



Energy Company Obligation Innovation Stakeholder Workshop Summary Report



2. Acknowledgements

The Sustainable Energy Association and the Energy Saving Trust in co-ordination with the Energy Company Obligation (ECO) team at the Department for Business, Energy and Industrial Strategy organised and facilitated the ECO Innovation Stakeholder Workshop.

Thanks to the representatives from both BEIS and Ofgem who facilitated the roundtable discussions and to the note keepers at the workshop.

REPORT AUTHORS:

Samantha Crichton,

Policy Advisor, Sustainable Energy Association

Owain Jones,

Policy Officer, Energy Saving Trust



Contents

1. INTRODUCTION	3
2. ACKNOWLEDGEMENTS	6
3. INNOVATION ROUTES – SUMMARY OF RECOMMENDATIONS	7
3.1. DEMONSTRATION ACTIONS	13
BEIS Proposal	13
Summary of discussion	13
3.2. INNOVATION SCORE UPLIFT	19
BEIS Proposal	19
Summary of discussion	19
3.3. MULTIPLE MEASURE / IN-SITU PERFORMANCE ACTIONS	21
BEIS Proposal	21
Summary of discussion	21
3.4. MONITORING	22
Summary of discussion	22
4. INNOVATION PRESENTATIONS	24

Introduction

The Energy Company Obligation (ECO) is a legal requirement placed on larger energy suppliers to make improvements to the energy efficiency of homes. The first ECO scheme started in 2013, and was a successor to similar obligation programmes which had run since the early 1990s. The current scheme is due to end in October 2018 and the Government is proposing that the new scheme, hereafter referred to as ECO3, will be wholly focused on “Affordable Warmth” such that low income and vulnerable households are the beneficiaries of the measures installed.

The Industrial Strategy sets out how the Government aims to ensure that the UK is the best place for innovation. With the UK’s housing stock being some of the oldest and least efficient in Europe, there is recognition of the need for new ideas to be developed in terms of home energy efficiency. In order to address the UK’s challenging housing stock, new solutions that are more effective, lower cost, and more appealing are needed.

The Department for Business Energy and Industrial Strategy (BEIS) has proposed to include an innovation element in the new ECO scheme to help support routes to market for manufacturers and installers of new and improved energy efficiency measures and methods of installation. The innovation element will allow new solutions to be trialled and monitored to assess real life performance to enable them to become mainstream within the current scheme, drive scale and achieve wider uptake. Support for innovative measures will be new in ECO, but a similar programme has been run in earlier supplier obligations, notably the CERT (Carbon Emissions Reduction Target) programme which ran from 2008 to 2011.



The proposal is that suppliers will be able to deliver between 10 and 20% of their obligation through innovative measures (products and installation methods). BEIS have proposed that the scheme should particularly support innovations that result in the following outcomes:

- the development and deployment of new measures that are not currently delivered under ECO and therefore do not have a deemed score;
- reductions in the costs of improving solid walled homes, recognising there can be trade-offs between the costs of the works and the levels of carbon savings achieved;
- devices and controls that improve a consumers' ability to manage their energy use;
- improvements in the processes of production and installation of measures that bring down costs and allow new ways of solving problems;
- new ways of installing existing measures or combinations of measures which, for example, reduce cost, improve quality and enhance the overall experience for the consumer; and
- better ways of identifying and targeting households for ECO support that result in an improved customer experience.



BEIS have proposed three routes to encourage innovation:

- **Demonstration actions** – providing support for measures that have been tested in a laboratory and now require testing in a live environment;
- **Innovation score uplifts** – providing support for measures that have not previously been delivered under the obligation and have improved installation methods or materials that can drive down costs; and
- **In-situ measurement of performance** – to encourage a combination of new and innovative measures, on their own or in combination, to be installed in homes and the performance monitored to assess whether this provides increased energy savings compared to the delivery of traditional ECO stand-alone measures.

The ECO Innovation Stakeholder Workshop brought together around 90 attendees interested in shaping how innovation could be supported within the ECO scheme. This consisted of representatives from around 80 different organisations and representatives from BEIS and Ofgem. Attendees discussed the three innovation routes, monitoring and the types of innovations that could be deployed.



This report provides a summary of the Workshop discussions including key recommendations on each innovation route.

3. Innovation Routes

- Summary of recommendations

Stakeholders discussed the three proposed innovation routes in small groups. The recommendations are summarised below. The recommendations contained in this report are not those of the Sustainable Energy Association or the Energy Saving Trust. They represent the recommendations identified by the discussion groups at the ECO Innovation Workshop.

