



ENERGY SAVINGS SCHEME

Consultation Paper

2020-2021 Rule Change

June 2021



Published by NSW Department of Planning, Industry and Environment

dpie.nsw.gov.au

Title: Energy Savings Scheme Consultation Paper

Subtitle: 2020-2021 Rule Change

ISBN: 978-1-922493-25-5

EES 2021/0228

June 2021

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Foreword

This consultation paper explains the policy intent and detail behind proposed changes to the NSW Energy Savings Scheme (ESS) Rule and seeks stakeholder feedback. The changes are part of the NSW Government's commitment to continuous improvement of the ESS. This paper also continues the consultation on the potential inclusion of heat pumps and solar water heaters in the ESS.

The NSW Government is seeking input from stakeholders to ensure the proposed ESS Rule changes in this consultation paper are appropriate and reflect best practice industry standards.

The consultation paper assumes prior knowledge of the ESS, legislative and administrative instruments. More information about the operation and administration of the ESS can be found at the Scheme Administrator's website at ess.nsw.gov.au. Information about previous amendments, including consultation papers and stakeholder responses are available at energy.nsw.gov.au/government-and-regulation/energy-savings-scheme.

Call for submissions

The release of this paper starts the consultation period. The NSW Government invites submissions from all interested parties on changes set out in this consultation paper. The closing date for the written submissions is 5:00pm AEDT on **Friday, 23 July 2021**. Please send your submissions to:

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Publication of submissions

The NSW Government is committed to an open and transparent process, and all consultation responses and submissions will be made publicly available. Written submissions should be provided as documents that can be published on the NSW Planning, Industry and Environment website.

If you wish for your written submission to remain confidential, please clearly state this in your submission, and only your organisation's name will be published. We will remove personal details from submissions made by individuals.

Please be aware that even if you state that you do not wish certain information to be published, there may be legal circumstances that require the NSW Government to release that information (for example, under the *Government Information (Public Access) Act 2009*).

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Part One: Introduction

The NSW Energy Savings Scheme (ESS) reduces energy consumption in NSW by creating financial incentives for investment in energy saving projects. Energy savings are achieved by installing energy saving equipment or modifying, removing or replacing existing equipment.

The ESS mandates NSW energy retailers and other liable parties to purchase energy savings in the form of Energy Savings Certificates (ESCs) each year. Accredited Certificate Providers (ACPs) create ESCs when energy users undertake eligible energy saving activities.

The *Electricity Supply Act 1995* (the Act) allows the Minister for Energy and Environment to approve rules that set out how ESCs can be created, including the eligibility of participants and activities, and methods for calculating energy savings.

1.1 Why is the ESS Rule updated?

The *Energy Savings Scheme Rule of 2009* (ESS Rule) is updated annually to maintain its effectiveness and keep it up to date. This is done to complement changes to building and equipment standards, add new technologies, and make other enhancements to maintain its integrity and/or reduce transaction costs.

In this update we are also continuing the Energy Security Safeguard (the Safeguard) consultation on the potential inclusion of heat pumps and solar water heater activities in the ESS.

The Energy Security Safeguard includes two separate schemes:

- an Energy Savings Scheme (ESS) running until 2050, with an energy savings target gradually increasing to 13% by 2030 and an expanded set of eligible activities, and
- a new Peak Demand Reduction Scheme (PDRS) to support activities that reduce demand at peak times, including flexible demand response.

The second emergency COVID-19 response bill package, passed by Parliament in May 2020, amended the *NSW Electricity Supply Act 1995* (the Act) to establish the Safeguard and extend the ESS to 2050.

1.2 Proposed ESS Rule Change Amendments 2021

This consultation paper discusses the following changes for the 2021 ESS Rule:

Rule Method	Proposed change
General	Update to ESS Rule references to the Act
	Renewable Energy Target exclusions
	Clarification on BASIX compliance
	Clarification of the definition of Electricity and Gas Savings for NABERS
Updates to Deemed Savings Methods	Review and replace AC Activity Definitions D3 & D4 with D16 (HEER)
	Review and update refrigerated cabinets Activity Definition F1 (HEAB)
	Review and update AC Activity Definition F4 (HEAB)
	Update to Note under Clause 9.8.1 (HEER)
	Update to Activity Definitions E2, E3, E5 and E13 (HEER)
New Deemed Savings Methods	The potential for new activities (D17 – D22 and F16 – F17) that support the installation of heat pump and solar water heaters in households and small business, and heat pump water heaters in commercial and industrial premises.
NABERS	Clarify that forward creation can only occur under Calculation Method 2
	Allow energy savings to be calculated for NABERS-rated buildings in the Residential Aged Care and Retirement Living sectors

A draft version of the 2021 ESS Rule showing proposed changes is available for review and should be read in conjunction with this consultation paper.

The consultation draft shows all proposed changes as coloured additions or strikethroughs.

Minor changes made for clarity or consistency are shown coloured in the draft 2021 ESS Rule but are not considered in this consultation paper.

Dates marked as 'DD MM YY' will be updated in the published rule.

1.3 Consultation for the ESS Rule Change

The NSW Government is seeking input to ensure the proposed changes are appropriate and reflect industry best practice and Australian Standards. Initial consultation began in 2020 with the Energy Security Safeguard consultation and targeted industry stakeholder workshops on the rule changes proposed in Part Three.

Where possible, stakeholder recommendations from the targeted consultation are embedded in the proposed changes. Consultation questions provide an opportunity for input on the proposed changes. A full list of questions is available in Appendix A.

Next Rule Change steps include:

1. Review and consideration of submissions to this consultation
2. Publication of the amended rule in the NSW Government gazette, and publication of a Position Paper detailing the final changes.

Part Two: General Changes

This part provides an overview of general changes to the draft 2021 ESS Rule. Please consider the questions below when providing feedback.

2.1 Commencement date and transitional arrangements

Refer to the draft ESS Rule: §1, §3, §11.17-§11.21

It is expected that the updated Rule will be gazetted in November 2021 and will commence in December 2021, with transitional provisions as listed below.

It is proposed that 2021 vintage ESCs calculated using the old ESS Rule can be registered until 30 June 2022.

To allow flexibility, we have proposed the following transitional provision:

Method/ activity	Transitional provision
Residential and small business heat pumps and solar water heaters and commercial and industrial heat pumps	If the ESS will be expanded to these activities, a later commencement date for these activities may be required to allow time for establishing a heat pump and solar water heater product approval process. We are currently considering an additional three months from the commencement date of the ESS Rule, however, this transitional period may be shortened or extended as more details become available closer to the date of Gazettal.

