



Department  
of Industry

NSW ENERGY SAVINGS SCHEME

# Rule Change Amendments

Submissions Report

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*NSW Energy Savings Scheme Rule Change Amendments – Consultation Paper*

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**More information**

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Office of Environment and Heritage

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (April 2016). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of the NSW Department of Industry, Skills and Regional Development or the user's independent advisor.

## Foreword

This paper is intended to explain to interested parties the changes which are being made to the Energy Savings Scheme (ESS) Rule to align with regulatory reforms passed by the NSW Parliament contained in [Electricity Supply Amendment \(Energy Savings Scheme\) Bill 2015](#) and other refinements and enhancements to the scheme.

Changes to the Rule commence on 15 April 2016 and will be co-ordinated with the Energy Savings Scheme Administrator, the Independent Pricing and Regulatory Tribunal (IPART).

This paper includes a summary of submissions received in response to the ESS Rule changes proposed in the public consultation, and an explanation of the Government's response and final Rule changes.

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# 1 Introduction

The NSW Energy Savings Scheme (ESS) is NSW's premier energy efficiency program. The *Electricity Supply Act 1995* (the Act) places an obligation on electricity retailers and large energy users to purchase an amount of energy savings each year, in the form of certificates. The Act also provides a framework for businesses to calculate energy savings and create certificates, which they can sell to electricity retailers to meet this obligation.

The Act allows the Minister for Industry, Resources and Energy to approve rules (the ESS Rule) that set out how certificates can be created, including:

- eligible applicants;
- types of eligible activities; and
- calculation methods and energy savings factors.

On 13 October 2015, the Minister for the Environment and the Minister for Resources and Energy released the NSW Government's final position on proposed reforms to the ESS in the ESS Review Position Paper.

On 20 October 2015, the *Electricity Supply Amendment (Energy Savings Scheme) Bill 2015* to enhance the ESS passed through NSW Parliament. This Bill included reforms from the ESS Review including expanding the ESS to include gas savings and extending the scheme to 2025.

Changes to the ESS Rule are required to implement the NSW Government's final positions outlined in the ESS Review Position Paper, including changes to expand the ESS to include gas and the introduction of the Regional Network Factor.

The ESS Review Position Paper also outlined the Government's intention to proceed with annual updates to the ESS Rule to update deemed savings factors and incorporate new products and practices, with a major review of the ESS Rule every three years. This paper also details a range of other changes to:

- incorporate stakeholder feedback and evaluation results;
- maintain the effectiveness of the ESS Rule, through updates to savings factors, and adding activity schedules for new technologies; and
- complement changes to building and equipment standards.

As part of this annual review of the ESS Rule, the Office of Environment and Heritage conducted a targeted consultation in July 2015 with a wide cross-section of ESS stakeholders on the proposed changes to the ESS Rule. This targeted consultation was method specific, and included issues papers that detailed the issues identified, the policy intent, and proposed changes for each method. Stakeholder feedback and written submissions were then taken into account in drafting changes to the ESS Rule for public consultation.

A four week public consultation on the draft ESS Rule commenced in November 2015, and included an information forum on 12<sup>th</sup> November 2015.

Written submissions to the public consultation were received from 24 stakeholders across the energy efficiency industry. Stakeholder feedback from the public consultation has been considered by the NSW Government in preparing this paper and necessary changes have been included in the ESS Rule and described in following sections.

## 2 General Amendments

### Proposal

ESS Rule: §1-6

Following the ESS Review, changes to the ESS Rule were proposed to :

- incorporate the certificate conversion factor to value gas savings based on their primary energy equivalence to electricity.
- introduce a Regional Network Factor of 1.03 to contribute to overcoming market barriers to energy efficiency specific to regional areas and fairly value the energy saved by regional customers.

The proposed amendments also included changes to clause 6.8 (f) to require Accredited Certificate Providers (ACPs) to report gas savings and electricity savings, and the percentage of each from fuel switching, for each implementation.

The NSW Government proposed that the number of certificates from eligible regional electricity savings is calculated by introducing a network factor into each equation that calculates Electricity Savings in the ESS Rule. Table A24, in Schedule A defines a Regional Network Factor for each postcode or a range of postcodes, based on the network provider covering the majority of the postcode areas.

With the inclusion of gas in the ESS, the scheme will provide financial incentives to save gas by including projects that improve end-use gas efficiency where the gas is combusted for stationary energy as eligible activities. The NSW Government proposed that all types of gaseous fuels defined in the National Greenhouse and Energy Reporting (Measurement) Determination 2008<sup>1</sup>, along with liquid petroleum gas, are eligible in the ESS.

The definition of a Recognised Energy Savings Activity (RESA) was extended to include activities that increase the efficiency of consumption of a gas, where the gas is combusted for stationary energy purposes. Such activities contribute to an overall decrease in primary energy consumption in NSW.

Activities that reduce energy consumption by recovering energy from a process fuelled by either gas or electricity are eligible, if the recovered energy is used to provide the same goods or services (i.e. the recovered energy must not be exported for another purpose). This means that cogeneration, waste heat recovery or similar energy recovery technologies would be eligible where they provide energy for the same goods or services. Cogeneration projects where the electricity is exported, or large cogeneration projects with a nameplate rating of over 5MW are considered to be generation activities and are not eligible energy efficiency activities.

To ensure that the ESS continues to be consistent with all of the objects of the Act, the NSW Government also proposed fuel switching projects that result in a net increase in greenhouse gas emissions would not be eligible.

### Inclusion of Gas

A large number of submissions were received that supported the inclusion of gas in the ESS. Many of these submissions had further comments on how best to update Methods in the ESS Rule to calculate gas savings. These comments have been addressed within the following sections of this report, which summarise changes to each ESS Method.

