Department for
Business, Energy
& Industrial Strategy

ENERGY COMPANY OBLIGATION 2018-2022

Policy Guidance for obligated suppliers, manufacturers and installers on applying for Demonstration Actions, Innovation Score Uplifts and In-situ Performance

January 2019

© Crown copyright 2019

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit nationalarchives.gov.uk/doc/open-government-licence/version/3 or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: psi@nationalarchives.gsi.gov.uk.

Where we have identified any third-party copyright information you will need to obtain permission from the copyright holders concerned.

Any enquiries regarding this publication should be sent to us at:
enquiries@beis.gov.uk

Contents

Introduction

The Energy Company Obligation scheme

The Energy Company Obligation (ECO) requires obligated energy suppliers to deliver energy efficiency and heating measures to homes in Great Britain. These measures help households to keep their homes warmer, reduce their energy bills and reduce carbon emissions. The scheme started operating in January 2013, and as of September 2018 has delivered over 2.4 million improvements in around 1.9m homes.

The 2015 Government Spending Review announced that a supplier obligation would run for five years from April 2017 to March 2022, at an estimated level of £640m per year, rising with inflation. ECO is fulfilling that obligation and is a significant vehicle to meet the Government's objective for the UK to have reliable, low cost and clean energy, as well as contributing to the commitment to improve the energy efficiency rating of fuel poor homes to EPC Band C by 2030.

In April 2017, the Government changed the scheme so that it became more focused on supporting low income, vulnerable and fuel poor households. This scheme, known as the ECO transition ("ECO2t") scheme, targeted 70% of the obligation, known as Affordable Warmth, to low income and vulnerable households. The remaining 30%, the Carbon Emissions Reduction Obligation (CERO), was open to all households and was focused on reducing the carbon emissions of our housing stock.

In July 2018, the Government confirmed that the ECO3 scheme would become a 100% Affordable Warmth scheme. The Electricity and Gas (Energy Company Obligation) Order 2018 ("the ECO Order") are the regulations that will bring into force the third ECO scheme (ECO3). ECO3 supports low income, vulnerable and fuel poor households meaning that all measures should be delivered to these groups. The scheme helps homes to reduce their energy bills and consequently tackles fuel poverty and vulnerability to the cold. The scheme will run until 31 March 2022.[1]

The obligation target and deemed scores

Under ECO, obligated energy suppliers are given a target that they need to meet to deliver their share of the obligation. Under ECO3, the target is based on Lifetime Bill Savings. Energy Efficiency and heating measures that are delivered in ECO are awarded a deemed score – this is an average score based on the Lifetime Bill Savings (or cost savings) from the performance of the measure, by the type of measure installed into the property, the type and size of the property (e.g. mid-terrace or end of terrace; the number of bedrooms) and its main heating system. Ofgem, the scheme administrator, sets the deemed scores for the scheme. All measure types receive a deemed score except district heating, which has its bill savings derived from the SAP data evidencing methodology that needs to be provided to Ofgem[2].

[1] Full details on the scheme are available on the Gov.uk website at: https://www.gov.uk/government/consultations/energy-company-obligation-eco3-2018-to-2022.
[2] Further information on deemed score is available on the Ofgem website at:

The Industrial Strategy and innovation in ECO

ECO already supports companies, including small-to-medium enterprises across the country, with the highest rates of delivery in the North West, the West Midlands, Yorkshire and the Humber and Scotland. However, as the Industrial Strategy makes clear, it is essential that we support innovation to develop new ideas and deploy them successfully. ECO3 will run for three and a half years, and this allows suppliers time to sponsor new and innovative measures and techniques that installers and manufacturers have developed.

The Industrial Strategy commits the Government to supporting innovative manufacturers, including small and new manufacturers, who are developing new products. The Government wants to encourage new insulation products that help to improve the energy efficiency of our housing stock further (when compared to more traditional measures), or that are designed and delivered using more cost-effective and efficient installation techniques. Delivering more of these measures under ECO will result in more low income, vulnerable and fuel poor households receiving the same benefits currently enjoyed by able-to-pay households. Delivering more cost-effective measures may also mean that more ECO funding can be used to deliver more measures to more households.

Under ECO3, energy suppliers will be able to meet up to 10% of their obligation through delivering innovative measures to eligible households. There are two innovation routes under the scheme:

- **Demonstration Actions** – measures that have previously been tested in a laboratory setting and now require testing at scale in a live environment, or are marketable products that are being sold in the market and may need additional support.
- **Innovation Score Uplifts** – a measure that is different from those previously delivered under supplier obligations by having an improved material that can demonstrate, for example, improved energy efficiency performance or an improved installation technique. The measure will receive a 25% uplift from the measure type's existing deemed score to encourage it to be delivered under the scheme.

These routes are optional under the scheme and energy suppliers do not have to participate. However, to encourage participation by obligated suppliers, and to deliver new and improved measures into the scheme, a Lifetime Bill Saving score (for Demonstration Actions) or a deemed score uplift will be awarded to measures that are delivered under innovation. As explained earlier in this chapter, each measure type under ECO has a deemed score that suppliers receive towards their obligation target and it is based on the average Lifetime Bill Savings (LBS) a measure achieves.

In addition to innovation, suppliers will be able to use a new In-situ Performance route under the scheme to deliver up to 10% of their obligation. This is also voluntary and is intended to allow suppliers the opportunity to use modern monitoring technology to measure the actual energy efficiency performance of homes that have received energy efficiency measures. Suppliers who use the In-situ Performance route will receive a score uplift if the measures are proven to perform above the original awarded deemed score.

