

23 July 2021

NSW Energy Savings Scheme (ESS) Program Rule Change 2020-21 Consultation

Ecovantage welcomes the opportunity to comment on the 2020-21 Energy Saving Scheme(ESS) Rule change public Consultation.

The key change proposals include:

- Update to the existing Deemed method for Air conditioning under HEER and HEAb method
- Updates to existing air conditioner and refrigerated cabinet activity definitions; and
- The potential for new heat pump and solar water heater activities.

About Ecovantage

Ecovantage was established in 2007 to support businesses and households to reduce energy use and contribute to the fight against climate change through a reduction in emissions. We work within the energy efficiency schemes in New South Wales, Victoria, South Australia and Queensland as well as the national Renewable Energy Target scheme to help businesses and households access incentives for energy efficiency upgrades.

With dedicated teams who are trained and experienced in their roles we offer turn key solutions for our clients that include: Solar & Batteries, Energy Brokering, Tariff optimisation, Hot water upgrades, LED Lighting upgrades, Street lighting installation, Power factor correction.

Response to the Consultation Questions

Ecovantage provides the following feedback to the proposed changes in the consultation paper.

General changes - Commencement date and transitional arrangements

Question 1: Do you agree with the proposed transitional arrangements? Please provide reasoning to support your response.

Answer: Ecovantage Agrees with the proposed changes however this time frame can be shortened if IPART provides a quicker pathway for the accreditations and adapting the VEU product Register for this activity). Ecovantage strongly supports the harmonisation of the product registry to ensure that there are no additional burdens on ACPs nor product manufacturers.

Question 2: Can you foresee any part of the new ESS Rule for which it will be difficult to get 'business-ready' within the proposed timeframes?

Answer: Considering that Heatpumps will be a new activity and ACPs interested in this activity are required to be accredited prior to commencing the activity, the approval time by IPART can be challenging if they receive a large volume of requests for the new accreditation. We suggest IPART to provide a quicker pathway or transitional arrangement for ACPs to either amend their existing accreditation or allow them to apply for a new accreditation based on the draft rule change and receive full approval prior to the date that the updated Rule will be gazetted. ACP's, existing and new, would be exposed to IPART's ability to process the above in a timely manner. Based on previous experience, this process can take a significant amount of time.

Remove some RET exclusions

Question 3: Do you agree with the proposed changes to clause 5.4(g)? Please provide reasoning supporting your response.

Answer: Ecovantage supports the proposed changes to clause 5.4(g), this will align with the VEU and REPS approach for the same activities. However we suggest adapting the same approach for activities which operated under the RET under the Project Impact Assessment with M&V. This would have a significant impact on the new commercial heat pump activity.

Define Electricity and Gas Savings for NABERS

Question 4: Do you agree with the proposed updates to the definitions of Electricity Savings and Gas Savings for the NABERS method? Please provide reasoning supporting your response.

Answer: Ecovantage supports the proposed updates for the NABER method.

Replace Activity Definition D3 & D4 with D16 (HEER)

Question 5: Do you agree with the updated calculation approaches and requirements proposed for Activity Definition D16?

Answer: While we welcome the move to streamline the calculation, the proposed calculation approach still doesn't deliver the right level of incentives to drive real energy savings through additionally and behavioral change ie. Consumers purchasing a higher star rating unit over a lower star rating unit. Ecovantage suggests that additional multipliers are included in the calculation to better reflect the additional energy savings delivered by more energy efficient units. We also recommend a simplified harmonization with the VEU calculations and product registry.

Question 6: Do you agree with a single set of Implementation and other requirements set for all the product classes eligible under Activity Definition D16?

Answer: The requirement to remove the existing unit is not always practical or possible. We suggest that it is changed to "decommissioned" rather than "removed". Alternatively, it could say "removed where practical". Ecovantage supports the correct handling of the old synthetic refrigerant.