Many stakeholders supported the proposed conditions under which the ESS includes cogeneration and trigeneration. One submission suggested that the export of electricity from

<sup>1</sup> National Greenhouse and Energy Reporting (Measurement) Determination 2008 (Schedule 1) Part 2—Fuel combustion—gaseous fuels

cogeneration and trigeneration systems should be allowed, for example to adjacent buildings or within precincts.

### **Government response**

The NSW Government has clarified Rule text to include electricity generation as an eligible activity where the electricity is used to provide equivalent goods and services. Allowing electricity to be exported to adjacent buildings or precincts via the electricity network would significantly increase the complexity of the energy savings calculations and these activities remain ineligible to ensure the integrity of the scheme.

### **Changes from the proposed Rule**

Clause 5.3 (e) (iv) has been included to clarify that generation is an eligible activity in certain circumstances, and clause 5.4 (i) has been revised to clarify that activities that generate electricity that is exported to the electricity network are not eligible.

### **Reporting of Greenhouse Gas Emissions**

Several stakeholders supported the principle that eligible activities are those that do not result in a net increase in greenhouse gas emissions. One stakeholder commented that in the case of the Project Impact Assessment with Measurement and Verification (PIAM&V) Method, demonstrating compliance with the proposed requirement would increase project complexity and costs.

### **Government response**

Amendments have been made to the PIAM&V Method to address a separate issue relating to reporting of electricity and gas savings (see section 4) to the Minister as required by the Electricity Supply Act. These changes mean that separate calculations of electricity savings and gas savings are required for each implementation, which then allows calculation of net greenhouse gas emissions without a significant increase in project complexity and costs.

### **Changes from the proposed Rule**

Changes have been made to Equations 7A.1 to 7A.5 in the PIAM&V Method to require that “Electricity Savings” and “Gas Savings” are calculated separately in different models and summated for each implementation to determine the net certificates generated.

No changes have been made to the requirement that projects do not result in a net increase in greenhouse gas emissions.

### **Regional Network Factor**

Stakeholders were supportive of including the Regional Network Factor, adding that this harmonises with the other State schemes and provides a greater incentive to deliver services to regional areas. However, the Energy Efficiency Certificate Creators Association (EECCA) suggested that the factor would need to be larger in order to make a difference to decision makers and cover the incremental costs associated with completing activities regionally.

### **Government response**

The value of the Regional Network Factor was determined through the ESS Review based on data on transmission and distribution losses by electricity networks. This approach was jointly suggested by the Energy Efficiency Council and EECCA as a fair and sensible approach because it is objective, accurate and repeatable.

### **Changes from the proposed Rule**

Minor changes have been made to simplify Table A24 that specifies the Regional Network Factor by postcode.

## Transitional Provisions

The draft ESS Rule released for public consultation did not propose changes to transitional provisions but a number of submissions from stakeholders were received that discussed this issue.

A number of submissions received, including from EECCA, were particularly interested in the commencement of the proposed rules regarding PIAM&V. These Rule changes have been proposed to simplify the Method and increase the accessibility for participants. ACPs who already have RESAs approved under the Method would like to be able to use the simplified approach for existing implementations.

## Government response

The new Rule will become effective from the commencement date referenced in the gazettal notice and in clause 3.2 of the Rule. There are no changes to the intent of clause 3.2, and the new Rule will apply to the calculation of Energy Savings from the commencement date, unless provided otherwise.

Transitional arrangements in addition to this clause are provided in clause 11. In order to provide sufficient notice and allow participants to transition to the new rules and processes, clause 11.1 has been included as a general transitional provision to allow certificate creation using the previous Rule for a period of 3 months.

In addition, clauses 11.2 and 11.4 are included to allow existing implementations, creating certificates annually, that do not meet the requirements of clauses 5.2 and 6.2 respectively, to continue to apply to create certificates.

## Waste and recycling

### Proposal

ESS Rule: §5.3A

The NSW Government proposed to:

- include a requirement in the ESS Rule to ensure that mercury is recycled or safely and appropriately disposed of by adhering to the recycling and disposal guidelines of product stewardship programs such as Fluorocycle. The NSW Government is proposing that this recycling requirement will only be applicable to postcodes subject to the Metropolitan waste levy areas listed in Table A25 of the ESS Rule.
- ensure that evidence of safe disposal is collected and retained for energy efficiency upgrades implemented under the ESS. Including this requirement will help to ensure that the ESS is consistent with one of the secondary objects of the Act, *“to complement any national scheme for carbon pollution reduction by making the reduction of greenhouse gas emissions achievable at a lower cost”* (S98 (2) (b)).

All stakeholders who responded were supportive of recycling both mercury and refrigerants in the ESS and expressed that this builds confidence in an environmental government program which will have a positive impact on the reputation of the NSW Energy Savings Scheme.

In response to whether participants should follow the requirements of a product stewardship scheme, stakeholders agreed it was appropriate although there was a common theme that evidence should not be required to the level of proving each light has been recycled. Instead, it would be preferable to allow receipts showing weights that have been recycled or evidence of

regular engagement with the recycling provider. A few responses expressed the need for recycling to be a requirement across the whole scheme and that it should cover transformers and other harmful waste products. The majority of responses did not agree that particular postcodes should be excluded from the requirement.

One stakeholder responded in relation to the recycling of refrigerants, saying that the evidence for this is easily obtainable.

### Government response

Whilst it would be preferable to mandate the mercury recycling requirement across the whole State, there is concern that it would be counterproductive to introduce the Regional Network Factor as well as the recycling requirement. Instead, it is preferable to make the change in a two-step gradual process whereby the requirement is extended to regional areas once more activity has picked up in those areas. Regional certificate creation will be monitored and this requirement may be investigated for the next annual ESS Rule Change.