The new routes are intended to offer support that will encourage wider economic benefits by encouraging more innovation under ECO, supporting industry, and allowing low income

https://www.ofgem.gov.uk/publications-and-updates/eco3-consultation.

households to receive the benefits of new measures. The new, innovative measures will demonstrate greater energy efficiency savings, improved installation techniques that can lead to more cost-effective delivery, or better performance assessment techniques than previously delivered under the scheme.

The three routes are explained further in the Demonstration Actions, Innovation Score Uplifts and In-situ Performance chapters of this guidance.

The purpose of this guidance document

This guidance is aimed at obligated suppliers, manufacturers and installers who wish to participate in Demonstration Actions, Innovation Score Uplifts or In-situ Performance under the scheme.

The document sets out details of the policy background for Demonstration Actions, Innovation Score Uplifts and In-situ Performance under the Energy Company Obligation (ECO) scheme. These routes provide support for new products that need to be tested at scale in a live environment; to encourage new and innovative measures that have not previously been delivered under ECO to be introduced into the scheme; or to use up-to-date monitoring technology to accurately measure the performance of energy efficiency measures in homes.

This document provides guidance on:

- **Eligibility Criteria for Demonstration Actions, Innovation Score Uplifts and In-situ Performance** – the criteria that measures need to demonstrate to be eligible for a Demonstration Action, Innovation Score Uplift or In-Situ Performance measure; the criteria for eligible households and social housing properties that can receive support and the 10% cap that the scheme has on these routes.
- **Demonstration Actions** – why the scheme supports Demonstration Actions, the technology levels, safety requirements and other criteria (such as showing value for money) that measures need to demonstrate to receive support; the Lifetime Bill Saving Incentive calculation that is used to provide suppliers with a score towards their ECO target for providing support for sponsoring an action.
- **Innovation Score Uplifts** – why the scheme has introduced Innovation Score Uplifts for new energy efficiency and heating measures and the uplift score that a measure will receive if delivered under the scheme.
- **In-Situ Performance** – why monitoring (“In-Situ Performance”) has been introduced into the scheme and how monitored measures that out-perform original deemed scores will receive additional LBS scores towards a supplier’s target. It also sets out the process of monitoring and information on the standards required under the scheme.

The Role of Ofgem as Scheme Administrator

Ofgem is the administrator of the ECO scheme. To allow structured and efficient decision-making on each application, an Assessment Panel, appointed by Ofgem, will assess proposals for Demonstration Actions, Innovation Score Uplift and In-situ Performance measures. This panel will make a recommendation to Ofgem who will make the final decision on the application. The Assessment Panel will assess the application and ensure that is meets all the requirements set out in the regulations and as required by Ofgem. This will include a focus on ensuring that each measure meets the necessary safety and product standards for innovation and the wider ECO scheme. Safety is of the utmost importance due to measures being installed into people's homes, and therefore measures must meet the standards expected of all ECO measures.

Ofgem will publish separate guidance setting out the administrative process for Demonstration Actions, Innovation Score Uplifts and In-Situ Performance. This will be available on the Ofgem website.

Further information

Enquiries relating to this guidance should be directed to the ECO team in BEIS at: beisecoteam@beis.gov.uk.

Enquiries relating to the application process should be sent to Ofgem at: eco.innovation@ofgem.gov.uk.

Eligibility criteria

Measures will only be accepted into the scheme under the innovation routes if they meet the required eligibility criteria and are installed to eligible households.

In-Situ Performance is not an innovation route, and therefore must meet the eligibility criteria of the wider ECO scheme.

BEIS will not become involved in any commercial or exclusivity discussions or agreements between suppliers and third parties, but BEIS would expect any commercial and exclusivity issues to be taken into account between suppliers and third parties before the application is submitted to Ofgem. This may include payment schedules or progress report arrangements.

To be eligible, Demonstration Actions and Innovation Score Uplift (innovation) measures will need to demonstrate that they:

a) are materially different from measures delivered under previous ECO schemes (e.g. the production method, installation method, material used, technology used, expected costs of promoting the measure, expected cost savings of the measure, or other benefits of the measure are not identical to those that have previously been delivered under the scheme);

b) are able to achieve, or are predicted to achieve cost savings and meet the standard measure eligibility criteria of ECO;

c) will be delivered to households that are eligible to receive an ECO innovation measure;

d) will be delivered within the relevant caps;

e) are not partly or wholly fuelled by coal or oil; and

f) are not wholly fuelled by other fossil fuels (e.g. a heating measure that uses a combination of renewable energy and eligible fossil fuels (e.g. natural gas)[3].

Demonstration Actions can meet the scheme minima requirements and can therefore contribute to an obligated supplier's Solid Wall Insulation and rural targets. However, Demonstration Actions cannot be used as a solid wall alternative measure.

Innovation Score Uplift measures can meet the scheme minima requirements, and can therefore contribute to an obligated supplier's Solid Wall Insulation (including solid wall alternative measures) and rural targets.

These criteria are outlined in more detail below.

[3] See The Energy Act 2008, s100(3), available at: https://www.legislation.gov.uk/ukpga/2008/32/section/100.

