those changes. Which? research found that 65% of homeowners who think using central heating less often is effective have used it less, compared to only 52% of homeowners overall. And 34% of homeowners who think that upgrading a boiler is one of the most effective things to do have actually done it²⁰⁰, compared to only 22% of homeowners overall²⁰¹. This suggests that promoting awareness of the most beneficial measures will generate a cycle of action through this positive association.

4.2.2 Ability to change behaviour can be limited – people struggle to understand and use heating controls

Many consumers are hampered in being able to reduce the energy used for heating. An estimated 70% of people do not have a full set of controls: a boiler thermostat, a timer or

programmer, a room thermostat and thermostatic radiator valves (section 3.7). Even when they have them, many people experience difficulty in understanding and using controls. Problems include difficult to read displays, difficult to use buttons, lack of intuitive design, poor positioning of controls and a lack of effective supporting information²⁰². This is not just the case for conventional heating systems. Field trials of heat pumps²⁰³ found that many householders said that they had difficulties understanding the instructions for operating and using these low-carbon heating systems²⁰⁴.

Inadequate information and instruction for consumers is a commonly cited barrier to effective control use. There have been complaints from consumers in some studies of poor usability of written information and manuals²⁰⁵. By contrast, where a Scottish government programme included mandatory post-installation instruction for householders on how to use their gas heating systems, 80% of householders found them easy to use²⁰⁶. This highlights the need for clearer and simpler customer advice and mandatory post-installation instructions.

The usability of the controls themselves can also be improved. New control technologies are coming onto the market and might have an important role to play. Yet there is currently no robust evidence that advanced or 'smart' heating controls reduce energy use²⁰⁷. DECC's new research programme on advanced heating controls that will strengthen the evidence on the actual savings and what technologies work best is welcome.

4.2.3 Providing information on consumers' consumption compared to their neighbours can be effective in changing behaviour

A recent review of the effectiveness of programmes in changing behaviour concluded that programmes result in

higher savings when including tailored instructions or information on how much energy they consume in comparison with others. Through using 'social norms' and practical advice, Home Energy Reports promoted by Opower in the USA have generated relatively small, but consistent and sustained savings of 1-3% of household energy use²⁰⁸. These reports show the energy consumption of the household compared to similar-sized and the most efficient properties in the neighbourhood, and provide tips on reducing energy use. In the UK, field experiments with First Utility's use of the Opower reports and a scheme in Camden achieved savings of around 6%. The study estimated that this approach was cost-effective but recommended further investigation to determine which elements of the scheme had greatest impact and why²⁰⁹.

4.3 Barriers to installing measures

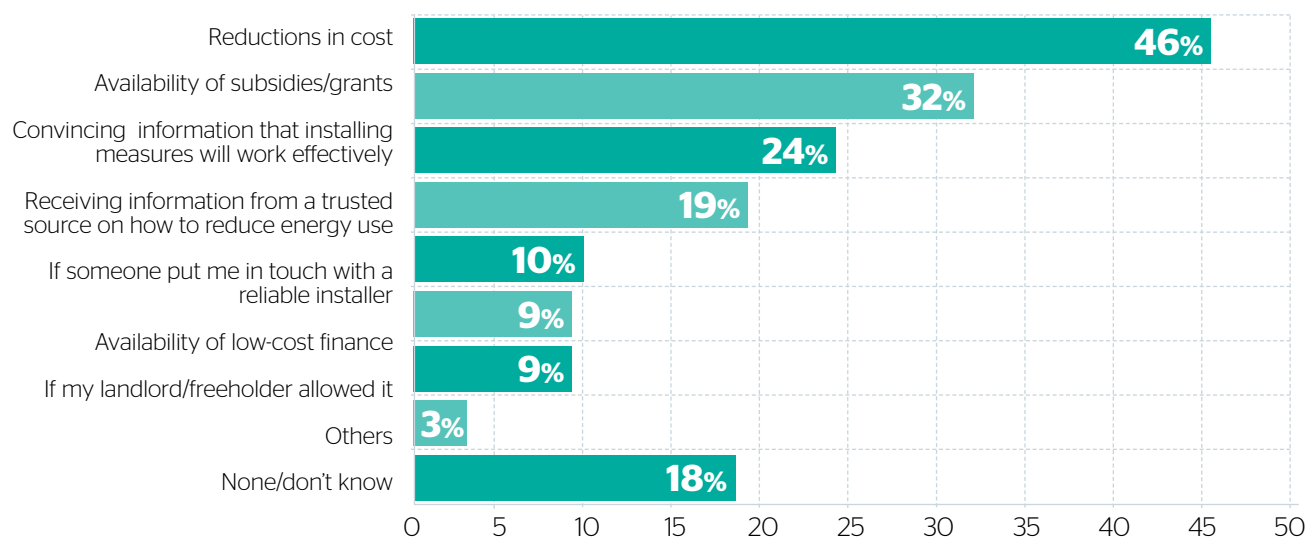
Behavioural change is not enough on its own. Consumers need to install the necessary measures such as insulation. There is a particular set of barriers to installing these measures.

4.3.1 Making measures affordable - price reduction is most important and upfront incentives can make offers more appealing

Lack of money can be a key barrier, as Figure 9 illustrated. Addressing this barrier can be about reducing the overall cost, reducing the price paid upfront, providing a financial incentive up-front, spreading the cost over time, or a combination of these. Some of the ways this can be done are more effective than others.

Cost is a key barrier for both low-cost and high-cost

Figure 10 What would encourage consumers to make their home more energy efficient ²¹⁵



measures. The most frequent barrier reported in 2011 by people who had not installed cavity wall and loft insulation under CERT was a perception that they could not afford the upfront costs (21% and 27% respectively)²¹⁰. But perception of cost can be different from reality. Our research found that people over-estimated the cost of loft insulation: the mean cost estimate given was £361 compared to a then actual cost range of £50 to £250²¹¹. People don't think they can afford even these lower-cost measures. So, in conjunction with financial support, improved information on the true cost could help to correct misconceptions and encourage action.

By contrast, most people hugely underestimated the cost of solid wall insulation. The mean cost estimate for those that had some awareness was £845, compared to a then cost range of around £10,500 to £14,500²¹². Very few consumers are installing this measure. Given that its costs remain much higher than people thought, providing sufficient financial support, in a form which is attractive to consumers, will be critical.

Reduction in the cost of measures is preferred to a loan

The evidence shows that consumers would be most encouraged to make their homes more efficient if the costs of measures were reduced (Figure 10). The experience of the CERT scheme – where consumers either had to pay nothing or pay a reduced price – shows that reducing the price of the measures upfront can work. Full or partial discounting was key to encouraging take-up²¹³. For people who had taken up CERT offers, the grants and subsidies were described as a key reason for taking up the offers, regardless of income²¹⁴.

Consumers prefer a reduction in cost; low-cost finance is less appealing. A Which? survey in January 2013 found that, of the 32% of people who said they were likely to undertake energy saving improvements in the next year, almost three-quarters (72%) would not consider taking out a loan to fund the work²¹⁶. This is not surprising given that measures have been heavily subsidised for many years and that consumers prefer a short-term payback. People have a tendency to focus on short-term costs and immediate rewards and undervalue long-term savings, which can limit consumers' readiness to take out loans²¹⁷.

Yet the experience of the UK PAYS scheme (Box 5) suggests that loans at subsidised interest rates can appeal to those consumers who are already more pre-disposed to take action. And subsidised loans plus capital subsidy or tax credits have been shown to be effective in Germany (KfW) and France (Eco-pre) (Box 5).

An additional, upfront financial incentive can make the offer more appealing

Because of people's need to see short-term benefits, an immediate, additional financial payment such as a rebate or cashback can increase appeal. Even small council tax rebates made some CERT offers, which were already subsidised, more attractive, with many householders claiming that they would not have taken up the offer without it (Box 6).

And earlier qualitative research by the Energy Saving Trust suggested that a council tax rebate was preferred to a discount

in stamp duty for an energy-efficient home²²⁶. Stamp duty discounts also have the disadvantage of not being paid every year but only when the property is bought.

Incentives could be combined with penalties in a 'carrot and stick' variable rate regime with higher rates of council tax or stamp duty for less efficient homes²²⁷. However, our qualitative research suggested that consumers were highly resistant to the 'stick' of a higher rate which they saw as being unfairly penalised for something not perceived to be an 'offence'²²⁸. These mechanisms are untested, however. Thorough consumer research and piloting would be essential before variable rates could even be considered.

4.3.2 Take-up won't improve until awareness and understanding improve

As well as subsidising the cost, if people are to take action they also need to understand why the offer is relevant to them and what benefits it will deliver.

Our research found that many people without insulation think they are already doing enough and that they are less likely to have taken action across the board. The group of homeowners without insulation but who said that they had taken some action to save energy in the last two years is a sizeable proportion (25%) of homeowners²²⁹. Around a third of this group (31%) said they had not installed insulation because they thought they were either 'already doing enough' or felt that 'my home is already warm enough/I don't think I need it' (Figure 9). This is clearly not the case given that their homes could benefit from insulation that would give them sizeable reductions in energy bills. Yet they said this was the most common reason why they had not installed it, ahead of even of lack of money or too much hassle. Interestingly, these homeowners also:

- Had a much lower perception of the effectiveness of cavity wall and loft insulation than homeowners in general: only 38% thought it effective compared to 56% of homeowners in general thinking that cavity wall and loft insulation is effective²³⁰. This suggests that, where awareness of impact is lower, action is less likely.
- Were nearly half as likely to have taken any action over the last two years than the average homeowner, although they have taken a similar range of actions and behaviours, (Figure 11)²³¹. This suggests that their over-confidence and/or lack of awareness affects their actions across the board.

This lack of awareness also applies to what insulation people have already in their home – i.e. whether they have it and, if so, how much. Many people simply do not know the answers to these questions. For example, almost half (47%) of people don't know how thick the insulation is in their loft²³². This means that they are simply not in a position to know whether their home could benefit from loft insulation being 'topped up' to the recommended minimum thickness.

Raising awareness of the benefits of energy saving behaviours and measures is key. Many of the consumers who had not taken up CERT offers wanted greater information or clarity about the benefits they would see from the measure. They said that, after help with the upfront cost, what would most encourage them to install measures would be 'evidence

Box 5 Subsidised loan schemes - international and UK experience

Germany - KfW bank: Under Germany's KfW refurbishment loan scheme the interest rate is as low as 1-1.5% (with capital subsidies of up to 12.5% also available for higher-cost refurbishments, less for single measures)²¹⁸. The Kreditanstalt für Wiederaufbau (KfW) bank is owned by the Federal Republic and the Federal States and so has an AAA credit rating and can offer this low rate of finance. Loans have been taken up in large numbers: in 2012 240,000 housing units were refurbished to more energy efficient levels²¹⁹. The low interest rate is only one factor that influences take-up and a study which assessed the lessons of this scheme for the UK emphasised caution when applying the KfW experience to a very different context in the UK. Nevertheless, it concluded that the favourable loan terms were a key feature of the KfW scheme and that the unsubsidised interest rates of Green Deal may not deliver adequate take-up²²⁰. We assess this in Chapter 5.

France - Eco-prest: France too has a fully state-subsidised, zero-interest loan scheme which has strong involvement from central or regional government, some capital subsidy and link with tax credits. Nearly 150,000 loans were allocated in 2009 and 2010, and the expectation is that a further 400,000 loans will be taken up by 2013. The most salient aspect of the French loans experience is how it combines with incentives set down in national legislation, particularly tax credits, some of which are explicitly intended to be combined with the scheme²²¹.

UK - PAYS: Under five 'pay as you save' (PAYS) loan pilot schemes, consumers paid back the cost of the measures over 10 to 25 years through interest-free loans. The zero rate of interest was what was most commonly cited as playing a role in their decision to apply for the scheme. Pilots were over subscribed, even with limited marketing and targeting activity. But most householders who participated were already fairly environmentally engaged. Many had already installed basic insulation measures and were aware of additional actions they could be taking²²². This suggests that interest-free loans are more likely to appeal to these 'early adopters' than less-engaged consumers.

Our research found that people over-estimated the cost of loft insulation: the mean cost estimate given was £361 compared to an actual cost at the time of £50 to £250

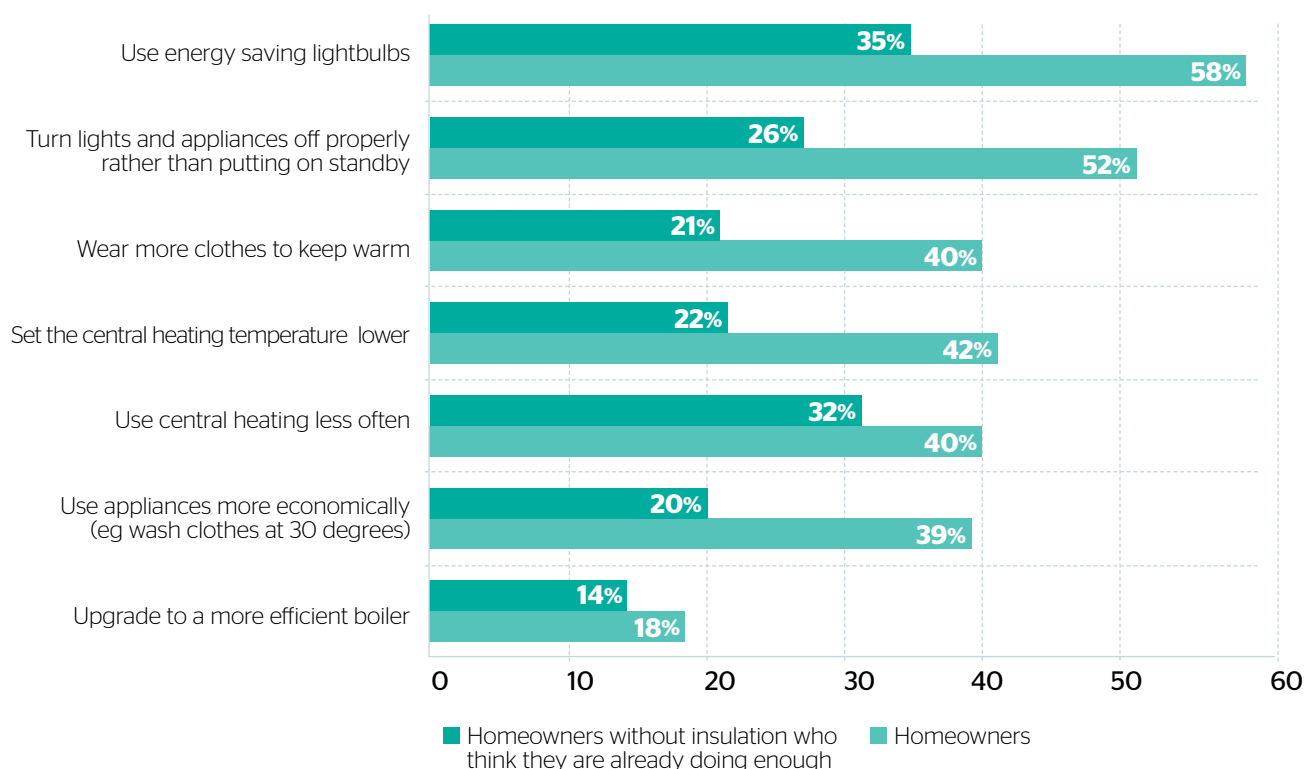


Box 6 Incentives, such as council tax rebates, can make offers more appealing

Since 2004 British Gas worked with over 68 local councils to offer households payment of up to £125, administered via council tax bills, after they had subsidised cavity wall insulation installed in their homes by British Gas. It was marketed by local authorities and has proven extremely effective at increasing demand²²³. In some cases it was also available for loft insulation. The scheme offered the perception of a tax saving but was not a true rebate on the council tax: British Gas made the payment to the householder via the council. Funding came from CERT and in some cases councils also provided some top-up funding.

A British Gas survey found that 35% said they would not have installed energy saving measures if it had not been for the council tax rebate offer and 60% said they preferred to receive the discount on the council tax bill rather than on the price of the product²²⁴. Through its offer of a £100 rebate for cavity wall and loft insulation, backed up with targeted door-knocking, Croydon Council got the best response of the schemes it tried²²⁵.

Figure 11 **Actions taken to save energy in the home in the last few years**



that it would save money on bills' and 'evidence I would notice savings on bills soon'²³³.

4.3.3 Persuading people to act means communicating the relevance to the individual

As well as improving understanding of the costs and benefits of energy saving measures in general, people need to understand the suitability and relevance of the measure for their particular household. They are more likely to act if they do.

