

## Minutes of the ECO Innovation Technical Advisory Panel

From: Roisin Curran

Date: 13 January 2020

Location: London

Time: 9:00am

The technical advisory panel (TAP) has been set up to review ECO demonstration and innovation applications. It is formed by a number of independent panel members, with its Chair and Secretariat function provided by Ofgem. The TAP makes recommendations to Ofgem to approve or reject certain ECO applications. It does not, in and of itself, make any decisions to approve or reject such applications. Accordingly, these minutes provide a summary of each discrete review undertaken by the TAP as discussed by TAP members during group meetings. The TAP review is limited to the material submitted by applicants at application stage, or in subsequent correspondence, and these minutes provide a summary of the opinions offered by TAP members on the material submitted insofar as they inform the eventual recommendation made by the TAP. These minutes are reviewed by the TAP members prior to publication. These minutes do not represent a formal statement of opinion by Ofgem in regard to any product, measure, or application received by Ofgem in relation to ECO. Applicants who wish to challenge the opinions contained within these minutes may contact Ofgem directly.

## Present

David Glew, Leeds Beckett University

Jason Palmer, Cambridge Energy

Neil Cutland, Cutland Consulting Ltd

Hunter Danskin, BEIS

Andrej Miller, BEIS

Eric Baster, Ofgem

Christopher Mack (Chair), Ofgem

Roisin Curran (Secretariat), Ofgem

Kay Popoola (Observer), BEIS

## **Introductory remarks by the Chair**

The Chair welcomed all panel members to the meeting.

### **1. Demonstration Action Application: Hydro-Genie**

- 1.1. The application was for a product to increase the efficiency of a wet central heating system by removing dissolved oxygen.
- 1.2. The panel agreed the product was 'materially different' to products currently installed under ECO. The function of the electronic unit was not clearly described, however.
- 1.3. The panel considered that a reasonable expectation of heating cost savings across the wider population has not been established, and therefore the application cannot be recommended for approval. Evidence from phase 1 laboratory tests did not show an impact on boiler efficiency. The panel considered that the product may have benefits in regard to maintenance, but it was not clear that the product would provide savings beyond those of normal maintenance actions, and the panel noted maintenance actions are not currently included in ECO.
- 1.4. The panel were of the view that there was not sufficient evidence to support the 25-year lifetime proposed.
- 1.5. The panel agreed that the performance monitoring proposal was not reasonable. The proposal did not consider or account for bias introduced by parameters unrelated to the actions of the product, for example maintenance actions or other system adjustments which may take place during installation or monitoring. The monitoring period proposed would not give confidence in the impact of the product over extended periods.
- 1.6. The panel considered that installation and recruitment costs were high, and would benefit from a more detailed breakdown and explanation. The purpose of visits to the properties after installation was unclear.
- 1.7. The panel agreed the credentials of the test house were reasonable.

- 1.8. The panel suggested the number of properties may be too low to provide a degree of confidence in the performance of the measure.
- 1.9. The panel agreed the product is at TRL9 as it is deployed on the market.
- 1.10. With limited information on how the electronic component interacts with the boiler, the panel had concerns on how the product would affect the boiler warranty. It was also unclear how the load compensation aspect interacted with products such as smart thermostats which already provide load compensation.
- 1.11. The panel agreed that the product could have a positive impact on those vulnerable to the cold, as it may increase comfort levels where systems are not properly maintained.
- 1.12. The panel recommended the application is rejected absolutely as there is no evidence that the product achieves relevant cost savings.

## **2. Demonstration Action Application: CURV 360**

- 2.1. The application was for a battery storage system intended to reduce the costs of electric heating through increased self-use of solar PV generation.
- 2.2. The panel agreed the product was materially different, as battery storage is not currently delivered under ECO.
- 2.3. Although the panel agreed the product was reasonably expected to achieve a heating cost saving, they questioned some elements of the modelling used to predict the level of the saving – in particular the proportion of heating electricity use assumed to occur during daytime hours. One panel member had concerns that the maximum output power (kW) of the proposed battery (as opposed to its capacity (kWh)) may not be sufficient for domestic heating requirements, reducing its contribution to heating.
- 2.4. The panel agreed the product was at TRL 9 as it is currently deployed on the market, however there was insufficient information on how the product had been tested in combination with PV panels.
- 2.5. The panel would have liked more detail on the control of the battery. For example, it was unclear under what circumstances the battery discharges.

- 2.6. One panel member noticed the lifetime of 10 years for the battery would only allow two cycles per day. It was unclear how many cycles per day are anticipated, and if the performance is reduced following this, or if the battery would require replacing.
- 2.7. The panel agreed the monitoring proposal was not sufficiently detailed. The proposal did not clearly set out how each of the parameters of interest would be measured, and did not explain how savings will be calculated from these. If the monitoring capability of the battery is to be relied on, further detail of its capabilities is required – in particular, frequency of measurements. The proposal was not clear on what the main heating source in all properties would be for the duration of the monitoring period.
- 2.8. The panel were of the opinion that if feasible, separating consumption into space heating, hot water heating, appliances, and export would be useful in showing how the energy stored by the battery is used. The panel suggested the applicant provided a sample of the raw data recorded by the battery to demonstrate the level of detail that could be achieved.
- 2.9. The panel also requested a more detailed breakdown of the timescales involved in the project stages.
- 2.10. The panel considered that some aspects of monitoring costs appeared high, and either reductions or additional detail and explanation would be helpful. The panel also questioned the value of the household surveys with regard to establishing the effectiveness of the batteries at achieving cost savings.
- 2.11. The panel agreed the sample size and variation was reasonable, assuming the same main heating source in all properties.
- 2.12. The panel noted it was unclear who was completing the monitoring and data analysis, and so were unable to comment on their credentials.
- 2.13. With regard to safety arrangements, it was suggested that the 'IET code of practice for electrical energy storage systems' is adopted for this project. The panel requested assurance that householders would be advised of the potential home insurance implications of installing batteries in domestic premises, and asked for clarification of where in the property the battery will be sited (inside or outside).
- 2.14. The panel agreed the aftercare arrangements were reasonable.