DEMONSTRATION ACTIONS

- Provide certainty in regard to the lifetime bill saving calculation.
- Widen eligible households to include all social housing and able to pay households for demonstration actions.
- Provide flexibility in terms of demonstration size and timescales.
- Allow suppliers to leverage other sources of funding.
- Publish clear guidance on this route ahead of the scheme.
- Analyse other benefits to the customer in addition to bill savings including qualitative assessments of experiences.
- Ensure a co-ordinated and consistent approach to modelling.
- Set clear objectives for testing.
- Develop a filtering process to ensure that measures meet minimum safety standards.
- Encourage measures that support a whole house approach.
- Assess eligibility on a case by case basis - use technology readiness level 8/9 as an indicator of suitability not a minimum requirement.
- Target off-grid properties with low carbon heating innovations.
- Allow measure providers to access other innovation routes following a demonstration action.

INNOVATION SCORE UPLIFT

- This route to innovation exists to provide an avenue for more mature technologies that are not eligible for the demonstration action route.
- The route and process need to be clear and simple.
- Clear communication on the exact nature of the three routes is required and in particular on the difference between this and the demonstration route.
- Clear guidance documents will be needed, especially on what is required in the application process to get an uplift.
- Failed applications should get feedback on the reasons for failing (e.g. insufficient evidence) and the opportunity to reapply after these reasons had been addressed.
- Administrators need the capacity and the understanding of the scheme and process in order to administer it in the tight timescales required.
- The setting and levels of uplift need to be clear and predictable, certainty over uplifts is necessary for suppliers to determine cost effectiveness.
- There could be bands for uplifts, with the administrator determining which band a specific measure fell into.
- Suppliers need to know the value of the uplift before the measure is installed, and the uplift should be constant for the entire period.
- If the uplift is dependent on performance review, then the review mechanism should be clear and agreed on between the supplier and administrator upfront.
- Consider whether it would be better to link reduction in uplift to volume of installed measures rather than time period.
- An innovation brokerage system should be set up so that suppliers do not have to chase installers.
- The embedded energy impact of measures should be considered.
- Consider whether this route could also cover innovative ways of assessing performance.
- A ring-fenced R&D fund could be set up to incentivise suppliers.
- Focusing purely on bill savings could restrict the type of measures or techniques supported.

MULTIPLE MEASURE / IN-SITU PERFORMANCE ACTIONS

- A whole house approach supports the long-term ambition of government (EPC Band C) but it is important to keep the regulatory arrangements as simple as possible to encourage suppliers to engage.
- Clarity is needed over the use of funding from other sources, particularly in Scotland and Wales.
- Consider whether this route should focus on the number of measures or overall benefit to consumer.
- Introduce an increasing uplift to incentivise the installation of additional measures.
- Clarity is needed regarding how the uplift is defined.
- Uplifts must incentivise the right technologies for the right households.
- ECO should encourage measures to be installed at the same time, where possible, to minimise disruption for the customer.
- ECO should incentivise installers to undertake additional training and improve their understanding of new technologies and the overall impact of the combination measures as much as possible.
- Uplift should not just be dependent on the bill saving alone as this may not capture other benefits to the household (e.g. comfort, health benefits, reduction of damp and mould, lower carbon emissions).

MONITORING

- Performance monitoring is necessary for examining the impact and success of innovative measures, especially those delivered through the Demonstration Actions route, or those that have performance guarantees.
- Given the short timescales of ECO the length and extent of monitoring may need to be restricted.
- It is important that monitoring be set at a level that is necessary but not so onerous as to unnecessarily divert money that could be spent on additional measures.
- Smart meters can support monitoring.
- ECO could be used to encourage industry to bring forward innovative modelling processes and new ways to monitor performance.
- The administrator could check the robustness of the modelling process used to predict the energy impacts of innovative technologies, rather than requiring monitoring of the actual performance.
- In order to be fully accurate, monitoring would need to take account of human behaviour, house type, demographics of the occupants, and comfort taking.
- Issues related to privacy and consent from the home occupier with regard to data sharing need to be addressed.
- Ensure that monitoring periods enable the effective assessment of the impact of installations.
- Consideration should be given as to whether benefits of using zero-carbon technologies which do not reduce bills or improve warmth but do contribute to emissions mitigation can be included.