Warmth and comfort are under-used messages

Cost tends to be the main motivation for taking action but increasing warmth and avoiding waste are also important. Our research shows that saving money on my energy bills was the most commonly mentioned factor that influenced the decision to take action to save energy in the last two years, cited by 87% of consumers. However, avoiding waste of energy (55%) and keeping my house warm (40%) were the next most common factors²³⁴. The experience of CERT is consistent with this. Cost savings were the main reason why consumers took up CERT offers but, after having measures installed, warmth was seen as the main benefit, not cost, which could be due to increasing energy bills²³⁵.

A review by Consumer Futures suggests that approaches will be more successful where they raise awareness of the benefit of greater comfort and warmth: schemes such as Cosy Devon

and Sheffield Free Insulation found that messages that emphasise warmth are effective but under-used²³⁶.

Tailored information can increase relevance to the individual

A degree of tailoring of information and advice can help communicate the relevance of the various benefits. According to interviews with consumers who had taken up CERT offers, factors that had been most persuasive in encouraging them included clear evidence about the relevant benefits of measures to them specifically – such as through thermal imaging photographs of their home – and receiving tailored information which provided them with the expected cost savings from the measures for their specific property²³⁷. Only some CERT schemes offered these features. By contrast, national advertising campaigns and offers promoted directly by energy suppliers were considered too generic, with some disbelief by householders that the typical energy savings quoted would apply to them²³⁸.

The value of relevant and tailored information is reflected in the findings of the Consumer Futures review of a number of community, area-based schemes. It suggested that marketing of energy efficiency offers and schemes is more successful if it uses customer data to create customer profiles and then tailors the messages to those profiles, for example by emphasising comfort for elderly residents. This is the approach that the local council

took in the Newark and Sherwood Warmstreets scheme. Using property and demographic data, the council tailored messages in its letter according to consumer sub-groups and saw an immediate pick up in responses with a fourfold increase in properties signing up for home insulation in five months²³⁹.

Such localised, targeted communications have a higher cost per household reached than advertising/mail-shots. However, the available evidence for CERT suggests that intensive schemes involving localised approaches had a much higher uptake rate than other approaches (reported by managing agents as up to 60-70%, compared to 20-25% for advice centre website referrals). This may mean they were more or equally cost-effective overall²⁴⁰ and that a degree of targeting of messages could potentially offset its costs. This targeting can allow projects to make efficient use of their resources, focusing and tailoring activity on prioritised consumer groups and avoiding wasting effort on others²⁴¹.

4.3.4 Overcoming the 'hassle factor' is important

Even if financial support is provided and consumer awareness is raised, the 'hassle factor' can still prove an important barrier.

Clearing out and sorting the loft was mentioned as a considerable barrier under CERT, particularly by elderly consumers. In a few cases, respondents said this had prevented them from taking up the free loft insulation offered to them²⁴². Yet the CERT evaluation found that a service for clearing the loft, without any sorting and organising, was not popular²⁴³. And in recent trials, the response rates to mailshots advertising loft insulation with and without a loft clearance service – priced from £179 to £450 – were so low that it was not possible to draw any conclusions on the appeal of a clearance service²⁴⁴. Further research is needed on how this barrier can be overcome.

Hassle is greatest for hard-to-treat homes, which make up the bulk of those left to treat. The installation of solid wall insulation involves disruption but the CESP programme shows that consumer concerns could be overcome in social housing (when the measures were generally provided free) as few respondents refused the measures because of disruption. Some respondents initially refused measures but later changed their minds, for reasons including seeing work being done in neighbouring homes²⁴⁵. Disruption is likely to remain a key barrier in private housing. A small-scale pilot suggests that householders tolerated some level of disruption but this attitude may have been influenced by the scheme being 100% grant-funded²⁴⁶. There is a lack of evidence to show the extent of this barrier in private housing when consumers have had to pay for this measure.

A well-designed customer journey to reduce the hassle factor is integral to any successful scheme. In the 2009 – 2011 'Pay as You Save' pilots, with delivery organisations investing significant time and effort in hand-holding and support for householders, the vast majority of householders were satisfied with the process. Householders cited timely, convenient and minimal numbers of household energy assessments as important factors. Dissatisfaction generally arose because the installations

had taken longer than expected²⁴⁷. A success factor seen in area-based schemes was flexibility in meeting the needs of householders. Again, convenient times for home energy assessment visits and installations were important for consumers, as well as minimising the period from first contact to installation, and being responsive to complaints²⁴⁸.

4.3.5 Consumers need to trust who gives the advice and arranges the installation

Trustworthiness and expertise influence preferences for sources of advice and who delivers the measures

Receiving information from a trusted source is one of the key factors that consumers say would encourage them to make their home more energy efficient (Figure 10). When Which? asked consumers who they would trust to give them accurate advice about saving energy in the home the most favoured sources were consumer organisations (cited by 31% of consumers), energy assessors (29%) and environmental organisations (27%), followed by energy suppliers (17%) and the local council (16%). Builders/architects/surveyors, tradesmen and non-BBC media sources were the least trusted²⁴⁹.

Consumer receptiveness to sources of advice appears to be influenced by a combination of perceived trustworthiness and expertise. It is most important that the person or organisation is trustworthy: in our research, this was cited by 57% of consumers as the most important factor, followed by their expertise, cited by 34%²⁵⁰. Expertise also appears to be a key factor for the organisation arranging and delivering the installation. The key attributes that householders valued most in the Pay as You Save pilots were energy expertise, impartiality and security²⁵¹. Accreditation is important to consumers to show that installers can be trusted to work to agreed quality standards and at fair prices²⁵².

Consumers are receptive to energy suppliers helping them save energy

Our research consistently finds that energy suppliers are one of the industry sectors that consumers trust the least – in October 2013, they were the least trusted by consumers to act in their best interest than any other sector²⁵³. We have also shown that consumers have expressed cynicism about the national energy efficiency offers marketed directly by energy suppliers (section 3.10).

Therefore it is perhaps surprising that our research has also found that consumers are receptive to energy suppliers helping them save energy in the home. More consumers (30%) cited energy suppliers as who they would want to help them than any other type of organisation, and ahead of the EST (26%), a consumer group (18%) and your local council (17%)²⁵⁴. This receptiveness could be that because energy suppliers are 'top of mind' when it comes to energy and/or that they are perceived to have expertise here which can overcome consumers' scepticism about energy suppliers' self-interest.

However, evidence from schemes reviewed does suggest

that energy companies are more likely to be successful in engaging consumers if, rather than marketing offers through national advertising or with energy bills, they operate within a local, area-based approach. Because endorsement by local authorities has been shown to increase consumer trust, this is particularly if they partner with local authorities.

The local, area-based approach has been shown to raise trust and reassure consumers, and can also deliver wider benefits

The evidence shows that uptake of schemes is likely to be higher for localised, community-based schemes involving local authorities, housing associations or community groups. A key factor is that such approaches engender trust among residents.

Local schemes can vary hugely in spatial area – from a street, a neighbourhood, a local authority area or a group of local authority areas, as well as scale, type of measures delivered and the type of the organisations involved. But the reasons why local schemes have been shown to result in higher uptake include connection with existing social networks, a community's trust in established relationships, a sense of ownership over the scheme and a better understanding of the community from the outset²⁵⁵. The Local Carbon Framework pilot schemes found that householder engagement is much more successful if a programme is tailored to and involves representatives from the local community²⁵⁶. Interviews with consumers who took up CERT offers suggested that localised schemes with concentrated marketing created a 'social norm' in these areas, leading many people in the neighbourhood to follow others and install measures²⁵⁷. This fits with the findings that 25% of people said they would be more likely to install energy efficiency measures if their friends and family were also doing so²⁵⁸.

Organisations involved in CERT programmes reported the value of the involvement of the local authority or, for some, the housing association to engender trust. One installer reported that local authority endorsement could increase uptake by as much as 20%. Delivery organisations and householder respondents agreed that it was crucial to reassure householders of the scheme's credibility to drive uptake²⁵⁹.

Which? research findings are consistent with this. More consumers (63%) said they would trust an energy efficiency scheme endorsed by the council than any other organisation, with the next most trusted being a community group (61%). This was followed by 52% who said they would trust an energy supplier and 50% who said they would trust the government. When we asked consumers which they would trust the most, the same pattern emerged, with the community group and the council as most trusted²⁶⁰.

We conclude from the evidence that it is the local authority – or housing association – 'badging' or endorsing the scheme, not necessarily delivering it, that is important to provide reassurance. Combining this endorsement with the involvement of a local partnership of organisations and the active promotion of an offer within a small geographical area is most likely to bring success, according to the evaluation of CERT²⁶¹.

This type of local scheme also delivers other benefits, as well

as fostering consumer trust. Partnership approaches used under CERT and CESP were found to add value by facilitating cross-referrals between agencies working with vulnerable households, and by bringing in other sources of funding²⁶². Kirklees Council's Warm Zone is a successful example: between 2007 and 2010 it was the largest local authority home insulation scheme in the UK. It insulated over 51,000 homes and was the area that insulated the highest percentage of its housing stock over the first two years of CERT²⁶³. Other council-led schemes have also been successful in encouraging take-up and reaching consumers who might not otherwise have been targeted. Bath and Northeast Somerset Council's Warm Streets scheme achieved its best response to energy efficiency advice and referrals through the NHS local flu jab mail out and has set up referrals via GPs surgeries²⁶⁴. This shows the importance of delivering energy efficiency messages through a variety of routes, including to help deliver the new public health responsibilities on local authorities in England²⁶⁵.

Builders and other trades need to be supported to overcome the trust barrier

The 'trigger point' of home renovations is another valuable way to engage consumers with energy efficiency. Recent research has found that energy efficiency measures are more commonly installed with renovations such as new kitchens and bathrooms than on their own²⁶⁶. Homeowners are already prepared for some disruption and can have the works done at the same time so that there is less hassle overall²⁶⁷. Builders, architects, surveyors and other trades could have an important role. Yet our research found that builders/architects and surveyors were trusted by only 9% of consumers as accurate sources of advice on saving energy and tradesmen by as few as 4%²⁶⁸. The EST found that 74% of homeowners would like to hear builders' ideas on improving energy efficiency but a key barrier was this lack of household trust. Builders were keen to promote energy efficiency but wary of being seen as selling unwanted extras. However, once trust is established, homeowners view builders as experts with valuable experience²⁶⁹.

The role of builders and other trades such as plumbers in giving effective pre- and post-installation advice must be facilitated and managed. The EST is piloting practical, room-by-room guides for homeowners – and another set for builders and other tradesmen – to raise awareness of the advantages of installing measures when doing building works²⁷⁰. These could help counter the barrier of low trust.

4.3.6 Private rental – the decision is out of their hands

In contrast to homeowners, where cost is much more of a barrier, the key barrier for private tenants, (cited by 53%) was that the decision was out of their hands – namely 'landlord or freeholder won't let me/not my decision to make/council house/not my own property'²⁷¹. Being a tenant is a real restriction in the sense that the landlord's consent is required to install energy efficiency measures such as insulation or a new boiler. Landlords are reluctant to pay for improvements because they do not generally



increase rental or capital values, and tenant requests can be considered an inconvenience by some.

The impact of this 'split incentive' can be seen from take-up of past schemes. That many fewer private rented homes benefitted from CERT and CESP in comparison to owner-occupied homes and social housing (section 3.5) is one reason why the proportion of homes in the most inefficient rating bands (F and G) is highest in this sector²⁷². Policies will need to provide stronger financial or regulatory incentives to overcome this barrier.

4.4 Conclusions

Most people claim to think about saving energy, and the vast majority of consumers are already taking some action, mainly to reduce use of electricity from lights and appliances. But much more remains to be done across a range of behaviours to reduce gas and electricity use. Nearly one in five people have not taken any action at all in the past two years, even easy and zero or low-cost behavioural changes, let alone installing the measures that many homes require.

Consumers aren't doing more because they face a large set of barriers which are stopping them from making behavioural changes and from installing measures. These relate not just to affordability and upfront cost, but a lack of awareness and understanding of the benefits, a lack of trust, the 'hassle factor' and, in many cases, simply having other priorities. It is often a combination of these barriers that hinders consumer action and it is necessary to address financial and non-financial barriers together.

When it comes to implementing more expensive measures, the evidence from CERT is that a reduced price, combined with a rebate, appears to be the most effective form of support to drive uptake. Loans have a role to play but it is a limited one and interest rates would need to be subsidised for the short-term benefit, i.e. net saving after loan repayments, to appeal to consumers. But it is not enough only to provide help with the

cost. Millions of people have not taken up the offers of insulation even when free or heavily subsidised. It is essential to raise awareness of the benefits.

It is most important to raise consumer awareness of reducing heating use, whether through behavioural changes such as turning down the thermostat or by installing measures such as insulation. This is because people still think first of turning off lights and appliances. Even though these actions are important, most energy is used in the home for heating. Yet people are less conscious of this, and less aware of the most effective ways of using less heat. This matters because, where consumers think something is effective, they are more likely to act.

There is a role for more visible and consistent messages at national level that can help provide the context for effective communication by individual programmes, including local ones²⁷³. This would help, for example, to provide greater consistency around typical savings. To be convinced of the benefits, people also need to understand their relevance to their own situation. Tailoring of messages can help here. Messages of warmth and comfort have been neglected under previous policies even though these can be effective. It is also important that advice is communicated by a trusted source. When it comes to who delivers the measures, consumer preferences are influenced by trustworthiness and expertise. Energy suppliers do have a role in helping consumers save energy but this works best in partnership with local schemes. Endorsement or badging by the council or the housing association can provide reassurance about local, area-based schemes which bring a range of other benefits too.

We conclude that there are a number of success factors for policies:

- Raise awareness and understanding of the need to act
- Communicate the benefits relevant to the individual
- Provide help with affordability
- Use a trusted and competent source for advice and delivery
- Provide a hassle-free, smooth customer journey
- For the rental sector, provide stronger regulatory and financial incentives.

In the following chapter we explore whether the new policies of the Green Deal and ECO are likely to overcome the barriers through applying these success factors.

Being a tenant is a real restriction in the sense that the landlord's consent is required to install energy efficiency measures such as insulation or a new boiler

The Government's new approach: an evaluation of the new policies' potential for success

In January 2013 the government launched the Green Deal and the ECO as its flagship domestic energy efficiency policies. This chapter evaluates their potential for success – and concludes that both policies carry considerable risks that could undermine delivery and increase costs to consumers.

This chapter describes the new policies, assesses the appeal of the Green Deal and highlights a number of challenges in increasing take up. It then considers whether the Green Deal itself, as well as the ECO, will deliver on the indicators set out in Chapter 2, including carbon savings, energy savings and cost and value for money.

Part 1 A new strategy and two new policies

5.1 The new national strategy fails to set out a clear framework and targets

The government's new energy efficiency strategy was published in November 2012. But despite the Prime Minister's wish to make Britain the most energy efficient country in Europe²⁷⁴, it fails to set out a clear vision of success or how it would be achieved. It does not set out targets to complete loft and cavity wall insulation, even though the government's 2011 Carbon Plan aimed to complete these by 2020. The Association for the Conservation of Energy has described it as a 'wish list not a strategy'²⁷⁵. But what it does do is set out the role of the

recently introduced Green Deal and ECO policies outlined in Chapter 1.

5.2 The Green Deal is a novel 'pay as you save' market product, but supported by subsidy, including from the ECO

5.2.1 The Green Deal – a new type of product

The Green Deal is the government's flagship energy efficiency programme for consumers (Box 2, Chapter 1). It is a new type of loan to pay for energy efficiency measures: the customer process is described in Box 7. It was launched in England and Wales in January 2013 and in Scotland in February 2013. It is not available in Northern Ireland.