Please provide feedback on the following questions:

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

2.2 Update ESS Rule references to the Act

Refer to the draft ESS Rule: throughout

In May 2020 Parliament passed the second emergency COVID-19 response bill package amending the *NSW Electricity Supply Act 1995 (the Act)* to establish the Safeguard and extend the ESS to 2050. References within the ESS Rule to the Act have been amended to reflect the updated Parts, Divisions and Sections within the Act.

2.3 Renewable Energy Target exclusions

Refer to the draft ESS Rule: §5.4(g)

Currently Clause 5.4(g) of the ESS Rule precludes ESC creation from any activities that are eligible to create tradeable certificates under the *Renewable Energy (Electricity) Act 2000 (Cth)* to meet the Renewable Energy Target (RET).

If the ESS will be expanded to include heat pump and solar water heater activities, the blanket exclusion in Clause 5.4(g) of the ESS Rule could be amended.

Eligible ESS activities could potentially receive a further incentive in addition to those provided under the RET.

See sections 3.2.1 and 3.2.2 for more details on the proposed deemed heat pump and solar water heater activity definitions.

Please provide feedback on the following question:

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

2.4 Clarification on BASIX compliance

Refer to the draft ESS Rule: §5.4(b)

In addition to the RET exclusions, the ESS Rule does not allow ESC creation from activities that are undertaken in order to comply with any mandatory legal requirement, including, but not limited to compliance with the NSW Building Sustainability Index (BASIX).

BASIX sets requirements for water and energy usage for all new residential dwellings, as well as alterations and additions to dwellings that cost \$50,000 or more (NSW Government 2020).

To clarify, in the context of clause 5.4 (b) of the ESS Rule, activities, such as the installation of replacement air conditioners and heat pump water heaters, that form part of dwelling alterations and additions that cost \$50,000 or more, are not considered as activities undertaken in order to comply with BASIX requirements. More specifically, these replacements are classed as alterations and additions that are not required to meet a minimum energy target.

Therefore, energy savings from eligible replacement activities that are stand-alone or part of larger alterations or additions to residential buildings are eligible for certificate creation.

2.5 Define Electricity and Gas Savings for NABERS

Refer to the draft ESS Rule: §10.1, Method 4 – NABERS Benchmark

Clause 10.1 of the ESS Rule defines Electricity Savings and Gas Savings. Under the definitions, Electricity Savings or Gas Savings may be negative for fuel switching activities.

Currently, the Electricity Savings_{NRyⁱ-1} and Gas Savings_{NRyⁱ-1} values in Method 4 (NABERS Benchmark) Step 4 are negative, when not all NABERS activities include fuel switching activities.

The NSW Government proposes to amend the definitions of Electricity Savings and Gas Savings in Clause 10.1 to include that the Electricity Savings_{NRyⁱ-1} and Gas Savings_{NRyⁱ-1} values can be negative to align the definition and the formula.

Please provide feedback on the following question:

- 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.

Part Three: Deemed Energy Savings Methods

This part details changes to the deemed energy saving methods. Please consider the questions below when providing feedback.

3.1 Updates to Deemed Energy Savings Methods

3.1.1 Background of AC Activity Definition (D3, D4 & F4) Updates

The NSW Government has conducted a review of the new *Greenhouse and Minimum Energy Performance Standards (GEMS) (Air Conditioners up to 65kW) Determination (2019)* which came into effect on 1 April 2020, and its effects on the following current activities:

- Activity Definition D3 (replace an existing air conditioner with a high efficiency air conditioner)
- Activity Definition D4 (install a high efficiency air conditioner), and
- Activity Definition F4 (install a new high efficiency air conditioner).

The review sought to identify improvements that could ensure alignment with the new GEMS Determination, assist with simplifying the ESS Rule, and reduce the costs of undertaking these activities.

A key update in the GEMS Determination is the introduction of a new Zoned Energy Rating Label (ZERL). The new ZERL includes the addition of a star rating and total energy consumption, for both heating and cooling, for three newly defined climate zones (hot, average, and cold). The Determination is also used to define commercial operating hours and adjustments to the load functions, for each climate zone.

The new GEMS labelling requirements allow for the continued use of the old Energy Rating Label (ERL) from the prior GEMS Determination (2013), which can be used for the next five years in conjunction with the new ZERL. As a result, two energy savings calculation pathways will now be available for the ESS's air conditioning activities, using either the old ERL or new ZERL.

The NSW Government is proposing under the new ZERL calculation method to compare annual energy use from the ZERL (in each climate zone) with the annual energy use of a baseline system, as defined in the Minimum Energy Performance Standards (MEPS). It should also be noted that the prevalence of electric resistance heaters in NSW has been considered in setting the baseline Annualised Coefficient of Performance (ACOP), to be used when calculating the heating performance of an air conditioner. For the NSW climate a level of 50% electric resistance heaters and 50% air conditioners is assumed. An equivalent calculation approach was developed for products using the old ERL.

Under the new ZERL calculation method, the zoned annual energy use (kWh/y) can be used to determine the new system's energy consumption. The reference unit energy consumption can also be determined from the ZERL capacity, based on a baseline Annualised Energy Efficiency Ratio (AEER)/ACOP and equivalent cooling (heating) hours for each climate zone.

For products using the old ERL, annual energy use is based on the power input from the ERL, and an equivalent cooling (heating) hours for each zone. The equivalent cooling (heating) hours are based on the current AS/NZS 3823.4 and the GEMS Determination.

The NSW Government proposes using a combined method that allows for energy savings to be created using either the old ERL or the new ZERL, under the revised Activity Definitions in the ESS Rule. The ZERL is the most accurate way to calculate energy savings for new products and by allowing savings to be created using the old ERL manufacturers will not

need to retest existing products over the GEMS five-year transition period. This approach utilises the full strength of the new GEMS Determination and the current AS/NZS 3823.4; and it provides a clear, simple and consistent method for residential/small business and commercial/industrial applications.

Peak Demand Reduction Scheme Considerations

We considered potential complimentary benefits for the new Peak Demand Reduction Scheme (PDRS) by proposing that air conditioners eligible under the ESS must have demand response capability in accordance with AS/NZS 4755.3.1. This would require that units must be capable of demand response modes 1 (on/off), 2 (allow 50% power usage) and 3 (allow 75% power usage). The following sections provide an opportunity for you to provide feedback on this proposal. For now, we advise that demand response capable devices are installed where possible to be ready for future opportunities to activate eligible PDRS activities.