Material difference

For the purposes of innovation 'materially different'[4] means any of, or a combination of the following:

Material Difference	Details
New material with improved performance	A measure that is different from previously delivered measures by having a different or an improved material that has demonstrable improvements for: • energy efficiency (and therefore Lifetime Bill Savings for the householder); or • ease of installation.
New Installation Technique	A measure that is different from previously delivered measures by having an improved installation technique. This installation technique must have demonstrable improvements for: • energy efficiency (and therefore Lifetime Bill Savings for the householder); or • speed of installation; or • the cost of the installation; or • increasing the range or number of homes installation can take place in; or • reduced disruption and/or inconvenience to the householder, (e.g. the measure can be installed in less time, meaning that the householder takes less time off work, and/or they take less time removing (and then putting back in place) furniture for the measure to be installed). This type of improvement can be eligible for an innovation score uplift, but would not be eligible to apply for a new deemed score (based upon its new installation technique) because deemed scores are based on energy efficiency performance of the measure and do not take into account installation techniques. However, the uplift is awarded because of the benefits set out above and to encourage the installation of measures that are more cost-effective to deliver under ECO.

[4] The requirements for "materially different" under the scheme are set out in Article 20 (6) the ECO Order 2018, which is available at: https://www.legislation.gov.uk/ukdsi/2018/9780111171769/article/20.

Measure eligibility

Demonstration Actions, Innovation Score Uplift measures and all measures installed to be monitored under In-situ Performance will have to meet the general measure eligibility criteria of the ECO scheme.

Eligible measures under the ECO3 scheme must be able to demonstrate that they result in cost savings for the householder. A Demonstration Action measure is also eligible under the scheme if the measure can show that is reasonably expected to result in cost savings for the householder. “Cost savings” is the money that is saved in heating costs by the householder due to the installation of that measure. They are converted into the LBS Score a supplier receives.

The measure must, as a minimum, reduce the cost of heating a household, but could in addition save money in other ways, for example by heating water or generating electricity for use by the household. For example, a measure that uses water to heat the home would be eligible under the scheme (as this measure can reduce the cost of heating a household). However, a measure that used water for other purposes (e.g. to heat cold water when this water was not used to heat the home) would not be eligible (as this would not reduce the cost of heating a household).

Household and social housing property eligibility criteria

The Government has decided that ECO3 should be a 100% Affordable Warmth scheme so that low income, vulnerable and fuel poor households benefit from the scheme, as they are the least able to afford energy efficiency measures.

A broad summary of the eligibility criteria under the ECO3 scheme is below:

- the householder must be able to demonstrate that they are in receipt of an eligible benefit, such as carer’s allowance, or Child Benefit. A list of the scheme’s eligible benefits is set out in the Energy Company Obligation eligible benefits chapter; or,
- the home must be a social housing property that is rated EPC Band E, F, or G; or,
- the householder must have been identified as being fuel poor or vulnerable to the cold under a Local Authority Flexible Eligibility Statement of Intent.

Under Innovation (Demonstration Actions or Innovation Score Uplifts) routes, a home can also be eligible if it is social housing rated EPC Band D. Social housing rated EPC Band D is not eligible for In-Situ Monitoring.

Respondents to the ECO3 consultation and attendees at consultation events, including local housing authorities and registered social landlords, stated that social housing providers would welcome the opportunity to work with obligated suppliers and installers to deliver new, innovative measures that could benefit their tenants. They also considered that this could best be delivered cost-effectively and at scale if a broader portfolio of their properties were eligible for support. Allowing EPC Band D properties to be eligible for measures under the innovation routes increases the number of properties that are eligible for support by 2 million homes and will therefore increase the ability for innovative measures to be delivered in the scheme.

Demonstration Action and Innovation Score Uplift supplier obligation caps

Demonstration Actions and Innovation Score Uplifts are subject to two caps.

An individual innovation measure type cannot exceed 5% of an obligated supplier's total obligation (the innovation sub-cap). This cap is in place as the Government wants to encourage as many new, innovative measures as possible to be introduced into the scheme; and to support as many new manufacturers and installers as possible without the risk of measures that are successfully introduced early crowding-out measures that apply at a later date.

The overall delivery of innovation measures (Demonstration Actions and Innovation Score Uplifts) cannot exceed 10% of an obligated supplier's total obligation. We will monitor the delivery of innovation and if there is sufficient evidence then this cap could be increased during the scheme. If this were to happen, we would need to formally consult on the proposals and lay amending procedure regulations before Parliament to introduce this change.

Both caps take into account any obligation trading made by the supplier. This means that the cap is the percentage of the supplier's final deliverable net obligation.

In-situ Performance supplier obligation cap

In-situ Performance actions cannot exceed 10% of an obligated supplier's total obligation. This cap is in place as we want to encourage the use of new monitoring technology and improve knowledge of energy efficiency, but want to ensure that focus remains on installing energy efficiency and heating measures into domestic households.

This cap takes into account any obligation trading. This means that the cap is 10% of the supplier's final deliverable net obligation.

Fossil fuel exclusion

Measures delivered as a Demonstration Action or an Innovation Score Uplift measure cannot be fuelled at all by coal or oil and cannot be wholly fuelled by non-renewables. Measures can be partly fuelled by other fossil fuels (but not coal or oil), meaning some biofuel measures are eligible for consideration by the Assessment Panel. This exclusion is to encourage the uptake of innovative insulation or renewable energy efficiency measures.

