



National Audit Office

Report

by the Comptroller
and Auditor General

Department of Energy & Climate Change

Green Deal and Energy Company Obligation

Key facts

£240m

Department of Energy & Climate Change's spend on the Green Deal between 1 April 2011 and 31 March 2015 (including grants to stimulate demand)

£3.0bn

cost to energy suppliers of meeting their energy company obligations, 1 January 2013 to 31 December 2015

£94

overall cost per tonne of carbon saved by the schemes (excluding energy suppliers' administrative costs) compared with £34 for the previous set of schemes

2.3m

number of fuel-poor households in England

£6.2 billion

estimated notional lifetime savings on energy bills resulting from the installation of Energy Company Obligation (ECO) measures in low income and vulnerable households by 31 December 2015

50,000

homes made more energy-efficient with direct subsidies from the Department of Energy & Climate Change, worth £170 million (Green Deal cashback scheme and Green Deal Home Improvement Fund)

12 million

approximate number of homes lacking wall insulation in 2015 (cavity-walled and solid-walled homes that could be insulated)

	Green Deal finance	ECO
Aims to improve homes' energy efficiency by...	...providing loans to households	...placing an obligation on energy suppliers
Homes improved by 31 December 2015	14,000	1.4 million
Individual improvements to homes (measures) by 31 December 2015	20,000	1.7 million
Millions of tonnes of carbon dioxide savings expected over lifetime of measures installed by 31 March 2017	0.4	33.7

Summary

1 The UK's 27 million homes are responsible for more than a quarter of the country's total energy demand and greenhouse gas emissions. Due to the age and design of many buildings, the UK's housing stock is among the least energy-efficient in Europe. Occupants of inefficient homes have to use more energy to keep their home warm, leading to higher bills and harm to the environment. They may alternatively suffer colder conditions, which can have a significant impact on their health.

2 Improving the energy efficiency of homes supports three of the Department of Energy & Climate Change's (the Department's) strategic aims:

- reducing emissions of greenhouse gas, such as carbon dioxide (CO₂);
- improving energy security; and
- mitigating fuel poverty.¹

3 There are several ways to make homes more energy-efficient. These range from relatively cheap measures, such as loft insulation, to more expensive measures, such as refitting walls with a more energy-efficient structure.

4 In 2013, the Department implemented two schemes with the primary aim of improving household energy efficiency to reduce CO₂ emissions:

- Through the **Energy Company Obligation (ECO)**, the Department requires the largest energy suppliers to install measures in homes that will cumulatively reduce CO₂ emissions by a certain amount. Suppliers face penalties if they do not comply. Suppliers can install measures, or contract installers, either directly or through public auctions over a 'brokerage platform'. The suppliers pass on their costs to all their customers through energy bills. The government has obligated suppliers to improve homes' energy efficiency in this way for more than 20 years.
- **The Green Deal** is primarily a finance mechanism, which enables householders to borrow money so they can improve the energy efficiency of their homes. They repay this money through their energy bills ('Green Deal finance'). This is complemented by a framework of advice, accreditation and assurance intended to increase homeowners' trust in the supply chain for home improvements.

¹ In England, households are considered fuel-poor if the cost of heating their home is above average, and meeting these costs would leave them with an income below the poverty line.

5 The Department's stated target was that the schemes should combine to improve one million homes by March 2015. It intended the schemes to work together: where measures cost too much to meet the conditions for accessing Green Deal loans, the Department expected homeowners to 'blend in' contributions from energy suppliers through ECO. The Department also expected suppliers to encourage people to pay partly for ECO measures using Green Deal finance to minimise their costs.

6 The Department wanted the schemes to reduce CO₂ emissions in a way that would achieve other objectives:

- **Stimulate significantly more private investment:** In 2010, the Coalition Government stated that it wanted to change the way energy-efficiency measures were paid for. It wanted households that benefited from measures to pay for them, rather than all energy consumers contributing as under previous schemes. The Department wanted Green Deal finance to enable more households to pay for measures.
- **Improve harder-to-treat properties:** The Department stipulated that suppliers should meet most of their ECO target by improving the energy efficiency of 'harder-to-treat' properties, which cost more and take longer to improve. Its analysis showed that the previous supplier obligation schemes had absorbed most of the potential demand for cheaper measures, such as loft insulation. It wanted the supply chain to develop more efficient ways of improving harder-to-treat properties over time.
- **Mitigate the main cause of fuel poverty:** The Department required suppliers to install a number of measures in homes more likely to be occupied by fuel-poor people.