Participants must adhere to the *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989* to dispose of refrigerants correctly and this easily obtainable evidence will be valuable to the ESS to provide confidence in the Scheme.

### Definition of Purchaser

#### Proposal

ESS Rule: §10.1

The NSW Government proposed to remove the definition of Purchaser from the Methods, and include a common and streamlined definition of Purchaser in clause 10.1 of the ESS Rule (definitions). This will help to provide clarity for stakeholders and allow body corporates, developers and landlords to be eligible participants.

Stakeholders were supportive of the change and stated that this simplifying and broadening of the definition removes ambiguity and enlarges the potential market making it more commercially attractive. The changes to the definition of purchaser have been adopted as proposed.

### 3 Project Impact Assessment Method (PIAM)

The ESS Rule Change Consultation Process conducted in 2013-2014 concluded in the introduction of the Project Impact Assessment with Measurement and Verification Method and the phase out of the Project Impact Assessment Method. As stated in the ESS Rule Change Submissions Report, the NSW Government's final position on transitional arrangements was that:

- No new RESAs would be allowed to be accredited under the existing PIA Method.
- New implementations under existing PIAM RESAs would be allowed for 12 months.
- Top-up Energy Savings Certificates (ESCs) for previous implementations would be allowed.
- Existing RESAs could amend accreditation to use the PIAM&V Method where the energy models developed under PIAM are consistent with PIAM&V.

The Energy Savings Scheme (Amendment No.2) Rule 2014 was published in the NSW Government Gazette on 30 May 2014 and commenced on 1 July 2014. The transitional provisions under PIAM were originally in effect until 1 July 2015. In response to stakeholder feedback, this date was extended to 30 October 2015 following a targeted consultation process.

During the 2015 Rule change process, an issue was identified in the drafting of the transitional provisions under clause 7.1 that allowed new Implementations to continue to occur under existing RESAs where energy savings were calculated using Equation 2. This is inconsistent with the NSW Government's position on transitional arrangements.

In order to rectify this issue clause 7.1 has been updated to disallow energy savings to be calculated using Equation 2 for implementations after the commencement date of the new Rule. Energy savings will still be able to be calculated using Equation 2 for Implementations that occurred under the PIA Method before this date for a maximum period of 10 years after the Implementation date.

Energy savings and Additional Energy Savings (including "top up") may still be calculated using Equation 3 for implementations that occurred prior to 30<sup>th</sup> October 2015 for a maximum period of 10 years, or the life of the implementation if this is less than 10 years.

## 4 Project Impact Assessment with Measurement and Verification (PIAM&V) Method

### Proposal

*ESS Rule: §7A*

After the new Project Impact Assessment with Measurement and Verification (PIAM&V) Method was introduced in 2015, the NSW Government proposed several enhancements to the Method, incorporating stakeholder feedback on the first year of implementation and expansion of the Scheme to cover gas as well as electricity projects. Proposals for updates to the PIAM&V Method included:

- Allow gas saving and fuel switching activities to be included
- Adjust statistical requirements for Energy Models based on regression analysis
- Clarify the approval and use of Persistence Models
- Clarify the Measurement and Verification Professional approval process
- Temporary pausing of the sampling sub-method to allow for further development

In addition to the above proposals, a number of changes proposed by stakeholders were incorporated into the new Rule. These included:

- Modification of Effective Range to address the limitation imposed by the current definition
- Use of average energy models based on estimation of a mean from a population as well as regression modelling

### Inclusion of gas saving and fuel switching activities

Stakeholders overwhelmingly supported the introduction of gas savings and fuel switching activities to the PIAM&V method. One submission and discussions with the Scheme Administrator highlighted that the proposed method the include gas of combining measurements of electricity and gas consumption into an equivalent electricity consumption figure would create complications in reporting gas and electricity savings.

### Government response

The PIAM&V Method has been amended to require separate calculations of electricity savings and gas savings for each implementation to allow reporting.

This means that in projects using both electricity and gas, different Energy Models are created. A Regional Network Factor is applied to the electricity savings and gas savings are converted to primary electricity equivalent using certificate conversion factors to enable calculation of the total savings for each Implementation. Where fuel switching occurs, ESCs can be created where the positive savings for the fuel being switched from is larger than the negative savings for the fuel being switched to.

To ensure no confusion in the way energy savings should be calculated in projects with both electricity and gas, Equations 7A.1 to 7A.5 were reworded to include both “Electricity Savings” and “Gas Savings”. This makes it clear that separate models are required for “Electricity Savings” and “Gas Savings” in each implementation.

### Changes from the proposed Rule

Changes to Equations 7A.1 to 7A.5 to include “Electricity Savings” and “Gas Savings” calculated separately in different models and summated for each implementation to determine the net certificates generated. In Equation 7A.1 the Decay Factor was defined to be equal to 1 in any

years where either “Electricity Savings” or “Gas Savings” are negative, to ensure any increase in energy consumption is not discounted by the decay factor.

### **Adjustment of minimum statistical requirements for Energy Models based on regression analysis**

All stakeholders supported the removal of restrictive and redundant statistical criteria for baseline and operating models based on regression analysis. Stakeholders believed the following changes would open up significant opportunities for projects by aligning the Method closer to existing protocols such as the International Performance Measurement and Verification Protocol (IPMVP):

- removal of the minimum threshold for  $R^2$  of 0.75
- removal of t-statistic requirement
- removal of the relative precision requirement from Table A22
- changing the confidence interval to 90%

In addition to the above changes, stakeholders made submissions in response to the issue of overfitting, highlighting that the definition of Degrees of Freedom proposed was different to accepted industry practice.