Renewable energy can include, for example, biofuels, biomass or solar power. A full list of renewable technologies is set out in section 100(4) of the Energy Act 2008.[5]

[5] The Energy Act 2008 is available at: https://www.legislation.gov.uk/ukpga/2008/32/section/100.

Demonstration Actions

Supporting new measures through Demonstrations

The Industrial Strategy sets out how we will ensure that the UK is the best place for innovators, and therefore we want to encourage new innovation opportunities in the UK. The Government believes that ECO support should be given to manufacturers who are developing new innovative measures that have the long-term potential to help improve the energy efficiency of Great Britain's housing stock, but may not have the financial support to test their products further. Having undergone earlier stages of development, manufacturers may not have the required funding to test their product, and this means that they may not be brought to market.

Demonstration Actions have, therefore, been introduced to ECO3 to create a route for obligated suppliers to provide support for measures that need testing at scale in a live environment to reach the next stage of their development and reach the market. By allowing this, the manufacturer will be able to evaluate the performance of their product and, in return for this support, the obligated supplier will receive an LBS score towards their obligation. Given the nature of the early stage of development of a Demonstration Action, the product would be unlikely to have an existing deemed score under the scheme. However, the Demonstration Action could collect evidence on the energy efficiency of the product which could be used to develop a deemed score for the measure to be delivered under the scheme at a later date.

Lifetime Bill Saving (LBS) Incentive

Where an obligated supplier provides support and sponsors an application for a Demonstration Action, if the application is successful and measures are installed, they will be awarded an LBS score towards their obligation target.

The LBS formula is: *M x 5.2* where:

- *M* (supplier spend) is either the actual cost of the Demonstration Action or the estimated cost of the Demonstration Action, whichever is lower (to ensure good financial management is in place); this will be determined by the administrator upon conclusion of the action. This spend will include expenditure towards the Demonstration Action, such as installer costs, the cost of the product, technical monitoring of the test, and reporting of the results. It can also include obligated supplier staff costs and other administrative overheads that they have incurred in sponsoring the action. To ensure value for money, any obligated supplier costs should not exceed 5% of the total supplier spend for the Demonstration Action.
- *5.2* is the amount of bill savings that an obligated supplier will receive per pound spend. This formula takes account of the current market LBS price and includes an incentive to encourage the obligated supplier to support Demonstration Actions.

Ensuring that Demonstration Actions meet the necessary standards

As Demonstration Actions will be installed into people's homes, it is essential that they meet the necessary standards to provide assurance to the householder that they are safe and will produce valuable results.

The scheme eligibility criteria and requirements are set out in the Eligibility criteria chapter, and additionally Demonstration Action measures will be required to show that they:

- are at Technology Readiness Level (TRL) 8 or 9, as this will ensure only measures that have already demonstrated that they are significantly advanced receive support and are installed into people's homes (this will include limited trials under client or users control and operation);
- have safety and aftercare arrangements in place;
- are value for money; and
- have a suitable methodology.

Technology Readiness Level (TRL)

A Demonstration Action must be at TRL 8 or 9.[6]

The details for each level are described further in the table below.

Technology Readiness Level	Details
8: Production Prototype (saleable Beta product)	The product must be / have: • incorporated in commercial design and have a production prototype (or process); • completed the development stage, with the final design and features set; • limited release to an appropriate number of clients, with trials having taken place under client or users control and operation; • all fulfilment procedures trialled and documented; • proven to work through completed test and demonstrations; • ready to be rolled-out, subject to a full product beta test.

[6] The full list of TRL Levels is available at: https://publications.parliament.uk/pa/cm201011/cmselect/cmsctech/619/61913.htm

Technology Readiness Level	Details
9: Marketable Product	The product must be: • proven in repeated use; • being sold in the market, and scaling up in sales volumes; • in its final form; and • proven through successful operations.

Previous testing in laboratory and live environment

The product will need to demonstrate that it has been fully tested in a laboratory to meet safety and performance standards, had some operational testing in a live environment, and now needs to be tested at scale in a live environment.

For products at TRL 8, previous testing in a live environment may have been limited to a small number of properties, would demonstrate that the product now needs to be tested at scale and has the potential to lead to an improved energy efficiency performance (when compared to any relevant existing measures). The number of products that need to be tested will depend upon the specific requirements of the Demonstration Action (i.e. the product) and the methodology that the manufacturer and supplier consider to be appropriate to monitor the performance of the product.

Products at TRL 9 may be products in their final form, are being sold in the market and have not been delivered under previous supplier obligations (so they would not have a deemed score). As such, the Demonstration Action route would allow evidence to be collected that could be used to create a deemed score, thereby enabling the product to be delivered under ECO at a later date.

Safety, installation standards and aftercare

The application must demonstrate that the measure meets all relevant safety requirements as required by the ECO scheme, such as product certificates and Building Regulations.

The application must also demonstrate that the measure will be installed to high installation standards that meets the ECO requirements. For example, measure types listed in Publicly Available Specification (PAS) should be installed to PAS 2030:2017 standards. Where it would not be economically or technically feasible to meet these standards, evidence for this must be included in the application.

Demonstration Actions involve testing and evaluating new products, and therefore the measure may need to be repaired or removed from the home at the end of the action. Demonstration Actions applications therefore must additionally demonstrate that there are arrangements in place for repairing or removing the measure and alleviating any adverse impacts caused by the measure to the property if it is removed during or following the demonstration period. We would expect that these arrangements are costed and contained within the application, and that the

obligated supplier, manufacturer and/or installer have a contract in place setting out this process.

