

Minutes of the ECO4 Innovation Technical Advisory Panel 15

From: Reuben Privett

Date: 17 September 2025

Time: 09:00 – 13:00

Location: Conference call

A technical advisory panel (TAP) has been set up to review innovation measure applications and make recommendations to Ofgem to approve or reject 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 IM 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.

1. Present

Adrian Hull, (Panel Member) THS Inspection Services

Cliff Elwell, (Panel Member) University College London

David Glew, (Panel Member) Leeds Beckett University

Jason Palmer, (Panel Member) Cambridge Energy

Hunter Danskin, DESNZ

Kay Popoola, DESNZ

Charlie Murphy, Ofgem

Eric Baster, Ofgem

Andy Morrall, Ofgem

Reuben Privett (Chair), Ofgem

2. Introductory remarks by the Chair

2.1. The Chair welcomed all panel members and attendees to the meeting.

2.2. The chair highlighted that three applications were allocated a full-length timeslot at the meeting. Five additional applications for measures which contain similar improvement claims and functionality to those that have been previously assessed would also be reviewed. The TAP was also given additional time after the meeting to review these applications and identify discrepancies to previously approved innovation measures.

3. Innovation Measure Application: Archai JA Solar PV

3.1. The application is for a solar PV panel with panel level optimisation which aims to increase power output and reduce damage caused by shading. The application details the inclusion of a communication gateway which enables remote monitoring. The system includes safety features such as PV-off automatic rapid shutdown, arc fault detection, and thermal overload protection. The system comes with a 25-year warranty.

3.2. No application history was raised. The chair mentioned that other products with similar functionality have previously been approved. The application is for a substantial uplift.

- 3.3. The TAP raised no concerns around installation standards or the comparable measure selected.
- 3.4. The TAP discussed the claimed increase in annual cost savings and was of the view that the evidence provided did not robustly demonstrate that there was an increase in annual cost savings. The TAP noted that the information was partly in another language and could therefore not discern whether it was demonstrating an increase in annual cost savings. They stated additional cost savings may be likely, but the evidence did not support this.
- 3.5. The TAP commented that the evidence should clearly outline a justification for the experimental procedure, why each panel was selected and show that the installation of the optimiser does lead to an increase in electricity production. It should be clarified that the panel used is also the one with lower embodied carbon.
- 3.6. The TAP suggested that the evidence from installations in China in August was not robust in demonstrating additional cost savings should they be installed in the UK.
- 3.7. The TAP discussed the comparison to other approved innovation measures and the evidence provided with those applications. They agreed that previous applications provided evidence from case studies outside the UK and these would be strengthened with evidence of installations in the UK. However, their evidence was clearer in explaining the experimental procedure to demonstrate that an increase in annual cost savings was achieved. Case studies from other N European countries are also more relevant to the UK than case studies from further afield.
- 3.8. The TAP discussed the increase in durability of the measure. They raised a number of issues with the warranty. They noted that the warranty excluded installations which are within 500m of seawater. The TAP felt that this exclusion may affect a significant number

of UK homes, and it is possible that a warranty is generated which does not cover the system. As such, they suggested the applicant would need to confirm this exclusion does not apply. Additionally, they stated that it would not be valid in areas affected by acid rain and air pollution. No clear thresholds were set which may exclude a number of homes in the UK. The TAP was concerned that labour costs are not covered by the warranty. While this is equivalent to previously approved IMs, the TAP felt that additional detail is needed on post-installation testing to ensure the system is operating properly prior to the removal of scaffolding. Finally, they were concerned that in order to claim against the warranty, the homeowner must have access to the serial numbers but this may only be feasible to ascertain when accessing the roof. They felt that this information was too onerous and accessibility of information should be considered with regard to the warranty.

3.9. The TAP questioned whether inverters were included in the application.

3.10. The TAP felt there was an improvement in relation to durability, subject to clarifications on the warranty terms.

3.11. The TAP discussed the improvement in environmental impact. They noted that the evidence did not clearly compare against an identical alternative and did not reference the impact of the whole system. They noted that there was a difference in reduction in emissions versus carbon footprint and this was not explained clearly. Equally, limited detail was provided to explain how the standard module was selected.

