

Minutes of the ECO4 Innovation Technical Advisory Panel 14

From: Reuben Privett

Date: 9 July 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. Four additional applications for measures which contain similar improvement claims and functionality to those that have been previously assessed would also be reviewed. All applications were reviewed by the TAP prior to the meeting.

3. Innovation Measure Application: Kensa GSHP

3.1. The application is for a GSHP which the applicant claims is smaller than the comparable measure, producing less noise, and with a lower level of embodied carbon. The application is for a substantial uplift.

3.2. No issues were raised with the standards.

3.3. The TAP discussed the appropriateness of the comparable measure at length. They noted that while comparison against the previous iteration of the product may enable the collection of more data, it may not evidence an improvement over what would otherwise

be promoted on the scheme. The TAP was of the view that claims should be compared to a GSHP that would otherwise be installed on the scheme.

- 3.4. The TAP discussed the claimed reduction in cost of installation, resulting from the dimensions of the product. They noted that the dimension provided in the application differed from the technical report provided, manufacturer brochure, and the manufacturer technical information. Regardless of which size was accurate, the TAP noted that the difference was marginal, and two units may be able to fit on a pallet if the packaging was redesigned. The TAP was unclear why pallets could not be stacked and whether two units would always be placed on pallets, as it is likely one unit would be placed on a pallet when one heat pump is being installed.
- 3.5. The TAP noted that the comparable measure selected made it difficult to assess whether the product is smaller than what would otherwise be installed and were of the view that alternatives were on the market with similar output which were similar in size, albeit marginally larger.
- 3.6. The TAP was of the view that the volume of space saved during storage on site was marginal and stated clearance distances required were not adequately presented in the illustrated example..In reality the product would not be stored onsite before installation, where installed as a GSHP.
- 3.7. The TAP noted that the saving in transportation set out in the application was marginal, given the total cost of the measure and discounted this improvement claim as there was no evidence that this led to a material benefit in practice.
- 3.8. The TAP discussed claims in the durability criterion. The TAP was of the view that the evidence provided did not robustly support the claimed improvement in durability, particularly as the comparison was against the old product which has been in the market

for a number of years. They were of the view that it may be the case that some glitches have been fixed but this does not represent an improvement over the comparable measure. Equally, given the comparison is against installations of the old version of the product, these have been installed for a longer period of time which would naturally increase the chance of errors arising. They discounted this improvement claim.

3.9. The TAP discussed the claims in the environmental impact criterion. They accepted that there was likely a reduction in embodied carbon given the reduced size of the product, but would require stronger evidence to accept that extent of this improvement as set out in the application. They reiterated that the improvement has been demonstrated in relation to the old iteration of the product which may not be representative of the comparable measure.

3.10. The TAP also discussed the claims around the environmental impact of the refrigerant used. While there is a lower charge required, the increased environmental impact of the refrigerant means that any benefit is small. They noted that the extent of this improvement would come down to the assumed leakage rate and therefore was marginal, and a significant volume of evidence would be needed to robustly demonstrate any greater improvement. Once more, they noted that the application did not clearly set out the refrigerant requirements for other comparable measures and therefore the extent of any improvement is difficult to determine.

3.11. The TAP accepted that a smaller sized product would require less packaging.

3.12. The TAP discussed the claims in reduction in the disruption to householders during installation criterion. They noted that the claims related to reduced disruption during operation and suggested that these would be more suited to the 'other' criterion.