7 In late 2013, ministerial concern over the impact of government policies on consumer bills led to the Department adapting ECO. It reduced suppliers' obligated CO₂ savings and decreased the requirement for them to improve harder-to-treat homes.

8 In July 2015, the Department announced that it would not provide any further funding for Green Deal loans, effectively bringing the scheme to a halt. ECO will end on 31 March 2017, and the Department plans to replace it with a smaller scheme that focuses on mitigating the main causes of fuel poverty.

Our report

9 This report assesses the value for money of the Green Deal and ECO schemes. It identifies lessons to help the government improve the way it designs and manages domestic energy-efficiency schemes in future.

- Part One explains the importance of household energy efficiency and describes the two schemes.
- Part Two assesses the schemes' performance and costs.
- Part Three identifies key lessons we have drawn from the Department's design, implementation and monitoring of the schemes.

10 We outline our audit approach and evidence base in Appendices One and Two. We have considered suppliers' costs in meeting their obligations in our value-for-money assessment. This is because energy consumers ultimately pay these costs, as suppliers recover them through increased bills; and because the Department sets the schemes' rules, which largely dictate suppliers' costs.

Key findings

Performance and cost

11 The Department achieved its main target for the schemes ahead of schedule.

The schemes provided energy-saving measures in one million homes by the end of December 2014, three months early, with energy suppliers meeting their obligations. But this target does not directly correspond to the schemes' primary aim of reducing CO₂ emissions, due to the variation in energy reductions that different types of measures can achieve (paragraphs 1.16 and 2.2).

12 The Department did not set clear success criteria for the Green Deal.

Ministers were highly ambitious about the number of homes the Green Deal would make more energy-efficient. As part of the 2011 Energy Act, ministers told Parliament the Green Deal had the potential to improve the energy efficiency of Great Britain's entire housing stock. However, the Department did not set any expectations for the Green Deal. It did not state what proportion of measures' total cost should be paid for by the households that benefitted, either through Green Deal finance or other means such as savings. Nor did it quantify the amount of CO₂ the Green Deal should save in addition to suppliers' minimum obligations through ECO. This meant it could not compare the scheme's progress against its expectations to identify early warning signs that performance was off-track. The Department considered that uncertainty over what the Green Deal would achieve meant it could not set meaningful expectations for the scheme (paragraphs 1.18 to 1.21).

13 The schemes have saved substantially less CO₂ than previous schemes, mainly because of the Department's initial focus on harder-to-treat homes.

- The Department expects the measures installed through ECO up to 31 December 2015 to generate 24 megatonnes of CO₂ (MtCO₂) savings over their lifetime. This is approximately 29% of the predecessor schemes' achievements over similar timescales. The Department initially focused ECO on harder-to-treat homes, in which increasing energy efficiency is relatively expensive. To keep suppliers' total costs similar to previous schemes it set lower suppliers' obligations for CO₂ savings. Its analysis showed that previous schemes had absorbed demand for cheaper measures. Its changes in 2014, aimed at reducing the costs of ECO, meant it shifted away from this focus. At the same time, it reduced suppliers' obligations for CO₂ savings.
- Policies aimed at offsetting the impact of the Department's changes to ECO in 2014 have not achieved CO₂ savings comparable to the ECO reductions.
- Green Deal finance has saved negligible amounts of CO₂. The Department believes it is "unlikely to have provided any material additional energy and carbon saving over and above what would have been delivered by other policies" in its absence (paragraphs 2.3 to 2.6, Figure 12).²

14 Demand for Green Deal finance has fallen well below the government's expectations. By 31 December 2015, 14,000 households had taken Green Deal loans, only 1% of the total number of homes the schemes have improved. The Department estimates that a further 35,000 households have paid for measures following a Green Deal assessment, although this is not captured by its monitoring information. Even taking these additional measures into account, the Department has not succeeded in stimulating private investment in energy efficiency (paragraphs 2.3, 2.5 and 2.10).

15 The schemes have not improved as many solid-walled homes, the main type of 'harder-to-treat' homes, as the Department initially expected. The Department had expected suppliers to improve 100,000 solid-walled homes per year from 2015. With its changes to ECO in 2014, the Department set a minimum target for suppliers to improve the equivalent of around 100,000 solid-walled properties by 31 March 2017 and save 4 MtCO₂. This is equivalent to an average of just 23,500 properties per year, compared with 83,000, which the predecessor schemes delivered at their peak. To date, suppliers have insulated 110,000 solid-walled properties saving approximately 3.1 MtCO₂. The remainder of the 4 MtCO₂ will need to be met between now and the target date of 31 March 2017. The Department now thinks there is more potential for suppliers to meet their obligations through cheaper measures than its analysis initially showed (paragraphs 2.8 to 2.9).