3.1.2 Replace Activity Definition D3 & D4 with D16 (HEER)

Refer to the draft ESS Rule: Activity Definition D3, Activity Definition D4, Activity Definition D16, Table A27, §10.1

The NSW Government recommends that the existing activities D3 (new installations) and D4 (replacement installations) be combined into one new Activity Definition D16. Targeted stakeholder consultation feedback indicated a need for simplicity. The NSW Government considered these recommendations and proposes the following changes:

Change Type	Change Description
General	Activity Definition D3 & D4 will be removed and replaced by a single activity (D16)
Baseline	<ul style="list-style-type: none"> The baseline AEER and ACOP values for new air conditioners are defined by the current 2019 MEPS values provided in Schedule 1 of the GEMS Determination. For replacement air conditioners, the baseline AEER and ACOP are based on 2010 MEPS. For both new and replacement air conditioners the ACOP for heating is proposed at $(AEER + 1)/2$ to account for the penetration of electric resistance heaters.
Calculation Method	<ul style="list-style-type: none"> Option of two calculation methodologies depending on whether the labelling is the old ERL or the new ZERL. Baseline cooling and heating annualised EER and COP (AEER and ACOP) for new and replacement activities are defined in Table D16.1 (for new) and D16.2 (for replacements) of the ESS Rule. Under the new ZERL calculation method, the zoned annual energy use (kWh/y) from the new rated label can be used to determine its energy consumption. The reference unit's energy consumption can also be determined from the ZERL capacity, based on a baseline AEER/ACOP and equivalent cooling (heating) hours for each climate zone.

Change Type	Change Description
Calculation Method	<ul style="list-style-type: none"> For products using the old ERL, annual energy use is defined based on the power input from the ERL, and an equivalent cooling (heating) hours for each zone. The equivalent cooling (heating) hours are based on the current AS/NZS 3823.4 and the GEMS Determination (2019). The lifetime is defined as 10 years.
Requirements	<ul style="list-style-type: none"> For replacement systems, the existing ESS Rule requires the system being removed to be in working order when replaced. The original intent of this requirement was to ensure non-operational systems could not claim savings. This requirement unintentionally excludes equipment that has reached its end of life and would require an end user to upgrade a system that should be replaced to claim energy savings. Industry confirmed that most replacements occur because a system has reached its end of life, and very few replacements are systems that are not being used. As a result, this requirement creates barriers to participation in the ESS and has been removed. To drive the installation of air conditioners that exceed MEPS, the existing activities include requirements such as assigning minimum star ratings for heating or cooling and requiring that an installed unit has a higher star rating than the unit being removed (for replacements). However, the rating systems under the old ERL and the new ZERL differ. The existing Activity Definition F4 sets a minimum eligibility threshold of 20% > baseline AEER and ACOP (where relevant). We assessed if this threshold is appropriate to use in the updated activities for each product class in the GEMS registry. However, GEMS registration data is insufficient to assess all product classes individually. We therefore propose to apply a similar generic minimum AEER and ACOP (where relevant) threshold requirement of 20% > baseline AEER to all product classes in the updated AC activities. This threshold will apply to the installation of new (where no unit was present before the upgrade) and replacement ACs. We note that during the targeted consultation, stakeholders raised concerns that such generic requirement excludes many air conditioner capacities from accessing the incentive. This, in turn, may cause over- and under-sized products to be specified. We are therefore appealing to industry to engage with this consultation process and provide us with your insights and data to ensure the best outcome for these activities. The current requirement for the cooling capacity to be the same or smaller than what is being replaced, could lead to the installation of a new unit that is not sized to meet the heating and cooling demand of a space. This is the case when the unit being removed is already under-sized and can lead to inefficiencies in meeting the cooling demand. This could also lead to the use of additional inefficient electric resistance heating to meet the heating demand in winter. This would result in reduced energy savings or increased energy consumption overall. The intent of this requirement is to avoid oversizing of units to claim additional incentives. If the current requirement was changed, we are seeking your feedback on the best approach to ensure that the unit is sized correctly so it can operate at its optimum efficiency. In the current ESS Rule, a new air conditioner must have a warranty of at least 5 years. Given the consumer guarantee requirements under Australian Consumer Law that require products to be “lasting” (Fair Trading, 2020), this requirement has been removed.

Please provide feedback on the following question: *Please be specific in your responses and provide evidence to support your answer where available.*

- Question 5: Do you agree with the updated calculation approaches and requirements proposed for Activity Definition D16?
- 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?
- 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?
- 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?
- 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?
- 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.
- Question 11: Do you agree with the proposed removal of the 5-year End-User Equipment warranty requirement?
- Question 12: Activity Definitions D16 and F4 cover air-to-air air conditioners. How big is the market opportunity for the water-to-air air conditioners?
- Question 13: Would the proposed changes incentivise you to become accredited to undertake air conditioning upgrades using the HEER method?
- Question 14: Do you consider there to be any barriers to the uptake of this activity?

3.1.3 Update to Activity Definition F4 (HEAB)

Refer to the draft ESS Rule: Activity Definition F4, Table F4.1, F4.2, §10.1

The NSW Government is updating Activity Definition F4 to align with the new GEMS (Air Conditioners up to 65kW) Determination 2019.

Stakeholder consultation highlighted a need for simplicity and recommended that new and replacement activities be combined into one. The NSW Government considered these recommendations and proposes to update Activity Definition F4 through implementing the following changes:

Change Type	Change Description
General	Activity Definition F4 would be expanded to include the replacement of air conditioners with high efficiency air conditioners.
Baseline	<ul style="list-style-type: none"> • The baseline AEER and ACOP values for new air conditioners are defined by the current 2019 MEPS values provided in Schedule 1 of the GEMS Determination. • For replacement air conditioners, the baseline AEER and ACOP are based on 2010 MEPS. • For both replacement and new air conditioners the ACOP for heating is proposed at $(AEER + 1)/2$ to account for the penetration of electric resistance heaters.
Calculation Method	<ul style="list-style-type: none"> • Option of two calculation methodologies depending on whether the labelling is the old ERL or the new ZERL. • Under the new ZERL calculation method, the zoned annual energy use (kWh/y) from the new rated label can be used to determine its energy consumption. The reference unit energy consumption can also be determined from the ZERL capacity, based on a baseline AEER/ACOP and equivalent cooling (heating) hours for each climate zone. • For products using the old ERL, annual energy use is defined based on the power input from the ERL, and an equivalent cooling (heating) hours for each zone. The equivalent cooling (heating) hours are based on AS/NZS 3823.4 and the GEMS Determination (2019). • Baseline cooling and heating annualised EER and COP (AEER and ACOP) are defined in Table F4.2 (for new) and F4.3 (for replacements) of the ESS Rule. • The lifetime is defined as 10 years.
Requirements	<ul style="list-style-type: none"> • To drive the installation of air conditioners that exceed MEPS, the existing Activity Definition F4 includes performance requirements that set the minimum eligibility threshold of $20\% >$ baseline AEER and ACOP (where relevant). We assessed if this threshold is appropriate to use in the updated activities for each product class in the GEMS registry. However, GEMS registration data is insufficient to assess all product classes individually. We therefore propose to apply a similar generic minimum AEER and ACOP (where relevant) threshold requirement of $20\% >$ baseline AEER to all product classes in the updated AC activities. This threshold will apply to the installation of new (where no unit was present before the upgrade) and replacement ACs. We note that during the targeted consultation, stakeholders raised concerns that such generic requirement excludes many air conditioner capacities from accessing the incentive. This, in turn, may cause over- and under-sized products to be specified. We are therefore appealing to industry to engage with this consultation process and provide us with your insights and data to ensure the best outcome for these activities • In the current ESS Rule, a new air conditioner must have a warranty of at least 5 years. Given the consumer guarantee requirements under Australian Consumer Law that require products to be “lasting” (Fair Trading, 2020), this requirement has been removed.