One stakeholder noted that the intent of §7A.2 (a) (ii), with the requirement for observations of independent variables to be ten times the degrees of freedom, was to reduce risk of overfitting. However they believed this requirement would limit the number of eligible energy models that could be used under the PIAM&V Method with this requirement.

#### **Government response**

The proposed changes to statistical requirements received strong support from industry. The use of the term Degrees of Freedom in the overfitting test was reviewed to avoid confusion. The overfitting test was also revised to avoid it becoming too restrictive.

#### **Changes from the proposed Rule**

Clause 7A.2 a) ii) was amended to require that the number of independent observations for the Independent Variables is at least six times the Number of Model Parameters in the energy model.

#### **Modification to Effective Range**

Many stakeholders provided submissions stating they believed the requirement for all energy consumption and savings to occur within the range of values used to create the baseline and operating energy models was overly conservative and limited commercial applications.

Several stakeholders gave a specific example to illustrate the limitations of effective range: the project scenario where production increases as the energy efficiency project is implemented. Stakeholders noted IPMVP allows for the creation and use of energy models in this situation without limiting the calculations based on an effective range. EECCA called on the NSW Government to actively address this issue and develop an approach that is more commercially viable.

#### **Government response**

The principle of not allowing extrapolation of energy models outside the range of data that they were based on is consistent with principles of avoiding modelling errors from insufficient or unrepresentative data in section B-2.1.5 of the IPMVP, that states;

*Errors may also occur from insufficient data either in terms of quantity (i.e., too few data points) or time (e.g., using summer months in the model and trying to extrapolate to winter months). The data used in modelling should be representative of the range of operations of*

*the facility. The time period covered by the model needs to include various possible seasons, types of use, etc. This may call for either extension of the time periods used or increasing sample sizes.*

Alternative proposals for defining less restrictive options for defining effective range were developed in consultation with industry experts. The final position reached was to harmonise the effective range with the Industrial Electricity and Fuel Efficiency Methodology Determination under the Emissions Reduction Fund.

By allowing values used in calculations to be  $\pm 5\%$  of the minimum and maximum of the effective range for the relevant independent variable for either the Baseline Energy Model and Operating Energy Model, this gives flexibility to the calculations without introducing significant modelling errors from insufficient or unrepresentative data.

### **Changes from the proposed Rule**

For Equations 7A.2, 7A.4 and 7A.5, the summation of energy savings is now done over all time periods in the Normal Year, excluding time periods for which the independent variable is less than 95% of the minimum or greater than 105% of the maximum of the Effective Range of the particular Independent Variable for either the Baseline Energy Model or Operating Energy Model.

### **Use of average energy models**

Several stakeholders requested acceptable energy model types defined in the Rule to be expanded to allow use of an average energy model where there is little variation in the energy consumption of the end user equipment in either the baseline or operating periods.

### **Government response**

In response to stakeholder feedback, the Rule has been clarified to specifically allow for Baseline Energy Models and Operating Energy Models to be established based on an estimate of the mean energy consumption. To ensure average models are used for appropriate data sets, the amount of variation in the data is limited by requiring the Coefficient of Variation of the energy consumption over the measurement period to be less than 15%.

### **Changes from the proposed Rule**

A new clause allowing the creation of average energy models (§7A.2 (a) (i)) was added. The clause includes a requirement for the Coefficient of Variation, defined as the sample standard deviation expressed as a percentage of the sample mean, of the energy consumption over the Measurement Period to be less than 15%.

### **Clarification on approval and use of Persistence models**

Little feedback was received on the Government's proposal to clarify the requirements for and use of persistence models. One stakeholder highlighted that the requirement in §7A.13 (c) (iv) to take into account ambient conditions may not be relevant for all equipment types and this should be clarified.

### **Government response**

A minor change to §7A.13 (c) (iv) was incorporated in response to stakeholder feedback.

### **Changes from the proposed Rule**

Clause 7A.13 (c) (iv) amended to include "where relevant" in relation to requirement to consider ambient conditions for the site.

### **Clarification of the Measurement and Verification Professional approval process**

Stakeholders expressed support for the proposal to include criteria that the Measurement and Verification Professional must satisfy, however one stakeholder noted the wording “a person who is approved by the Scheme Administrator” implied that the M&V Professional needs to be approved by IPART prior to undertaking the project.

### **Government response**

Clause 7A.15 specifies the M&V Professional must be approved by the Scheme Administrator, and the changes to the clause have been adopted as proposed. The Scheme Administrator is developing processes to implement this requirement.

### **Pause of sampling sub method**

The NSW Government received mixed feedback on the proposal to temporarily pause the PIAM&V sampling sub-method to allow further development. While some stakeholders understood the desire for further development to ensure a robust method and guidance material, others thought it unreasonable to pause the method entirely and in doing so limit project opportunities.

Some stakeholders feel there is sufficient M&V expertise to conduct projects under the PIAM&V sampling sub-method and made alternative suggestions:

- ensure the Scheme Administrator would accept and process applications prior to 1 October 2016 so ACPs can immediately start creating ESCs after this date.
- allow sampling of equipment across a single site to enable some efficiency in M&V where it is neither practical nor cost effective to sub-meter many individual pieces of equipment.
- allow ACPs already accredited with a PIAM&V RESA using a sampling model, the ability to complete a PIAM&V sampling project, under the new statistical requirements so that the project is eligible to claim ESCs.