² *Submission on the Future of the Green Deal Finance Company*, Department of Energy & Climate Change, 8 July 2015.

16 ECO generated £6.2 billion of notional lifetime bill savings up to 31 December 2015, with suppliers on track to meet their bill savings obligation by 31 March 2017. Suppliers have installed 525,000 measures, mostly boilers, through Affordable Warmth, a sub-obligation of ECO aimed at reducing bills for low-income households. If all suppliers fulfil their obligations, these savings will reach £7.9 billion by 31 March 2017 (paragraph 2.7).

17 The schemes have cost the Department and energy suppliers more than £3.2 billion to date. Energy suppliers spent £3.0 billion meeting their obligations between 1 January 2013 and 31 December 2015, which was in line with the Department's predictions. The Department spent £240 million on the Green Deal up to 31 March 2015. This includes grants to stimulate demand and unexpected costs of supporting the Green Deal Finance Company.³ Other parties have incurred costs from participating in the Green Deal. For example, energy suppliers changed their billing systems to accommodate Green Deal loans, and the supply chain (installers, assessors and finance providers) invested in training and accreditation. The Department has not monitored these costs (paragraphs 2.11 to 2.14).

18 Overall, the schemes were less cost-effective in terms of saving CO₂ than previous similar schemes. We estimate that the schemes have cost suppliers and central government £92 to £95 per tonne of CO₂ saved excluding suppliers' administration costs. This compares with previous supplier obligations, the Carbon Emissions Reduction Target (CERT) and the Community Energy Saving Programme (CESP), which together cost £34 per tonne (paragraphs 2.15 to 2.18).

19 Although the Department's changes to ECO in 2014 improved cost-effectiveness in the short term, they could result in greater costs of improving household energy efficiency in the future. According to the Committee on Climate Change, 1.5 million solid walls must be insulated throughout the 2020s for the UK to meet its recommended fifth Carbon Budget between 2027 and 2032.⁴ Because the schemes have improved fewer harder-to-treat properties, there has been less potential for the supply chain to find efficiencies in how it improves these homes than the Department initially intended (paragraph 2.20).

³ Comptroller and Auditor General, *Investigation: The Department of Energy and climate Change's loans to the Green Deal Finance Company*, Session 2015-16, HC 888, National Audit Office, April 2016.

⁴ The Carbon Budgets are interim targets towards meeting the Secretary of State for Energy & Climate Change's duty under the Climate Change Act to reduce UK greenhouse gas emissions by 80% from 1990 levels by 2050.

Information

20 There are significant gaps in the Department's information on costs, which means it is unable to measure progress towards two of its objectives.

The Department collects some cost information from households, suppliers and the brokerage platform. But the information does not show households' contribution to measures installed under ECO, nor how much each measure has cost suppliers.

This means the Department cannot track accurately whether it is achieving its aims of improving harder-to-treat homes more efficiently and getting households to bear more of the cost of measures. The Department believes commercial motives ensure suppliers keep their costs to a minimum, so it would not be cost-effective for it to collect more detailed information. The Competition and Markets Authority has recently examined suppliers' costs as part of a market investigation. While it did not look at ECO, it found evidence suggesting that in other areas of their businesses, some suppliers incur higher costs than is efficient (paragraphs 3.15 and 3.16).

21 Neither we nor the Department can determine the impact of the schemes on fuel poverty.

Affordable Warmth is the main government policy to address the root causes of fuel poverty. But the Department is unable to assess the overall impact of the scheme on fuel poverty, partly because it does not have access to data on household incomes. Furthermore, the Department expects suppliers to ask some households to contribute to the cost of replacement boilers. Without better information on these contributions it cannot tell whether this has led to the poorest households receiving help. The Department hopes that planned changes to the legal framework for sharing personal data across government will give it more information on the impact of its schemes on fuel poverty (paragraphs 3.11 and 3.12).