3.1. Demonstration Actions

BEIS PROPOSAL

- Enable testing of a new product in a live environment for the first time (supporting products with clear potential to be successful), and
- To allow smaller manufacturers, who would not necessarily be able to afford the research, to receive funding from suppliers to test their innovative measure.

A demonstration action is an innovation route that allows a new untested innovative measure to be tested in a live environment for the first time. The measure must have already been successfully tested in a laboratory and be at a certain technology readiness level (TRL)¹. Then, using National Energy Efficiency Data Framework (NEED) data², the new measures will be monitored before and after installation to assess how energy efficiency has improved in the home. The action is undertaken at the expense of the manufacturer and/or energy company who will receive an ECO Lifetime Bill Saving (LBS) score as a result of this to contribute towards the supplier's obligation.

The supplier will receive a Lifetime Bill Saving (LBS) contribution towards their obligation in return for funding the demonstration action equal to the estimated cost of promoting and monitoring the action [Formula to be finalised].

SUMMARY OF DISCUSSION

Overall there was support for the introduction of a demonstration route under ECO3. There was a strong feeling that this route would be used by suppliers as it had been successful under CERT. However, delegates noted that supplier appetite will depend on the score and the cost to deliver demonstration actions versus the cost of delivering standard ECO actions.

The provision of financial support through this route for in-situ testing was welcomed, especially as some testing methodologies can be very expensive e.g. co-heating tests. Currently, achieving Ofgem approval can be a difficult and long process particularly for small innovative organisations. It was stressed that the process for achieving approval needs to be simplified.

¹Explanation of technology readiness levels can be found here: https://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-g-trl_en.pdf

²<https://www.gov.uk/government/collections/national-energy-efficiency-data-need-framework>

It is not clear under the current BEIS proposals the extent to which the LBS score will be based on the monitored outcome of the demonstration action or on an assumed score. Delegates considered that certainty in regard to the LBS score that will be achieved is important and a high level of trust between the suppliers, regulators and manufacturers will be needed. Innovative products often carry more risk and therefore the policy would need to reduce the compliance risk (i.e. by providing additional certainty over the LBS score that will be achieved.)

It is important to emphasise that complexity will discourage suppliers from opting to follow this route. Publishing clear guidance on these routes and carrying out preparatory work before ECO3 is launched would be helpful for market actors.

ELIGIBLE HOUSEHOLDS

There was broad support for a widening of the eligible households in the demonstration actions route, both in terms of household and property characteristics. There were calls to be able to conduct demonstrations in any demographic, thus decoupling innovation and fuel poverty targets.

Delegates raised concerns about installing innovative technologies into the homes of fuel poor, low income and vulnerable customers due to the inherent risks associated with deploying new solutions. There was apprehension around the risk of higher bills and untested solutions for these households in particular. There is therefore a need to ensure that the measure is suitable for the occupant. Difficulties associated with recruiting participation were highlighted. The social landlords in attendance highlighted that this has been a challenge when trialling other new products in the past.

It was recommended by many that the eligibility pool should be widened to incorporate able to pay households. For example, there was a proposal that a pilot within the demonstration action route should have to include only two-thirds of customers that are classified as eligible under wider ECO criteria i.e. the household is recognised as being vulnerable or fuel poor. This would enable a third of participants to be able to pay.

It was suggested that it may be easier to deploy measures with a social landlord so long as the technology is safe and financial support is available. There was also a recognition that social landlords understand their stock and properties are more likely to be located in close proximity to each other, making trials easier to administer. Local Authority Flex was highlighted as an opportunity to identify target households. Others implied that it may be difficult to deploy innovation at scale through local authorities or social housing. The restriction on energy performance within social housing should be lifted for demonstration actions to widen the pool of potential recipients. This would mean that a social housing property with an EPC band of D or above could be eligible. The consultation proposes that the types of eligible measures in social housing are restricted to first time central heating (including renewable and district heating) only. It was highlighted that these restrictions may not be appropriate in regard to innovation.

SIZE / TIMESCALES

Delegates proposed that smaller trials should be explored given that the products are likely to be nascent and in some cases the manufacturers may be start-ups and thus may not have the capacity for large field trials. Larger trials may restrict the types of organisations that would apply for this route. The need to ensure cost effectiveness for suppliers was emphasised and that larger trials are likely to be more appealing. However, multiple demonstrations for similar measures or the same measure across different suppliers could be used to create a larger sample and data set.

There was a mix of views in terms of timescales. There was a proposal that a 12-month trial is needed to demonstrate new products in order to take into account seasonal variation for example. On the other hand, delegates stressed the need for flexibility and requested that there were not onerous requirements and prohibitive timescales.