- 3.13. The TAP discussed the noise level of the measure. They noted that there may be severe health impacts linked to persistent noise and that the evidence provided may have demonstrated reduced noise compared to the previous iteration, but this may not represent an improvement over the comparable GSHP. They noted that there are other GSHPs available with significantly lower sound outputs and therefore demonstrating an improvement against the previous iteration of the product alone would not be sufficient. They acknowledged that the noise may be shielded when located in an airing cupboard, but the TAP was of the view that it was unlikely to fit in airing cupboards because of the necessary clearances, including one meter required at the front of the system.
- 3.14. The TAP accepted that the product was likely marginally quieter than the previous iteration, and that evidence appeared to demonstrate a slight reduction in high frequency noise. The TAP noted that any comparison should include figures which are factored around human hearing for all comparable measures.
- 3.15. The TAP noted that the threshold for permitted development is 42dB when located externally.
- 3.16. The TAP discussed the other improvements. They were of the view that reducing lower grid drawer was beneficial but ultimately accepted that this may be outside the scope of improvements which can be considered, given this is factored into the score the measure receives. They also noted that the efficiency figures provided were for a flow temperature of 35C, but that houses replacing boilers would almost certainly require 50C flow temperature. At this flow temperature, the difference in efficiency of the product compared to the old version was negligible. Equally, the figure only included space heating and not hot water provision. The TAP also noted that a low SCOP would mean bills rise when compared to a gas boiler in almost every case.

- 3.17. The TAP discussed the claimed lower maintenance costs. They noted that it was positive the measure could be repaired on site if there is a refrigerant leak (unlike the previous model). However, the extent of this improvement is difficult to determine given the comparison is only against the old model which may be inferior to the rest of the market.
- 3.18. The TAP noted that there was an installer app which may offer benefits in terms of remote monitoring, fault finding, and commissioning but that this was not detailed in the application.
- 3.19. No Q&A was held for this application.
- 3.20. The TAP was of the view that the application did not demonstrate an improvement over the comparable measure. They suggested that a full comparison against other products on the market would be required to demonstrate any improvements clearly. They recommended the measure is rejected with feedback.

4. Innovation Measure Application: Trianco Indoor ASHP

- 4.1. The application was for a fully internal ASHP. The application comes with 10-year remote monitoring, 10-year warranty and a 10-year data plan. The ASHP uses R32 refrigerant. The application is for a substantial uplift.
- 4.2. The chair noted the application contained the same remote monitoring, warranty and data plan as had been approved as a standard innovation measure with an outdoor ASHP.
- 4.3. No issues were raised with the standards.

- 4.4. The TAP discussed the comparable measure selected. They agreed that an outdoor ASHP is a reasonable comparable measure but highlighted that some of the evidence provided was against other heating systems which was not an appropriate comparison. They questioned why evidence could not be provided against the manufacturer's outdoor unit, as well as others.
- 4.5. The TAP discussed the durability improvement claims. They highlighted the need to provide more detail in relation to the impact on durability from keeping the unit indoors. Evidence could include providing data on number of call outs, number of faults, the need to replace filters and whether there is an improved performance through less debris around the ASHP.
- 4.6. The TAP suggested that vital components on an outdoor unit, such as circuit boards, would be protected from the elements and therefore robust evidence would be required to demonstrate an improvement from housing the unit indoors. They noted that corrosion of the outdoor casing does not cause an issue if the unit continues to function efficiently.
- 4.7. The TAP discussed the potential risks of corrosion and condensation associated with an indoor model relating to the cold air coming in and warm damp air exiting the back of the heat pump. More detail is required to demonstrate that this is not a significant risk. The TAP questioned whether the indoor unit would affect internal ventilation requirements and cause backpressure issues.
- 4.8. The TAP suggested that the measure would still be vulnerable to saline air entering the system when situated close to the coast.
- 4.9. The TAP was of the view that there may be reduced levels of weathering, but the evidence provided did not strongly support this claim or demonstrate a tangible

improvement. The TAP was of the view that if there were a considerable increase in the durability of the ASHP, this should be supported by a longer warranty.