There are variations on the consumer journey set out in Box 7. For example, the consumer might have a Green Deal assessment but decide to self-finance the measures recommended, and not take out a Green Deal. Or the consumer might have an assessment and then claim a Green Deal cashback voucher, but again not use Green Deal finance. The cashback amount depends on the measures installed. As at the end of October 2013, although 101,851 Green Deal assessments had been lodged on the register, only 594 consumers had signed Green Deal plans and were progressing with the installations, and measures had only been installed in 219 properties under a Green Deal²⁷⁶. With earlier government surveys suggesting that 80% of assessments had been done

Box 7 The Green Deal - how it works

To take out a Green Deal, the process for the consumer is as follows:

- 1** Assessment - a registered Green Deal Assessor visits the property and surveys energy usage and options for energy efficiency improvements.
- 2** Measures are recommended - The Assessor recommends appropriate improvements. The Assessor produces an estimate of savings for a typical household in that property through a new Energy Performance Certificate and also produces a personalised Occupancy Assessment with tailored estimates based on the household's actual usage.
- 3** Quotes for Green Deal finance - the consumer receives a quote and takes out a Green Deal finance plan which is a contract with the Green Deal Provider. Quotes need to meet the 'Golden Rule', which states, but does not guarantee, that predicted energy bill savings should exceed the size of the regular repayments.
- 4** Cashback scheme - the customer can claim a voucher for money off the cost.
- 5** Installation - the Provider arranges for the measures to be installed.
- 6** Repayment of the cost - Green Deal repayments are automatically added to the electricity bill for the home. They are limited to the expected lifetime of each measure.
- 7** When the occupier moves, disclosure of the Green Deal to the new occupant is made through the EPC.

for free²⁷⁷, which could be for local authority pilots or to deliver measures under the ECO, it is doubtful that this number of assessments is a genuine reflection of consumer demand.

5.2.2 The ECO has multiple objectives including to support the Green Deal

The ECO is the new obligation on the major energy suppliers, currently the six largest suppliers plus First Utility. Like CERT and CESP. It is paid for by consumers out of their energy bills and it has carbon reduction and fuel poverty objectives (see Box 3 in Chapter 1). The Affordable Warmth element of the ECO is aimed at helping the fuel poor. The Carbon Saving Obligation (CSO) and Carbon Saving Community elements aim to reduce carbon emissions.

Unlike CERT, the CSO is also designed to help support the Green Deal. CSO subsidy can be combined with Green Deal finance to help high-cost measures such as solid wall insulation meet the Golden Rule (Box 7). This means that this element of the ECO and the Green Deal are inter-linked. The success of the Green Deal will influence whether energy suppliers meet their ECO obligations and at what cost to consumers.

Box 8 Success factors for consumer take-up of energy efficiency policies

- Raise general awareness and understanding of the need to act
- Communicate the benefits relevant to the individual;
- Provide help with affordability
- Use a trusted and competent source for advice and delivery
- Provide a hassle-free, smooth customer journey
- For the rental sector, provide stronger regulatory and financial incentives.

5.2.3 Additional subsidy from taxation for the Green Deal

Despite the government describing the Green Deal as a market-based product and as well as being supported with money from consumers' energy bills (via the ECO), it is also supported with public spending. There is a £200 million fund for incentives to increase Green Deal take-up. The government has decided to allocate £125 million of this to the Green Deal cashback scheme - £40 million has been made available to consumers at guaranteed rates²⁷⁸. Although the scheme ends in March 2014, only £1.8 million had been paid out at the end of September 2013. Currently the cashback scheme is functioning as a boiler scrappage scheme, with 96% of the measures installed being boiler replacements. Given that the 2010 boiler scrappage scheme offered poor value for money compared to insulation²⁷⁹, the same is likely to apply to the Cashback scheme. Public funds have also been used, via the Green Investment Bank²⁸⁰, to provide financing support to the Green Deal Finance Company - which is expected to finance many of the loans. Although intended to avoid significant impact on the public purse, the Green Deal is already receiving, or will receive, a significant amount of public money to increase its appeal.

Part 2 Assessing the appeal of the Green Deal

The success of the Green Deal scheme relies on consumers' being both willing and able to take it up and to get the right plan for their needs. For this to happen, the product must overcome the barriers set out in Chapter 4. We have assessed the Green Deal against our success factors for engaging consumers and encouraging them to act (Box 8).



5.3 Raise general awareness and understanding of the need to act

Many consumers did not take up offers of insulation even when it was free or heavily subsidised – some consumers need more convincing of the benefits and how they will gain. Our research has also found that 17% say they have not taken any action at all to save energy in the last two years. It will be a huge challenge to persuade these consumers to make use of a complex finance plan.

5.3.1 The Green Deal relies on the market to raise appeal – but it will be a challenge to generate visibility and awareness

Green Deal assessors and providers must persuade consumers both to take action and to do so using the Green Deal. But it is being left to the market to generate this interest as the government has allocated only a small budget to marketing the Green Deal. It is too early to say whether companies' individual marketing models will be more effective in stimulating awareness than under CERT. Involvement of a wider range of organisations, such as home improvement retailers who can target people doing home renovations, may help. But there is

currently not a set of consistent, clear messages at national level or a visible brand that will help to raise consumer awareness of the product.

5.3.2 The nature and complexity of the product may put people off

Another challenge is that the Green Deal assumes that people are willing to borrow for energy efficiency when most people, in fact, are not. This is unsurprising when not only are they used to energy efficiency measures being subsidised but only 8% of borrowers say that they are happy using credit in general²⁸¹. The Green Deal is not technically a personal loan but the fact that the Green Deal loan stays with the property is likely to work against it, as is its complexity²⁸².

The Green Deal also fails to encourage people to install the full range of energy-saving measures, with neither energy-efficient appliances nor lighting eligible for Green Deal finance. The extent to which it will encourage people to engage in energy-saving behaviours, such as use of heating controls, is uncertain. Green Deal assessors, but not installers, are required to provide advice on behavioural changes. It remains to be seen what services and products providers and installers offer, but additional approaches will be needed if consumers are to take action on the full range of possibilities.

5.4 Communicate the benefits relevant to the individual

The Green Deal has an advantage over CERT in that consumers receive an in-home assessment which provides personalised advice. In DECC's qualitative research, this tailored assessment, with property-specific recommendations from accredited experts, was the most appealing aspect of the scheme²⁸³. This is a positive aspect of the Green Deal but its potential is not being maximised.

5.4.1 Many consumers are likely to be put off at the first hurdle by having to pay for an assessment

Consumers will generally need to pay for a Green Deal assessment, with charges now in the region of £100 – £150²⁸⁴. Unsurprisingly, research for government found that consumers preferred the assessment to be free of charge. Most said they would be prepared to pay around £50 for the assessment and a few were prepared to pay up to £100²⁸⁵. For many consumers, this upfront cost could be too high. This needs to be monitored closely.

Assessors who are tied to Green Deal providers might choose to offer a 'free' assessment that will be bundled into the overall price. This may be more appealing to consumers but has two drawbacks. Firstly, tied assessors may heighten the risk of mis-selling (section 5.6.2). Secondly, it may make it more difficult for independent assessors to operate. This too needs to be monitored closely.

5.4.2 The in-home assessment is positive but undermined by estimates of savings not being fully personalised

Although the consumer does receive a personalised Occupancy Assessment (Box 7), the savings estimates used for the Golden Rule calculation – i.e. to work out the amount that can be lent and the size of the repayments – are not based on this. They are based on the energy usage of a 'typical' household in that type of property, not the household's actual usage or energy tariff. The methodology assumes an average number of people living in a property of that size, and standard heating patterns and energy tariffs. Not only may these savings estimates not be accurate, but consumers may be confused or misled into believing that savings may be greater (section 5.5.4).

5.5 Provide help with affordability

The Green Deal is designed to overcome the barrier of high upfront cost. It has the advantage over previous policies of providing consumers with a means of financing high-cost measures. But it is a loan scheme, and a straight discount is more appealing to consumers than a loan.

5.5.1 There is a cashback scheme to increase appeal

The cashback scheme provides an upfront financial incentive to increase the appeal of the Green Deal. Evidence shows that this type of incentive helps. However, the cashback can be obtained without taking out a Green Deal finance plan²⁸⁶. This is appropriate as, quite rightly, it incentivises the installation of measures however they are financed.

5.5.2 But the Green Deal looks like a personal loan and consumers don't favour loans to pay for energy efficiency measures

The Green Deal is not a personal loan but to consumers it looks like one²⁸⁷. A survey by Which? found that most consumers would not consider a loan to fund energy efficiency improvements to their homes (section 4.3.1). In earlier research for DECC, only 18% said that an attractive feature of the Green Deal was the ability to spread payments over time ('pay as you save'), whereas 33% said that a disadvantage was that they did not like taking out credit²⁸⁸. So, while the Green Deal may be designed to help overcome cost barriers, the nature of the mechanism may put many – but not all – consumers off.

5.5.3 The net savings may be too small to incentivise consumers and the lack of guarantee is a turn off

Consumers place greater value on short-term costs and less value on long-term savings. But because energy savings will mostly be eaten up by repayments, consumers are likely to see only a small net saving until the loan is repaid, which could be in 20 – 25 years' time. In qualitative research for DECC, many homeowners felt that the annual net saving was simply too small to make it worth the time and effort – although the research did not take account of the extra, upfront benefit of the cashback scheme. The lack of guarantee of the size of the savings and a payback period of 10 or more years were major barriers²⁸⁹. And householders will get any net saving only if the Golden Rule – which is not guaranteed – is met in practice. But the net saving will be greater if energy prices rise, as is likely.

5.5.4 Low energy users could even end up worse off financially

There is a risk that repayments could exceed savings, particularly for households who use less energy than average. This is because, as we have described, savings estimates for the Golden Rule calculation are based on a 'typical' household's usage, even though a low-usage household could expect to see lower savings than a household with 'standard' or higher levels of usage. The risk applies whether the low-energy user is the first or a subsequent occupant. It is difficult to see how these households can have a reasonable expectation that the Golden Rule will be met.

The government argues that using typical consumption rather than actual consumption is necessary to protect future occupants who might not be low users of energy. It also points to the safeguards aimed at ensuring that consumers are aware

Chapter 5

of this risk before they take out a Green Deal. The Code of Practice requires that consumers are given an explanation of the difference in savings between the EPC (typical household) and Occupancy Assessment (personalised), and that low-energy users are required to acknowledge this distinction. However, some consumers may fail to understand the distinction or it may be buried in the small print. These safeguards are inadequate as the adverse consequences for some households could be significant, particularly for people living in fuel poverty as they are more likely to be under-heating their homes. This is a real issue in practice as gas consumption can vary dramatically between comparable households, with much of the variation influenced by behavioural factors²⁹⁰.

5.5.5 As a loan that stays with the property, consumers may fear that it could put off future buyers

As the Green Deal is a charge on the property, the plan transfers between occupants when the old occupant moves out and the new occupant moves in. This transfer was raised as a worry by homeowners in qualitative consumer research, who felt that attaching repayments to the property's energy bill could harm future saleability²⁹¹. Whether homebuyers will actually be put off will only be apparent once the first consumers with Green Deal plans move house. This should be monitored closely.

5.5.6 Lack of appeal is likely to be compounded by high costs

Few Green Deal plans are on the market and there is a lack of information around the interest rates and other terms. However, most Green Deal providers are understood to be using long-term finance from the Green Deal Finance Company²⁹² which charges interest of 9.6% for a £1,500 20-year loan and 7.9% for a £5,000 20-year loan²⁹³. Interest rates are higher for smaller-sized loans because there are additional, fixed charges: a set-up fee of £63 and an administration charge of £20 a year²⁹⁴. The interest rate for a £500 10-year loan, such as for low-cost cavity wall insulation, would be as high as 16%²⁹⁵. The Green Deal therefore makes more financial sense for higher-cost packages. Also, as long-term, fixed rate finance, the Green Deal becomes more competitive if base rates rise in the future.

But many consumers are still likely to find these interest rates off-putting, particularly when they are not used to borrowing money to pay for energy efficiency measures. Early research by YouGov for the Great British Refurb campaign suggested that consumer appetite for the Green Deal falls sharply as the interest rate increases: only 7% of respondents said they were prepared to take it up at a 6% interest rate²⁹⁶. This is consistent with our assessment in Chapter 4 that loans need to be offered at lower rates of interest. High finance cost is likely to be a reason why take-up of the Green Deal has been very low to date, but this must be established through early monitoring (Chapter 7).

5.5.7 Whether the Green Deal is the best financing option depends on the individual's circumstances

Lower-cost financing options may be available, such as unsecured five-year personal loans for 4.9%²⁹⁷ for those with a good credit history, interest rates of around 2% for homeowners with low loan to value mortgages who wish to top them up and even credit card finance at 0%. Each option has its own pros and cons. Some options may not be available to many consumers whilst the Green Deal is said to be accessible to four out of five²⁹⁸. As with any financial product, whether the Green Deal is appropriate depends on the individual's circumstances, and the interest rate is not the only relevant factor. And some people may not wish to judge the Green Deal on purely financial terms given the non-financial benefits, such as warmth and comfort, that it provides.

Table 6, which uses illustrative examples provided by DECC, suggests that for households looking only to install low-cost measures, such as loft and/or (easy-to-treat) cavity wall insulation, the Green Deal is likely to be a relatively high cost option. But for households installing solid wall insulation and hard-to-treat cavity wall insulation, sizeable amounts of ECO subsidy could be available. The Green Deal could represent better value for these consumers (although the ECO subsidy may sometimes be available even if the customer does not take out a Green Deal – see below). Table 6 illustrates this through two simple examples.

Table 6 Two illustrative examples of the costs of Green Deal financing²⁹⁹

	Example 1 Loft and cavity wall insulation	Example 2 Solid wall insulation
Cost of work (unsubsidised)	£900	£5,300
Estimated annual energy bill saving	£159	£273
Subsidy from the ECO	£0	£2,724
Interest rate - assume repay over 25 yrs	10.9%	8.3%
Annual repayment added to electricity bill	£106	£249
Total amount to pay over 25 years - cost of finance of work after any ECO subsidy	£2,650	£6,225
Typical customer's annual saving	£53	£24
Customer also receives GD cashback	£350: £100 loft top up, £250 cavity wall insulation	£650

In each example, there is a net annual saving, which is based on 'typical' consumption, but it is small. If the consumer's actual energy usage is only slightly lower than average, this could become a net cost. But if energy prices rise, then the net saving increases. Also, the costs and charges will vary depending on the particular offer made to that household, and terms and suitability will depend on the individual circumstances. The problem for consumers at present is that Green Deal providers are not required to use standardised quotes and there is a lack of information on Green Deal rates and charges. Nor is there any requirement to disclose to the consumer whether and how much ECO subsidy is being applied. ECO subsidy is not available from all organisations, but only organisations who have entered into an agreement with an obligated energy supplier or Green Deal Providers who have traded through the ECO brokerage mechanism³⁰⁰. But a consumer is not likely to be aware whether ECO subsidy is available. All these factors make it difficult at present, if not impossible, for consumers to compare different Green Deals, or to compare the Green Deal with other financing options such as an unsecured personal loan.

5.6 Use a trusted and competent source for advice and delivery

All Green Deal organisations must comply with the new Green Deal consumer protection framework. The framework is designed to ensure high standards and reassure consumers. But there remains the risk of poor terms and mis-selling that could damage consumer trust and perception of the Green Deal.

5.6.1 The consumer protection framework is positive, but there are serious gaps that could result in poor terms for consumers

All Green Deal businesses including assessors, providers and installers must be accredited: they must carry the Green Deal Quality Mark and abide by the Green Deal Code of Practice and associated standards. This is what consumers expect,³⁰¹ and it should help engender consumer trust as well as provide a minimum standard for the quality of advice and delivery. But there are gaping holes in this protection. Consumers could be exposed to poor and unfair contract terms that could be buried in small print and go unnoticed. Large and unfair early repayment fees are a prime example.

In respect of early repayments, although the Consumer Credit Act 1974 (CCA) applies to Green Deal plans, this protection has unacceptably been weakened for Green Deal plans of 15 years or more. Government argued that the cost of finance would otherwise be too high or Green Deal providers would be deterred from offering long-term plans. Rather than the amount of compensation being limited to 1% of the amount outstanding, as would be the case with a personal loan, potentially large early repayment fees can be levied. There will

be limits to these - the Green Deal finance company will only charge fees for plans of more than £8,000 and has capped these³⁰² - but DECC does not expect the early repayment guidance which will explain how these will be applied to be available until the end of 2013. This is despite the product having been launched in January 2013³⁰³. Consumers are only likely to pay fees if interest rates fall but that may be small comfort when they cannot be sure that this will not happen. This liability could be a real issue for consumers if new occupants are deterred by the Green Deal charge and want the finance to be paid off before they move in.

5.6.2 There is also a risk of mis-selling and inappropriate cross-selling, which is heightened because assessors can be tied commercially to Green Deal providers

Advice independent of sales is always desirable as it reduces the risk of mis-selling. But Green Deal assessors need only be 'impartial' not independent, despite consumers expressing a strong preference for independent assessors³⁰⁴. Assessors can be tied commercially to Green Deal providers and work on commission. Not only will these tied assessors be reliant on income from Green Deal providers, but they can even be one and the same person. They could give advice in the home one minute, and sell the next.