FINANCIAL SUPPORT

There was strong consensus that the level of financial support required is dependent on the measure and the scale of the demonstration. There was uncertainty regarding who covers maintenance and monitoring costs. It was suggested that some early funding ahead of the launch of ECO3 would be useful to bring projects forward and ensure that innovations can be deployed shortly after ECO3 is introduced.

It is important that the scheme has a clear focus on value for money and that obligated suppliers are able to access Innovate UK funding and other financial support schemes as part of the demonstration action route. Being able to leverage funding between different schemes and innovation routes would help to drive uptake and ensure that a range of measures, both low cost and more expensive measures are installed. Delegates were keen for a mixture of funding to be used meaning that ECO does not cover all costs of the demonstration. It was recognised that bringing in other funding sources could increase complexity given that this route is based on converting the supplier's expenditure into notional lifetime bill savings.

EVALUATION / MEASUREMENTS

There was uncertainty around the evaluation process and calls for early and clear guidance for suppliers and industry ahead of the scheme launch. There were concerns around the time, administration and costs associated with the approval process because if the process was too arduous, it may discourage suppliers.

Demonstration actions must deliver measurable benefits i.e. lifetime bill savings. However, it was suggested that other impacts should be assessed such as consumer experience, home comfort and benefits to the grid as these could not be captured under the lifetime bill savings and may be useful for future schemes. There was support for the wider, ancillary benefits to be considered as part of the demonstration actions.

There is a need for a coordinated approach to testing methodology to ensure consistency. It was suggested that the modelling process used to estimate impacts should be assessed before the demonstration is carried out to enable BEIS to assess whether the methodology is appropriate. BEIS could outline their expectations on modelling content.

Delegates emphasised the need to have clear objectives for testing. For example, to collect the data to be used to develop a deemed score or to get BRE accreditation. There is therefore a need to collect sufficient evidence to comply with BRE, deemed score and SAP standards so that the data can be useful after the demonstration project. Delegates questioned the use of NEED data and asked whether a control group was needed to assess the impact of the trial compared to a baseline (for more detail see Monitoring section of report).

QUALITY

It is paramount that all installations under ECO3 are deployed to a high quality and that standards are in place to ensure quality. Delegates emphasised that both proven and innovative technologies can be installed badly. One of the risks associated with innovative solutions could be the lack of process if something goes wrong with an installation. This was highlighted as one of the biggest barriers to the use of innovative measures with delegates questioning who would be liable and whether legacy costs should be factored into the process.

There were queries regarding the process for when a measure does not work as anticipated and thus does not provide the bill savings that were predicted. Delegates were keen to understand how in-situ savings would be quantified. It was highlighted that processes would need to be put in place to avoid gaming and the exaggeration of savings. To provide certainty and encourage suppliers to carry out demonstration actions, clear guidance is needed to ensure that the notional lifetime bill savings are not revoked if the product does not perform as expected. Safety was not seen as a significant barrier to deploying innovative measures as all measures will need to be laboratory tested prior to deployment. It was advised that BEIS / Ofgem would need to have a clear filtering process to ensure that measures met minimum standards. Ensuring the safety of the measure is key even if the performance is unproven. The cost associated with laboratory testing was highlighted as a potential barrier.

TYPES OF MEASURES

Delegates thought that a range of measures both new and improved products as well as better, more efficient installation techniques could be deployed via this route. Energy suppliers were keen that there was a wide range of options available. There was a suggestion that existing products installed using new techniques should be eligible for demonstration. Measures with scale potential should be encouraged as part of the demonstration route. The need to take a whole house approach was referenced by most discussion groups and it was proposed that the route should encourage measures that enable this approach. Delegates warned that the demonstration route could exclude taking a whole house approach if it is focused on particular technologies.

Delegates asked where measures such as demand side response would feature and whether these would be eligible for demonstration. There were also queries as to whether services such as those that encourage more efficient use of energy could be eligible. Clarity was requested on these points. It was suggested that behavioural measures may be difficult to deploy and monitor. Delegates therefore proposed that this route would be more likely to encourage insulation measures or new heating systems. Regarding monitoring, delegates proposed that innovative ways to test performance and collate real life data could also be demonstrated via this route. It was suggested that the data could be used to demonstrate the additional benefits associated with new products and change the use of other metrics such as SAP.