3.12. The TAP discussed the claims under the reduction in disruption to the householder during installation criterion. They noted that some of the claims were duplicated and should be considered under the increase in durability criterion. They noted that there was not a reasonable level of improvement offered by the commissioning during installation given faults do still occur. No improvement was demonstrated in this criterion.

- 3.13. The TAP discussed the other improvements. They accepted that the product demonstrated the same safety features as previously approved measures and therefore was an improvement in this criterion.
- 3.14. The panel recommended that the product be rejected with substantial clarifications, but that if these were addressed appropriately that this may be approved as a substantial innovation measure.

4. Innovation Measure Application: UKSOL Solar PV

- 4.1. The application was for a solar PV system with micro-inverters installed to connect numerous panels together. The application claims that there is panel level optimisation, and remote monitoring. It comes with a 10-year data plan where the homeowner does not have access to wi-fi, and a 25-year warranty including the microinverters. The application is for a substantial uplift.
- 4.2. The chair noted the application contained the same remote monitoring, optimisation claims, and safety features as had been approved as a substantial innovation measure with other solar PV systems.
- 4.3. No issues were raised with the standards.
- 4.4. The TAP discussed the extended warranty, including on the inverter. They noted that this was longer than the warranties on other inverters and represented an improvement.
- 4.5. The TAP expressed concern that the application stated that microinverters could either be installed on every panel or in clusters. They were of the view that evidence had not been provided that this enabled intra-panel optimisation or safety functionality. Equally, they

did not find evidence to show that the panels would operate independently. The TAP felt that the application was not clear on the installation methodology being proposed. If a microinverter is going to be connected to multiple panels, the application should outline and evidence the effect of this on the features being put forward. Does the connection of multiple panels to a single inverter mean that these panels are treated together as a micro-array, or is there functionality which enables each panel to be treated independently and for intra-panel optimisation to be possible?

- 4.6. The TAP discussed the increase in annual cost savings criterion. They discussed the evidence provided in relation to the performance of microinverters against standard string inverters. They noted that the conclusions were unclear and it did not conclusively support the claims that microinverters performed better. In the abstract of Appendix 16 (the Solar Energy paper), the evidence stated that string inverters actually outperformed microinverters in 2/3 scenarios. However, it also stated that a 7-9% performance benefit can be achieved with microinverters. The TAP felt that stronger evidence would be needed to demonstrate that this system with microinverters would perform better than the comparable measure. The TAP also felt that additional evidence was required to show that the inverters functioned well at optimising the panels on an intra-panel level.
- 4.7. The TAP discussed the decreased cost of installing the measure, and were of the view that there are more connections required whilst on the roof which means that it is unlikely to be installed more quickly than the comparable measure.
- 4.8. The TAP noted that not needing to install a smoke alarm is only a minor improvement given the cost of doing so is extremely small. The TAP discussed the canopy which the application claims is required where the inverter is installed outside. They noted that the IP levels of inverters was such that they were generally safe to be installed outside without a canopy and the improvement to incorporate protection from full immersion was

not necessary. They were in agreement that no improvement in relation to decreased cost of installation had been demonstrated.

4.9. The TAP discussed the increase in durability criterion. They noted that while a 25-year warranty would be provided for the microinverter, there was not robust evidence to show that the lifetime of the product will be longer. They noted that the warranty did not clearly cover the connections which are likely to fail more frequently than the microinverter itself. Equally, the TAP noted that the warranty did not cover the cost of transport, access to the roof, and labour. The cost to access the roof was considered to be significant and therefore if this was not covered, there was not an improvement demonstrated over the comparable measure. This was especially considering the cost of replacing a standard inverter is likely to be significantly lower. The TAP felt that the extended warranty was beneficial but that clarification is needed to demonstrate that the exclusions did not counteract this improvement

4.10. The TAP discussed the evidence provided in relation to the durability claims and noted that while the evidence is based on 100,000 solar PV installations, microinverters are a newer product and therefore have not been installed for as long. As a result, it is to be expected that more issues have been found with string inverters. However, they did accept that microinverters are likely more durable given the lower load passing through them, although the extent of that improvement may be overstated. They noted that elsewhere, evidence was provided to show that the failure rate for a string inverter in the first two years after installation was around 1 in 350 versus 1 in 800 for microinverters. They questioned whether the failure rates for the microinverters related to the system as a whole or individual failure rates for microinverters.