Which? questions how effective the checks and balances in the Code of Practice will be. The complexity of the product could still provide opportunities for deliberate or inadvertent mis-selling. For example, consumers might be misled or confused by the difference between the standardised and personalised estimates of savings, or they might be led to believe that the Golden Rule provides a guarantee.

There is also the risk of inappropriate cross-selling. Green Deal companies are permitted to cross-sell a wide range of other home improvement measures such as a new kitchen or bathroom. Assessors are required to get the consumer's permission to market these but consumers could still be persuaded to buy products that they do not want or need.



Which? argued against simultaneous cross-selling of other goods and services on other, non-Green Deal forms of credit for this reason but our concerns were not heeded.

It remains to be seen too whether the standards for advice and installation set down on paper are applied in practice. This depends on factors such as quality of training and skills and effectiveness of oversight and enforcement of standards. A small-scale mystery shopping investigation by Which? found errors with assessors' calculation of the home's energy rating, some recommendations for unsuitable measures and failure to question the consumer adequately about their heating usage. This was despite their companies being Green Deal accredited³⁰⁵. Robust monitoring and enforcement will be required.

5.6.3 Whether the Green Deal will facilitate the local, area-based approach that has proved successful in gaining consumers' trust is uncertain

Local, area-based schemes, such as those endorsed by local authorities or housing associations with intensive marketing on a street-by-street basis, have tended to have more success in engaging consumers. But there is no intrinsic 'local' aspect to the Green Deal: it relies primarily on individual householders to seek out information. Only very limited funding has been applied for councils to get involved with the Green Deal: in July 2013 DECC made available a £20 million Green Deal Communities fund for local authorities in England for Green Deal street- or area-based approaches.

It is too early to judge the extent to which the Green Deal, with this funding, will facilitate the area-based approach. But local schemes are being developed which involve a wide range of organisations. For example, in July 2013, Energise Barnet, a community interest company, announced a Green Deal and ECO partnership with Carillion, Barnet Council, NHS Barnet and local community groups³⁰⁶. Other local authorities, such as Birmingham and Newcastle are also planning to get involved in the Green Deal. This is a promising development that could facilitate partnership approaches that have been shown to be successful in engendering and sustaining consumer trust and awareness and enabling high response rates through intensive, locally-based marketing and community engagement³⁰⁷. Delivering 'street-by-street' also delivers significant economies of scale: for example, the costs of external solid wall insulation are estimated to be as much as 30% less (even 40% for flats) when treating multiple properties³⁰⁸.

5.7 Provide a hassle-free and smooth consumer journey

A smooth customer journey, with emphasis on convenience and customer communications, is essential. The Green Deal has the advantage of offering a 'one stop shop' approach, co-ordinated by the Green Deal provider. Nevertheless, 'making it easy' is hindered by aspects of the product.

5.7.1 Whether the Green Deal customer journey will be convenient for consumers remains to be seen - but its complexity raises serious questions

Consumers want a streamlined process and the Green Deal does offer a 'one stop approach' co-ordinated and arranged by the Green Deal provider. New players such as retailers may bring better standards of customer communication and service than under previous schemes in this sector. And given that many energy efficiency measures are more commonly installed with renovations such as new bathrooms than on their own (section 4.3.5), Green Deal providers who are DIY stores could sell energy-efficiency improvements as part of home improvements and renovations, minimising hassle to the consumer.

However, whatever the standard of service offered by the provider, many aspects of the Green Deal processes and documentation remain complex. Consumers are required to understand difficult concepts such as the Golden Rule and are even responsible for obtaining appropriate disclosures and consents. For example, they are legally responsible for disclosing the Green Deal to a new buyer or tenant and obtaining their acknowledgement. Failure to disclose could result in their being liable for compensation.

5.8 The private rental sector - stronger regulatory and financial incentives are essential

Policies to date, such as CERT, have not achieved enough in the private rental sector (section 3.5). If it is to succeed here, the Green Deal will need to appeal to landlords and tenants - either of whom can take out the Green Deal but each needs the consent of the other (unless the landlord takes out the Green Deal when the property is empty).

5.8.1 Initial research suggests that the Green Deal is unlikely to appeal to many landlords or tenants but this should be monitored closely

Qualitative research for DECC suggested that, without a larger cost saving, the financial mechanism of the Green Deal was difficult for many landlords and tenants to accept. That tenants should pay for the improvements also challenged the dynamic of the market, where landlords were responsible for doing so. Only a small number of tenants and none of the small sample of landlords who participated were interested in taking it up but the findings are illustrative only³⁰⁹.

Another study also found that the majority of landlord respondents expressed reservations about taking out loan finance under the Green Deal, even if tenants made the repayments. Reasons included being responsible for making repayments on the loan during void periods or if tenants defaulted, and that it would deter prospective tenants or buyers

if the property was to be sold³¹⁰. But the acid test will be how landlords respond as more Green Deal products emerge and this must be monitored.

5.8.2 Where the Green Deal is taken up in this sector tenants could end up worse off

Monitoring must also include whether tenants are getting a good deal. Private tenants are more likely than owner-occupiers to be low energy users³¹¹, which means they have a greater risk that their repayments will be higher than their savings. This applies whether the tenant is the first occupant or a later occupant. Yet where tenants feel uncomfortable about signing up to the Green Deal at the landlord's request, they may feel obliged to consent under duress.

Also, where the landlord takes out the Green Deal, the landlord clearly has less incentive than an owner-occupier to ensure that the plan is appropriate for the occupant's needs. This also increases the risk of terms that are unsuitable for the tenant and greater protection is needed.

5.8.3 New regulations in this sector are planned in two stages, in 2016 and 2018, but other support options are needed before these are introduced

To stimulate energy efficiency improvements in this sector, including through the Green Deal, government plans to introduce regulation for the private rental sector in two stages:

- From April 2016, landlords will be unable unreasonably to refuse requests from their tenants for consent to energy efficiency improvements where financial support is available, such as the Green Deal or ECO.

- From April 2018, it will be unlawful to rent out a property below a minimum energy efficiency standard, likely to be EPC rating 'E'. This will be subject to there being no net or upfront cost to landlords³¹². With the Green Deal as a mechanism to fund improvements, this could potentially require installation of whatever measures can be financed under the Green Deal.

But DECC's qualitative research found that even those few tenants who expressed an interest in the Green Deal felt that the landlord might deny consent. Some tenants also felt uncomfortable about broaching the subject with their landlord³¹³. Given where the balance of power lies in this sector, and the likely low appeal of the Green Deal to tenants, it seems unlikely that many tenants will ask their landlord for consent to take it out. As such, the 2016 regulations alone will have little impact.

Significant change is unlikely to be achieved until the 2018 regulations are introduced. But other forms of help with the cost must be introduced too. It is misleading to position the Green Deal as 'financial support' to landlords when it is not a grant but a commercial loan that charges interest. And it is not appropriate to rely on the market-based Green Deal if it does not deliver what landlords and tenants need. Although these regulations will not require landlords or tenants to take out Green Deal finance, if the Green Deal remains the 'only show in town' the practical effect will be to do this. This would be a

wholly inappropriate effect of regulation. But there is currently little other support or financial incentive for landlords. A tax break exists, the Landlords' Energy Saving Allowance, but awareness and usage are thought to be very low³¹⁴ and it is planned to end in 2015, before the new regulations are introduced.

5.9 Overall assessment of the Green Deal - it is unlikely to have widespread appeal in its current form but could be an option for certain consumers

The government may say that the Green Deal applies the key success factors of high upfront costs and therefore overcomes the key barriers. It does so to a degree, but it falls short in key respects. It will be a challenge to persuade consumers that the Green Deal will work for them and convince them that it will deliver sufficient benefits. Given consumers' unwillingness to borrow for energy efficiency - something they have not had to do in the past - the long-term loan concept will be unattractive to many people and, with the current rates of interest being offered, the net annual saving will be too low. So, although the Green Deal is designed to overcome the financial barriers, it is unlikely to do this for many people. Consumers are unlikely to see this product as 'making it easy': it is complex in terms of concept, process and documentation. This assessment is borne out by the extremely low numbers of consumers taking out the Green Deal to date. Monitoring is urgently needed to establish why this is the case, especially when the numbers of consumers taking out Green Deal assessments are much higher.

The product's complexities also heighten the risk of 'mis-buying' and mis-selling. Despite the new consumer protection framework, some consumers, particularly low-energy users, could end up paying more in repayments than they gain in savings. The safeguards put in place to prevent this from happening are inadequate, and there is no way for the consumer to prove that they have ended up paying more and so get redress.

However, this is not to say that the Green Deal may not be a good deal for some people, such as those people considering solid wall or 'hard-to-treat' cavity wall insulation, looking to stay in their house for a long time and already planning home renovations. They will be able to benefit from significant ECO subsidy - that might not be widely available for able-to-pay consumers outside the Green Deal, on top of the cashback. At present, the advice from Which? for consumers is to consider Green Deals with their eyes open. Whether the Green Deal is a good deal depends on individual circumstances, as with any financial product. Few Green Deal plans are on the market, so it is too early to judge conclusively whether it offers

value and fair terms. There is clearly merit in the ‘pay as you save’ concept and the Green Deal needs to be given time to be assessed and for improvements to be identified

Having assessed the likely appeal of the Green Deal, we now evaluate, in the light of our assessment above, what the Green Deal and ECO are likely to deliver.

Part 3 Carbon and energy savings will be low, with not enough of the measures that people need

For our assessment of the Green Deal we use the criteria set out in Chapter 2 (also Box 9), and, of the energy efficiency measures, we focus on insulation where more detailed predictions have been made. Our assessment on appliances and lighting is in Chapter 3 as progress continues to be driven by the EU product standards.

5.10 The Green Deal and ECO will deliver low levels of carbon and energy savings

5.10.1 Carbon savings are likely to be low

Analysis by researchers at the Oxford University Environmental Change Institute suggests that - although it is not possible to

Box 9 Indicators of success

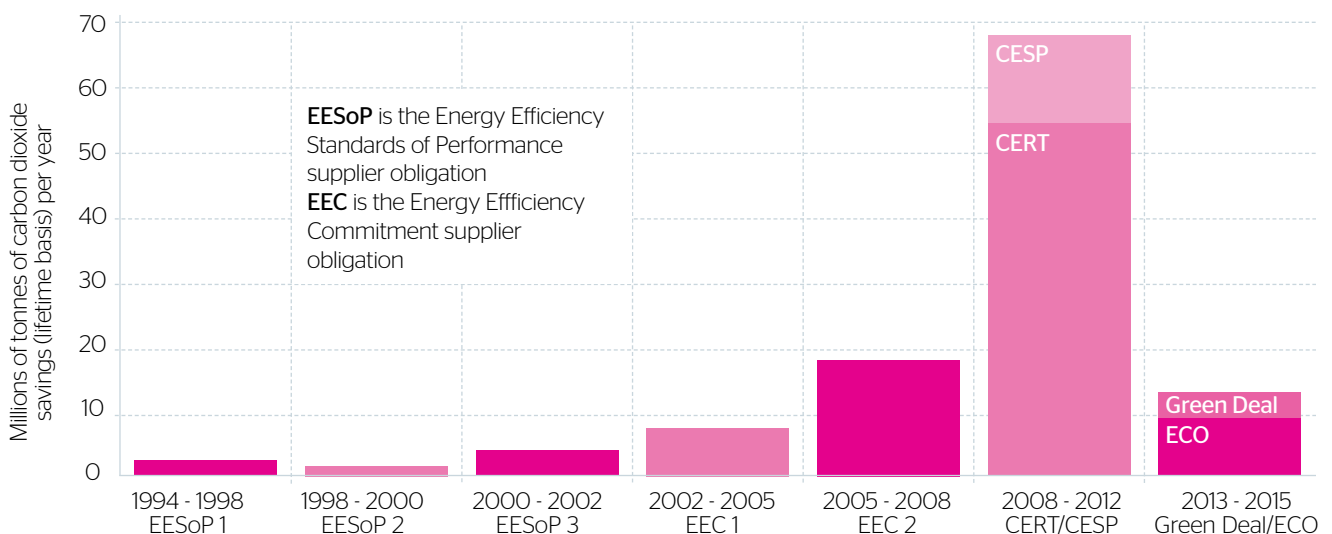
- Carbon savings from policies;
- Energy savings from policies;
- The cost and value of policies;
- Impact on fuel poverty;
- Installation of key insulation measures;
- Installation of energy-efficient windows;
- Installation of efficient heating systems including condensing boilers;
- Home energy ratings;
- Sale and use of efficient appliances and lighting
- Consumer engagement and behaviour.

make an exact comparison - the Green Deal and ECO are expected to deliver each year around 19% of the carbon savings of CERT and CESP. Figure 12, below, compares the estimated carbon savings per year achieved by previous policies with the carbon savings expected from the Green Deal and ECO.

Even making allowance for the fact that it is not realistic for policies to maintain the rate of installation of loft and cavity wall insulation seen under CERT, the expected rate of carbon emission reduction will still only be about one-third of CERT and CESP³¹⁶.

The Committee on Climate Change has said that, in order to meet future carbon budgets, it is necessary to maintain the pace of loft insulation seen in 2012 and increase the rate of cavity wall insulation. But it has expressed concern that there is a significant risk around future delivery of these measures given weaker incentives under the Green Deal and ECO³¹⁷. Expected delivery also falls short of the government’s rhetoric that the Green Deal

Figure 12 Estimated carbon savings from UK energy efficiency programmes - past and present³¹⁵



Source: The Green Deal and the Energy Company Obligation, Rosenow and Eyre, Proceedings of the Institute of Civil Engineers, Energy 166 August 2013 Issue EN3.³¹⁵



will 'deliver energy efficiency improvements throughout Great Britain on an unprecedented scale'³¹⁸. If Green Deal take-up is even lower than expected, which is a real risk given the early indications, then the reality will fall even further short. This will have a significant impact on the level of carbon savings. Low delivery of insulation would also undermine the cost-effective delivery of renewable heat to homes, as this works best in well-insulated homes, and increase the need for investment in low carbon energy generation capacity.

5.10.2 Energy savings from the Green Deal and ECO are also likely to be low

Given that carbon savings from the Green Deal and ECO are likely to be low, energy savings will be too (section 2.2). There are no targets here, so robust monitoring of actual, aggregate savings will be essential to assess the success of the policies as will the monitoring of a sample of Green Deal homes to determine whether individual customers are getting a good deal.

5.10.3 There will be far too little loft and cavity wall insulation: the rates of installation have already collapsed and this is highly detrimental to consumers

The low predicted numbers of loft and cavity wall insulation installations are a key contributor to the low level of carbon and energy savings expected. The government expects that only 1.6 million lofts and 2.7 million cavity walled homes are expected to be insulated by 2022³¹⁹ under Green Deal and ECO, when at least 7.4 and 5.3 million homes remain without any or adequate loft and cavity wall insulation respectively. This will not be enough to meet the Government's targets set out in the 2011 Carbon Plan

for insulating all lofts and cavity walls by 2020 where practical³²⁰. This mismatch calls into question the coherence of the Government's policies.

Insulation activity has already collapsed. For the nine months to the end of October 2013, provisional DECC figures (subject to checks by Ofgem) show there were 100,378 cavity wall insulations and 97,706 loft insulations under ECO (plus a very small number in the 219 homes which had installed measures under the Green Deal)³²¹. By comparison, in the first nine months of 2012 under CERT (the closest available figures), there were 467,997 cavity wall insulations and 885,341 loft insulations³²².

Some decline in numbers is to be expected given the decreasing number of low-cost measures and that the rate of installation in 2012 was especially high in order to meet CERT targets. Nevertheless, the scale of the huge decline in activity – drops of around 78.5% and 89% respectively – is concerning. The current rates of installation are even far below what DECC expected for 2013: 70% lower in the case of cavity wall insulation³²³.

The transition to the Green Deal and ECO has been very poorly managed. Over 44,000 households had their insulation orders cancelled at the end of CERT³²⁴, as activity was wound down as energy suppliers met their targets. This was followed by a period of very low activity. Around 5,000 insulation installers are reported to have lost their jobs in the first half of 2013³²⁵. If this continues, this is not just a poorly managed transition but a longer-lasting and more damaging state of affairs for consumers who would be left with uninsulated homes, as well as, having a negative impact on jobs and the economy.