Please provide feedback on the following question: *Please be specific in your responses and provide evidence to support your answer where available.*

- 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.
- 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?
- 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?
- Question 18: Would you agree with Activity Definition F4 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.
- Question 19: Would the proposed changes incentivise you to become accredited to undertake air conditioning upgrades using the HEAB method?
- Question 20: Do you consider there to be any barriers to the uptake of this activity?

3.1.4 Update to Activity Definition F1 (HEAB)

Refer to the draft ESS Rule: Activity Definitions F1.1-F1.5

The NSW Government has conducted a review of how changes to the new *Greenhouse and Minimum Energy Performance Standards (Refrigerated Cabinets) Determination 2020* would impact the current Activity Definition F1 (install a new high efficiency refrigerated cabinet).

The key updates in the GEMS Determination are:

- the addition of refrigerated storage cabinets, small ice-cream freezers and scooping cabinets to the product classes of refrigerated cabinets;
- new formulas for calculating energy efficiency for each product class;
- the assessment of refrigerated cabinet performance using an Energy Efficiency Index (EEI) scale.

To cater for the differing energy savings calculation formulas, the NSW Government is proposing to split the current ESS Activity Definition F1 into five Activity Definitions (F1.1 – F1.5). We also propose new EEI based baselines for each product class.

The proposed baseline EEIs have been informed by:

- The minimum, average and maximum daily energy consumption of both the current and old GEMS registration data (i.e. 2020 and 2012 or 2008).
- EEI Minimum Energy Performance Standards thresholds in Australia and those thresholds proposed in the EU for 2021 and 2023.

In more detail, the NSW Government proposes to update Activity Definition F1 through implementing the following changes:

Change Type	Change Description
General	<ul style="list-style-type: none"> • Separate the current activity into five activity definitions to cater for the differing calculation formulae between Refrigerated Display Cabinets (RDCs) and Refrigerated Storage Cabinets (RSCs). Each activity will be determined by a Cabinet Type which will stipulate the GEMS Determination 2020 Product Class it denotes. Refer to the new Activity Definitions (F1.1 – F1.5) of the ESS Rule. • Expand the activity from new installations only to also include replacement activities. • Change the current requirement to have an EEI of below 77 across all product classes to the EU MEPS 2023 values for each relevant product class. This means that to be eligible to create energy savings certificates, the EEI value for product class 5 must be equal or below 50; and for all other product classes, where applicable – equal or below 80.
Calculation Method	<ul style="list-style-type: none"> • Separate Deemed Equipment Electricity Savings formula's to align with GEMS in the revised Activity Definitions (F1.1 - F1.5). • GEMS Determination product classes 3, 4, 9 and 10 (Activity Definition F1.5) and 5 (Activity Definition F1.2) will be calculated on net Volume (V_N) measure, not TDA (Total Display Area). • Introduction of M and N factors for all GEMS Determination product classes. • Introduction of Adjustment Factors (<i>af</i>) from the GEMS Determination for product classes 3, 4, 9, and 10 (Activity Definition F1.5). • The proposed baseline EEI values for each product class are: <ul style="list-style-type: none"> - Class 1: 130 - Class 2: 92 - Class 3: heavy duty: 73; Normal and Light Duty: 71 - Class 4: heavy duty: 89; Normal and Light Duty: 80 - Class 5: 130 - Class 6: 76 - Class 7: 90 - Class 8: 97 - Class 9: heavy duty: 91; Normal and Light Duty: 79 - Class 10: heavy duty: 96; Normal and Light Duty: 80 - Class 11: 130 - Class 12: 130 - Class 13: 80 - Class 14: 91 - Class 15: 106 • Amend the deemed lifetime from 8 to 12 years for GEMS Determination product classes 7,8 and 11 (Activity Definition F1.1) for larger integral cases with a TDA ≥ 3.3 m². Initial stakeholder feedback supported these changes.
Requirements	<ul style="list-style-type: none"> • Clarified Installation Requirements by specifying that 'the activity must be performed or supervised by a suitably qualified licence holder in compliance with the relevant standards and legislation'. • Change Equipment Requirement standards to align with the GEMS Determination 2020

Please provide feedback on the following questions. *Please be specific in your responses and provide evidence to support your answer where available.*

- Question 21: Do you agree with the updated calculation approach and requirements we are proposing for these Activity Definitions F1.1-F1.5?
- 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?
- Question 23: Do you consider there to be any other barriers to the uptake of these activities?

3.1.5 Update to Note under Clause 9.8.1 (HEER)

Refer to the draft ESS Rule: Note under Clause 9.8.1

The NSW Government has identified an opportunity to update the text of the Note under Clause 9.8.1.

The Note refers to clause 9.8.1(g), however, the reference should now be to clause 9.8.1(f).

The NSW Government proposes to replace the two mentions of “9.8.1(g)” with “9.8.1(f)”.

Please provide feedback on the following question:

- Question 24: Do you agree with referencing the updated Clause in the Note? If not, please provide supporting evidence to justify your response.

3.1.6 Update to Activity Definitions E2, E3, E5 and E13 (HEER)

Refer to the draft ESS Rule: Activity Definitions E2, E3, E5 and E13

The NSW Government has identified an opportunity to update Activity Definitions E2, E3, E5 and E13. Currently the Activity Definitions refer to Table A9.2 of Schedule A for the Lamp Circuit Power (LCP) value. However, the reference should be to Table A9.4 of Schedule A.

The NSW Government proposes to replace the reference to “Table A9.2” under Activity Definitions E2, E3, E5 and E13 with “Table A9.4”.

Please provide feedback on the following question:

- Question 25: Do you agree with referencing Table A9.4 in Activity Definitions E2, E3, E5 and E13? If not, please provide supporting evidence to justify your response.