4.11. The TAP was of the view that a string inverter was likely to fail after around 12 years, but replacement of this element is straightforward and would likely be completed in under

an hour. However, the failure of a microinverter situated on the panel would require access to the roof, removal of the panel, and rewiring. They also noted that there are more microinverters being installed and so this disruption may be required multiple times as it is unlikely that each microinverter would be replaced if they had not failed at that point.

4.12. The TAP discussed the other criterion. They were of the view that no evidence was provided to clearly show that the safety features were present on each individual panel connected to the microinverter, rather than being treated as a micro-array. Clarification would be needed to demonstrate that the improvements are achieved with this setup.

4.13. The TAP noted that the application stated the homeowner should retain the handover pack to give to new occupants. They were of the view that a more robust approach should be taken to ensure that any new occupants can benefit from the remote monitoring functionality. This includes providing a QR code so that the end user can access instructions regardless of whether the handover pack was provided to them by the previous occupant.

4.14. No Q&A was held for this application.

4.15. The panel recommended that the measure should be rejected as a substantial innovation measure, with clarifications for a future application. They noted that evidence would need to be provided to demonstrate that optimisation can take place at an intra-panel level rather than as part of a string, that the warranty covers the connections as well as microinverters, and that safety features are available to each panel independently.

5. Innovation Measure Application: EvoBoard Loft Insulation

- 5.1. The application is for a Loft Insulation system which doubles as a storage platform, made from EPS. The panels sit directly on top of joists with pre-formed recesses at either 400mm or 600mm to provide a continuous layer of insulation above the joist and existing insulation between joists. The application is for a standard uplift.
- 5.2. No previous application history was raised.
- 5.3. The TAP was concerned the use of 400 or 600 mm recesses would prove difficult for houses that were built pre-metric or pre-1971, as it is unlikely they would fit recesses at either 400 or 600 mm. Although the application mentioned inconsistent distances the TAP required more detail on how to install it properly. They were also concerned about the potential impact of plasticisers migrating from cables to PVC. There is a risk that where there is electric cabling, cables could deteriorate due to plasticisers migrating and cables becoming hard and brittle.
- 5.4. The TAP discussed the discussed thermal bridging risks in relation to EvoBoard, and noted that additional guidance is needed for installers to avoid thermal bridging, especially around purlin props. The TAP also noted they would like to see a comparison of the thermal performance calculations of EvoBoard in a typical loft versus mineral wool.
- 5.5. Headroom was noted as a potential benefit of reduced thickness, however, the TAP ultimately did not believe it represented an improvement on comparable measure.
- 5.6. The TAP was of the opinion that although it is positive the EPS is recyclable, the claim is misleading due to the lack of infrastructure (with collection facilities) to recycle polystyrene in the UK.

5.7. The TAP discussed the thermal performance in comparison to mineral wool alternatives.

They were of the opinion that mineral wool insulation will have to be installed in harder to fit areas in the loft, which may create points of weakness, result in insulation not being properly installed, potentially create thermal bridging around junctions and for air to bypass insulation where there is a junction between mineral wool and EvoBoard insulation.

5.8. The TAP also discussed the allergenic and weight claims. They were of the opinion having a lighter product did not produce any benefit, as alternative insulation materials would be of similar weight and potentially easier to navigate through small hatches. They accepted the material is less harmful than wool insulation but also noted that installers will still have to work with mineral wool to complete a job. Therefore, any improvement is limited.