In regard to Technology Readiness Level (TRL), there were some mixed views. Most discussion groups agreed that requiring a TRL of 8 or 9 is suitable. However, there was differing opinions on whether lower TRLs should be included.

Some believed that technologies with lower TRLs should also be considered on a case by case basis, with delegates suggesting that a demonstration project could imply a lower TRL. Delegates warned that mandating a minimum TRL could block some emerging technologies and thus there is a risk that the scheme would not be exploring all options. It was proposed that TRL 9 may be more appropriate for the uplift route.

Whereas others strongly agreed that the TRL should be no lower than 8 and that lower levels could lead to higher risks for installers, suppliers and product manufactures if the product does not achieve its aims or if there are issues with the product e.g. safety concerns. Delegates recommended that products will need to have gone through some sort of quality control before being able to be deployed.

There were questions around whether the technologies need to be proven in the UK prior to deployment or whether the demonstration could be carried out to collect UK applicable data. The route therefore would be suitable for products that are used in other countries, but their benefits are not validated in the UK.

It was suggested that being able to have exclusive access to specific measures following a demonstration action could help to encourage uptake from suppliers. This would reduce the risk of spending on a demonstration and then not benefiting from the product in the future.

There were concerns that the focus on fuel poverty may impact the types of technologies being deployed and could limit manufacturer appetite to engage in this route. The route should enable technologies that save carbon including those that improve the efficiency of hot water provision, energy efficient appliances and smart technologies.

Finally, the Government's ambition to phase out oil and coal heating was welcomed. To encourage the replacement of these systems, delegates suggested that properties with oil and coal heating could be targeted for innovation. As such it was felt that this route could be used to trial innovative heating measures in off grid properties.

INTERACTION WITH OTHER ROUTES

There was consensus that measure providers should be able to apply for innovation support via another route once the demonstration action has been completed. The demonstration action should prove the potential of the product or installation technique and then the innovation score uplift could provide the scale needed to create widespread adoption. The innovative solutions are likely to still be more expensive than traditional measures and as such support may be required to encourage deployment under ECO. Delegates warned that if funding for subsequent actions is restricted, it may discourage participation in demonstration projects. There were also concerns that limiting funding to a single route would discourage the installation of multiple measures via the Multiple measure / In-situ Performance Actions route.



3.2. Innovation Score Uplift

BEIS PROPOSAL

- Enable new products or new installation techniques that are not currently in ECO to receive support and reach commercialisation more quickly, and
- Drive down the production and installation costs of the measure, meaning more measures can be implemented in total.

An innovation score uplift provides a new measure or installation technique with additional support by increasing the deemed score for a specified period of time. A 'new measure' means that the product must have not already been part of the ECO scheme or predecessor schemes, and a 'new installation technique' may refer to products which have been part of previous schemes but that are installed in a new, innovative way.

THE NEW MEASURE MUST HAVE OR BE ONE OF THE FOLLOWING:

1. **A new and better product or fabric** – that results in significant time/cost benefits and/or increased energy efficiency,
2. **A new and better installation method** – that results in significant time/cost benefits for the installer and/or the householder, or
3. **A new and better product or fabric and installation method** – a combination of the two preceding categories that results in an improved benefit.

A new measure that falls into one of the above categories and meets the criteria will be awarded an uplift to their existing deemed score. The level of uplift will be dependent on the measure. The uplift will apply for two years and once the uplift period or the scheme ends, whichever is earlier, the measure will resume to its deemed score only.

SUMMARY OF DISCUSSION

Overall the delegates that partook in the roundtable discussion felt that this was a good route. Many felt that of the three routes this would be the most attractive and would see the most measures coming through. It was also said that it was important for this route to exist to provide an avenue for more mature technologies that are not eligible for the demonstration action route.

CLARITY AND SIMPLICITY

As with other routes there were many calls for clarity and simplicity. Some attendees were not clear on the difference between this and the demonstration actions, suggesting that there may need to be clearer communication on the exact nature of the three routes. There were strong calls to keep it as simple as possible, and with a consistent approach and fears that if it was too complex or unpredictable then suppliers would not engage with it. Clear guidance documents will be needed, especially on what is required in the application process to get an uplift. It was also felt that failed applications should get feedback on the reasons for failing (e.g. insufficient evidence) and the opportunity to reapply after these reasons had been addressed. In a similar vein, it was also felt it was important for the administrators to fully understand the process and concerns over whether Ofgem would have the capacity to do this in the timescales required.