3.2 Potential new Activities under the Deemed Energy Savings Methods

The NSW Government has identified opportunities to potentially incentivise new activities under the ESS. These include activities that support the installation of heat pump and solar water heaters in households and small business, and heat pump water heaters in commercial and industrial premises. This section discusses the details of the proposed Activity Definitions.

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

Refer to the draft ESS Rule: Activity Definitions D17-22

The Victorian Energy Upgrades (VEU) and federal Small-scale Renewable Energy Scheme (SRES), which operates under the RET, both incentivise heat pump and solar water heaters. Under both schemes, manufacturers model the energy performance of their products using a simulation tool and submit their results for approval. Once approved, products are listed on the VEU and SRES product registries and incentives can be claimed under the schemes. Until now, activities eligible under the RET could not claim energy savings under the ESS, however, initial targeted ESS stakeholder consultation feedback supported the inclusion of heat pump and solar water heaters in the ESS.

As a result, the NSW Government investigated the VEU and SRES activities to identify potential opportunities for harmonisation across schemes. It was determined that, while the activities are similar, the VEU energy savings calculation approach is the easiest to harmonise with. The VEU program maintains a register of products with most of the rated performance parameters required to calculate the energy consumption for heat pump and solar water heaters. The SRES registry does not publish certain parameters making it more difficult to accurately calculate energy savings. The SRES is also planning to phase out incentives provided for these activities from 2021, leaving uncertainty around adopting their approach.

Currently, the VEU program only tests products in climate zone 4 and 5. NSW falls predominately in climate zone 3. The NSW Government consulted with industry about potentially using a conversion factor to adjust the energy performance of a zone 4 registered product to zone 3 when calculating energy savings, but industry did not support this approach. Stakeholders noted that the adjustment would not accurately represent energy performance and would limit the full product range on offer for NSW to climate zone 4 rated products. The NSW Government proposes to incorporate this feedback in the method.

The current AS/NZS 4234 provides a method to evaluate the annual energy performance of gas, electric, solar and heat pump water heaters. Although the standard defines baselines based on household consumption, industry agree that these would also still be appropriate for small businesses, in the absence of specific consumption data.

The average hot water usage per person used for the baseline and activity energy consumption calculations is 45 L/day (based on the VEU's approach). The NSW Government propose to align with this.

Hot water systems are split into small, medium and large load sizes with the majority of households using small and medium systems. Considering very few large systems are installed in NSW, incentivising them through the ESS increases the risk of over sizing to claim more energy savings.

The NSW government is proposing to allow large systems to claim energy savings certificates but will limit the energy savings to those generated for a medium system. This also aligns with the VEU's approach. Further research would be required to support installing larger systems in small businesses.

Industry expressed support in aligning our approach with Victoria but highlighted the need for the energy performance of a product to be tested in climate zone 3. The need for a registry of products is discussed further in section 0.

The NSW Government developed six new Activity Definitions for residential hot water activities.

These Activity Definitions include:

- D17 – Replace an existing electric water heater with an air source heat pump water heater
- D18 – Replace an existing electric water heater with a solar (electric boosted) water heater
- D19 – Replace an existing electric water heater with a solar (gas boosted) water heater
- D20 – Replace an existing gas water heater with an air source heat pump water heater
- D21 – Replace an existing gas water heater with a solar (electric boosted) water heater
- D22 – Replace an existing gas water heater with a solar (gas boosted) water heater

The NSW Government proposes the following key Activity Definitions D17-D22 features:

Change Type	Change Description
General	<ul style="list-style-type: none"> • Introduction of six new Activity Definitions for residential hot water that include replacing existing electric or gas hot water systems with heat pump or solar technologies. • Only replacements of existing gas and electric resistance hot water systems are eligible. • Certificates created under the ESS for the new activities will be in addition to tradeable certificates created under the SRES for the same activity.
Baseline	<ul style="list-style-type: none"> • Reference electric system assumes 98% efficiency; with system losses that align with the current MEPS and Activity Definition D10 - Replace an existing electric water heater with a high efficiency gas fired water heater • Reference instantaneous gas system is a 4-star system in line with the current MEPS • Reference gas storage system is a 3-star system in line with AS/NZS 4234 • The average hot water use per person used for the baseline and activity energy consumption calculations is 45 L/day. This harmonises with the VEU approach for their equivalent activities.
Calculation Method	<ul style="list-style-type: none"> • The activity energy consumption of heat pump and solar water heaters is calculated using its modelled energy performance in either climate zone 3 (for solar) or climate zone HP3-AU and HP5-AU (for heat pumps) and is accepted in a manner determined by the Scheme Administrator. • Energy Savings calculation methods are provided for small and medium systems (large systems will be limited to claim medium Energy Savings). • Lifetime is defined as 12 years for air source heat pump water heaters, or 15 years for solar water heaters. These lifetimes are proposed to harmonise with the VEU's approach for their equivalent activities.

Change Type	Change Description
Requirements	<ul style="list-style-type: none"> • The air sourced or solar water heater must be certified to the current AS/NZS 2712. • The product must be accepted by the Scheme Administrator (see section 3.2.3). • The activity must be performed or supervised by a suitably qualified licence holder in compliance with the relevant standards and legislation. • Heat pump and solar water heaters must achieve a minimum annual energy savings of 60% when modelled in the climate zone it is to be installed in, in accordance with AS/NZS 4234.
Modelling Requirements	<ul style="list-style-type: none"> • Heat pump or solar annual supplementary energy (Bs in GJ) and annual electrical energy used by the auxiliary equipment (Be in GJ) must be evaluated in accordance with AS/NZS 4234 and must be accepted in a manner determined by the Scheme Administrator. • The heat pump water heater must be modelled in climate zone HP3-AU and/or HP5-AU using a small or medium peak thermal load and evaluated in accordance with AS/NZS 4234 and accepted in a manner determined by the Scheme Administrator. • The solar water heater must be modelled in climate zone 3 using a small or medium peak thermal load and evaluated in accordance with AS/NZS 4234 and accepted in a manner determined by the Scheme Administrator.

Please provide feedback on the following questions: *Please be specific in your responses and provide evidence to support your answer where available.*

- Question 26: Do you agree with the inclusion of new Activity Definitions to incentivise heat pump and solar water heaters in the ESS?
 - Question 27: Do you agree with the calculation approach and requirements we are proposing for Activity Definitions D17-D22?
 - 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?
 - 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?
 - 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?
 - Question 31: Would the proposed changes incentivise you to become accredited to undertake these activities using the HEER method?
- Question 32: Do you consider there to be any barriers to the uptake of these activities?