The government considers that increased numbers of solid wall insulation will more than compensate for the decline in loft

and cavity wall insulation activity, with nearly a million solid wall insulations predicted by 2022³²⁶. However, this estimate still falls short of the government's Carbon Plan target and the Committee on Climate Change indicator³²⁷. And provisional figures indicate that solid wall insulations in the first half of 2013 fell by 78% compared to the first half of 2012. Only 4,704 solid wall insulations were installed under ECO in this period, compared to 21,128 in the first 6 months of 2012 under CERT and CESP³²⁸. And, again, the current rate of activity is much lower than DECC expected for 2013, down by 63%³²⁹. The picture so far is one of significant decline, not progress.

5.11 The Green Deal and ECO will do far less to tackle fuel poverty than they should

The Government estimates that the Green Deal and ECO will result in a net reduction of 125,000 – 250,000 households in fuel poverty by 2023³³⁰. But the basis for this prediction is not explained and there is no assessment of what will result if the ECO is more expensive than predicted. Given the huge uncertainty over ECO costs (section 5.12), and that the ECO has a disproportionate impact on the energy bills of low income consumers³³¹, it is unacceptable that the potential consequences have not been properly assessed. The problem with funding improvements through energy bills is that it exacerbates fuel poverty for households which do not receive measures.

Yet the ECO provides insufficient support for the fuel poor with energy efficiency. A minimum of around 42% of the ECO has been allocated to low-income and vulnerable households (Box 3, Chapter 1) - DECC expects the share to be over 50%³³² - but this still leaves a large shortfall in funding for insulation programmes for low-income and vulnerable households. In England, the 2013 budget for energy efficiency programmes for fuel poverty will be just 44% of that in 2009³³³. Research by National Energy Action estimates that 45% of fuel-poor households who could benefit from cavity wall insulation will be excluded from support³³⁴. 1.9 million fuel poor households live in solid-walled properties³³⁵ yet the extent to which the Green Deal and ECO is benefiting them cannot yet be confirmed.

This low level of support is despite the conclusion of the Hills Review - an independent review commissioned by the government to look at fuel poverty - that targeted policies that improve thermal efficiency of homes tend to be the most cost-effective way to tackle fuel poverty, with substantial societal benefits³³⁶.

But with the closure of Warm Front, for the first time since 1978 there will be no taxpayer-funded scheme in England for energy efficiency measures, even for vulnerable and low-income consumers³³⁷. This is out of step with the approach taken in Scotland, Wales and Northern Ireland, where governments are maintaining or increasing funding from taxation for their domestic energy efficiency schemes targeted at fuel-poor households³³⁸.

Part 4 Cost, value for money and monitoring

5.12 The ECO will be much less cost-effective than previous policies and could be very expensive

5.12.1 The ECO is being used to drive solid wall insulation through the Green Deal - but this is subsidy through the 'back door'

ECO subsidy is being used inappropriately to make solid wall fit into the Green Deal even though the Green Deal is billed by government as a market product. The Carbon Saving Obligation (CSO) - the largest part of the ECO (Box 3 in Chapter 1) - can be used to subsidise high-cost solid wall insulation and hard-to-treat cavity wall insulation through the Green Deal. This is so that these measures can meet the Golden Rule. Green Deal providers therefore have an incentive to apply ECO subsidy to their offers to make them more attractive. Energy suppliers also have an incentive to combine their ECO subsidy with Green Deal finance, as they do to combine ECO subsidy with other sources of funding, such as a contribution from the householder or third parties including local authority or social housing provider. Irrespective of the amount of ECO subsidy they provide, suppliers can claim credit for the combined carbon savings from the ECO subsidy and Green Deal or other finance to meet their ECO targets³³⁹.

There is no limit on the amount of ECO subsidy that the energy supplier can provide alongside Green Deal finance. It is at their discretion and they can provide however much is necessary to encourage the consumer to sign up to the Green Deal. Therefore, if the Green Deal is indeed unappealing to consumers, it is likely that more and more ECO will be used to subsidise deals and so the overall cost of the ECO will increase. If no Green Deals are taken up, all costs not self-financed by consumers - or by delivery organisations such as social housing providers - could end up being met through ECO subsidy. Given our assessment of the likely appeal of the Green Deal to consumers, and that many householders are unlikely to want to make a significant contribution themselves towards the cost of solid wall insulation (section 5.12.4), this is alarming.

Most consumers are simply not aware that they are paying for this, even though this is taxation in all but name. Only 18% of consumers think that they pay for subsidies to install energy efficiency measures through their bills³⁴⁰. At a time when people are concerned about rising energy bills, the Government should be upfront about these costs.

5.12.2 Focussing the ECO on subsidy of high-cost measures means it is more expensive than necessary

The ECO Carbon Saving Obligation (CSO) element otherwise known as the Carbon Emissions Reduction Obligation - represents a radical shift from CERT. Consumers' bills are no longer being used to subsidise low-cost measures as they were under CERT, but are being used for much more expensive ones. Solid wall insulation costs around £5,300 (internal) and £9,950 (external) for a three-bed semi-detached house - and the Government expects that, for example, around half of the cost of external solid wall insulation would be financed with ECO subsidy (section 5.12.6). Hard to treat cavity wall insulation costs £1,875 on average. By comparison, easy-to-treat cavity wall insulation - one of the most common CERT measures - costs around £500³⁴¹.

Using energy bills to subsidise high cost measures is a departure from UK and international practice. Every other major energy supplier obligation in Europe and North America has been designed to promote minimum cost delivery of energy savings, i.e. to utilise cheap measures³⁴². Yet the CSO is not designed in this way and this means a higher impact on bills and lower cost-effectiveness. There is justification for using the ECO to fund hard to treat measures for the fuel poor but the CSO is open to all consumers. The extent to which the CSO will benefit the fuel poor is still uncertain.

5.12.3 The ECO's CSO would be more cost-effective if it included support for loft and cavity wall insulation

The Government's own Impact Assessment recognises that the most cost-effective insulation measure, whether now or in the future is easy-to-treat cavity wall insulation. Cavity wall and loft insulation are among the most cost-effective energy-efficiency measures and including them in the ECO's CSO would have created some significant benefits including higher uptake and greater carbon savings³⁴³.

Not including these lower-cost measures in the CSO also means that it is a more expensive way to save carbon. Surprisingly DECC has not published cost-effectiveness estimates for the final design of the domestic Green Deal and CSO. However, an earlier assessment provides an indicative illustration that these new policies were expected to be much less cost-effective than CERT and CESP, saving only £15 per tonne of carbon reduction, compared to an estimated £163 for CERT (£118 for the CERT extension phase) and £90 for CESP³⁴⁴. CERT is estimated to be the most cost-effective policy because of its focus on low-cost loft and cavity wall insulation. Because the number of these low-cost measures is diminishing, it is not realistic to expect the ECO to be as cost-effective. Which? has estimated that if the ECO's CSO prioritised low-cost measures, it could save between £242 to £363 million a year, help at least the same number of households and still meet its carbon targets³⁴⁵.



5.12.4 The Government's rationale for not including loft and cavity wall insulation in the CSO is not in line with our understanding of consumer behaviour

Despite the benefits of including loft and (easy-to-treat) cavity wall insulation as eligible measures in the ECO carbon saving obligation, DECC decided not to do this because it would have 'crowded out' potential for Green Deal financed and subsidised measures³⁴⁶.

From the perspective of lessening the impact on consumers' bills of the ECO, it is clearly a desirable outcome for more of the cost of the measures to be met through householders' own financial contributions where appropriate. However, this argument relies on consumers taking out loft and (easy-to-treat) cavity wall insulation through the Green Deal or funding it themselves without this subsidy. It also assumes that consumers will be willing to pay a reasonable share of the costs of solid wall insulation and hard to treat cavity wall insulation through the Green Deal or by financing it themselves. As our assessment above suggests, most consumers are unlikely to do this. This means that the draw on the ECO is likely to be higher than the government expects.

For loft and cavity wall insulation, based on the assessment set out in Chapter 4, Which? agrees with the conclusion of the report by NERA for Energy UK that the government has overestimated how often customers consider installing insulation and their willingness to pay³⁴⁷. It is unrealistic to expect that many of the consumers who have not taken out these measures even when they were heavily discounted or free of charge will do so through a finance plan with relatively high interest rate. Without subsidy and an obligation on suppliers to seek customers for it, the market for cavity wall insulation has already collapsed in 2013 to date.

For solid wall insulation, which is more costly and disruptive, consumers have low awareness of this measure and very few are currently installing it. ScottishPower has rightly questioned whether it is realistic for DECC to assume that 43% of the cost of the CSO will be met by consumers through the Green Deal or their own finances when consumers contributed only about 20% of the costs (of much cheaper and less disruptive measures) under CERT³⁴⁸. Consumers may require a higher level of subsidy than DECC envisages, meaning the ECO costs could be far higher. Yet this is unknown: no information is currently available on what share of the costs of installations is being met through ECO subsidy, whether in conjunction with the Green Deal or not.

5.12.5 Not only will the ECO fail to deliver the most 'bang for buck' but actual costs are uncertain and could be considerably higher

The government's central estimate of ECO costs is £1.3 billion per year³⁴⁹, or around £50 per household per year. The government considers that this is roughly equivalent to the estimated annual costs of CERT. Yet not only did CERT deliver a much higher amount of carbon and energy savings, but even the government acknowledges that this ECO cost estimate is subject to considerable uncertainty³⁵⁰.

The NERA report estimated that the annual cost would be £1.7 billion, taking into account likely higher costs of finding consumers eligible for support, and could even be as high as £2.35 billion per year or more³⁵¹. The implications for energy bills are stark. Rather than an average impact on bills of around £52 per household per year³⁵², the report estimated that an annual cost of £1.7 billion would equate to around £69 and £2.35 billion to around £94³⁵³. This at a time when households are struggling to make ends meet. Yet, even with this considerable uncertainty, there is no cap on ECO costs.

5.12.6 It is unfair for the fuel poor to subsidise high-cost measures for the able-to-pay

Those consumers who do benefit from subsidy for solid wall insulation could receive significant amounts of subsidy. Applying the government's estimate that 50% of the cost of external solid wall insulation will be met by ECO subsidy on average³⁵⁴, this would equate to £5,000 of subsidy for external solid wall insulation for a three-bedroom semi-detached house. For a large detached house, this could be nearly £7,000 of subsidy³⁵⁵. This is a large amount of cross-subsidy from other people's bills – including those of the fuel poor – particularly given that consumers installing solid wall insulation are more likely, given its high costs, to be able to pay. There is no mechanism to limit the amount of subsidy per property as it is at the discretion of the energy company or Green Deal Provider.

5.13 Robust monitoring and scrutiny of ECO costs and the Green Deal are required

Given the huge uncertainty over ECO costs, it is essential that these are closely monitored to determine the impact on people's bills and the ECO's overall cost effectiveness. At the time of publication, it is too early to determine the cost of the ECO. Data reported by DECC in October 2013 suggests that costs are in line with DECC's central estimate of a £1.3 billion annual cost³⁵⁶. However, not only are these unverified figures from energy suppliers, but they show that suppliers overall are currently delivering measures at a rate that is far below what is needed to meet the final ECO target³⁵⁷. This means that, for example, the prices that energy suppliers have to pay to installers towards March 2015 could rise, as happened towards the end of CERT.

If this happens the overall cost of the ECO would also rise. If the earlier industry estimate is borne out, each UK household would have to pay over £40 more on their energy bill each year. Whatever the eventual level, this is taxation in all but name and should be subject to the same level of scrutiny.

Yet there is an inadequate system to monitor these costs. It is not clear how suppliers' delivery costs are being reported and scrutinised due to the lack of public information on this new requirement (section 2.3). And there is no way to know whether the costs passed through to consumers are equal to, or in excess of, suppliers' delivery costs. It is not reasonable to expect consumers to take this on trust, particularly when trust in energy companies is so low. Delivery costs and costs passed through to bills must each be measured and scrutinised. This is essential to determine whether the ECO money is being spent cost-effectively. This can identify the improvements needed to keep the costs in check and ensure value for money.

There must also be measurement of how much ECO subsidy is being used to support the Green Deal, how it is being used and the impact of this subsidy. This is important to understand the extent to which the costs of the Green Deal are being passed through to bills.

Finally, and in addition, early and comprehensive monitoring of the Green Deal is critical to determine whether consumers are getting a good deal from this product. Mystery shopping will be an essential part of this. Priorities for monitoring include measurement of what energy savings are being realised as a result of Green Deal plans and whether the Golden Rule is being met; whether consumers are being sold the most appropriate packages; and whether mis-selling is occurring. Monitoring must be started now, with early analysis to ensure early improvements can be made.

Part 5 Conclusions

The Government claims that the Green Deal has been designed to overcome the financial barrier to people's willingness to install energy efficiency measures. But it is unlikely to achieve this in practice for most people. Research suggests that consumers do not see the net saving from energy efficiency as sufficient to make it worthwhile, and early indications show that take-up of this new product is very low. This is likely to be due to a combination of complexity, high interest rates and other factors such as having to pay for an assessment. Government must urgently evaluate what the causes are of this low appeal. Otherwise it will remain unappealing and this could damage the chances of new and potentially more fruitful means of delivering energy efficiency, such as local initiatives, that are in development and starting to be rolled out.

There is merit in the 'pay as you save' concept but improvements are needed to the Green Deal product to improve consumer protection and reduce the risks of poor terms and mis-selling. Despite the new consumer protection framework, consumers could still lose out financially. Early and robust monitoring will be essential to determine whether Green Deal customers are getting a good

deal, and to identify further improvements needed.

At present, there is a serious absence of information on Green Deal charges and terms which means it is difficult, if not impossible, for consumers to compare deals and shop around. Whether the Green Deal is a good deal depends on the individual, but the Green Deal could represent a better deal for consumers in homes which require solid wall insulation or hard-to-treat cavity wall insulation, than for those just requiring low-cost measures. This is mainly because considerable amounts of subsidy from the ECO will be available, which may not be widely available outside the Green Deal.

All consumers are being required to bear the financial risk of the Green Deal not being popular. This is because the lower the take-up of the Green Deal, the more ECO subsidy will be needed, because suppliers are free to increase the amount of ECO subsidy to get people to take up measures. But it is not fair to expect consumers, who are already struggling with energy bills, to pick up the tab for an unpopular policy.

That consumers are exposed to highly uncertain, and potentially very high, ECO costs, with no cap, is unacceptable. And DECC's £1.3 billion central estimate of annual costs is being questioned by a wide range of stakeholders. It is too early to make conclusions on actual costs but what is clear is that, as currently designed, the ECO policy is not cost-effective or cost-certain. A mechanism to provide robust scrutiny of its costs is essential.

The objectives of the ECO should have been to continue to provide support for completion of the most cost-effective measures and to subsidise hard-to-treat measures only for the fuel poor, who need help the most, rather than to stimulate the Green Deal. The Green Deal's appeal looks low at present and this entails significant cost risk for consumers. There is now also insufficient support and incentives for installing loft and cavity wall insulation, with the government appearing to have overestimated people's willingness to install them without subsidy. As we have seen, this lack of support has already contributed to a collapse in the rates of cavity wall and loft insulation in the first ten months of 2013.

The government's energy efficiency strategy needs to ensure that there is adequate support for high-cost measures such as solid wall insulation for all consumers. But trying to avoid the use of public funding through relying on the market, supported by consumers' bills (in itself a form of public funding), to ensure this is unlikely to work. A range of support options for consumers will be required alongside the Green Deal.

Conclusions

Introduction

Energy efficiency has an extremely important role to play in helping households reduce their energy costs. It also brings benefits for fuel poverty, people's health and for meeting the UK's carbon reduction targets cost-effectively. However, its potential has not been fulfilled and the current government's policies look unlikely to be an improvement. On current indications these policies will fail to engage consumers – the very people whose individual actions are central to their success.

The progress that has been made to date has happened at unknown cost, despite consumers being charged these costs through their bills, and there is little indication that this will change going forward. In fact, consumers have been placed at risk of bearing significantly higher costs than in the past to subsidise the government's new policies.

If major improvements are not made now, consumers will still be paying over the odds for their bills and be less able to protect themselves against continuing energy price rises, as well as footing the bill for ineffective policies. All this at a time when many households are under considerable pressure to pay their household bills.

Conclusion 1: The lack of targets in the national strategy means there is no clear framework for future progress

Despite proclaiming the importance of energy efficiency and spelling out the many benefits that it provides to consumers and to the economy, the government's new energy efficiency strategy lacks a clear framework and vision of success. It states that 14 million out of the 27 million homes in Britain are not properly insulated but fails to set out a plan to remedy the situation. It lacks targets for the remaining low-cost insulation and a clear plan to increase take-up of solid wall insulation at the lowest possible cost. Targets are needed to set direction and as staging posts to show progress in helping to meet carbon budgets.