The setting and levels of uplift would also need to be clear and predictable, certainty over uplifts would be necessary for suppliers to determine cost effectiveness. It was suggested that there be bands for uplifts, with the administrator determining which band a specific measure fell into. Suppliers would also need to know the value of the uplift before the measure is installed, and the uplift should be constant for the entire period. If the uplift is dependent on performance review, then the review mechanism

PERCEIVED BENEFITS OF THIS ROUTE

It was felt that the route would be beneficial in helping with high upfront costs and dissemination of innovative materials and techniques, and that it could incentivise innovative methods for tackling hard to treat properties, due to building fabric (e.g. timber frames) or geographic location (e.g. rural, coastal). The prospect of different installation techniques was welcomed, provided it improves quality and performance in real life situations; though it was felt that extra incentives should be provided for new materials rather than new techniques. Compared to the demonstration and multiple measure/ in-situ performance routes, the innovation uplift was felt to be the most acceptable due to lower risk.

CONCERNS THAT WERE EXPRESSED

The delegates did express a number of concerns. One concern was exclusivity of the benefits, with delegates concerned that suppliers would not want to invest in a process if they subsequently lose exclusivity and others benefit from it. There were also concerns over what would happen if the product was not as effective as claimed and whether the installer or the supplier would be liable. If the risk:reward ratio is not low enough it will discourage suppliers, therefore as much as possible must be done to minimise risk to ensure suppliers engage with the scheme. The uplift must be high enough and last long enough to provide sufficient incentive. Delegates were concerned that reducing uplift after a year would not be beneficial as the fall in cost over that period would not be large enough.



3.3. Multiple measure / In-situ Performance Actions

BEIS PROPOSAL

- Encourage a whole house approach to installing measures
- Measure the performance of those measures

This is a route to encourage both innovation and a 'whole-house' approach to energy efficiency by installing a certain number and type of measures into a single property, at least one of which must be an innovative primary measure.

Once implemented the energy usage of the household with the combination of measures installed will be monitored for one year, or longer, and used to inform BEIS future policy development and understanding of household energy use. This would include: informing policy development for any future supplier obligation; to inform future deemed score updates; or moving to a payment for performance scheme. The Science and Innovation for Climate and Energy (SICE) team have expressed a preference to use NEED for this purpose.

If a supplier utilises this measure, they will be rewarded by an uplift to the LBS score. The LBS score will be calculated from the supplier's evidenced predicted lifetime bill savings that the combination of measures should provide and adding an uplift of X%.

SUMMARY OF DISCUSSION

This route received a somewhat mixed response. While many were supportive of a multiple measures/whole house approach, there were those who felt that the added complexity would be off-putting for suppliers leading to little engagement.

Those who supported it welcomed the potential focus on a whole house approach and the installation of collaborative measures. It was felt that this was more holistic and long term, and that multiple measures would be needed for many homes to get to EPC C (which is the government's ambition), as individual measures do not put the home on a trajectory to meet this.

Those who expressed doubts were concerned that suppliers would be unwilling to engage with the process, with the need to manage multiple installers in a single property cited as a drawback. They also felt that suppliers would need strong incentives to take a multi-measure approach over individual measures. It was also considered important to keep the regulatory arrangement as simple as possible to encourage suppliers to engage. Some delegates expressed concerns that customers would not want multiple measures. Further concerns were expressed over the suitability of this route for promoting innovative measures; a multi-measure approach should perhaps instead use tried and tested measures that are known to work well together.

It was suggested that this route could be used to encourage installing additional measures in properties that have already benefited from having a single measure installed under ECO, to encourage in-fill and further promote a whole house approach.

ADMINISTERING THE ROUTE

As with other routes, there were again calls for simplicity and clarity in regulating the scheme, with clearly defined rules needed. There were questions of how the uplift is defined, whether extra measures would get a boosted uplift, or whether there would be an LBS score for specific combinations of measures.

There were also questions over how this would work in Wales and Scotland, where there are other sources of funding for energy efficiency improvements. Delegates were keen to understand whether ECO measures could benefit from multi-measure uplifts if installed alongside measures funded from other sources.

HOW MANY MEASURES, AND IS THAT EVEN THE RIGHT QUESTION?

There was discussion regarding whether there should be a minimum number of measures needed to qualify for the uplift. This then raised questions around whether the uplift should be measured in number of measures at all. Some delegates felt that the route should be assessed on the overall SAP improvement, rather than the number of measures, to ensure that the installed measures work together and give an overall performance boost.