Ecovantage does not support the proposed 20% eligibility threshold considering that the majority of products do not meet this requirement.

Question 7: Do you agree with the proposed minimum AEER and ACOP (where relevant) eligibility threshold of 20% > baseline AEER applied to all product classes and capacities? If not, are you able to provide supporting evidence and data that would enable setting more targeted thresholds?

Answer: As per Q6, DPIE confirmed that, currently, a substantial number of products do not meet the 20% eligibility. Therefore, Ecovantage recommends that this threshold is removed.

Ecovantage suggests that different thresholds should be applied to different product categories. For example, the 20% threshold will perfectly apply to 5kW and under systems but a 10% threshold would be more appropriate for anything above 5kW.

Question 8: Do you have any concerns that these activities could drive bad design or behaviour in the industry, for example, the installation of over- or under- sized units?

Answer: Ecovantage believes that the market and consumers would be driving the reliability and quality of the activities under the scheme. There are not significant financial incentives to support over or under sizing units.

Question 9: One of the current Equipment Requirements under Activity Definition D3 is for replacement AC to have a cooling capacity the same as or smaller than the unit that it replaces. Are there alternative measures that could be considered to ensure that the ESS incentive is not driving the installation of over-sized units?

Answer: Considering the high cost of the product vs the incentive, we do not believe that this could drive a bad design. Where an oversized system is required a customer and installer declaration can be used as a supporting document instead of creating the barrier. Many customers might consider bigger systems based on their future needs at the time of upgrade.

Question 10: Would you agree with Activity Definition D16 requiring the installed End-User Equipment to have a demand response capability in order to provide complimentary benefits for the Peak Demand Reduction Scheme? If no, please explain why.

Answer: We suggest a further market analysis to determine the percentage of the products sold in Australia that have demand response Capability. The current 34% assumption based on the GEMs CSV file is not realistic as it contains discontinued products. We believe that making it a requirement prior to the commencement of Peak Demand Response scheme, without clear guidelines on what the capabilities are, could create a barrier in the uptake of this activity. Ecovantage suggests that this requirement could potentially drive additional abatement incentives for products that might have those capabilities which would in return drive a greater consumer uptake for DRED enabled units or create a pool of customers ready for the peak demand response scheme. For example, lighting products attract additional incentives when equipped with motion sensors or daylight harvester.

Question 11: Do you agree with the proposed removal of the 5-year End-User Equipment warranty requirement?

Answer: Ecovantage supports that the market and other means should be driving this requirement ie. Consumer law.

Question 12: Activity Definitions D16 and F4 cover air-to-air air conditioners. How big is the market opportunity for water-to-air air conditioners?

Answer: Ecovantage suggests that further market analysis is undertaken within this category re. market size. However, we believe that this should be added as an activity to support further innovation in this space as existing product manufacturers have been commercialising these products for a long time.

Question 13: Would the proposed changes incentivise you to become accredited to undertake air conditioning upgrades using the HEER method?

Answer: The incentive is still significantly low in comparison with the cost of a unit which would not drive mass adoption or provide enough incentives for new entrants to become an ACP or approved under the HEER method. There are also additional audit and compliance costs under the NSW ESS that will prevent the uptake of this method/activity.

Question 14: Do you consider there to be any barriers to the uptake of this activity?

Answer: The costs of supply & installation of AC units outweigh the current suggested incentives. This is still a major barrier to uptake of this activity. There are also no substantial incentives for higher energy rating products in comparison to the lower energy rating product.

Risk of relying on the GEMs registry data which increases the risk of improperly created certificates.

Major learning and technical understanding to be facilitated through a whole new industry ie. Air conditioning installers and manufacturers.

Update to Activity Definition F4 (HEAB)

Question 15: Do you agree with the updated calculation approaches and requirements proposed for Activity Definition F4? Please be specific in your responses and provide evidence to support your answer where available.