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

Refer to the draft ESS Rule: Activity Definition F16 & F17

The NSW and Victorian Governments have worked together to identify opportunities for achieving energy savings through the replacement or installation of new heat pump water heaters in commercial and industrial sectors across NSW and Victoria, in place of gas or electric resistance units. Although unique in their design, under the ESS, these activities are informed by the SRES and the VEU programs, both of which currently incentivise smaller scale units.

The NSW Government has considered two methods as options for the activity design: a product-based method and an application-based method. This work has been undertaken in collaboration with the VEU program.

In the development of our methodology for calculating energy savings the NSW Government investigated seven load profiles for commercial and industrial demand, which form a key component of several heat pump water heater upgrade cases in various climate zones across NSW. The AS/NZS 4234 (2008) standard, provides base cases (references) for comparison of energy consumption for open loop domestic scale water heaters, and guided the modelling of open and closed loop commercial and industrial scale water heaters and boilers. Transient System Simulation Tool (TRNSYS) was used to model energy performance of the new products compared with the referenced base case scenarios.

The product-based method allows for a conservative estimate of energy savings which is limited to the performance of the individual heat pump water heater across all commercial and industrial applications and will not account for site specific energy savings. To register their products for use under the ESS, manufacturers will utilise a set water load profile and template TRNSYS simulation file to model their products against reference systems to determine their energy performance. The modelling procedure will be detailed in dedicated guidance materials. Tested products and their rated energy performance will be approved in a manner determined by the Scheme Administrator. These rated energy performance parameters can then be used to calculate the energy savings under the ESS. We are proposing a variable size representative typical or average load profile as it would be most suitable for a product-based method to cover the large range of applications in the commercial and industrial sectors. The AS/NZS 4234 climate zone weather data can be used to define air temperature and humidity, the inlet cold water temperature and load seasonal multiplier. This removes the need to evidence on site conditions by providing an estimate of energy savings across all applications.

A product-based method is more cost-effective and efficient, requiring a single TRNSYS model and product registration that can be used for multiple applications (installations). This will require less testing of products and on-site verification of the energy savings, but it will provide an estimation of energy savings that may not be as accurate as an application-based method.

In contrast, an application-based method would allow manufacturers to account for on-site conditions, bespoke equipment or existing hardware on site, such as additional tanks or piping, but would require energy performance of a system to be modelled for each specific application. This method can more accurately represent savings that can be achieved at a site but would require a significantly higher level of verification for each individual installation

and would therefore be more costly. The existing alternative approach to account for on-site conditions is the Project Impact Assessment with Measurement and Verification method.

During the targeted consultation, industry expressed support of the product-based approach, as it would be more viable for smaller system upgrades and would provide certainty around the energy savings and incentive that can be achieved. Industry also highlighted the need for an application-based method to more accurately represent energy savings, which would be more viable for larger installations.

The NSW Government developed Activity Definitions F16 & F17, to potentially incentivise the installation of air-source heat pump water heaters under a product-based approach. These activities are expected to target larger heat pump water heaters in commercial and industrial premises which are not currently eligible for incentives under SRES or may not be viable under other methods of the ESS. To support these activities the NSW Government and the Scheme Administrator will need to ensure an acceptable product approval process is in place for evaluating energy performance for the creation of energy savings, which is discussed further in section 0.

The NSW Government will continue to consider the merits of an application-based approach.

The newly developed Activity Definitions are:

- F16 – Replace one or more existing hot water boilers or water heaters with one or more air source heat pump water heater systems
- F17 – Install one or more air source heat pump water heater systems

Targeted stakeholder consultation conducted in June 2020 informs the below proposals:

Change Type	Change Description
General	<ul style="list-style-type: none"> • Two new Activity Definitions into the ESS for commercial and industrial hot water. One activity will allow for the replacement of one or more gas or electric resistance water boilers or water heaters with one or more air-source heat pump water heater systems¹. The second will allow for the installation of one or more new air-sourced heat pump water heater systems where there was no existing gas or electric water heater system in its place. • It is proposed that, when replacing existing systems, comprising of several boilers or heaters, these systems can be broken into component systems that can be replaced with a nominated replacement heat pump water heater system. • The new activities only support the installation of air-source heat pump water heaters as defined in the AS/NZS 4234, with or without storage (tanks) and additional components such as pumps and heat exchangers. • BCA building classes 1 and 4 (residential dwellings) will not be eligible under these activities. For replacement activities in these building types, Activity Definitions D17 and D20 should be used. • Certificates created under the ESS may be in addition to tradeable certificates created under the RET for the same activity.

¹ Heat pump water heater systems are typically made up of multiple components, and may include tank(s), heat exchanger(s), pump(s) and boost (heat sources such as an electric element or gas burner) in addition to the heat pump(s) and pipework. The system as modelled in accordance with the modelling guidance materials is a single combination of components.

Change Type	Change Description
Baseline	<ul style="list-style-type: none"> For products replacing an electric resistance hot water system, the reference water heater is defined as an electrical resistance storage water heater supplying the same load as the product being assessed (as per the AS/NZS 4234). For products replacing a gas hot water system, the reference water heater is defined as a gas storage water heater supplying the same load as the product being assessed, with a thermal efficiency of 78.8% (as per the AS/NZS 4234 (2008)). For new installations, the reference water heater is defined as a gas storage water heater supplying the same load as the product being assessed, with a thermal efficiency of 85% (as per DR AS/NZS 4234 (2020)).
Calculation Method	<ul style="list-style-type: none"> The energy consumption of a heat pump water heater must be calculated using its modelled energy performance for the climate zone (HP3-AU or HP5-AU) it is installed in and must be accepted in a manner determined by the Scheme Administrator. Annual electricity and gas energy savings are calculated in GJ/year and converted to MWh. The lifetime is defined as 12 years. For Activity F16, it is permissible to replace an existing water heater with an air-sourced heat pump water heater with a different thermal capacity. Where replacement equipment has a greater thermal capacity than existing equipment, a capacity factor will be applied to adjust the resultant deemed energy savings for the difference in capacities between the existing and replacement equipment.
Requirements	<ul style="list-style-type: none"> The product must be accepted by the Scheme Administrator (see section 3.2.3). The product must achieve at least 60% energy savings determined in accordance with guidance published by the Scheme Administrator, for the climate zone in which it is installed. The activity must be performed and supervised by a suitably qualified licence holder in compliance with the relevant standards and legislation. The new air source heat pump water heater system(s) must have a storage volume less than or equal to 700L and be certified by an accredited body as complying with AS/NZS 2712; or have a storage volume more than 700L.