As for minimum numbers, some felt that requiring a minimum number would complicate the scheme too much. However, others thought that there should be a minimum number of measures, at least two, but preferably higher. It was suggested that more measures could be incentivised by giving each additional measure an increasing amount of uplift.

DELIVERY

It was generally felt that measures should all be installed at the same time, where possible, to minimise disruption for the customer. However, there were some concerns over how the multiple measures will be delivered, with the potential of having to manage multiple installers being highlighted as unattractive due to increased complication and difficulties in management, especially if they are from different trades (e.g. insulation and heating).

There was questioning of whether the suppliers had the expertise to manage multiple installers. There was also a feeling that using single installers for all measures would be problematic.

Concerns were raised regarding whether installers would need the new Quality Mark accreditation, which will be a requirement for ECO measures following the Each Home Counts Review, for each measure installed, and that if this was the case, this could add to the complexity of installing multiple measures. There was a considerable amount of concern expressed over the skills gap. Of particular concern was the need for installers to understand all technologies and how they work together. It was suggested that many will be unfamiliar with certain technologies, especially the innovative ones. There is a clear need for upskilling and ECO should incentivise installers to undertake additional training and improve their understanding of new technologies as much as possible.

NEED TO ENCOURAGE THE RIGHT TECHNOLOGIES, NOT JUST THE CHEAPEST

There was considerable concern that in many cases suppliers would opt for the cheapest measures rather than those that work well together or are right for the household. Delegates emphasised that it will be important that the uplift incentivises the right technologies for the right households. It was also felt that the uplift should not just be dependent on the bill saving alone as this may not capture other benefits to the household (e.g. comfort, health benefits, reduction of damp and mould, lower carbon emissions). There was also some support for including smart meters and other products that encourage behaviour change.

Some delegates expressed a desire for the uplift for measures to be based on their monitored performance rather than set at a default level. There were proposals for uplifts being based on the overall change in performance vs the cost of the measures.



3.4. Monitoring

SUMMARY OF DISCUSSION

There was agreement that performance monitoring would be necessary for examining the impact and success of innovative measures, especially those delivered through the Demonstration Actions route, or those that had performance guarantees. However, there was also feeling that such monitoring would be challenging. It was felt that while NEED data would be useful and necessary; more data would be required potentially including in-situ performance monitoring.

HOW TO MONITOR

There was considerable debate over how technologies should be monitored. It is possible that monitoring criteria should be decided on a case-by-case basis depending on technology. It was suggested that smart meters could be used for monitoring purposes. However, there was an indication that monitoring bill savings alone would not be sufficient. Whilst, some supported the installation of monitoring equipment or smart meters to better identify changes to the household energy use, others felt that the cost of such intensive monitoring could divert money that could be spent on additional measures.

Delegates suggested that monitoring would need to take account of human behaviour, house type, demographics of the occupants, and comfort taking, in order to be fully accurate. There was a suggestion of using thermal imaging to monitor home heat levels alongside energy bills to see if installed measures are delivering reductions in heat loss and lower energy bills. It was proposed that it may be useful to also collect qualitative data from residents alongside quantitative monitoring data. ECO could be used to encourage industry to bring forward innovative modelling processes and new ways to monitor performance.

There was discussion among the delegates about how best to monitor the impacts and benefits of multiple measures. There was concern over difficulties in quantifying where savings are coming from, and the data limitations of NEED. There were also concerns that some homes would see different performance improvements for a given mix of measures.

Concerns were also expressed over data sharing and whether there would be issues with privacy and consent from the home occupier which would complicate the monitoring process.

SAMPLE SIZE AND LENGTH OF MONITORING

A sample size of 200 installations had been proposed by BEIS, but many delegates were concerned over the feasibility of this. There was concern that, in the case of costly measures, it would be prohibitively expensive to install them in such a number of homes. The proposed approach would involve identifying a large number of homes in which the measure would be appropriate, across a suitable spread of house types and demographics. Delegates suggested that identifying these properties may be harder given the restriction to fuel poor and vulnerable customers. There were questions around whether a supplier would need to identify all the properties themselves or whether the sample could cross multiple suppliers. There were concerns that spreading demonstrations across multiple suppliers could result in additional administrative complications.

As for length of the monitoring process, there were concerns that robust performance assessment would require long term monitoring which would not fit with ECO's timescales. There was particular concern expressed that the short timescales of ECO would not allow for effective monitoring of the impacts of multiple measures.