The manufacturer and/or installer should also provide the householder with information about the measure, how the performance of the measure will be monitored, and any other relevant information. They should also provide relevant contact details so the householder can contact the manufacturer and/or installer to discuss the measure following installation, or to report an issue with the installation that may need to be resolved. The manufacturer and/or installer should also ensure that any appropriate additional information and support is provided for vulnerable households.

The following is an example demonstrating how the Demonstration Action route would enable suppliers to receive a new deemed score under the scheme for the support they provide to a small manufacturer.

Example: Demonstration Action for External Wall Insulation

A small manufacturer has developed a fabric for external wall insulation. The fabric has been tested in a laboratory and at a limited number of properties but now needs wider testing in a live environment.

An obligated supplier sponsors the manufacturer, and an application for a Demonstration Action to test the product in ten households is approved. The supplier and manufacturer estimate that the cost of the Demonstration Action will cost £60,000. This amount includes the supplier's staff costs of £2,800. The manufacturer has a separate fund (that is not included as part of this £60,000) to undertake any remedial or removal work that is required during or after the Demonstration Action.

When the Demonstration Action has concluded, the actual costs are £58,000. Therefore, the suppliers Lifetime Bill Savings is based upon the actual costs and multiplying this by 5.2:

*Supplier Spend (M) * 5.2 = Lifetime Bill Saving Score*

Based upon an actual spend of £58,000, the supplier receives 301,600 LBS towards their obligation target.

Value for Money

As an obligated supplier's LBS score is based on their contribution, the spend must be shown to be value for money.

The application therefore, needs to set out the estimated contribution that the obligated supplier will make towards the Demonstration Action and this should include a breakdown of individual item costs.

The type of information that a supplier should provide to demonstrate value for money depends on the nature of the Demonstration Action, and the individual item costs. We would expect that

item costs are supplemented with a short explanation describing how the cost has been determined, and why other options with different costs have not been used.

In assessing value for money, the Assessment Panel may take into account the spend per property, the opportunity cost of the Demonstration Action, and any additional value.

Methodology

The application should set out the methodology for monitoring the product and for collecting and reporting the data and results of the Demonstration Action. This should include details such as; the length of the test, how the measures will be monitored, what a successful trial will look like (including the expected energy savings), and when and how the results will be reported to Ofgem. The applicant should also provide evidence of a lack of bias in its selection of properties in which performance is monitored, and that the conditions over which performance has been measured are representative of in-situ in use. Where possible, evidence from NEED, a control group and/or other methodology (as agreed) should be cited, against which performance can be compared.

If a new deemed score is being sought to support an application for a future ECO measure, the Demonstration Action application should set out how the evidence collected can be used to develop a new score. Gathering suitable evidence at this stage will speed up the application for the measure to be introduced into the main ECO scheme and thereby increase the number of eligible measures available to suppliers to deliver their obligation. This may lead to the scheme being more cost effective to deliver.

An installer or manufacturer should consider whether they are working towards having their product recognised in the Standard Assessment Procedure (SAP). This would lead to energy, carbon and/or cost saving benefits of products being recognised in energy assessments of homes beyond the ECO scheme. These energy assessments are carried out to check whether new-build homes comply with minimum energy performance standards, and to produce Energy Performance Certificates (EPCs). The Department recommends that the Demonstration Action monitoring methodology is designed to gather the appropriate evidence for this. BRE maintain and develop SAP on behalf of the Department. They can provide specific advice on SAP and the evidence required for products to be recognised in SAP to installers and manufacturers, to help them understand the process in more detail.[7]

[7] Further information and contact details can be found at: https://www.ncm-pcdb.org.uk/sap/index.jsp.

Innovation Score Uplifts

Supporting new energy efficiency measures

ECO currently allows new measures into the scheme through the creation of a new deemed score or alternative methodology. Having deemed scores (based on the average performance of the measure) has reduced the complexity of the scheme but does not easily represent nuances in energy performance, and consequently makes it more difficult to reward measures that perform more efficiently than their similar counterparts. Significant improvements in energy performance, therefore, have to be represented by a new deemed score, and creating this can be an extensive process. Additionally, scoring methodologies in ECO refer to energy efficiency savings only, so some innovative elements, such as new methods of installation are not recognised. As such, new and more efficient measures are being delivered to households who can afford to pay for them in the marketplace but are not being delivered under ECO.

Consequently, we have introduced the Innovation Score Uplift route into ECO3. If a product can demonstrate that it is more energy efficient than previously used measures, or can be installed in a more efficient way, then an obligated energy supplier can apply to Ofgem to have an uplift applied to the relevant deemed score to represent this. This uplifted score will provide an incentive and will result in additional support for the measure, meaning it is more likely to be delivered under ECO.

We expect Innovation Score Uplift applications to relate to measures that already have a deemed score (e.g. external wall insulation or cavity wall insulation) but that can demonstrate an improvement. As part of the application process, the application must demonstrate how the measure is an improvement on an existing measure in one of the ways outlined in the Eligibility criteria chapter.

Other applications for Innovation Score Uplifts may relate to a new measure type that has no clear existing deemed score. In such cases, the application should include information on how a new deemed score could be developed and how the measure will improve energy efficiency in the home. In some cases, a deemed score may be inappropriate, and in these circumstances, an appropriate scoring methodology should be developed and proposed as part of the application.