### **Government response**

The Rule has been revised to allow ACPs already accredited under PIAM&V using the sampling sub-method to continue Implementations under their RESA. The proposal to temporarily pause the PIAM&V sampling sub-method for new applications will allow the NSW Government to work closely with accredited ACPs to ensure the development of a robust method with appropriate guidance materials, prior to re-commencement of the sub-method for new applications.

### **Changes from the proposed Rule**

§7A.1 (c) has been amended to allow implementations of the PIAM&V Method with energy savings calculated from a Baseline Energy model or Operating Energy Model using a Sampling Method where the Accreditation Date is on or before the date of commencement of the new Rule.

## 5 NABERS Baseline sub-method

### Proposal

ESS Rule: §8.8 Method 4c

The NSW Government proposed to:

- to amend the requirement under Calculation Method 1 so that participants must exceed the Benchmark NABERS Rating calculated for the first year accessing the scheme by 0.5 stars, rather than 1 whole star. The baseline against which energy savings are calculated still increases each year, providing an incentive for continuous improvement.
- to clarify the requirement under Calculation Method 2 so that participants must exceed their Historical Baseline NABERS Rating, conducted prior to the energy efficiency upgrade, by 1 star. The baseline against which energy savings are calculated still increases each year, providing an incentive for continuous improvement.

### Exceeding the Benchmark NABERS Rating

Only one stakeholder responded to the proposed Rule changes in Clause 8.8, expressing concern that constant Rule changes can cause major swings in ESC generation when the energy savings themselves do not change at all. The same stakeholder expressed concern that Table A20: The Benchmark NABERS Rating Index has ratings that fall between half star increments forcing participants to achieve ratings higher than 0.5 stars higher than the values in the table when using Calculation Method 2. This is because buildings are only given ratings in whole and half star increments. The stakeholder also suggested that the 10 year age limit to baselines proposed for other methods should be mirrored in the NABERS sub-method.

### Government response

The requirement that NABERS Ratings must be one star above the historical baseline or default benchmark was introduced in the 2014 ESS Rule change. The reduction of this threshold from 1 star to 0.5 stars for buildings using the Benchmark NABERS Rating Index in Calculation Method 1 is to allow more buildings without historical baseline NABERS Ratings to access the scheme.

The requirement under Calculation Method 2 has been clarified but remains in line with the original policy intent of the 2014 ESS Rule change.

In recognition that the issue raised with Table A20 and Calculation Method 2 is valid, changes have been made to the values in Table A20 to round to the nearest 0.5 star value.

It is important that the ESS drives continuous improvement in the commercial buildings sector. Analysis of existing buildings accessing the ESS completed for the 2014 Rule change indicated that NABERS Rating of commercial buildings typically improved by a full NABERS star over a period of around seven years. The age limit on baselines of 7 years and the annual rating adjustment factor were introduced to reflect this business as usual improvement over this time period, and will remain unchanged.

### Changes from the proposed Rule

The values in Table A20 have been updated to ensure they are in half star increments.

## 6 Aggregated Metered Baseline (AMB) sub-method

### Proposal

#### *ESS Rule: §8.9*

Following the NSW Government's decision to include gas savings activities in the ESS, it was proposed to amend the AMB sub-method to allow it to calculate gas and fuel switching savings where they exist, and to prevent potential perverse outcomes. Proposed changes to be made included:

- an ACP will have to make a choice as to whether gas, grid electricity or both will be measured for a Site in the Population prior to that Site being assigned to a Treatment Group or Control Group
- where both electricity and natural gas are being measured at a Site, and either electricity or natural gas data (or both) is available for only part of an Implementation Period due to Attrition, then the Site must be removed from the Population or included in the Population only until the last date that both electricity and natural gas data are available
- only natural gas from the natural gas distribution network is included due to the requirement for metered data
- goods or services must not be offered that promote fuel switching to a non-renewable energy source other than natural gas or grid electricity
- goods or services must not be offered that promote switching from using electricity to natural gas, or vice versa, unless the ACP is collecting both the measured electricity and natural gas consumption data for all Sites in the Population
- as the current Methods 5.2, 5.3 and 5.4 use statistical tests on Measured Electricity Consumption, it is proposed to define a new term, 'Measured Energy Consumption', which is the sum of Measured Electricity Consumption and Measured Gas Consumption, converted to electricity consumption equivalent. This will avoid applying statistical tests on two separate energy consumption data sets.

The NSW Government also proposed some minor changes to the sub-method to bring it up to date with developments in the comparable Aggregated Small Energy Users Method under the Emission Reduction Fund including:

- clarifying the definition of variable  $W_{s,m}$
- updating the equation for calculating the degrees of freedom does to account for the pre implementation period energy consumption
- specifying a formula for calculating the standard deviation (sd) for the statistical significance test.

### Inclusion of gas saving and fuel switching activities

Very little feedback was received from stakeholders on the proposed changes relating to the inclusion of gas savings and fuel switching activities in the AMB sub-method. One minor error was identified in §8.9.3A (b) in relation to the National Measurement Institute document detailing compliant metering arrangements.

### Government response

All proposed changes were incorporated to the new Rule and the minor error identified by stakeholders was fixed.

### Changes from the proposed Rule

Change in §8.9.3A (b) from National Measurement Institute document “M137” to “R137”.

### **Forward creation of certificates for the AMB sub-method**

One stakeholder requested the NSW Government enable forward creation of certificates for activities subject to measurement and verification by the AMB sub-method. The key points raised in the feedback were:

- energy-saving activities subject to the AMB sub-method are disadvantaged in relation to activities that have deemed values or give ACPs the option to create certificates in advance of program completion.
- enabling forward creation of certificates via the AMB sub-method would ensure a level playing field for all ESS activities, and remove financial barriers to investment in large-scale AMB programs.
- by requiring experimental program design, randomised controlled trials, and ex-post verification of energy-saving performance, AMB-evaluated projects have rigorous safeguards. Experimental program design, requiring randomised controlled trials, remains the global best practice for M&V of programs that use an aggregated metered baseline approach.