Design

22 The Department's design reduced the cost-effectiveness of the schemes for saving CO₂.

The Department's initial focus on harder-to-treat homes increased suppliers' costs of delivering CO₂ savings, as anticipated by the Department, because these measures are more complex and take longer. The focus on these measures, while costly, was a deliberate attempt to improve cost-effectiveness in the long term by stimulating private investment and innovation. But the Department also increased delivery costs by requiring installers to calculate potential carbon savings and assess homes in detail, to enable 'blended' finance with the Green Deal. Suppliers also found it difficult to identify eligible homes and monitor installers' compliance with the process for calculating carbon savings. Additionally, the Department incurred costs in setting up the Green Deal that have not resulted in materially higher CO₂ savings (paragraph 2.19).

23 The Department did not test the Green Deal finance design with consumers.

Many stakeholders warned the Department that it would be difficult to persuade people to pay for measures themselves. Its own consumer survey did not provide a strong case for schemes like the Green Deal creating demand. The Department understood these concerns, but implemented the scheme anyway, as it believed its market-led model held little financial risk for the government. Even where there was consumer interest, people were initially put off by the complexity of the process of arranging a loan. Only 50% of loan applications ultimately resulted in one being arranged. The Department simplified the process in late 2013 and uptake of Green Deal finance subsequently increased (paragraphs 3.2 to 3.5).

24 The schemes have not worked together as the Department intended.

The Department expected energy suppliers would stimulate consumer contributions to reduce their cost of installing expensive measures. To date, no more than 1% of measures have blended finance from the Green Deal. The Department consulted energy suppliers during the design phase, as it wanted them to benefit financially from households using Green Deal finance to contribute to the cost of ECO measures. However, suppliers told us that they were rarely able to achieve this as very few households saw Green Deal finance as a sufficiently attractive proposition. The Department's information does not show to what extent households have contributed funds from other sources, such as savings (paragraphs 3.6 and 3.7).

Implementation

25 The lack of consistency in the government's approach during the schemes could increase the long-term costs of improving household energy efficiency.

During the lifetime of the schemes, the Department has overseen a significant shift in focus, first towards improving harder-to-treat homes and then away from it. Additionally, it suddenly stopped support for Green Deal finance without a replacement. To improve homes' energy efficiency, the Department relies on a supply chain of different enterprises, such as installers and assessors. A lack of continuity in government energy-efficiency policies is likely to increase costs, as businesses require a higher return on risky investment in training, accreditation and capacity (paragraphs 3.17 to 3.19).

Conclusion on value for money

26 Improving household energy efficiency has the potential to contribute to each aim of the energy 'trilemma' – decarbonising energy and ensuring it remains secure and affordable. The Green Deal, supported by ECO for more expensive measures, was an ambitious and novel attempt to increase the scale and cost-effectiveness of the market for energy-efficiency measures. But the Department's £240 million expenditure on the Green Deal has not generated additional energy savings because its design and implementation of the scheme did not persuade people that energy-efficiency measures are worth paying for. The Green Deal has therefore not been value for money.

27 The Department achieved its target to improve one million homes almost entirely through ECO, with suppliers meeting their minimum obligations for saving energy and reducing bills. However, the Department's design of ECO to support the Green Deal added to suppliers' costs of meeting their obligations. This reduced the value for money of ECO, but the Department's information is not detailed enough for us to conclude by how much.

Recommendations

28 As part of its 2015 Spending Review, the government announced it would improve one million homes over the course of this Parliament. It said it will require suppliers to target fuel-poor homes. In designing and implementing energy-efficiency policies the Department should:

- a be clear about the purpose of schemes from the outset, setting realistic priorities and clear success criteria, developed with stakeholders, including other government departments.** If the Department's schemes are ambitious and support multiple desired outcomes, it should be clear what constitutes success for each outcome. The Department needs to develop goals based on evidence. It should also plan what to do in the event of underperformance, such as reducing the scope of the programme while minimising the impact on outcomes;
- b understand and plan for how the desired outcomes will be delivered in practice.** For energy-efficiency schemes this means, in particular, testing designs with consumers to ensure policies have the desired impact on behaviours, and being realistic about the motivations of energy companies in fulfilling their obligations;
- c ensure it has sufficient information to track progress of the schemes towards each of its desired outcomes.** It needs to regularly validate its assumption that market forces ensure cost-effectiveness. It should also collect sufficient information to evaluate the costs and benefits over time, and establish interim measures where evidence of effectiveness is delayed; and
- d consider the long-term impact of its decisions on the overall progress towards increasing household energy efficiency.** This means establishing a clearer long-term vision for household energy efficiency, based on engagement with the main stakeholders involved in achieving it, which gives greater clarity over how one scheme will transition into the next.