Score Uplift Incentive

A successful measure will receive a 25% uplift compared to the existing or new deemed score (or alternative scoring methodology).

The uplift is designed to encourage suppliers to use these measures towards their obligation targets. The uplift will apply either until the end of ECO3 or until the 5% cap is reached to encourage consistent delivery of the new measure from its introduction into the scheme, and to provide ongoing support for the manufacturer and installer during the scheme. If the 5% cap is reached, the supplier can continue to deliver the measure without the associated 25% uplifted score.

The following is an example demonstrating how the Innovation Score Uplift route would enable suppliers to receive a new deemed score.

Example: Solid Wall Insulation Innovation Score Uplift for a 3-bedroom gas heated semi-detached property

There is a new Solid Wall Insulation (SWI) product. It has not been delivered under ECO previously, but it has a new more energy efficient fabric and can be installed in 15% less time than traditional SWI. The Innovation Uplift application is successful, and it is delivered under the scheme. For each measure delivered, the supplier receives an increased LBS score, which is 25% higher than the SWI deemed score under the scheme. This is calculated by multiplying the existing deemed score by 1.25, using the formula:

*Original Deemed Score *1.25 = Lifetime Bill Saving Score*

The Lifetime Bill Saving (LBS) score for external Solid Wall Insulation to a typical 3-bedroom semi-detached gas heated property is £8,433. This means the innovative SWI measure receives a score of 1.25 * £8,433 = £12,650 for this property.

Ensuring that Innovation Score Uplifts meet the necessary standards

It is essential that measures installed meet the necessary standards to provide assurance to the householder that they are safe.

The scheme eligibility criteria and requirements are set out in the Eligibility criteria chapter of this guidance and Innovation Score Uplift measures will be required to show that they meet the requirements of the scheme.

Safety, Installation Standards and Aftercare

The application must demonstrate that measures meet all relevant safety requirements as determined by ECO, such as product certificates and Building Regulations.

The application must also demonstrate that the measure will be installed to high installation standards that meets the ECO requirements. For example, measure types listed in Publicly Available Specification (PAS) should be installed to PAS 2030:2017 standards.

In-situ Performance

Supporting modern monitoring technology to measure performance of energy efficiency measures

As set out in the Industrial Strategy, the Government wants to support a reduction in energy use, so the UK can be world-leading in the global shift towards clean growth. To achieve this, we will need to understand the energy efficiency of our homes, and specifically what improvements energy efficiency measures make. Monitoring measures and measuring their performance is a suitable way of improving this knowledge and policy development, while also encouraging the best measures to be installed by providing rewards for the most efficient measures. Monitoring of measures can be undertaken in two main ways, using either:

a) the National Energy Efficiency Data-framework (NEED); or

b) alternative monitoring technology.

NEED is a data-framework that gathers information on gas and electricity consumption of domestic buildings and takes into account household characteristics, the geography of the property, the type of energy efficiency measure, the socio-demographic classification, and the behaviour of the householders.[8] It exists to understand, amongst other objectives, how different energy efficiency measures perform over a period of time.

Using NEED, efficiency data has been collected by BEIS on certain ECO measures (including, for example, cavity wall insulation, solid wall insulation and loft insulation), but is not used across the whole scheme, and therefore many ECO installed measures have no in-use efficiency data available. Energy efficiency data is not required by ECO because the deemed (average) score approach is used for suppliers to deliver their obligation, and no further measurement is necessary. This means that once a measure is installed there is often little further knowledge gathered about how it has performed within the home and how much the energy efficiency has been improved.

Additionally, NEED is limited by the timing at which data and information is collected. The data has to be collected for the year before installation of the measure and the year after the measure has been installed, meaning analysis and the publication of a report takes places two years after the start of the data collection. For example, the most recent publication provides insight into consumption in 2016, and an analysis of the impact of installing measures from October 2014 to September 2015. It is not possible to fix this timing issue while continuing to use only NEED.

Other methods are now available that collect data on energy efficiency. It is possible to use modern technology to gather data on energy use and the heat loss of an individual home. This technology has potential to yield results more quickly and would be beneficial for more timely policy development. We are therefore, allowing alternative technologies to be utilised under ECO through In-situ Performance.

[8] Further information on NEED is available in the report at: https://www.gov.uk/government/statistics/national-energy-efficiency-data-framework-need-report-summary-of-analysis-2018.

In-situ Performance is designed to encourage the installation of monitoring equipment alongside the installation of existing ECO energy efficiency measures. The monitoring equipment will monitor the energy use of the property and may also take into account the behaviour of the occupants before and after the measure/s are installed. If the monitoring shows that the measures are performing particularly well, then the supplier will gain an additional LBS (added to the deemed score) towards their obligation target. If the monitoring shows no or a lower than expected performance, the supplier will receive the original deemed score for installing the measure. This approach ensures that the supplier will not be penalised for using this route.

This route encourages the most efficient measures to be installed as an extra score is only awarded if the measures are proven to perform well. While the methodologies will differ dependent on the technology, it is likely that there may not be a requirement for a control group meaning that fewer homes will be required and consequently search costs may also be reduced.

BEIS will use the data that is collected from In-situ Performance to assess whether any future obligation scheme could move to a pay-for-performance type scoring system.

In-situ Performance Score (ISPS) and extra savings towards LBS score incentive

After a successful application, monitoring equipment will be installed into the relevant homes alongside the ECO energy efficiency measures. The property will have a baseline energy use established, and the end performance of the energy efficiency measure will be measured against this.