Conclusion 2: The new policies will not deliver the bill and carbon savings needed

Energy efficiency is a particularly cost-effective way to help consumers manage their energy costs, as well as delivering a range of other benefits, particularly when the local, area-based approach is used (Conclusion 11). Despite the rhetoric in its new energy efficiency strategy, the government's new policies don't match up to the scale of the challenge. Even the government's own projections acknowledge that the Green Deal and ECO are likely to achieve significantly less than previous policies, in terms of carbon and energy savings and number of measures installed. Much lower numbers of loft and cavity wall insulation are expected: there are no targets but the government expects only 1.6 million loft and 2.7 million cavity wall insulations by 2022. Yet 1.3 million lofts were insulated in 2012 alone. There are at least 7.4 million homes with lofts in need of insulation – 5.7 million of which are 'easy-to-treat' – and 5.3 million homes with cavity walls that need insulating.

The consumer incentives for loft and cavity wall insulation are too weak – and we show below that there is a real risk that even fewer will be delivered than the government expects. Relying on the market and the new supplier obligation supported by consumers' bills is not going to deliver energy efficiency in an effective yet affordable way. It is important to reallocate existing funding more effectively, including from the ECO, as well as to give consumers greater protection from ECO costs rising unchecked.

Conclusion 3: The Green Deal is not appealing in its current form

In designing the Green Deal, policymakers have not taken sufficiently into account learnings from previous programmes and consumer research. Although it is designed with good intentions as a way of funding high-cost measures, it is still likely to be too high-cost an option for many consumers, with the net saving on energy bills too low to appeal. The majority of the population are unlikely to take it out. Yet it is the government's flagship energy efficiency policy.

This sobering assessment is borne out by the low take-up to date. Ten months after its launch, only 219 homes have had measures installed under the Green Deal, and only 594 households had signed up and were progressing with installations. Although 101,851 people have had Green Deal

assessments, it is doubtful that this high number is a genuine reflection of consumer demand. Earlier Government surveys suggest that 80% of these assessments have been done free of charge, which could be for local authority pilot schemes or to deliver measures under the ECO. The government must not stand by and watch such low take-up. It must urgently investigate why people are choosing not to take up the Green Deal, whether because of high costs, complexity or other factors, or a combination of these. Yet the government has still not published its Green Deal evaluation plan.

Despite the new consumer protection framework, there are also risks of mis-selling and poor terms. Households who use less energy than average are exposed to the risk that Green Deal repayments might exceed savings. Consumers might also have to pay large fees if they wish to repay early. And the paucity of information on Green Deal charges and terms (at the time of publication) means it is difficult for consumers to shop around.

Conclusion 4: Insulation activity has already collapsed under the Green Deal and ECO

The rate of installation of all types of insulation has already collapsed: up to the end of October 2013, provisional figures suggest that cavity wall insulation declined by 78.5% and loft insulations by 89% under the ECO compared to the first nine months of 2012 under CERT. Tellingly, the current rate of installation of cavity wall insulation is 70% lower than DECC expected for 2013, and even solid wall insulation is 63% lower. Many jobs in the insulation sector are already reported to have been lost. This decline in activity shows the current lack of sufficient incentives and support for consumers for low-cost and high-cost measures.

Conclusion 5: Using the ECO to subsidise high-cost measures means it will not deliver 'bang for buck' and is unfair

In its current form, the ECO is unlikely to be cost-effective. With the exception of limited and insufficient support for low-income consumers, it does not give support for the most cost-effective measures which are easy-to-treat cavity wall and loft insulation. The government argues that low-cost measures do not need ECO subsidy because they can be financed under the Green Deal. This does not tally with the evidence and with our understanding of low consumer willingness to install them without subsidy.

Instead, the largest part of the ECO, the Carbon Saving Obligation, uses levies on consumers' bills to support high-cost measures such as solid wall insulation, which is not done anywhere else in the world³⁵⁸. Because solid wall insulation is less cost-effective in saving carbon than the lower-cost measures of cavity wall and loft insulation, this means the ECO does not deliver maximum 'bang for buck'. Also, the ECO is not targeted at those most in need so the 'able-to-pay' can benefit from large amounts of ECO subsidy. The subsidy could be £5,000 to £6,000 out of an installation cost which could be £10,000 or more, but there is a complete lack of transparency over how much is actually being used.

It is unfair to use the energy bills of low-income consumers to subsidise expensive measures for the 'able to pay'. The objectives for the ECO should have been to provide support to complete the most cost-effective measures and to subsidise hard-to-treat measures only for the fuel poor, who need help the most. Instead it has been used to stimulate the Green Deal 'market'.





Conclusion 6: With the ECO and the Green Deal not currently working as intended, consumers could pay much higher costs for the ECO

The Government claims that its new approach to delivering energy efficiency is market-based. But subsidy is being provided through the back door. The largest part of the ECO – the Carbon Saving Obligation – is intended to be used to support solid wall insulation and hard-to-treat cavity wall insulation by subsidising these measures to help them meet the Green Deal’s ‘Golden Rule’ (which states that repayments should not exceed energy bill savings on Green Deal finance plans). However, the Government’s objective for hard-to-treat measures to be delivered through a combination of Green Deal finance and ECO is not currently being achieved, as little Green Deal finance is being taken up at present (Conclusion 3).

The lower the take-up of the Green Deal, the more ECO subsidy could occur, because suppliers are free to increase the amount of ECO subsidy to get people to take up measures – whether Green Deal finance is being used or not. This is alarming given the low appeal of the Green Deal in its current form. The cost of the ECO is highly uncertain and without limit, placing consumers at risk of paying far too high a cost. According to one report³⁵⁹, the ECO’s annual costs over 2013-2015 could be over £1 billion pounds higher than the Government’s estimate of £1.3 billion per year, which would equate to over £40 more on each household’s bill per year.

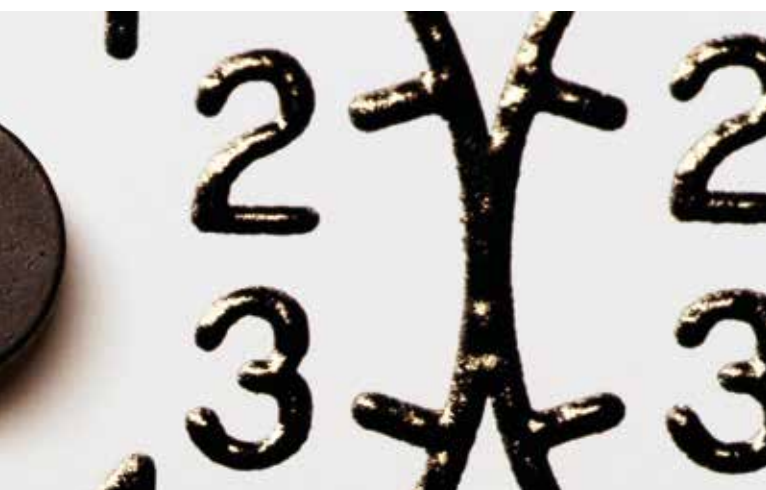
At the time of publication, it is too early to determine the cost of the ECO. Recent data from DECC reports that costs are in line with DECC’s central estimate. However, it is clear that some suppliers are delivering more efficiently than others – £200

million could be saved if each supplier delivered the ECO at the lowest price currently paid by an individual supplier – and that suppliers are currently delivering measures at a rate that is below what is needed to meet the final ECO target. If this continues, energy suppliers will be under greater pressure to meet ECO targets towards March 2015 and this could raise the prices that energy suppliers have to pay to installers for measures, as happened under CERT. This raises the overall cost of the ECO still further. At this stage, what is abundantly clear, however, is that the ECO is neither cost-effective nor cost-certain.

Conclusion 7: There is insufficient cost monitoring to ensure value for money

Successive governments have failed to ensure that what has been done has been done cost-effectively. The progress made under CERT and CESP was at uncertain cost and value for money because their costs were not monitored and open to public scrutiny, even though consumers were paying for them – taxation in all but name. Robust monitoring is even more critical for the ECO given the huge and unacceptable level of uncertainty over its costs. There is a lack of clarity around the new requirement for suppliers to report to Ofgem their delivery costs, in terms of what they are required to report, what use is to be made of it and what is to be reported publicly. And crucially, there is no requirement to monitor how costs are passed through to consumers. Government said in October 2013 that it wants suppliers to make this cost data available. Government needs to ensure that this happens.

At a time when consumers are struggling to meet the costs of living, not to mention the new costs being loaded onto consumers’ bills, this lack of monitoring is wholly unacceptable. Reliance cannot be placed on the state of competition in the retail market to control costs because this competition is weak – see our report *The Imbalance of Power: The Retail Market*.



Conclusion 8: Energy efficiency policies to date have failed to fulfil their potential, with insufficient emphasis on raising awareness of the need to act and of what to do

Government for many years has neglected the importance of energy efficiency despite its multiple benefits. Despite some progress, even after 19 years of energy supplier ‘obligations’, paid for by consumers, there are still at least 7.4 million homes with lofts in need of insulation – 5.7 million of which are ‘easy to treat’ – and 5.3 million homes with cavity walls that need insulating. And fewer than 3% of solid-walled homes have been insulated. Product standards for appliances have also failed to fulfil their potential. And much more could have been done to deliver the significant potential savings by people changing the way they use energy.

Consumers worry about the cost of energy and want to use less: 62% told us they are likely to try to use less energy in the next month, more than said they would cut down on any other area of expenditure. But many consumers don’t understand how best to do this. Although 70% of people say they are confident they know what to do, many fail to identify the most effective steps. People still think first of turning off lights and appliances. They are less conscious of the need to reduce heating use, even though most energy used in the home is for heating. Many people still do not see the need for insulation: thinking they are already doing enough was the number one reason in our survey why people had not installed insulation. Few of those people who did install cavity wall or loft insulation under CERT were made aware of what else they could do: only 5% and 4% respectively said it had made them think about how much energy they use³⁶⁰. CERT and CESP failed to place enough emphasis on raising awareness of the need for energy efficiency in the round and of the wide range of actions that can be taken.

Conclusion 9: Previous approaches failed to address the combination of financial and non-financial barriers

Past policies focused on reducing the price of low-cost measures and this helped take-up, highlighting that price reduction is generally needed even for low-cost measures to appeal to the public. But often this was not enough to encourage people to install insulation. Policies tended to neglect the importance of non-financial barriers, with messages of warmth and comfort having been under-used although they are effective. People have not been sufficiently convinced of the various benefits, financial and non-financial. Trust too is key, but CERT offers that were marketed directly by energy suppliers were little trusted by consumers and did not convince consumers of what they stood to gain.

And policies have failed almost completely to provide financial support for consumers living in hard-to-treat homes, such as homes with solid walls, even though they face the highest barriers of cost and disruption.

In the private rental sector, policies have not overcome the ‘split incentive’ between landlord and tenant, which means that neither tenants nor landlords are willing to pay for improvements. The CERT evaluation survey suggests that private tenants were only one-third as likely to have taken up CERT offers as owner-occupiers³⁶¹, despite a higher proportion of privately rented properties being energy-inefficient.

Conclusion 10: Common success factors that can be identified, but past and current policies have not tapped into these enough

Our analysis of the range of approaches taken for the marketing and delivery of energy efficiency shows that there are common factors that will increase the success of programmes, whether their aim is to install measures or change energy-using behaviours. Key policies such as CERT and CESP have in the past failed to apply some of these factors:

- Raise awareness and understanding of the need to act
- Communicate the benefits relevant to the individual
- Provide help with affordability
- Use a trusted and competent source for advice and delivery
- Provide a hassle-free, smooth customer journey
- For the rental sector, provide stronger regulatory and financial incentives.

Conclusion 11: **The local, area-based approach has been shown to be effective in fostering consumer awareness and trust, and delivering economies of scale**

Analysis of schemes shows that, in contrast to nationally marketed offers by energy suppliers, the local, area-based approach can be an effective way to engage consumers' interest and gain their trust. Area programmes endorsed or co-ordinated by local authorities, housing associations or community groups have shown that they can deliver higher uptake through working with local intermediaries and through word of mouth. This approach enables intensive and effective marketing at a community level, economies of scale and a co-ordinated approach to funding. It can be the most cost-effective and efficient approach³⁶².

Yet councils have been given very little meaningful financial support to develop or deliver energy efficiency programmes, through the Green Deal or otherwise, even though lack of funding is a major barrier to council action on energy efficiency³⁶³. A model for directing funding to all local authorities exists in Scotland (Box 10). And funding is also being provided by the Welsh government to support low-income households and for an area-based scheme focused on deprived areas³⁶⁴.

Conclusion 12: **With the Green Deal and ECO not going to deliver what is needed, support options for both the fuel poor and able-to-pay are missing - and past experience shows that neither group will act without both financial and non-financial support**

The Government cannot rely on the new policies – even with improvements – to deliver what is needed. They are not beyond repair but significant improvements are urgently needed. The 'pay as you save' loan concept does have merit but the Green Deal and ECO alone won't engage and support consumers effectively on a mass scale. The Government's approach is currently to put all its eggs in the basket of the market-based

Box 10: **Public funding in Scotland for energy efficiency, focused on helping the fuel poor with a central role for local authorities**

Launched in 2012, the Home Energy Efficiency Programme for Scotland (HEEPS) is the new Scottish Government initiative which applies Scottish Government funding for Area Based Schemes (ABS) and the Energy Assistance Scheme (EAS). Over the current spending review period the Scottish Government is committing around a quarter of a billion pounds³⁶⁵. ABS has an initial focus on the most deprived areas but is intended to cover all homes in Scotland in 10 years. Half of an initial £60 million fund was allocated to all local authorities in Scotland and they can bid for the remainder. It will be used to lever-in funding from the Carbon Saving Communities and Carbon Emissions Reduction Obligation elements of the ECO. Councils are expected to work with housing associations, energy companies, installers and consumers. Responsibility for programme delivery falls to local authorities who already have duties under Local Housing Strategies. In addition, the EAS is available for the most vulnerable Scottish households who live outside ABS areas but are not eligible for the Affordable Warmth element of the ECO. It provides grants for insulation and heating for over 60s with no central heating or those on qualifying benefits living in a home with a poor energy rating.

Green Deal – supported by an expensive ECO. But past experience shows that funds could be more effectively spent on lower-cost measures. It is also clear that lower-cost options and financial support that does not require consumers to borrow will be required before consumers will act. They will also need support to overcome non-financial barriers. Without consumer engagement, best obtained through the local approach, the full potential of energy efficiency will not be achieved.



Recommendations

Introduction

Energy efficiency is a critical part of reducing the cost of energy for consumers and cutting back on carbon emissions – but the government's policies are not up to the task. Our package of recommendations below is designed to deliver greater carbon and energy savings at the lowest possible cost through maximising consumer engagement and action.

Our recommendations include proposals to improve the appeal and fairness of the Green Deal – reducing its complexity and cost – and increasing the impact and cost-effectiveness of the ECO. But engaging consumers on the scale needed, using trusted sources and lower-cost finance options, also requires a concerted emphasis on the local, community-based approach.

Recommendation 1: The Government should strengthen its strategy with firm insulation targets

The Government's strategy should be improved to ensure that policies will deliver enough insulation measures to meet the UK's legally binding carbon reduction targets. It needs to set out a stronger framework and clearer vision of success. Policies should aim to deliver first what is most cost-effective and to people with the greatest need.

The Government's strategy should set insulation targets and pathways to achieve them, prioritising urgent delivery of low-cost measures. Firm targets should be set for all key insulation measures, starting with delivery of remaining lower-cost, easy-to-treat cavity wall and loft insulation as soon as practical. There should be regular reporting against progress towards these targets and a plan to address any shortfall against targets.

Targets for solid wall insulation and hard-to-treat cavity wall insulation must take into consideration the need to deliver these at the lowest possible cost, and the target for the former should only be set after an independent cost review (Recommendation 2).

All targets must reflect what actually needs to be done. This will require government to provide an accurate breakdown of how many homes require easy or hard-to-treat insulation and of the remaining 'problematic' walls (e.g. partial cavities) and lofts.

Recommendation 2: Existing levels of funding should be reallocated and reprioritised to make policies more cost-effective and better focused on those who need support the most. This should include immediate reforms to the ECO and prioritisation of a local, area-based approach

Reallocation and reprioritisation of existing levels of funding

Existing public funding on energy efficiency (whether from levies that are charged on bills or funding that comes directly from taxation) should be reallocated and reprioritised to make policies more cost-effective and to protect consumers from ECO costs rising unchecked.