- 4.10. The TAP noted that no evidence was provided to demonstrate the extent of any improvement around lack of defrosting or impact of debris to the system. They questioned whether there was a grille on the air intake, and whether this would lead to higher pressure and become blocked more quickly. They also questioned whether this would have an impact on performance.
- 4.11. The TAP noted that an indoor ASHP offers a solution to decarbonising hard to treat homes and indoor units could be a beneficial change in how heat pumps are delivered. They acknowledged that there were numerous reasons why an outdoor ASHP may not be installed, including where a home is in a conservation area, where the occupant does not like the look of heat pumps, or where there is a psychological barrier to the installation of a heat pump.
- 4.12. The TAP was of the view that further information was needed on the acoustics of installing an ASHP indoors and how much disruption it can cause to a household. The two models under application produce at least 56dB of noise which could have adverse effects on health and wellbeing. They also noted there could be an issue with vibration, frequency and tonality. The TAP recommended applicants engage with external noise experts to scrutinise noise levels within households.
- 4.13. The TAP was of the view the installation restrictions, like not being within one meter of a radio or TV, and that it cannot be installed in humid areas or areas with an open flame meant it was unlikely to be installed in a kitchen. This may limit suitability for typical ECO households.

- 4.14. The TAP questioned how many qualified engineers can service indoor ASHPs and whether the service costs would be similar to a regular ASHP.
- 4.15. The TAP stated that they would like to see case studies of installation in the UK to understand whether there are any additional issues that might arise in practice.
- 4.16. The TAP noted that a model with R290 was also being developed. They highlighted that there may be increased scrutiny for measures which include a flammable material being brought into the home, and that it was likely an appliance safety certificate would need to be provided. They questioned whether F-Gas certificate was required of installers.
- 4.17. No Q&A was held for this application
- 4.18. The panel recommended that the measure should be rejected as a substantial innovation measure, with clarifications for any future application.

5. Innovation Measure Application: Soltherm Modulus EWI

- 5.1. The application is for an EWI system that utilises 3-D scanning and offsite manufactured componentry.
- 5.2. The Chair highlighted that a previous iteration of the product was approved as IM001 but due to significant material changes in the KIWA certificate a reapplication was reviewed in TAP13. This was rejected due to several issues with the comparable measure, evidence on time savings, system performance, thermal bridges, the DPC and installation issues.
- 5.3. The TAP was of the view that responses were not provided to each of the clarifications requested after their last review, or those included in the minutes.

- 5.4. The TAP was of the view that no evidence was provided in relation to spot point thermal bridging.
- 5.5. The TAP highlighted that the lack of information on fire breaks in the previous application was not addressed. This includes no information on how fire breaks would be used within the system and fire barriers around cavity heads. More detailed is needed on the vapour impact on permeability when applied to existing render given that the system itself utilised vapour permeable materials. .
- 5.6. The TAP noted that the installation process would still be affected by weather including applying render around joins in the panels and during the installation of mineral wool. As a result, any benefits of installing in rain and cold conditions would be minimal – lower than the claimed 21% 'weather co-efficient'. Equally, some of the savings were based on installation in extreme weather events which would not be recommended.
- 5.7. The TAP was of the opinion the evidence of time savings was insufficient. They noted that the additional time saving is in relation to curing and they were of the view that this was not a significant saving in practice since installers will not be idle during curing periods.
- 5.8. The TAP noted that the evidence was reliant on manufacturer calculations and therefore the quality of the evidence was low.
- 5.9. The TAP noted the matching panels and colours and keeping a record of what colours are used in the installation process was a positive. However, no information was provided on how this data was stored and if it belonged to the homeowner.
- 5.10. The TAP was of the opinion that utilising less skilled labour is not an improvement and the installation of brackets, screws and detailing around panels means this is no less skilled than a render system.

- 5.11. The TAP felt that the evidence provided did not demonstrate an improvement as a result of the scanning methodology.
- 5.12. The TAP sought more information on the data ownership of the system once the scan has been complete and whether this is owned by the household.
- 5.13. No Q&A was held for the application.
- 5.14. The panel recommended the measure should be rejected for a standard uplift.