5.9. The TAP considered the claimed improvements on being more durable as not impacted by water ingress and agreed there was no evidence to support this claim. They noted that storage instructions mention it must be kept dry and can't be installed when wet. Equally, mineral wool insulation can become wet and dry out and continue to perform. Therefore, the improvement was not accepted.

5.10. The TAP discussed whether the insulation enables access for loft mounted equipment and eliminates the need for additional material (like loft boards) to make the loft usable. While they agreed this was the case, they noted that a boiler should not be installed in a loft, and if it was, it would present a risk to also install EPS insulation. They also highlighted the Fire Class E rating, noting the survey does not include equipment in lofts such as ventilation equipment, inverters or solar batteries which are potential points of ignition. They also highlighted a potential fire risk with any maintenance or installation works on copper pipes and the risk of overheating and plasticisation of high amperage cabling.

5.11. The TAP noted safety concerns of having considerable weight in lofts, with lofts being designed to hold up ceilings, not designed to take significant weight. The TAP was reluctant to see lofts being used for storing heavy items without first seeing structural surveys and an understanding of the impact any weight may have on the roof. They also noted the potential impact of fixing and drilling into joists on building structure.

5.12. No Q&A was held for this application.

5.13. The TAP recommended that the application should be rejected with feedback.

6. Innovation Measure Applications: Cosy ASHP, Ideal ASHP, and Midea ASHP

6.1. The applications for Cosy ASHP, Ideal ASHP, and Midea ASHP fundamentally contained the same types of improvements and mirrored those improvements of ASHPs which have previously been approved. For administrative ease, these have been grouped together.

6.2. The Cosy ASHP application sets out functionality including a 10-year warranty, lifetime access to remote monitoring, and 10-year data plan. The application is for a standard uplift.

6.3. The Ideal ASHP application sets out functionality including a 10-year warranty, 10-years remote monitoring, and a 10-year data plan. The application is for a standard uplift.

6.4. The Midea ASHP application sets out functionality including a 10-year warranty and 10-years remote monitoring. The application is for a standard uplift.

6.5. The TAP noted that previous applications have detailed functionality which enables the occupant to contact the manufacturer to have their ASHP settings altered remotely if they are unsure of how the product functions.

6.6. The TAP detailed the importance of the principle that the end user is not liable to pay for callouts where they are triggered by the remote monitoring system. They accepted that where additional work is required which does not fall under the warranty, the end-user would be expected to pay for this. This should be reflected in the T&Cs.

6.7. The TAP noted that it would be valuable to understand whether the functionality can be extended once the initial period has finished.

6.8. No Q&As were held for these applications.

6.9. The TAP was of the view that in order for these applications to be approved at the uplift level of previously approved ASHP IMs, the same sets of improvements must be demonstrated. Offline communications will be used to determine the areas which require additional clarification which will be communicated to the applicants.

7. Innovation measure applications: Ariston ASHP and Samsung ASHP

7.1. The applications for Ariston ASHP and Samsung ASHP fundamentally contained the same types of improvements and mirrored those improvements of ASHPs which have previously been approved. For administrative ease, these have been grouped together.

7.2. The Ariston ASHP application sets out functionality including a 10-year warranty and service plan, 10 years remote monitoring, and 10-year data plan. The application is for a substantial uplift.

7.3. The Samsung ASHP application sets out functionality including a 10-year warranty, service plan, remote monitoring, and data plan. The application is for a substantial uplift.

7.4. No Q&As were held for these applications.

7.5. The TAP was clear that occupants should be given professional advice on the use of the system as part of the annual service to ensure they are benefitting from the product as much as possible.

7.6. As with other ASHP IM applications, the TAP was of the view that for these applications to be approved at the uplift level of previously approved ASHP IMs, the same sets of improvements must be demonstrated. Offline communications will be used to determine the areas which require additional clarification which will be communicated to the applicants.

8. AOBs

8.1. The TAP was presented with data on the number of Innovation Measures installed on ECO4.

8.2. The TAP also provided feedback on the administration of any similar mechanism in the future.

9. Date of next meeting

9.1. The next meeting of the TAP is scheduled for 26 November 2025. The dates of future TAP meetings are available on our [website](#).