### **Government response**

The NSW Government will be investigating a number of possible improvements to the AMB sub-method, in preparation for future Rule changes. The study will examine:

- feasibility and risk analysis of deemed savings claimed upfront for the AMB sub-method.
- feasibility of an “opt-in” sub-method under AMB
- feasibility of a centralised control group administered by the Government

The NSW Government will be working closely with industry and stakeholders with expertise in these areas of study.

## 7 Commercial Lighting Formula

### Proposal

ESS Rule: §9.4

The NSW Government proposed to:

- include additional standard control multipliers for occupancy sensors which switch a luminaire on and off and a control multiplier equation to account for a luminaire's energy savings in reduced power mode. These additional control multipliers are specified for various Building Code of Australia (BCA) classifications and space types.
- allow energy savings to be achieved when replacing T5 Adaptor Kits and Retrofitted Luminaires with more efficient approved lighting.

### Control Multipliers for Motion Sensors

Stakeholders were supportive of the proposal to include additional standard control multipliers for occupancy sensors. Several stakeholders questioned why this has been limited to the three BCA classifications specified and suggested that the BCA class 3 (in particular common areas) should also be included in the method. Two other stakeholders suggested that the control multipliers should be expanded to cover more BCA classifications.

One stakeholder also noted that the description of the 'Control System' column is ambiguous and could be misinterpreted so they suggested it should be reworded.

### Government Response

The BCA classes applicable for the new control multipliers have been included where there is sufficient data available to estimate the energy savings. For other BCA classes, including Class 3 common areas, further data is required on occupancy levels to develop standard control multipliers.

The wording in the description of the 'Control System' column of Table A10.4A has been clarified to avoid misinterpretation.

### Changes from the proposed Rule

The Occupancy Sensor descriptions in the "Control Systems" column of Table A10.4A have been changed.

### Daylight-Linked Control

A stakeholder raised an issue that the current Daylight-Linked Control multipliers shouldn't be applicable to certain lighting upgrades.

### Government Response

The NSW Government is removing the eligibility to apply the Daylight-Linked Control multiplier to space types where the annual operating hours have been deemed at 4500 hours, which are 'BCA Class 7 (a) buildings (open air car parks)' and 'Roads and Public Spaces'. These hours have already been adjusted to account for night time operating hours.

### Changes from the proposed Rule

In Table A10.4 the Daylight-Linked Control multiplier has been updated to state it is not applicable to BCA Class 7 (a) buildings (open air car parks) and 'Roads and Public Spaces' referenced in Table A10.3.

## **New Public Lighting Energy Savings Formula**

Southern Sydney Regional Organisation of Councils (SSROC) made a submission highlighting that it can be difficult to apply the current Commercial Lighting Energy Savings Formula (CLESF) to public lighting upgrades by Councils and Distribution Network Service Providers (DNSPs). They gave numerous examples of how the current requirements introduce unnecessary barriers, and suggested improvements to encourage public lighting upgrades by Councils.

### **Government Response**

In response to stakeholder feedback, the NSW Government has created a new deemed method referred to as the 'Public Lighting Energy Savings Formula'.

Under this new sub-method, only Councils, DNSPs and NSW Roads and Maritime Services are eligible to be the Energy Saver. All other public lighting upgrades, including where the luminaries are owned by private operators, can still apply to use clause 9.4.

As Councils, DNSPs and NSW Roads and Maritime Services are all organisations with internal systems and procedures in place to deliver public road and street lighting upgrades that meet required safety standards, some requirements have been removed in this new sub-method to avoid duplication and reduce red tape.

The new method also requires that the Luminaire is an asset owned, maintained, or both, by a Distributor or Roads and Maritime Services. If the Lighting Upgrade involves an existing or replacement Lamp or Luminaire that is registered on a national electricity market load table for unmetered connection points or a Public Lighting Inventory, the device load value, in Watts, for the Lamp or Luminaire must be used to calculate Energy Savings.

New and existing RESA accreditations may continue using the CLESF for public lighting claims under clause 9.4.

### **Changes from the proposed Rule**

Inclusion of a new deemed sub-method referred to as the Public Lighting Energy Savings Formula (ESS Rule: §9.4A).

## 8 Home Energy Efficiency Retrofit sub-method

### Proposal

ESS Rule: §9.8, §10.1, Schedule D, Schedule E

The NSW Government proposed to:

- amend the bundling requirements in clause 9.8 (g) to require that a minimum number of Energy Savings Certificates must be created for each Site, rather than requiring that a minimum percentage of the potential activities identified are implemented. The ACPs would need to implement activities from Schedule D and/or Schedule E to create a minimum of four Energy Savings Certificates.
- remove the requirement to identify *all* of the energy saving opportunities through the Site Assessment.
- amend the  $\geq 500$  lumens requirement in Activity Definition E1 to  $\geq 385$  better reflect the lumen output of current halogen products on the market and facilitate energy savings through downlight replacement, while maintaining service levels.
- require that a suitably qualified licence holder as outlined by Fair Trading install or replace an air conditioning unit (Activity Definitions D3 and D4), instead of requiring a qualified electrician replace the equipment.
- amend the existing window upgrade activities (Activity Definitions D1 and D2) to allow energy savings to be achieved when upgrading glazed doors.
- remove the eligibility of four or five star WERS rated products in Activity Definitions D1 and D2. The minimum requirement would be to install a six star WERS rated product.
- include a new activity for replacing an Edison screw or bayonet lamp with an LED lamp for general lighting purposes.
- revise activity definitions for building fabric upgrade activities (Activity Definitions D1, D2, D6, D7, D8, D9, E7, E8, E9 and E10) to include gas savings where relevant.
- revise the activity for installing a high efficiency shower head (Activity Definition E6) to include gas savings where relevant.
- include the following activities for household gas saving and fuel switching activities:
  - replace an existing electric water heater with a high efficiency gas fired water heater (Activity Definition D10).
  - replace an existing gas fired water heater with a high efficiency gas fired water heater (Activity Definition D11).
  - install a high efficiency gas space heater or replace an existing gas space heater with a high efficiency gas space heater (Activity Definition D12).