Change Type	Change Description
Modelling Requirements (to be published in the dedicated guidance materials)	<ul style="list-style-type: none"> • Energy performance of a new heat pump water heater will be modelled through TRNSYS using: <ul style="list-style-type: none"> ○ a fixed commercial daily load profile published by the Scheme Administrator that will represent an average, or typical estimate of multiple load profiles across a variety of applications with a weekend reduction of 50%, and seasonal variation as per AS/NZS 4234 (2008); ○ component performance test reports or calculation methods, such as tank heat loss, heat pump thermal performance, pump flow rate and energy consumption, and heat exchanger efficiency; ○ a variable load size such that the performance requirements of 60% energy savings compared to electric resistance or gas reference and a minimum delivery temperature of 45°C are achieved; ○ ambient air temperature and humidity defined in AS/NZS 4234 (2008) weather files, and inlet cold water temperature defined by the current AS/NZS 4234, for the climatic zone in which the product is installed. • Reference gas and electric water heaters will be modelled to have 5% system losses or tank heat losses and 0.905 seasonal load adjustment. <ul style="list-style-type: none"> ○ Electric resistance and gas water heaters can also be used as boost plant (heaters in finishing tanks), in which case they will need to be modelled as per their actual tank heat loss.

Harmonisation with the VEU program

The proposed Activity Definitions for commercial and industrial heat pumps have been developed in collaboration with the VEU program. We intend the ESS Activity Definitions to closely align with equivalent activities in the VEU, except for the potential differences outlined below:

	ESS approach	VEU approach
Equipment Lifetime	12 years	Up to 15 years
Substitution of items for those modelled in the Product Registry for a system For example, using an existing water tank instead of the one that is supplied with the new system Relevant to Activity F16 only	Not eligible for certificate creation	<i>May</i> be eligible for certificate creation
Working order of the incumbent equipment at the time of replacement	Not required	Required
Minimum age of incumbent equipment	N/A	10 years
Climate zone testing requirements	HP3-AU, HP5-AU	HP4-AU, HP5-AU

The NSW Government is proposing a 12-year lifetime for consistency with the residential and small business heat pump activities.

Differences in the substitution of items and repurposing of replaced equipment are due to the general requirements in the ESS, prohibiting the existing equipment from being refurbished, re-used or resold (clause 5.3A (a) of the ESS Rule).

Parallel public consultations

The VEU program intends to consult on the new commercial and industrial heat pump activities at around the same time. We have aligned the consultation approach and consultation questions as much as possible, however, in the case of potential differences in the number of submissions and specific responses, we intend to share the findings of stakeholder submissions between the two programs. In the interest of better and more efficient Activity development, with your permission, your responses to questions 34-44 will be shared with the VEU program. Please indicate your preference by responding to Question 33 below.

Testing the proposed modelling approach

Section 3.2.3 provides more detail on the need for a registry of products to support the commercial and industrial heat pump activities. As part of this consultation, both the ESS and the VEU programs are inviting stakeholders to test and provide feedback on the draft guidance materials and TRNSYS simulation files supporting the product registration process. During the public consultation period, Commercial and Industrial air source HPWH Application Guide and TRNSYS Application Files are available for download [here](#).

Please provide feedback on the following question: *Please be specific in your responses and provide evidence to support your answer where available.*

- 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?
- 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?
- 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?
- Question 36: Do you agree with the calculation approach and requirements proposed for these Activity Definitions?
- 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?
- 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?
- 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?
- Question 40: Do you consider that an application-based method would result in significant uptake?
- 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?
- Question 42: Would the proposed changes incentivise you to become accredited to undertake these activities using the HEAB method?
- 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.
- Question 44: Do you consider there to be any barriers to the uptake of these activities?

3.2.3 ESS Product Requirements

Currently in Australia, MEPS and ERL provide a legislative framework for standardised testing of equipment energy performance. Products that meet the MEPS requirements are listed on a national GEMS registry, along with their rated energy performance. Energy savings can be reliably calculated using the rated energy performance of a product listed on the registry, such as the air conditioning or pool pump activities under the ESS.

Heat pump or solar water heaters that can be installed in residential, commercial or industrial premises, are not yet required to meet MEPS. Energy performance of these equipment types

can still be tested in Australia; however, the results can vary significantly in the absence of a standardised and accepted process, like MEPS. To address this, an acceptable product approval process will need to be established to determine energy performance under the ESS. It is likely that this approval process will include the creation of a registry of accepted/eligible products. Alternatively, there may be scope to adopt an existing registry.

- **Residential heat pump and solar water heaters** (Refer to section 0)

The VEU and SRES which operates under the Renewable Energy Target (RET) both incentivise heat pump and solar water heaters and have developed their own standardised energy performance testing requirements and a registry to list products which have met these requirements. Manufacturers who wish for their products to be incentivised under either scheme, submit applications to have their products assessed, approved and listed on the registries. Energy Savings can then be calculated using the rated performance of a listed product to create certificates for these activities under the VEU program and SRES. The Essential Services Commission (ESC) maintains the VEU registry and the Clean Energy Regulator (CER) maintains the SRES registry.

Initial targeted consultation feedback did not support the ESS setting up an equivalent registry but instead supported leveraging the above scheme's registries to avoid manufacturers (or companies who submit applications) having to go through a third process to have their product registered under the ESS. Industry stated for this to work, product performance would have to be tested in climate zone 3 & 5 to ensure the savings are accurate and representative for NSW.

The incentive provided under SRES will wind down yearly and the scheme is due to finish in 2030, which leaves uncertainty as to what changes will happen with the CER registry in the future. Our approach for calculating energy savings is closely aligned with the VEU program and adopting or closely aligning with the VEU registry or developing a joint registry in the longer term allows us to harmonise these activities under both Schemes and is considered the optimum solution for NSW.

- **Commercial and industrial heat pumps** (Refer to section 0)

There are no other equivalent schemes in Australia that maintain a product registry for commercial and industrial heat pumps that can be adopted under the ESS. Considering this activity has been developed in collaboration with the VEU, the potential options for the ESS are to develop and maintain our own product registry or develop a joint registry with the VEU. It is intended that the registry will list a product's performance in climate zones relevant to both NSW and Victoria.

Please provide feedback on the following question:

- 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?
- 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?
- 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?
- Question 48: Do you have any alternative solutions the NSW Government should consider?
- Question 49: Do you consider there to be any barriers the NSW Government should be aware of?

Part Four: Metered Baseline Methods

4.1 NABERS Baseline

4.1.1 Clarification of Forward Creation

Refer to the draft ESS Rule: Clause 8.8.2

Under the NABERS baseline method, forward creation of energy savings certificates can only be undertaken under Calculation Method 2. Forward creation cannot be undertaken under Calculation Method 1.

The NSW Government proposes to update the NABERS method to clarify this.