Reprioritised spending should be directed in a way that will most effectively meet national targets (Recommendation 1). Spending should be directed primarily towards the fuel poor, and with a greater focus on a local, area-based approach, given its multiple benefits and proven effectiveness. Support should also be available for vulnerable households outside the areas identified, such as in rural areas, especially those on electric heating who have higher heating bills than homes on the gas grid and bear a higher share of policy costs to decarbonise electricity.

In addition, reprioritisation of funding should also address the challenge of high-cost measures. This should be directed in two ways: first in supporting the Cost Reduction Taskforce (see below) to reduce the overall cost of these measures; second, to provide help to consumers with the cost of these in the shape of full grants for the fuel poor, who need help the most, as well as partial grants and/or subsidised loans (or the Green Deal) for the able-to-pay (see below). By focusing spend in this way, as well as helping those who need it, it will improve the thermal efficiency of some of the leakiest housing stock, as well as providing support for the able-to-pay by continuing to improve the efficiency of houses more widely.

The Green Investment Bank – which is already funding the Green Deal – is a potential funding source, as is any underspend from the £125 million allocated for Green Deal Cashback. Only £1.6 million had been spent as at the end of August 2013. There is evidence to show the effectiveness of public spending on energy

efficiency as a form of investment³⁶⁶.

There should also be immediate restrictions on the amount of money from the Green Deal cashback scheme that can be spent on replacing gas boilers that would be replaced anyway at the end of their natural lifetime. Boilers account for 96% of cashback paid out to date: this is not what the scheme was designed for and past experience from the boiler scrappage scheme suggests that this is poor value for money. Restrictions such as only permitting cashback for boiler replacements when they are fitted at the same time as insulation is installed, and/or only when the oldest, most inefficient boilers are replaced would encourage insulation and improve the value for money of the scheme.

Immediate reforms to the ECO

The ECO is an important source of funding for energy efficiency, including for the fuel poor. But it needs to be reformed to make it fairer and to deliver better value for money. It does not deliver 'bang for buck' and it also has a disproportionate impact on the fuel poor, who are also being hit hardest by the costs of policies to promote low-carbon energy.

The Government should begin reforming the ECO now by dedicating a significant but fixed proportion of the Carbon Saving Obligation element to easy-to-treat loft and cavity wall insulation, open to all consumers. Widening eligibility to these cost-effective measures, and thus reducing the share of the ECO for hard-to-treat measures, would make the ECO more cost-effective and increase carbon savings. We have estimated that, if the CSO prioritised low-cost measures, this could save between £242 and £363 million a year, help at least the same number of households and still meet the same carbon reduction target. Providing ECO support for these measures also strengthens the much-needed incentives for consumers.

However, consumers should not be permitted to claim both ECO subsidy and Green Deal cashback for the same package of measures. This could entail subsidy in excess of the cost of the measure.

The amount of ECO funding available to support easy-to-treat measures needs to be fixed, as sufficient funding is required to support fuel poor consumers, as well as hard to treat measures. A small, capped percentage of the ECO should be retained for hard to treat cavity-wall insulation and to sustain the solid wall insulation market in the short term until installation costs are reduced (see below). The Government should determine the amounts of funding required in line with the remaining potential and what would be required to meet carbon reduction targets.

The government should direct a greater share of the ECO towards the fuel poor. Currently at least 42% of the ECO is designed to benefit low-income and vulnerable consumers: a greater proportion, more than the current 42 - 50%, should be applied to support the fuel poor in funding both low-cost and

high-cost measures. Increasing the share of the ECO for priority consumers is also in line with the government's intention that the Green Deal should be the primary funding mechanism for the able-to-pay.

This could be achieved, for example, by requiring a minimum share of the Carbon Saving Obligation element to be delivered to priority consumer groups and/or increasing the share of the ECO that is accounted for by the Carbon Saving Communities element.

Energy suppliers should recover ECO costs as fairly as possible - according to the customer's energy consumption rather than as a flat rate per customer, because lower income consumers tend to be low users of energy. Although each supplier's ECO obligation is set according to energy sales volume, they are not required to recover costs according to the customer's consumption. Government regulation for this would make the ECO fairer and less regressive - in other words, with less of an impact on low-income consumers.

Addressing the cost of hard-to-treat measures

The Government must set up a cost-reduction task force for solid wall insulation. Installation of solid wall insulation at scale requires subsidy and this should be applied as set out above. National targets should be set (Recommendation 1) but only after a cost-reduction plan has been developed.

Following the approach taken for offshore wind³⁶⁷, the Government should set up an industry-led cost-reduction task force for solid wall insulation. The task force should develop a plan to deliver more affordable and less disruptive solutions for consumers. This plan would inform the national target for solid wall insulation (Recommendation 1) and help increase the delivery of solid wall insulation in the medium to long term.

Supporting people to make their own contribution to the costs through Green Deal finance or a personal loan should be encouraged by government subsidy of the interest rate to enhance appeal. There is merit in the 'pay as you save' loan concept that underpins the Green Deal as a means of financing high-cost measures but research has already found that high interest rates will deter uptake. Loans should be only one of a wider choice of financing options as they will not appeal to all consumers. Loans enable financing of high-cost measures and packages of measures for the able-to-pay in a way that reduces subsidy from public funding or bills. This is because subsidising a loan tends to be cheaper than providing a substantial grant. Whether a Green Deal or a personal loan scheme, the interest rate should be subsidised to increase appeal and it should explore the best ways to achieve this as part of the Green Deal review (Recommendation 5). This would provide the larger net saving that consumers want. This could be direct subsidy of the interest rate or potentially underwriting of the finance as the government has done for Help-to-Buy mortgages.

Promotion of a local, area-based approach

Government should promote a local, area-based approach for advice and delivery.

The local, area-based approach has been shown to be an effective way to get consumers engaged and gain their trust and confidence in the advice and installation of energy efficiency measures. It has also been shown to help achieve economies of scale in delivery and other benefits. Policies need to give this approach increased emphasis and do more to facilitate the involvement of local authorities, housing associations and community groups. It should be supported by the reallocation of the funding sources as set out above. Delivery could be through a local partnership, which may or may not be funded by Green Deal finance, perhaps supported by DECC's existing £20 million Green Deal Communities fund. Councils could work with housing associations, Warm Zones and community groups to develop the most appropriate approaches for their areas.

This approach should be focused on the needs of low-income and vulnerable consumers but could also help deliver for the able-to-pay. As in Scotland (and the Arbed scheme in Wales), support should be directed primarily at deprived areas. It should aim to target areas with high proportions of low-income residents and energy inefficient properties. This 'low-income, low-efficiency area' approach – a term used by the Institute for Public Policy Research – takes account of property characteristics, not just income³⁶⁸. Delivery to all homes in these areas would maximise economies of scale, including for solid wall insulation. Support should also be available for vulnerable households elsewhere, such as in rural areas (see above).

The Government should explore how to facilitate the involvement of English and Welsh local authorities in area-based schemes.

This should include consideration of opening up the ECO brokerage system to local authorities and housing associations. The ECO brokerage system is currently restricted to Green Deal providers. Opening up the brokerage must be done in a way that ensures consistency of delivery standards and does not expose them to risk of non-compliance penalties and damages. Government could also consider a form of obligation on energy suppliers to work with local authorities and other community partners.

Government should explore enhanced data matching to help improve targeting of fuel-poor, low-income and vulnerable consumers.

Government should seek to enhance targeting of areas and households in most need by cross-referencing property data from the HEED database with benefits data where practical. This should build on the experience of matching Department of Work and Pensions data under the Warm Homes Discount (low-income pensioners) and seek to extend these powers to vulnerable households in receipt of Cold Weather Payments.

The government should ensure that local authorities and public health professionals are able to deliver support on energy efficiency to the most vulnerable in society.

To help facilitate the community-based approach, support and guidance are needed from central government for local authorities and public health professionals for advice and delivery. The Department of Health should commit to continuing the Warm Homes Healthy People fund on an ongoing rather than ad hoc basis.

Recommendation 3: Whatever the source of funding, Government should ensure a robust system to measure, scrutinise and control costs

As Which? set out in *The Imbalance of Power: The Challenge of Decarbonisation*, the Government must put in place more rigorous scrutiny of programmes paid for through levies on consumers' bills. This is taxation in all but name. For years, there has been a complete failure of cost-monitoring despite energy bills consistently being a top financial concern for consumers. The current system is still inadequate and this is wholly unacceptable given the ECO will cost billions of pounds. New cost monitoring requirements and transparency over how much ECO is being spent, and how, are urgently required, as is an early evaluation of ECO costs.

Government should put in place a system of cost scrutiny to ensure that energy efficiency policies deliver value for money for consumers.

The National Audit Office (NAO) should be given the power to monitor and scrutinise energy costs in the round, building on its existing evaluation work. Through this, Ministers should be held accountable for securing the best value for consumers and for the amount of consumers' money that is spent. This is necessary to establish whether the energy efficiency programmes are fulfilling their objectives cost-effectively.

The ECO is outside the Government's Levy Control Framework and as such there are no mechanisms, beyond competition in the retail market, to keep the costs in check. Evaluation of ECO should assess whether each supplier is delivering its obligations cost-effectively. Scrutiny should be based on price data from trading on the ECO brokerage scheme, improved data reporting by suppliers to Ofgem on delivery costs and data collection on pass-through costs to consumers that we recommend below.

A system to monitor ECO costs passed through to consumers' bills needs to be put in place by the Government as a matter of urgency. DECC requires suppliers to report their ECO delivery costs to Ofgem but not the costs passed through by suppliers to consumers' bills, despite the Government's reported intention to make this happen. The Government should legislate to require suppliers to report to Ofgem both the overall pass-through cost and the cost recovered at a per-tariff level. Ofgem and the NAO should scrutinise whether costs passed through are a fair reflection of suppliers' reported delivery costs. This cost data should then be used to understand the distributional impact on low-income consumers.

DECC must put in place a cost control mechanism to ensure that ECO costs for consumers do not spiral out of control, and an early review of ECO costs is needed to inform whether this should be applied. As part of the 'one year on review' of the ECO (and the Green Deal), DECC should assess the costs of delivering each element of the ECO and the likely cost implications for the current ECO phase (to March 2015) and the next phase. If this review, or a subsequent NAO review, suggests that annual ECO costs may exceed DECC's central estimate of £1.3 billion, DECC must take urgent corrective action to limit the cost risk to householders. Built into this must be a mechanism to ensure that consumers who have already been promised measures do not lose out, to avoid the mass cancellation of orders that happened at the end of CERT.

There should be a simple graphic, such as a pie chart, on consumers' annual energy statements, showing the cost of the ECO and other policies. To promote transparency and accountability, energy companies should be required to show ECO costs alongside the costs of all environmental and social policies to promote low-carbon electricity (The Imbalance of Power: The Challenge of Decarbonisation).

Recommendation 4: Government should stimulate consumer engagement through consistent, national messages and enhanced support for advice agencies and trades

Government needs to put greater emphasis on increasing consumer engagement and awareness, including through consistent national messages about what is most effective. Consumers are yet to be convinced of the should act and programmes need to give greater emphasis to this. Yet there is a lack of consistent messages at national level to encourage consumers to seek out support. The Government should support the provision and dissemination of consistent, national

messages on energy savings and benefits. Information on which measures are most effective and what support is available could be disseminated through bodies such as the Energy Saving Trust, the Energy Saving Advice Service and energy suppliers. Government could help co-ordinate regular updating to ensure that this reflects the latest data available, such as more realistic, typical bill savings based on its latest analysis. These messages can help underpin the local, area-based approach (Recommendation 2) which has an important role to play in fostering engagement and providing that support.

Government must recognise the importance of consumer engagement and ensure that success factors for motivating and engaging consumers are built into every programme. When designing programmes, the following success factors should be applied:

- Raise awareness and understanding of the need to act
- Communicate the benefits relevant to the individual
- Provide help with affordability
- Use a trusted and competent source for advice and delivery
- Provide a hassle-free, smooth customer journey
- For the rental sector, provide stronger regulatory and financial incentives.

Government and advice agencies should place greater emphasis on tailored messaging. The generic, national messages can be supplemented by using consumer segmentation to tailor energy efficiency communications to emphasise the benefits most relevant to the individual. Advice agencies and energy suppliers should seek to include in their approaches tailored communications on benefits most relevant to the individual. In addition, energy suppliers should include information in annual energy statements, energy bills or other customer communications that compares the customer's energy consumption with similar properties in their neighbourhood as this has been shown to be successful at encouraging consumers to cut how much energy they use.

Builders, plumbers, architects and surveyors should be supported with guidance for customers before home renovation work. Builders and plumbers have a key role in encouraging consumers to take action at 'trigger points' such as home renovations and refurbishments. Trades should work with organisations such as the Energy Savings Trust and the Energy Saving Advice service to use the advice agencies existing material, such as the room-by-room guides for builders that the Energy Saving Trust is currently piloting. Alternatively, trades could work with such advice agencies to co-produce consumer facing material or have material that they - the trades - produce approved. This will increase the confidence of the Trades in giving advice and improve consumer trust of the advice.

Boiler installers, heating engineers and plumbers should be required to better explain how to use heating controls. Industry should develop and introduce effective guidance material and information that plumbers and heating engineers can use and

should be required to provide this to customers after fitting a new boiler, servicing or repairing a boiler. DECC's trials on the provision of advice on how to use heating controls during boiler checks should be used to inform production of the information.

Recommendation 5: Government must ensure that the 'one year on' review of the Green Deal is comprehensive and identifies the reasons for its low appeal; and it must make changes to the Green Deal now to make it a better and fairer deal

The changes that we recommend above should also help the Green Deal play its role as a vehicle to engage consumers. But the success of the Green Deal relies on householders seeking it out and it needs to be made more visible and improved as a product. There is a pressing requirement to reduce its cost to consumers (Recommendation 2) but this alone is unlikely to be sufficient. The one year on review must focus on identifying the reasons for low appeal and how the consumer experience can be improved.

Comprehensive monitoring and evaluation is essential because this product is novel and complex and has not been piloted or tested anywhere in the world. There is virtually no evidence available yet on why the Green Deal has low consumer appeal in practice and on the consumer views of the assessment stage as well as the finance. The Government has not yet published its evaluation plan but its planned 'one year on' review of the Green Deal in early 2014 is crucial here.

DECC's 'one year on' Green Deal review must include a comprehensive assessment of why appeal is low and reasons for drop-out during each stage of the process. It must make recommendations for addressing these - including identifying an acceptable interest rate - and implement them promptly. The review must include qualitative consumer research to evaluate why consumers who have had Green Deal assessments have not taken out Green Deal finance and what actions they have taken, as well as which approaches are most successful in signing consumers up to Green Deal plans and why. Results of mystery shopping must be used to identify how the product is being marketed and whether there is evidence of mis-selling.

The Government's review must also assess whether consumers are getting quality, value and fair terms at all stages of the Green Deal process, including the assessment phase. It must be established whether the core concepts of the Green Deal, such as the Golden Rule and transfer between occupants are working as intended. The consumer experience of the customer journey must also be assessed. The review should be comprehensive and include the following:

Whether energy savings are being realised

- Whether the Golden Rule is working. DECC should convene an expert panel of energy assessors to evaluate a sample of homes before and after they have had energy efficiency measures installed, adjusting for factors such as changes in household circumstances.
- Whether the acknowledgement required from low users of energy of the risk that their repayments could exceed savings is proving an effective safeguard.

Consumer attitudes and sales practices

- Levels of consumer trust of organisations and the extent to which consumers believe they will see the benefits promised.
- Consumer attitudes to the level of costs and charges at each stage of the process.
- Consumer experience on the consumer journey from sales and marketing to redress, including the level of complexity of the documentation, the number of home visits and the level of disruption.
- Whether consumers are being sold the most appropriate packages, whether tied assessors are giving genuinely impartial advice and whether mis-selling is occurring.

Fair disclosure and transfer

- Whether disclosure to new occupants is proving fair and effective.
- Whether new occupants are deterred by the Green Deal and what actions they are taking, such as asking for the charge to be paid off.
- Whether initial and subsequent tenants are getting a fair deal, including whether they are giving informed consent freely, without duress.

If the review of the Green Deal finds that core concepts of the Green Deal are not working, the Government should convert the Green Deal into a subsidised personal loan scheme. If, for example, transfer between occupants and the complexities it brings is proving too problematic, the Government should not hesitate to convert it into a personal, 'pay as you save' loan scheme. A personal loan would not transfer with the property and would be simpler. It would also need to be subsidised to make the cost sufficiently attractive to consumers (Recommendation 2).