- 2.15. The panel agreed this product could have a positive impact on Fuel Poverty and those vulnerable to the effects of cold.
- 2.16. The panel recommended the application is referred back to the applicant to address the points raised above, in particular those regarding the performance monitoring proposal, costs, battery operation and installation.

### **3. Innovation Measure Application: Matilda's Blanket**

- 3.1. The application relates to an IWI system which combines off-site manufacture with a compression fitting system, and is intended to improve installation time and strength compared to current IWI systems.
- 3.2. The panel agreed the product was materially different, and an improvement on current IWI measures if normal installation standards can be met. The panel recommended that a description is provided of how the product provides a continuous insulated perimeter at the room edges and avoids thermal bridging at the intermediate floor void, voids under suspended ground floors, junctions between fabric elements, fenestrations and penetrations. Further detail on PAS compliance and ventilation assessments was also requested.
- 3.3. The panel agreed that the product is capable of achieving cost savings.
- 3.4. The panel questioned whether the standard ECO technical monitoring questions for IWI would be suitable for this system, and recommend further clarifications are sought.
- 3.5. The panel agreed that this product could help increase the number of properties treated, which would have a positive impact on Fuel Poverty and those vulnerable to the effects of cold.
- 3.6. The panel recommended the application is approved subject to the above clarifications on technical monitoring, PAS certification and ventilation.

### **4. Innovation Measure Application: RAM VRF Air-to-Air Heat Pump**

- 4.1. The application relates to an air-to-air heat pump.

- 4.2. The panel noted that the air-to-air heat pumps are not new technology, but are materially different to air-to-water heat pumps. The panel noted mention of PIR sensor controlled set-back temperatures in the technical specifications, but this was not put forward in the application form itself as an innovation.
- 4.3. The panel agreed that air-to-air heat pumps can be considered an improvement on air-to-water heat pumps in the sense that they can be installed in properties where it is not possible to fit a wet central heating system, for example small properties. They considered further evidence is required to demonstrate cost or time savings. They noted concerns regarding long term consumer acceptance, given this is an unfamiliar method of delivering heat in British domestic properties, and questioned if consumer surveys had been completed to assess this.
- 4.4. The panel agreed the product is capable of achieving cost savings, but recommend that clarification is sought on whether the current ECO deemed score for ASHP would be appropriate for this measure. They noted in particular that the lifetime of 15 years assumed in the current ASHP measure may not be suitable for air-to-air heat pumps.
- 4.5. The panel were of the view that the current technical monitoring question set may not be appropriate for this measure, and alternative technical monitoring questions should be provided by the applicant.
- 4.6. The panel recommended that further detail is requested on the installation standards that would be followed, given that air-to-air heat pumps are not covered by MCS. Discussion also touched on concerns around noise limits, and how it would be determined which rooms require a heat emitter.
- 4.7. The panel agreed that this product could have a positive impact on Fuel Poverty and those vulnerable to the effects of cold in properties which were unable to have wet central heating systems installed.
- 4.8. The panel recommended the application was approved subject to clarifications on the above in regard to cost and installation time improvements, installation standards, technical monitoring, and the lifetime of the product.

## **5. Innovation Measure Application: Yutaki High Temperature Heat Pump**

- 5.1. The application relates to an air source heat pump (ASHP) which can operate at higher temperatures than 'standard' ASHP.
- 5.2. The panel agreed that the product was materially different as it uses a two-stage refrigerant cycle to produce higher temperatures than standard heat pumps.
- 5.3. The panel agreed the product was capable of achieving cost savings.
- 5.4. The panel were not satisfied that overall, the product is an improvement on other air source heat pumps. The panel suggested further details of installation benefits, as well as quantification of the penalty in respect of increased running costs, are required. Examples from actual installations would be helpful. The panel also questioned whether the performance of high temperature heat pumps was taken account of in the ECO deemed scores.
- 5.5. The panel recommended that additional technical monitoring questions are proposed for this measure.
- 5.6. The panel recommended the application is referred back to applicant for further information on running and installation costs compared with standard ASHPs, and appropriate technical monitoring questions.

## **6. Innovation Measure Application: ArtBrick**

- 6.1. The application relates to a brick or stone effect render which would be applied as part of an EWI system, and is intended to offer improved visual appearance compared to existing products.
- 6.2. The panel agreed that the evidence provided was not sufficient to show the product is materially different, or an improvement on other brick effect renders used on EWI systems. The applicant had not sufficiently demonstrated that the product would enable EWI in properties where it could not otherwise be installed. The depth of EWI would change the look of a building, and there was no evidence that use of this specific

product over another would be a key factor in achieving planning permission throughout the UK.

- 6.3. A reduction in application time for the render, along with a reduction in efflorescence were stated as additional benefits of the product. However, insufficient evidence was provided to demonstrate a reduction in application time compared to similar renders. The panel did not consider it had been established that efflorescence was a prohibitive factor in EWI installations.
- 6.4. The panel noted that render does not itself provide heating cost savings, and the measure could only be eligible if it was possible to consider it as a component of an EWI measure.
- 6.5. The panel recommended the application was rejected absolutely, as material difference and improvement compared to other renders has not been demonstrated.

## **Date of next meeting**

The next meeting of the TAP is on Wednesday 10 March 2020 in London.