The supplier will receive the deemed score associated with the installed measures under the usual scheme criteria.

Monitoring will then take place, and the obligated supplier would be responsible for measuring the energy performance of each home and reporting the results to Ofgem.

To determine if the performance of the home has improved as a direct result of the installed measure, the difference will be calculated between the original deemed score and the data collected by the monitoring technology post installation. This result will then be converted into an LBS score by turning the energy saving into a lifetime bill saving.

This monitored LBS score will require an adjustment in order to compare to the previously awarded deemed score. This is in recognition that metered energy consumption recorded in NEED is often less than energy consumption predicted by SAP upon which deemed scores are based. Without such an adjustment it is unlikely the monitored score would exceed the previously awarded deemed score. The adjustment factor is reflective of these differences, and will vary between measures and house types. The adjusted LBS score will become the in-situ performance score.

The in-situ performance score (ISPS) will be based on an average of all monitored scores from homes that took part in the performance monitoring process for a specific measure. If the ISPS exceeds the previously awarded deemed score, the obligated supplier will be rewarded with a new deemed score. If the ISPS is less than the original deemed score, then the original deemed score applies.

The supplier can calculate their ISPS using the following formula:

$$ISPS = \frac{monitored\ score}{adjustment\ factor}$$

The supplier will be able to calculate their In-Situ Performance scores by applying adjustment factors to in-situ monitored energy savings for specific measure types. These adjustment factors can be found in the annex of this guidance. The following table lists which measures currently have adjustment factors. In cases where the adjustment factors are not currently available, the applicant should contact Ofgem in the first instance to discuss the measure they wish to conduct performance monitoring on.

Solid wall insulation	SWI adjustment factors
Park home external wall insulation	SWI adjustment factors
Cavity wall insulation	CWI adjustment factors
Loft insulation	Loft adjustment factors
Room-in-roof insulation	Loft adjustment factors
Other insulation	Contact Ofgem for further information
Boiler replacement	Boiler adjustment factors
Boiler replacement mains gas	Boiler adjustment factors
Boiler repair	Boiler adjustment factors
Electric storage heater	Contact Ofgem for further information
Other heating	Contact Ofgem for further information
District heating system	Contact Ofgem for further information
Micro-generation	Contact Ofgem for further information

The following is an example demonstrating how In-Situ Performance scores are derived and used to calculate a new deemed score.

Example: Cavity Wall Insulation In-situ Performance Score (ISPS) for a 3-bedroom gas heated semi-detached property

The ISPS will be calculated by applying an adjustment factor to a monitored LBS. The proposed adjustment factor for cavity wall insulation is 0.43 which is the ratio of NEED average gas savings divided by SAP (using BEIS national household model). The ECO3 deemed LBS for cavity wall insulation installed to a 3-bedroom gas heated property is £5,971.

Therefore, to gain additional savings on top of the measure's deemed score for a cavity wall insulation measure, the ISPS needs to prove a lifetime bill saving in excess of £5,971.

For example, if the performance monitoring revealed an average lifetime bill saving of £3,000 this is adjusted by dividing by 0.43.

Therefore, the ISPS is £6,976 which is 17% higher than the previously awarded deemed score. Therefore, the supplier can claim a higher score of £6,976 Lifetime Bill Savings instead of the previously awarded LBS score of £5,971.

In-situ Performance delivery alongside innovation routes

To encourage use of all the innovation and In-situ Performance routes, and to ensure a variety of delivery, suppliers can only receive one uplifted score per installed measure or monitoring technology.

Therefore, Innovation Score Uplift measures can be monitored using In-Situ Performance monitoring technology, but they will only receive the score awarded through In-situ Performance monitoring and will not also receive the Innovation Score Uplift of 25%. Similarly, monitoring Innovation Score Uplift measures using In-situ Performance counts towards the 10% caps of both routes.

Demonstration Actions involves monitoring the performance of measures and therefore additional monitoring through In-situ Performance would not be required. Accordingly, a supplier can only receive the LBS score awarded for completing a Demonstration Action and cannot simultaneously receive a score associated with any other route.

Ensuring that In-situ Performance meets the necessary standards

As In-situ Performance monitoring technology will be installed into people's homes, it is essential that it meets the necessary standards to provide assurance to the householder that it is safe and will produce valuable results.

The scheme eligibility criteria and requirements are set out in the Eligibility criteria chapter of this guidance, and additionally In-Situ Performance applications will be required to show that:

- the monitoring technology meets all relevant safety standards and that there are aftercare arrangements in place; and,
- a suitable methodology is in place.

Safety, installation standards and aftercare

The application must demonstrate that the installed measures and the monitoring technology meets all relevant safety requirements as determined by ECO, such as product certificates and Building Regulations.

The application must also demonstrate that the installed measures and the monitoring technology will be installed to high installation standards that meets the ECO requirements. For example, measure types listed in Publicly Available Specification (PAS) should be installed to PAS 2030:2017 standards.

In-situ Performance involves the monitoring of measures, and therefore the monitoring technology may need to be repaired during the monitoring period or removed from the home at the end of the monitoring period. In-situ Performance applications therefore should additionally demonstrate that there are arrangements in place for repairing or removing the measure and alleviating any adverse impacts caused by the monitoring to the property. We would expect that these arrangements are costed and contained within the application, and that the obligated supplier, manufacturer and/or installer have a contract in place setting out this process.