Please provide feedback on the following question:

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

4.1.2 Inclusion of New Building Types

Refer to the draft ESS Rule: Clause 8.8.1, Table A20, Table A21

The NSW Government proposes to expand the NABERS baseline method to allow energy savings to be calculated for NABERS-rated buildings in the residential aged care and retirement living sectors.

The NABERS baseline method currently covers all NABERS energy performance rating methodologies including offices, hotels, shopping and data centres, hospitals and apartment buildings.

In 2021, the NABERS program will be launching rating tools to measure energy performance of two further sectors: Residential Aged Care and Retirement Living. With the introduction of these new tools, the NSW Government proposes to enable the ESS NABERS baseline method to be used to calculate energy savings for these building types. This inclusion will provide more opportunities for residential aged care and retirement living stakeholders to access the ESS.

The proposed Benchmark NABERS Ratings Index for residential aged care and retirement living building categories is 3 stars for buildings built prior to 1 November 2006. The proposed benchmarks for buildings built on or after 1 November 2006 are 3.5 stars for residential aged care and 3 stars for retirement living sectors. The benchmark star ratings are based on the median star rating values in the respective sectors.

The purpose of the Annual Rating Adjustment in the ESS NABERS method is to consider the average annual improvement of the building stock. There is no evidence to suggest that the residential aged care and retirement living sectors are improving at the same rate as, for example, commercial office building stock in Australia. In addition, these building types have not been subject to policy drivers like the Federal Commercial Building Disclosure (CBD) program or improvements in the building code. Based on this evidence, the annual rating

adjustment for historical baseline NABERS ratings that are 2-7 years old for residential aged care and retirement living will be set at zero.

Changes are proposed to Clause 8.8.1, Table A20 and Table A21 to reflect this.

Please provide feedback on the following question:

- Question 49: 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.

Part Five: Glossary

Acronym	Definition
ACOP	Annual Coefficient of Performance
ACP	Accredited Certificate Provider
AEER	Annualised Energy Efficiency Ratio
BASIX	Building Sustainability Index
BCA	Building Code of Australia
CBD	Commercial Building Disclosure
CER	Clean Energy Regulator
DRM	Demand Response Mode
EEI	Energy Efficiency Index
ERL	Energy Rating Label
ESC	Energy Savings Certificates
ESC	Essential Services Commission
ESS	Energy Savings Scheme
GEMS	Greenhouse and Minimum Energy Standards
HEAB	High Efficiency Appliances for Businesses
HEER	Home Energy Efficiency Retrofit
IPART	Independent Pricing and Regulatory Tribunal
MEPS	Minimum Energy Performance Standards
NABERS	National Australian Built Environment Rating System
NSW	New South Wales
RESA	Recognised Energy Saving Activity
RET	Renewable Energy Target
SRES	Small Scale Renewable Energy Scheme
TRNSYS	Transient System Simulation Tool

Acronym	Definition
VEU	Victorian Energy Upgrades program
ZERL	Zoned Energy Rating Label

Part Six: References

NSW Fair Trading 2020, Consumer Guarantees, <https://www.fairtrading.nsw.gov.au/buying-products-and-services/guarantees,-contracts-and-warranties/consumer-guarantees>, accessed 23.09.2020

NSW Government 2020, *About BASIX*, www.planningportal.nsw.gov.au/basix/about-basix, accessed 20.8.2020.

Appendix A: Consultation questions

Please be specific in your responses and provide evidence where available

General changes

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

Remove some RET exclusions

Question 3.	Do you agree with the proposed changes to clause 5.4(g)? Please provide reasoning supporting your response.
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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.
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Review and replace Activity Definitions D3 & D4 with D16 (HEER)

Question 5.	Do you agree with the updated calculation approaches and requirements proposed for Activity Definition D16?
Question 6.	Do you agree with a single set of Implementation and other requirements set for all of the product classes eligible under Activity Definition D16?
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?
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?
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?
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.

Question 11.	Do you agree with the proposed removal of the 5-year End-User Equipment warranty requirement?
Question 12.	Activity Definitions D16 and F4 cover air-to-air air conditioners. How big is the market opportunity for the water-to-air air conditioners?
Question 13.	Would the proposed changes incentivise you to become accredited to undertake air conditioning upgrades using the HEER method?
Question 14.	Do you consider there to be any barriers to the uptake of this activity?

Update to Activity 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.
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?
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?
Question 18.	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.
Question 19.	Would the proposed changes incentivise you to become accredited to undertake air conditioning upgrades using the HEAB method?
Question 20.	Do you consider there to be any barriers to the uptake of this activity?

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?
Question 22.	Do you agree that the baselines we are proposing are appropriate to incentivise the installation of the most efficient Refrigerated Cabinets available for sale in NSW?
Question 23.	Do you consider there to be any other barriers to the uptake of these activities?

Update to the note in 9.8.1 (HEER)

Question 24.	Do you agree with referencing the updated Clause in the Note? If not, please provide supporting evidence to justify your response.
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Update to Activity Definitions E2, E3, E5 & E13 (HEER)

Question 25.	Do you agree with referencing Table A9.4 in Activity Definitions E2, E3, E5 and E13? If not, please provide supporting evidence to justify your response.
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Potential new Activity Definitions D17 – D22 Residential and Small Business Heat Pump and Solar Water Heaters (HEAB)

Question 26.	Do you agree with the inclusion of new Activity Definitions to incentivise heat pump and solar water heaters in the ESS?
Question 27.	Do you agree with the calculation approach and requirements we are proposing for Activity Definitions D17-D22?
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?
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?
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?
Question 31.	Would the proposed changes incentivise you to become accredited to undertake these activities using the HEER method?
Question 32.	Do you consider there to be any barriers to the uptake of these activities?

Potential new Activity Definitions F16 & 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?
Question 34.	Do you agree that a product-based approach would be appropriate for smaller systems and will provide certainty around energy savings when installing heat pumps in commercial and industrial premises?
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?
Question 36.	Do you agree with the calculation approach and requirements proposed for these Activity Definitions?

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?
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?
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?
Question 40.	Do you consider that an application-based method would result in significant uptake?
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?
Question 42.	Would the proposed changes incentivise you to become accredited to undertake these activities using the HEAB method?
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.
Question 44.	Do you consider there to be any barriers to the uptake of these activities?

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?
Question 46.	Do you agree that the energy performance of products should be tested in climate zones 3 and 5 to represent energy savings more accurately for NSW?
Question 47.	Do you agree 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?
Question 48.	Do you have any alternative solutions the NSW Government should consider?
Question 49.	Do you consider there to be any barriers the NSW Government should be aware of?

NABERS Baseline: clarification on forward creation

Question 50.

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

NABERS: Inclusion of New Building Types

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.