OTHER COMMENTS ON MONITORING

There were concerns that uplifts would depend on in-situ performance modelling which would increase risk and may discourage suppliers from utilising the innovation routes. There was discussion of whether there was a process for monitoring the benefits of using zero-carbon technologies which do not reduce bills or improve warmth but do contribute to emissions mitigation. Finally, there were proposals that the administrator could check the robustness of the modelling process used to predict the energy impacts of innovative technologies, rather than requiring monitoring of the actual performance.



4. Innovation Presentations

To demonstrate the range of solutions that could be supported by ECO3, 17 innovative organisations then gave a two-minute presentation on a particular innovative technology or solution. The presentations were held prior to the discussion sessions to encourage debate and networking. It is important to note that the solutions that presented were selected to provide an indication of the range of technologies and installation practices that could be supported and was not intended to be an exhaustive list. The companies and products were:

- AirEx - AirEx is a smart ventilation control that helps reducing heating energy demand without compromising condensation and indoor air quality. It measures atmospheric conditions and its smart algorithms automatically regulate the air flow by controlling air vents www.airex.tech
- Cornwall Council – Cold homes toolkits to help local authorities and health trusts find homes and people in fuel poverty www.citizensadvice.org.uk/cold-homes-toolkit/
- BillSave – Toptherm Energyseal is an invisible Nano technology that is applied to the exterior which helps keep traditional solid wall homes warm, tackle damp and reduce bills without changing the appearance of the property www.billsaveuk.com/for-home/toptherm-energyseal
- Canetis – A new flue gas heat recovery with thermal storage that can be installed alongside a gas boiler to capture waste heat from the boiler, vastly improving efficiency and saving consumers money on their energy bills www.canetis.io/products/gas-saver/
- Q-bot – A remotely operated device to apply insulation to the underside of the floor, reducing heat loss and disruption associated with traditional installation methods www.q-bot.co
- Chimella – A simple innovation to close off chimney flues when a fireplace is not in use, reducing heat and energy loss www.chimella.com
- Energiesprong – A fully-integrated zero carbon technology and funding approach delivering a non-intrusive, high quality retrofit www.energiesprong.uk



- Safeguard Europe – Stormdry Masonry Waterproofing cream is designed to stop penetrating damp by waterproofing the external weather facing surfaces. Stormdry can be combined with a new solid wall internal aerogel insulation with thin profile (13 mm) called Dryzone Express Insulation, as well as being used to protect cavity wall insulation from the effects of dampness www.safeguardeurope.com
- Climote – Smart heating and hot water tank controls to allow consumers to manage their heating remotely www.climote.ie
- Minus7 – Hybrid PV endothermic roof which supplies low cost heat and electricity to buildings www.minus7.co.uk
- Recticel Insulation – L-Ments is the latest generation of self-supporting, thermally insulating roofing for pitched roofs. The lightweight design ensures efficient and quick installation in both new build and retrofit projects www.recticelinsulation.co.uk/l-ments/p14
- Showersave – Simple, zero maintenance, cost effective shower waste heat recovery system which recycles waste heat from the shower to pre-heat mains water www.showersave.com
- NIBE Energy Systems – Smart grid ready heat pumps with tariff control, heat pump optimisation and smart price adaptation www.nibe.co.uk
- Mauer – A modular, off-site manufactured External Wall Insulation (EWI) System which uses 3D Laser Surveying, Computer Aided Design and Water Jet CNC Manufacturing processes to create a property specific, technically proven and millimetre accurate Non-Combustible EWI System www.mauer.uk.com
- Viessmann – The Vitovalor 300-P is a heat led, power-generating fuel cell, micro combined heat and power appliance for detached and semi-detached homes <https://www.viessmann.co.uk/en/residential-buildings/combined-heat-and-power-generation/micro-chp-unit-based-on-a-fuel-cell/vitovalor-300-p1.html>
- Chimney Sheep – The Chimney Sheep® is a thick layer of felted wool on a handle that plugs the gap just above the fireplace, reducing heat and energy loss www.chimneysheep.co.uk
- Natural Building Technologies – Pavatex insulation is able to buffer, wick and regulate moisture at safe levels within the building fabric. It can prevent overheating, protect the integrity of the building fabric and ensure breathability www.natural-building.co.uk





For more information contact:

Samantha Crichton E: samantha.crichton@sustainableenergyassociation.com

Sustainable Energy Association | www.sustainableenergyassociation.com

Radcliffe House, Blenheim Court, Solihull, B91 2AA

E: info@sustainableenergyassociation.com | T: 0121 709 7740