Answer: Ecovantage suggests the inclusion of the common areas of a Class 2 building to be eligible under the HEAB method. This would be in alignment with the existing definition under the commercial lighting activity.

Question 16: Do you agree with the proposed minimum AEER and ACOP (where relevant) eligibility threshold of 20% > baseline AEER applied to all product classes and capacities? If not, are you able to provide supporting evidence and data that would enable setting more targeted thresholds?

Answer: Please refer to Q6

Question 17: Do you have any concerns that these activities could drive bad design or behaviour in the industry, for example, the installation of over- or under- sized units?

Answer: Please refer to Q8

Question 18: Would you agree with Activity Definition F4 requiring the installed EndUser Equipment to have a demand response capability in order to provide complimentary benefits for the Peak Demand Reduction Scheme? If no, please explain why.

Answer: Please refer to Q10

Question 19: Would the proposed changes incentivise you to become accredited to undertake air conditioning upgrades using the HEAB method?

Answer: Please refer to Q13

Question 20: Do you consider there to be any barriers to the uptake of this activity?

Answer: Please refer to Q14.

Update to Activity Definition F1 (HEAB)

Question 21: Do you agree with the updated calculation approach and requirements we are proposing for these Activity Definitions F1.1-F1.5?

Answer: Ecovantage supports the proposed activity definitions, however, if the EEI baselines are not updated, the incentives for some product classes will not be viable.

There are also major issues with the inconsistency and unreliable data that is available through the GEMs registry. Ecovantage suggests that an alternative approach is available.

Ecovantage also suggests that the already calculation option B is implemented due to its more streamlined nature.

Question 22: Do you agree that the proposed baselines are appropriate to incentivise the installation of the most efficient Refrigerated Cabinets available for sale in NSW?

Answer: For some product classes yes but not for others ie. Class 9. Some of the proposed baselines would reduce the current number of certificates by half. Incentives must be larger to incentivise greater uptake.

Question 23: Do you consider there to be any other barriers to the uptake of these activities?

Answer: The GEMs/MEPs registry is a major barrier due to the lack of reliability and consistency of data. Also, the reduced baselines for some of the product classes would impact the viability of the activity.

Potential new Activity Definitions D17, D18, D19, D20, D21, D22 – Heat Pump and Solar Water Heaters (HEER)

Question 26: Do you agree with the inclusion of new Activity Definitions to incentivise heat pump and solar water heaters in the ESS?

Answer: Yes

Question 27: Do you agree with the calculation approach and requirements we are proposing for Activity Definitions D17-D22?

Answer: In principle, the calculation approach is reasonable and appropriate for this activity. However, Ecovantage is concerned with the current methodology used to calculate the

proposed average base load. Based on our market experience, Heat Pumps are sold to 4 person or more homes which would have a substantial impact on the total required baseload capacity.

Ecovantage recommends that the average base load should be increased from 35.51kW to 47.5kW which would better reflect the actual average consumption of the targeted market.

Question 28: Do you have any concerns that these activities could drive bad design or behaviour in the industry, for example, the installation of oversized systems?

Answer: No, we don't have any concerns. This activity will not provide any substantial financial benefit to those looking at oversizing a system. The size of the system will predominantly be drive by the customer's preference and potential increase in hot water consumption ie. growing family.

Ecovantage suggests that a simple declaration may be added to ensure that both customers and installers are aware of the scheme requirements including service levels.

Question 29: Do you think there are situations where a customer could face higher energy bills when switching from a controlled load or off-peak electricity tariff to a time of use or single rate tariff for the installation of a heat pump or solar water heater?

Answer: No, we don't. The Heat Pump system delivers a substantial amount of energy savings in comparison to any existing gas or electric system. Combined with a variety of control load tariffs offered by the energy retailers, customers would always be paying less on their energy bills after a heat pump upgrade.

Question 30: Some heat pump hot water systems include a resistive electric element to automatically operate when ambient temperatures are higher than the heat pump can operate in. What percentage of systems aimed at the residential and small business market do you think have this functionality?