6. Innovation Measure Application: Global Energy Systems (GES) ASHP

- 6.1. The application is for an ASHP that comes with a 10-year warranty, 12 years remote monitoring and a data plan for the lifetime of the product. The application is for a substantial uplift.
- 6.2. No previous history related to the application was raised by the chair. The chair and TAP noted similarities between this application and previously approved ASHP innovation measures.
- 6.3. The TAP noted a sticker should be affixed to the unit to ensure new customers are aware of the warranty and remote monitoring. They wanted to understand what process was in place to ensure that the improvements would be achieved should a new resident move in.
- 6.4. The TAP noted that the warranty covers the heat pump, but it may not be clear whether the issue lies with the heat pump or ancillary parts. The TAP did not want the end-user to receive an unexpected bill which would act as a deterrent to calling out an engineer. They also required more information on whether households would be charged for any call outs

that can't be rectified remotely. The TAP was concerned that the end user may incur costs for callouts which they did not request, or which were ultimately not needed.

6.5. The TAP requested additional detail on what the warranty covered.

6.6. No Q&A was held

6.7. The panel recommended that the measure should be approved as a standard innovation measure, subject to clarifications being addressed adequately.

7. Innovation measure application: Bosch ASHP

7.1. The application is for an ASHP which comes with a manufacturer commissioning check, a 10-year parts-and-labour warranty and 9 annual services. The application is for a standard uplift.

7.2. No previous history related to the application was raised by the chair. The chair and TAP noted similarities between this application and previously approved ASHP innovation measures.

7.3. The TAP questioned the claim that the warranty would be "paused" where the property was vacant, including whether the warranty would resume when a service is conducted or the maximum term would be 10-years only. For example, if the property was vacant for 3 years, with the warranty paused, would the warranty continue to year 13 once resumed. The TAP would like clarification as to whether a missed service would also be accepted.

7.4. The TAP was of the view that the guidance provided for occupants experiencing an ASHP for the first time was positive.

- 7.5. The TAP was in agreement that further detail was necessary in relation to the following points, and evidence must be specific to the heat pump under application which would be installed on the scheme rather than generic material produced by the manufacturer.
- 7.6. Terms and conditions for the warranty must be clear, including acknowledgment of the leniency with regard to missed services, and what pausing the warranty means.
- 7.7. Additional detail on who will pay for the next service where the warranty is paused, and who pays where maintenance is required after a missed service.
- 7.8. Additional detail on what the service includes, preferably in a checklist format which specifically details exclusions.
- 7.9. Additional detail on the communication strategy to ensure that a service is booked.
- 7.10. No Q&A was held for this application.
- 7.11. The panel recommended that the measure should be approved as a standard innovation measure, subject to clarifications being addressed adequately.

8. Innovation measure application: Ideal ASHP

- 8.1. The application is for an ASHP that comes with a 10-year warranty, 9 annual service plans, 10 years remote monitoring and a 10-year data plan. The application is for a substantial uplift.
- 8.2. The chair noted the product with a shorter service plan and without remote monitoring had previously been approved for a standard uplift in TAP12. The chair and TAP also

noted the similarities between the application and other previously approved ASHP innovation measures.

8.3. The TAP was satisfied the application represented a substantial improvement, considering previously approved innovation measures.

8.4. The TAP recommended the application is approved for a substantial uplift.

9. Innovation measure application: Wetherby EWI

9.1. The application is for the addition of EWI system components to be considered under the ECO3 approved innovation measure, IM011, offering enhanced product life-time and a 25-year maintenance plan commencing after the year 1 inspection.

9.2. The TAP expressed no concerns over the installation standards or comparable measure.

9.3. The chair noted concerns which had been raised by the TAP prior to the meeting around the equivalence of the measure under application and those that had previously been approved.

9.4. The TAP noted that there were material differences between the measure under application and those that had previously been approved.

9.5. The installation methodology for the existing measure included all fixings passing through reinforcement mesh, whereas the new certification does not require this.

9.6. The existing system is clear that additional layers of adhesive are required whereas the new certification only states “where required”.

9.7. The TAP was of the view that the measure did not meet the existing description and therefore it should not be added under the description. A new application would be required for a new measure description to be published.

10. AOBs

10.1. No AOBs were raised.

11. Date of next meeting

11.1. The next meeting of the TAP is scheduled for 17 September 2025. The dates of future TAP meetings are available on our [website](#).