Methodology

As monitoring technology is new to ECO, the application will have to set out a detailed methodology for the measurement process. Alongside any other required information, the following information should be provided in the application:

a) identification of the monitoring technology to be used and information that demonstrates the reliability and accuracy of it in measuring the heat transfer coefficient of a building and the behaviour of the householders;

b) how the technology demonstrates the ability to set a baseline to measure the performance of the measure against;

c) how the data will be collected and how the monitoring will be carried out to show how the evidence collected will accurately demonstrate the energy efficiency of the home and the installed measures. The methodology and the results must be presented in a way that they can be measured against the original deemed score;

d) how the results will be reported to Ofgem so that any extra savings can be appropriately calculated and awarded; and

e) the number of homes that should be monitored to create statistically significant results and the planned methodology. The number of homes monitored may be the full population identified or could be a randomly selected representative sample. For example, if 200 households receive a measure or measures, monitoring equipment may be installed into 40 households (i.e. a 20% random representative sample of all installed

energy efficiency measures). This is to take account of the cost of installing and removing the monitoring equipment, while ensuring significant results are yielded. In some cases, it may be appropriate for all households who have received a measure to be monitored. The final determination of additional savings will be awarded to the whole population regardless of the number of homes monitored. For any monitored sample to be smaller than 100% of the population, the application will need to include clear evidence suggesting why this is appropriate.

Once the monitoring has concluded, the monitored measures are used to derive an in-situ performance score and the supplier has received an additional uplift towards their obligation target, any additional measures that are installed under ECO (i.e. installed outside of the identified full population that was agreed as part of the in-situ monitoring application) will only be eligible for the main ECO deemed score and not the ISPS. This is because measures that are monitored and available to receive the new ISPS under the In-situ Performance route are capped at 10% of the ECO scheme. If evidence from the monitoring demonstrates that the measure performs better than the existing deemed score, this could also lead to a new deemed score being developed for the measure type.

BEIS is currently running a Smart Meter Enabled Thermal Efficiency Rating (SMETER) competition. Any monitoring technology participating in this competition will not automatically qualify for this ECO route. However, evidence gained through completion of both phases of the competition can be taken into account as part of any application for In-Situ Performance, alongside other required application details.[9]

[9] Further information on the SMETER competition is available at: https://www.delta-esourcing.com/delta/respondToList.html?noticeId=330766726

Glossary

BRE	Building Research Establishment
ECO	Energy Company Obligation
EPC	Energy Performance Certificate
ISPS	In-Situ Performance Score
LBS	Lifetime Bill Savings
NEED	National Energy Efficiency Data-Framework
PAS	Publicly Available Specification
SICE	Science and Innovation for Climate and Energy
SMETER	Smart Meter Enabled Thermal Efficiency Rating

Energy Company Obligation eligible benefits

In order to be eligible under the ECO3 scheme, the householder or one of the occupants residing at the property of the householder must be in receipt of one of the following benefits:

- armed forces independence payment;
- attendance allowance;
- carer's allowance;
- child benefit (with an income threshold);
- child tax credit;
- constant attendance allowance;
- disability living allowance;
- guarantee credit;
- income-related employment and support allowance; and
- income-based jobseeker's allowance.[10]

[10] Schedule 2 of the ECO Order 2018 sets out the full eligible benefits for the scheme. This is available at: https://www.legislation.gov.uk/ukdsi/2018/9780111171769/article/2.

ECO3 In-Situ Performance Scores: Adjustment factors

- Tables 2a to 2d present adjustment factors for use in conjunction with in-situ performance savings to derive an In-Situ Performance Score (ISPS). The adjustment factors were created using values for the full domestic housing stock in England, Scotland and Wales, and thus covers a wider population than only homes which are eligible under the ECO3 scheme. Updated tables may also be released as required, which are representative of the target population (i.e. ECO3 eligible homes, or an estimation of).
- These tables were created using a control group, which moderates the measured impact of the measure. The adjustment factors are designed to be used in conjunction with methods which also use an adequately designed control group. In the absence of a control group, the applicant may still use the adjustment factors, but should be mindful that these may require further adjustment to reflect trends in the general population which the Ofgem Technical Advisory Panel will advise on.
- The adjustment factors were created using the annual gas meter readings for properties, and as such are only appropriate for use in conjunction with methods that use meter readings, as opposed to other methods of measurement (e.g. thermal cameras).
- The savings represented in these tables will be moderated by home owners “taking comfort” following installation of an energy efficiency measure.
- Adjustment factors for different property types will be added to this document as more current statistics become available.
- The adjustment factors reflect historic differences between NEED and SAP. BEIS may revise these in future to reflect more current statistics from NEED.

Table 2a: Cavity wall insulation adjustment factors by house type

House type	Adjustment factor
All house types	0.43

Table 2b: Loft insulation adjustment factors by house type

House type	Adjustment factor
All house types	0.43

Table 2c: Solid wall insulation adjustment factors by house type

House type	Adjustment factor
All house types	0.51

Table 2d: Boiler adjustment factors by house type

House type	Adjustment factor
All house types	0.71

This publication is available from: www.gov.uk/government/publications/energy-company-obligation-innovation-guidance

If you need a version of this document in a more accessible format, please email enquiries@beis.gov.uk. Please tell us what format you need. It will help us if you say what assistive technology you use.