Answer: Ecovantage doesn't have enough market data to provide enough assurance on this question. However, we believe that only a small percentage of manufacturers would offer the resistive electric element due to warm characteristics of the NSW climate zones.

Question 31: Would the proposed changes incentivise you to become accredited to undertake these activities using the HEER method?

Answer: No if Ecovantage wasn't already accredited under the HEER method. The current proposed incentives are not large enough to drive mass adoption of new Heat Pumps. This combined with the high audit questions under the NSW scheme, would not attract next players to become accredited under this methodology.

Question 32: Do you consider there to be any barriers to the uptake of these activities?

Answer:

1. Using TRNSYS

A barrier, no doubt, is the requirement of a single assessment tool/platform, especially one that is expensive and hard to use and understand.

Despite its utility and well-earned reputation over decades of use, improvement and validation of its modelling and simulation capabilities in real-life scenarios, and considered by many in Academia as the gold standard for assessment of thermal processes, in practice TRNSYS remains very much in the domain of academic circles, R&D centres and highly specialised consultants.

It is not simply the case that any manufacturer, or any interested party, with capable technical staff can purchase it and in a short period be able to use it competently. It is a very specialised tool requiring specialised knowledge of heat transfer and thermodynamic theory. Companies wishing to do so will require a high upfront investment and then train suitably qualified staff over time, who will experience quite a steep learning curve.

2. Financial incentives

Due the low average baseload, we believe that the current number of certificates will not drive exponential uptake of this activity. At current rates, customers would still be substantially out of pocket and the upfront investment may not justify replacing a perfectly working electric or gas hot water system.

3. Compliance

This is still unknown and may impact the viability of the activity if not designed correctly.

Potential new Activity Definitions F16 and F17 Commercial and Industrial Heat Pump Water Heaters (HEAB)

Question 33: Do you agree for your responses to questions 34 - 44 to be shared with the Department of Environment, Land, Water and Planning in Victoria?

Answer: Yes

Question 34: Do you agree that a product-based approach would be appropriate for smaller systems and will provide certainty around deemed energy savings when installing heat pumps in commercial and industrial premises?

Answer: Yes, Ecovantage supports the product-based approach for smaller systems, however we strongly suggest that an application-based approach is also introduced. This approach would be suitable for large bespoke solutions that might not fit the product-based approach.

Question 35: Do you agree that the same range of heat pumps installed in commercial and industrial premises are also appropriate to be installed in residential apartment buildings?

Answer: Yes, for most products. Some applications may require a range that is specifically designed for higher temperatures which would not be used in the residential buildings.

Question 36: Do you agree with the calculation approach and requirements proposed for these Activity Definitions?

Answer: The current modelling approach used to define the energy profiles is not entirely clear. We would welcome further discussion on how the profiles were defined.

Question 37: Do you agree that these Activity Definitions adequately cover all of the different commercial and industrial hot water system configurations, e.g. systems with multiple water heaters? If not, what scenarios are not covered?

Answer: Similar to Q36. Ecovantage would require more details on the definitions before being able to answer this question.

Question 38: Do you agree that the proposed 12-year lifetime deeming period is acceptable for heat pump water heaters installed in a commercial or industrial setting?

Answer: The VEU approach has proposed a 15 years lifetime. This is based on industry knowledge both locally and internationally. We recommend that the ESS is aligned with the VEU.

Energy AE has provided a report to one of our manufacturer partners stating that the lifetime should be close or over 15 years.

Question 39: Do you have any concerns that these activities could drive bad design or behaviour in the industry, for example, the installation of oversized systems? If yes, how can this be prevented?

Answer: No. In the commercial space, the capital outlay required for a heat pump upgrade could be significantly higher than in the residential space. This coupled with the consultants and experts involved in the process would not create any incentives for oversized systems if not required.

Question 40: Do you consider that an application-based method would result in significant uptake?