### Bundling

OEH received several submissions supporting the proposed change to the bundling requirements. A few stakeholders suggested that further energy saving activities would need to be eligible to make 'bundling' more attractive and they raised that ACPs consider installs to be most cost effective when they only require a single tradesperson to complete the works.

### Government response

In response to stakeholder feedback, the NSW Government will retain the amended bundling requirements as proposed, or in effect 'unbundle' clause 9.8.1 (g), to require that a minimum of four Energy Savings Certificates be created for each Site from Schedule D (high cost) and/or

Schedule E (low cost) activities. This four ESC threshold is a more simplified approach and will enable ACPs to find and implement the lowest cost activities that align with their business models. This threshold, combined with the co-payment requirement is to encourage deeper energy savings and improve consumer engagement in purchasing decisions.

The purpose of the site assessment is to ensure that all of the implemented opportunities are assessed prior to the upgrade being completed. It is no longer necessary to assess and capture all opportunities to demonstrate that the old bundling requirements have been achieved. As a result we are removing the requirement to use a Home Energy Assessment Tool (HEAT) that is approved by IPART. This will give businesses the option to use the Home Energy Assessment Tool developed by the Office of Environment and Heritage (OEH), or develop their own systems to create energy saving activities certificates using the HEER sub-method. This will reduce red tape and unnecessary administration for the Scheme Administrator and ACPs.

We have also updated the OEH HEAT to align with the Rule changes so that it will be available for businesses to use to demonstrate compliance with the ESS.

### **Changes from the proposed Rule**

We are removing the requirement for the site assessment to be recorded in a Home Energy Assessment Tool approved by the Scheme Administrator in clause 9.8.1 (c) and the definition for 'Home Energy Assessment Tool' in clause 10.1.

### **Site Assessment**

We received three submissions agreeing with proposed amendments to the Site Assessment requirements.

### **Government response**

In removing the requirement to identify all of the energy saving opportunities through a site assessment, we further identified that it is no longer necessary to have an Accredited Energy Assessor who is accepted by the Scheme Administrator complete the assessment. This will reduce red tape and unnecessary administration for the Scheme Administrator.

### **Changes from the proposed Rule**

Removal of the reference to the Accredited Energy Assessor in clause 9.8.1 (b) and the definition of Accredited Energy Assessor in clause 10.1 (ESS Rule: §9.8.1 (b) and §10.1).

### **Minimum lumen requirement in Activity Definition E1**

There were eight stakeholder submissions that expressed concerns with the proposal to reduce the minimum lumen requirements in Activity Definition E1. Most of them suggested that the proposed  $\geq 385$  lumen requirement would adversely reduce service levels. Some of the stakeholders stated that this reduction in service levels would affect customer satisfaction. Seven of the stakeholders recommended that we maintain the  $\geq 500$  lumens requirement. Two stakeholders highlighted the minimum lumen requirements outlined in the Australian Standards. One stakeholder suggested that we should create two separate minimum lumen requirements for GU10 and MR16 lamp type replacements.

### **Government response**

The purpose of the lumen requirement is to ensure that service levels are maintained and the lumen output of the new End-User Equipment is comparable to the halogen product that was replaced. It is proposed to therefore reduce the minimum lumen requirements from  $\geq 500$  to  $\geq 462$  to reflect the Minimum Energy Performance Standards (MEPS) for 35W ELV and 240V lamps as outlined in the Australian Standard 4934.2-2011.

### **Changes from the proposed Rule**

The minimum lumen requirements in the Equipment Requirements of Activity Definition E1 is now  $\geq 462$  lumens (ESS Rule: §9.8 Activity Definitions E1).

## GLS Lighting

We received two submissions suggesting that we require Incandescent Lamps to be  $\geq 25$  watts or Halogen Lamps to be  $\geq 18$  watts when replacing an Edison Screw or Bayonet mains voltage lamp. One of the submissions recommended that there should be a separate *Deemed Activity Electricity Savings* formula for CFL replacements. The other submission suggested that we increase the Energy Savings to harmonise with the VEET Scheme's approach.

### Government response

There was no supporting evidence provided as to why minimum wattage requirements for replacement lamps would be necessary. The *Deemed Activity Electricity Savings* formula takes the market average efficacy of the replacement lamp into consideration which is above 25 watts. If a lower wattage lamp is replaced increased Energy Savings aren't achieved. The ESS also allows for Energy Savings to be achieved as long as service levels aren't reduced. The purpose of using a formula based approach in Activity Definition E11 is to allow for increased Energy Savings to be achieved when luminaires with a higher lumen efficacy are installed. The intent of this is to encourage market transformation without the need to update deemed savings factors through the ESS Rule change process.

### Changes from the proposed Rule

The only change is a revision to the equipment requirements to specify that the new End-User Equipment must have a lumen output the same or higher than the replaced lamp (ESS Rule: §9.8 Activity Definition E11).