Additional changes to the Green Deal product and consumer journey must be informed by the review. More fundamental changes are also likely to be needed, such as simplification of the process and documentation, but this must be informed through the review's evaluation of consumer

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experience. In addition, there are changes that should be made now that we set out below.

The Government should make changes now to the Green Deal to make it a better and fairer deal. Which? has identified changes that should be made now to make the Green Deal a better and fairer deal, reducing the risk of customers losing out financially and of suffering from poor terms - whether they take out Green Deal finance or just have an assessment. The key changes are to ensure that low-users of energy are better protected, that early repayment fees that can be levied are reduced and that consumers be enabled to compare the cost of a Green Deal across providers and with other forms of credit.

The amount that can be lent to low-users of energy should be based on their actual energy usage to reduce the risk that repayments exceed savings. Where the Green Deal Occupancy Assessment shows the occupant to be a low user of energy, the amount that can be lent under the Golden Rule must be based on the savings estimate in the Occupancy Assessment of actual energy usage, rather than, as at present, the standard usage from the Energy Performance Certificate. Current requirements for low-users merely to acknowledge this risk are not adequate consumer protection. It is not reasonable to rely on consumers to decipher this from a plethora of complex terms.

Consumer Credit Act (CCA) protection must be reinstated for Green Deal plans of 15 years or more to avoid large repayment fees for long Green Deal plans. It was unjustifiable for long-term Green Deal plans to be 'carved out' of the Consumer Credit Act. It is unfair and inflexible to expect consumers to pay large fees if, for example, a buyer of their house wants the Green Deal to be paid off. The CCA consumer protection must be reinstated. In the short term, before legislation could be changed, government must place robust and enforceable obligations on providers to minimise any early repayment charge.

Green Deal quotes should be standardised to enable comparison with other Green Deals and other forms of credit. The Green Deal is designed, in theory, to enable consumers to shop around with assessments and quotes. Yet comparing prices may be especially difficult where Providers are not using template documentation of the Green Deal Finance Company. Quotes which use similar presentation of prices and charges would help consumers to shop around. ECO subsidy could make a significant difference to the price, therefore quotes must display the price before and after ECO subsidy is applied to show how installation costs compare. The consumer can then assess whether a Green Deal represents good value in comparison with other Green Deals and other ways of paying for energy efficiency - including other forms of credit.

The Government, with Green Deal-accredited companies, should improve the visibility of the Green Deal brand, the plans offered and their terms. To raise awareness of the Green Deal and enable consumers considering a Green Deal

assessment to be better informed, consumers must be given ready access to information on which providers offer Green Deals and for which measures, and be able to compare key terms, costs and charges. This information, with real-life case studies, could be made available on the website of the Oversight and Registration Body or through the Energy Saving Advice Service, with links included in other advice sources.

DECC should consider development of a mechanism to give consumers access to free or low-cost Green Deal assessments from independent assessors. This would overcome the barrier of too high a cost for assessments and facilitate involvement of non-tied assessors. This mechanism must be put in place if early Green Deal monitoring shows that assessment charges are putting people off and/or that independent assessors are not prospering in this market or tied assessors are mis-selling.

DECC should consider how the Green Deal consumer protection framework can be extended to non-Green Deal financing. This would include extending the Green Deal Code of Practice - and associated standards - and access to the Green Deal ombudsman to other forms of financing. This would strengthen consumer protection if a consumer has a Green Deal assessment but decides to finance the measures themselves and/or receives support from the ECO without taking out a Green Deal plan.

Recommendation 6: **Additional incentives are needed for landlords, plus stronger consumer protection for tenants under the Green Deal**

Care must be taken with the 2016 and 2018 private rental regulations to avoid undesirable consequences such as pushing tenants into the Green Deal when it might not be suitable for them. Again, the Government cannot rely on the Green Deal alone to deliver. It should put in place other financial incentives and should not wait until 2016 to do so.

There must be strong consumer protection for tenants under the Green Deal before private rental regulations come into force in 2016 and 2018 and robust monitoring of the regulations. The regulations should be informed by the tenant experience as assessed in the 'one year on' Green Deal review (Recommendation 5). A stronger mechanism for informed consent by tenants may be needed to prevent tenants feeling obliged to consent to entering into a Green Deal under duress, perhaps due to fear of retaliatory eviction. This would be in addition to our recommended improvements to the Green Deal, such as to protect low-energy users

(Recommendation 5). There must be robust monitoring of the impact of the regulations on tenants and landlords to ensure they have adequate support.

Government should provide more support for local authorities for guidance and enforcement action under the Housing Health and Safety Rating system on private landlords renting 'F' and 'G'-rated homes. This could include promotion of the Chartered Institute of Environmental Health guidance on enforcement of excess cold hazards in England.

The Government should not discontinue the Landlords' Energy Saving Allowance (LESA) but assess how this incentive could be improved and promoted. LESA could become more attractive to landlords with the 2016 and 2018 regulations. These landlords may be unable to access Green Deal finance, such as in blocks of flats where multiple consents cannot be obtained, or might not wish to take it out. Government should not discontinue LESA, as planned, but consider how to raise awareness of LESA among landlords and increase the size of the allowance to help with more costly measures.

Recommendation 7: If policies fail to achieve sufficient take-up, government should explore whether a more radical 'Plan B', accompanied with positive incentives, would be acceptable to consumers

An improved Green Deal and ECO, and increased emphasis on the local, area-based approach, should lead to higher take-up but even with considerable improvement these policies may still fail to engage consumers in energy efficiency on a large scale. Yet energy efficiency is too important for consumers, and for the wider benefits that it delivers, for the government to allow these policies to fail. The government must prepare a 'Plan B'. Options could include regulation, such as minimum energy efficiency standards on sale of a property. The government should consider how to strengthen local authority involvement to facilitate delivery. But regulation should be approached with care: the net impact of the overall approach must be to incentivise consumers rather than force them. It would need to be reasonable and not impose unreasonable burdens of cost or process and recognise that, for some properties, there may be real practical limitations regarding what can be achieved.

It would need to be subject to extensive testing for consumer acceptability and would require appealing support options, including from public funding. It would be inappropriate to have

the effect of requiring consumers to take out the Green Deal in the absence of other forms of financial support. We suggest that government would need to consider this in 2017, prior to the introduction of the principal private rental regulations in 2018.

Full piloting and consumer testing is needed before variable rates of council tax or stamp duty for energy efficiency could be introduced. Much interest has been shown in this, but our research suggests that variable rates of council tax, or even stamp duty, which reward more efficient homes and penalise less efficient homes risk alienating consumers. This approach must not be introduced without full testing and piloting to ensure consumer acceptability of this 'carrot and stick' approach.

Recommendation 8: More frequent revision of EU eco-design product regulations and redesign of the EU energy label to encourage energy-efficient appliances

EU eco-design product regulations, delivered in conjunction with the EU energy label, have proved beneficial but continued improvements to energy efficiency requirements are needed. The redesign of the energy label away from the 'A to G' format has proved a backwards step.

EU Eco-design Directive product requirements for energy efficiency should be raised more frequently to ensure continuous improvement. The European Commission and EU Member States must ensure that requirements are updated more frequently to keep in line with the best available technology that is available at reasonable cost to the consumer. The European Commission has taken steps to improve and speed up application but its plans to review eight eco-design implementing measures by the end of 2014 must be adhered to and implemented.

The energy label's redesign should be based on consumer need and appliances reclassified so that models on the market are spread across the label bands. The European Commission's review of the Energy Labelling Directive by 2014 must develop a label that is clear and meaningful to consumers. It should evaluate consumer attitudes to the current, previous and alternative formats. Strong grounds would be needed not to revert to the previous, simple 'A' to 'G' format that research already suggests was preferred by consumers. And an 'A' class should genuinely be a top rating with recalibration (reclassification) of appliances across the new bands: the lower bands on the label must not be redundant because they are below minimum legal requirements (as happens now).

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- ²⁹ The UK government has a statutory target to eradicate fuel poverty, as far as reasonably practicable, in England by 2016. Scotland has a similar 2016 target, with 2018 the target date in Wales.
- ³⁰ Government plans to consult in early 2014 on the second phase - Phase 1.2 - of ECO which will run from April 2015.
- ³¹ Green Deal and ECO Final Impact Assessment, page 84, DECC June 2012.
- ³² Partial Impact Assessment of the Carbon Emissions Reduction Target 2008-2011, Defra, 4 May 2007.
- ³³ Although rather than scores being deemed, as in the past, the correction factors will be applied to property-specific assessments. Green Deal Final Impact Assessment, DECC, June 2012.
- ³⁴ The Green Deal: watching brief, Government's response to the House of Commons Energy and Climate Change Select Committee, First report of session 2013-2014, Volume 1, published 26 July 2013.
- ³⁵ The Green Deal: watching brief, Government's response to the House of Commons Energy and Climate Change Select Committee, First report of session 2013-2014, Volume 1, published 26 July 2013.
- ³⁶ Evidence was not available to these retrospective evaluations, with no baseline data collected for a control group or those affected by the policy. Evaluation synthesis of energy supplier obligation policies - research report, DECC, 2011.
- ³⁷ Including the Home Energy Efficiency Database maintained by the Energy Saving Trust which records measures installed under government programmes since 1995 (around 50% of UK homes have a record in HEED), and meter point gas and electricity consumption data held on administrative systems of the energy companies.
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- ⁴⁶ Evaluation synthesis of energy supplier obligation policies, DECC, 2011.
- ⁴⁷ The Green Deal and ECO: Government's response to the November 2011 consultation, DECC, June 2012.
- ⁴⁸ Ed Davey demands transparency from energy suppliers on ECO costs, Financial Times, 9 October 2013.
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- ⁵¹ Paving the way for a Green Deal: Extending the Carbon Emissions Reduction Target supplier obligation to December 2012, Summary of consultation responses and Government Response, DECC, June 2010.
- ⁵² See page 29 of The Imbalance of Power: the retail market, Which? December 2012.
- ⁵³ DECC plans to do by undertaking proxy analyses on location to determine socio-economic classification. The Green Deal: watching brief, Government's response to the House of Commons Energy and Climate Change Select Committee, First report of session 2013-2014, Volume 1, published 26 July 2013.
- ⁵⁴ Floor insulation is not generally suitable for cavity-walled properties but around 3 million solid-walled homes could benefit from it. See p.106 of DECC's Green Deal Final Impact Assessment, June 2012.
- ⁵⁵ DECC reports installations through quarterly insulation statistics. These use a 2008 baseline from housing surveys in England, Scotland and Wales and take account of measures installed under programmes such as CERT (monitored by Ofgem). Installations are also recorded by the EST on the Home Energy Efficiency Database, including regional breakdowns.
- ⁵⁶ Paragraph 19 (3) of The Green Deal Framework (Disclosure, Acknowledgment, Redress etc.) Regulations 2012.
- ⁵⁷ The sample was generally 5% of installations for most measures. Suppliers were required to rectify major failures recorded through this technical monitoring but only for this sample of homes monitored.
- ⁵⁸ See Table 4.9 of Table 4.1 of The final report of the Carbon Emissions Reduction Target (CERT) 2008-2012, Ofgem, May 2013. This data was also provided by Ofgem to the OFT for publication in Home insulation: a report on the Call for Evidence carried out by the OFT, Office of Fair Trading, August 2012 (see pages 53-57).
- ⁵⁹ Ofgem published an aggregated failure rate across energy companies for each of insulation, heating measures and microgeneration. See page 45 of Table 4.1 of The final report of the Carbon Emissions Reduction Target (CERT) 2008-2012, Ofgem, May 2013.
- ⁶⁰ The Green Deal Oversight and Registration Body has published an Overview of its Monitoring Strategy which is designed to ensure compliance by Green Deal Providers with the Green Deal Code of Practice.
- ⁶¹ This consists of a household interview and a physical inspection of a sub sample of the properties.

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- ⁶² 83% of UK homes have gas-fired central heating, 22.2 million out of 26.6 million homes in 2010. United Kingdom Housing Energy Fact File 2012, Jason Cooper and Ian Palmer for DECC.
- ⁶³ In 2011 bills of households on oil, LPG or solid fuel heating were around twice as high as those on gas heating because of higher fuel costs and/or lower efficiency of the heating system. Depending on tariff arrangements, the total energy bills of homes with electric heating currently could be similar to dual-fuel bills or around 50% higher for otherwise similar properties. Source: Energy prices and bills – impacts of meeting carbon budgets, Committee on Climate Change, December 2012.
- ⁶⁴ Paragraph 19 (3) of The Green Deal Framework (Disclosure, Acknowledgment, Redress etc.) Regulations 2012.
- ⁶⁵ Meeting Carbon Budgets – 2013 Progress Report to Parliament, Committee on Climate Change, June 2013.
- ⁶⁶ Data on the type of heating systems in homes is provided in the English and Scottish house condition surveys.
- ⁶⁷ See Domestic Energy Consumption in the UK 2012, DECC.
- ⁶⁸ A review of current data and research on heating controls by The Association of Controls Manufacturers), December 2011.
- ⁶⁹ Consumers and domestic heating controls: a literature review, Consumer Focus, July 2012.
- ⁷⁰ EST estimates from the EST website, accessed on 19 September, and DECC's Green Deal and ECO Final Impact Assessment, June 2012, Table. Both estimates are for a 3 bedroom semi-detached home with gas central heating.
- ⁷¹ Page 89 of The Future of Heating: Meeting the challenge, DECC, March 2013.
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- ⁷³ See Chapter 5 of United Kingdom housing energy fact file 2012, Authors: Jason Palmer, Ian Cooper, Cambridge Architectural Research. The housing condition surveys assess samples of homes.
- ⁷⁴ SAP quantifies a dwelling's performance in terms of: energy use per unit floor area, a fuel-cost-based energy efficiency rating (the SAP rating) and emissions of CO₂. It uses a scale from 1 to 100. The higher the number, the more efficient the property is. Scotland uses SAP and the National Home Energy Rating system.
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- ⁷⁷ Eco-design product standards set minimum levels of energy consumption by law but they do not require that consumers buy the most efficient products on the market, so monitoring is required.
- ⁷⁸ Not all data reported as sourced from the Market Transformation Programme is sales data, some is modelled on the basis of past sales and projections. Domestic Energy Consumption in the UK, 2012, DECC, domestic data tables.
- ⁷⁹ This uses modelling from the Market Transformation Programme. See Domestic Energy Consumption in the UK, 2012, DECC.
- ⁸⁰ Powering the nation - household electricity-using habits revealed, Energy Saving Trust, DECC and Defra, 2012. This monitored usage across 251 households in England and Wales in 2010 and 2011.
- ⁸¹ The Energy Follow Up Survey is a survey of energy use in about 2,600 representative households from the 2011 English Housing Survey. See Energy Efficiency Statistical Summary, DECC November 2012.
- ⁸² Meeting Carbon Budgets – 2013 Progress Report to Parliament, Committee on Climate Change, June 2013.
- ⁸³ Government Response to the Fourth Annual Progress Report of the Committee on Climate Change: Meeting the Carbon Budgets – 2012 Progress Report to Parliament, HM Government, October 2012.
- ⁸⁴ Domestic energy use study: to understand why comparable households use different amounts of energy. Brook Lyndhurst for Defra, November 2012.
- ⁸⁵ For example, What works in Changing Energy-using Behaviours in the Home? A rapid evidence assessment, DECC, November 2012.
- ⁸⁶ Page 35 of Evaluation synthesis of energy supplier obligation policies – research report, DECC, 2011.
- ⁸⁷ The Green Deal: watching brief, Government's response to the House of Commons Energy and Climate Change Select Committee, First report of session 2013-2014, Volume 1, published 26 July 2013.
- ⁸⁸ For CESP it was 19.25 million lifetime tonnes of CO₂.
- ⁸⁹ Ofgem final reports for EEC 2002-05 (39.7 million CFLs) and EEC 2005-08 (109.1 million CFLs). See
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- ⁹⁶ 51% said that cavity wall insulation has reduced their energy bills (or balanced the increased cost of energy), 48% said this for loft insulation. Pages 61 and 62 of Evaluation of the delivery and uptake of the Carbon Emissions Reduction Target, Undertaken by Ipsos MORI, CAG consultants and BRE, DECC October 2011. Most CESP respondents had not seen a change in heating expenses. Evaluation of the Community Energy Saving Programme, research report for DECC, 2011.

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