Answer: Hard to say definitively. PIAM&V is available, but complex. An application based method for heat pumps could streamline some of the existing PIAM&V requirements and complexities, in which case it would be attractive. Hard to estimate how much uptake though, and whether it would be 'significant'.

With PIAM&V, however Clause 5.4g needs to be revised to incorporate the creation of STCs with ESCs. There is no rationale for why we couldn't create STCs for commercial applications if this would now be possible in the residential space.

In relation to the proposed application-based method, we do have some concerns around the suggested TRNSYS modelling and simulation. Similarly to Q32, this could add complexities and cost to the claim which would reduce further the financial attractiveness of the activity.

Question 41: Some heat pump hot water systems include a resistive electric element to automatically operate when ambient temperatures are higher than the heat pump can operate in. What percentage of systems aimed at the commercial and industrial market do you think have this functionality?

Answer: At least 90 percent, however the dyna heat unit does not

Question 42: Would the proposed changes incentivise you to become accredited to undertake these activities using the HEAB method?

Answer: Please refer to Q31.

Question 43: If you have downloaded and tested the Commercial and Industrial air source HPWH Application Guide and TRNSYS Application Files which have been developed for the product registration process, please provide feedback here.

Answer: Although Ecovantage has not had enough time to download and test the application files, we are concerned that basing the product registration for both product and application-based approaches could substantially increase the costs of undertaking this activity.

Question 44: Do you consider there to be any barriers to the uptake of these activities?

Answer: Please refer to Q32.

ESS Product Requirements

Question 45: Do you agree the ESS should harmonise with the VEU and consider adopting or closely aligning with their modelling procedure, product approval process and product registry to calculate energy savings for residential and small business heat pump and solar water heaters under the HEER method of the ESS?

Answer: The scheme seems to be working ok in Vic and SA, so would make sense. Harmonisation can significantly enhance ACP capacity to compete in this market by allowing economies of scale across jurisdictions.

Question 46: Do you agree that the energy performance of heat pump products should be tested in climate zones 3 and 5 to represent energy savings more accurately for NSW?

Answer: Yes. Our understanding is that units have been tested so this requirement should not cause a problem.

Question 47: Do you agree that the NSW Government should harmonise with the VEU to develop a joint modelling procedure, product approval process and product registry to calculate energy savings for commercial and industrial heat pump water heaters under the HEAB method of the ESS?

Answer: Yes.

Question 48: Do you have any alternative solutions the NSW Government should consider?

Answer: Ecovantage suggests that the NSW Government should consider an alternative approach to **TRNSYS**. We are aware of other methodologies that have been developed internationally which could potentially remove the need of an expensive and niche system like TRNSYS.

An example is a Swiss tool and calculation method (also adopted in Austria) known as WPesti , used to determine energy costs and savings of HPWH for thermal comfort applications. This

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tool is an elaborate spreadsheet and is currently made available in German, French and Italian with an explanatory handbook that also provides some historical insight into its development (also in those languages) (Stiebel Eltron 2021)

Question 49: Do you consider there to be any barriers the NSW Government should be aware of?

Answer: In short, the main barrier is related to the cost of activity implementation ie. compliance, product registration, installation etc. compared to the equivalent return. Industry believes that the return on investment ie. incentives are currently not adequate to deliver large scale adoption.

It is also important to note that the current penalty rates under the ESS as set in the Electricity Act does not support a higher value abatement which could be one of the solutions to increase adoption and additionality.

Question 50. Do you agree with clarifying the forward creation of ESCs calculation under the NABERS baseline method? Please provide reasoning supporting your response.

Answer: Yes, we welcome these proposed changes.

Question 51. Do you agree with the proposed Benchmark NABERS Ratings Indexes and Annual Rating Adjustments for the residential aged care and retirement living sectors? Please explain and provide evidence to support your response.

Answer: Yes, we welcome these proposed changes.

Kind Regards,

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