## Lifetime of LED lamps

Six stakeholders made submissions suggesting that we increase the lifetime that the Energy Savings are deemed for HEER lighting activities to better reflect the actual lifespans of LED lamps on the market. Three of the stakeholders commend the VEET scheme's approach and suggested we aligned with their factors.

### Government response

The ESS Rule currently deems Energy Savings for a period of ten years for all lighting activities. The ESS product register also requires the lamp lifespan of LED luminaires to be rated at  $\geq 30,000$  hours. In consideration of this and the annual average operating hours of homes, the NSW Government has determined that it is appropriate to deem LED only lighting activities for a period of 15 years in the HEER method. To ensure that the Energy Savings will occur over the increased deeming period we propose to remove the eligibility to install CFLi luminaires due to their lifespan being significantly less than a LED equivalent product. The increased energy savings which can be achieved will also align with the VEET scheme.

### Changes from the proposed Rule

The savings factors for Activity Definitions E1 and E5 will be increased to allow for 15 year deeming. Installing CFLi lamps under Activity definition E1 will become ineligible (ESS Rule: §9.8 Activity Definitions E1 and E5).

## ELV LED Lamp only replacements

Four submissions were received from stakeholders suggesting that the ESS should allow Energy Savings to be achieved for ELV lamp only replacements. One stakeholder recommended that we include this activity to harmonise with the VEET scheme.

## Government response

In response to stakeholder feedback, the NSW Government is proposing to allow ELV lamp only replacements under Activity Definition E1. ELV Lamp only replacements will only be eligible if there is an existing compatible electronic transformer present. The intent of this is to encourage the replacement of less efficient magnetic transformers. This change will also allow the ESS to harmonise with other State Schemes.

## Changes from the proposed Rule

Amendments to *Activity Schedule E1* to allow for ELV lamp only replacements (ESS Rule: §9.8 Activity Definitions E1):

- removal of the eligibility to install CFLi luminaires
- ELV halogen Control Gear must be removed or replaced when the Lamp uses a Magnetic Transformer.
- the manufacturer has listed the LED lamp to be compatible with the electronic transformer
- the LED lamp is also listed as compatible with the dimmer (if present).

## Co-payment

Four stakeholders submitted a response suggesting that we remove the co-payment requirement. EECCA recommended that we adopt a two-tiered approach reducing the co-payment amount for smaller ESC claims and one other stakeholder also suggested this approach. Two stakeholders stated that the co-payment adds unnecessary complexity to the method and increases ACPs' administrative costs.

## Government response

The purpose of the co-payment is to improve customer engagement and ensure that a customer-focused, high quality and sustainable market is facilitated through the ESS. The \$90 amount represents a reasonable stake to ensure the customer is engaged with the benefits to be delivered by the retrofit.

## Gas saving and fuel switching activities

Public submissions from stakeholders supported the Activity Definition D10 and made comments on:

- whether switching from an electric resistance water heater to a gas fired water heater will result in an increase in energy bills
- the market average product star rating for water heaters
- whether the activity is eligible if the installed gas fired water heater is a booster for a solar hot water system.

Stakeholders supported the Activity Definition D11 and made comments on the market average product star rating for water heaters; and whether the activity is eligible if the installed gas fired water heater is a booster for a solar hot water system.

Stakeholders supported the Activity Definition D12 but didn't make specific comment on any issues.

## Government response

The purpose of the HEER method in the ESS is to achieve both energy savings and bill savings for residential and small business buildings. The NSW Government conducted further analysis into bill savings scenarios for consumers who could use Activity Definition D10 and D11. The intent is to help customers to both save energy and save on their energy bills, while leaving

room for customer choice. The analysis also considered the market average product star rating for water heaters. This analysis supported the inclusion of electric continuous water heaters to enable energy savings and bill savings; as well as clarifying the warranty requirements.

Finally, if the new gas fired water heater is a booster for a solar hot water system then the activity is not eligible, as per §5.4 (g) that excludes all activities that are eligible under the Renewable Energy Target.

Following the close of submissions, the standard for gas hot water heaters was re-released. The NSW Government has included the new standard in Activity Definition D10 and D11 to ensure that products certified under the new standard remain eligible. In addition, the referenced registry/directory for certified products has been changed to include a more comprehensive list of certified End-User Equipment.

Following the close of submissions, the standard for Gas space heaters was re-released. The NSW Government has included the new standard in Activity Definition D12 to ensure that products certified under the new standard remain eligible.

### Changes from the proposed Rule

Amendments to Activity Definition D10 (ESS Rule: §9.8 Activity Definition D10) are:

- Eligibility Requirements were changed so that:
  - replacement of electric continuous water heaters is eligible; and
  - replacement of an existing electric hot water heater on a controlled load ('off peak') tariff is not eligible.
- Equipment Requirements were changed to:
  - reference newly released standards for Gas hot water heaters.
  - update the registry/directory for certified products.
  - amend conditions to set the minimum star rating required for the new gas hot water heater, and
  - clarify warranty conditions.
- Implementation Requirements were simplified.

Amendments to Activity Definition D11 (ESS Rule: §9.8 Activity Definition D11) are:

- Eligibility Requirements were changed so that replacement of a Gas fired instantaneous water heater is not eligible.
- Equipment Requirements were changed to:
  - reference newly released standards for Gas hot water heaters.
  - update the registry/directory for certified products.
  - amend conditions to set the minimum star rating required for the new gas hot water heater, and
  - clarify warranty conditions.
- Implementation Requirements were simplified.

Amendments to Activity Definition D12 (ESS Rule: §9.8 Activity Definition D12) are:

- Equipment Requirements were changed to reference the new standard and clarify warranty conditions.
- Implementation Requirements were simplified.

## 9 High Efficiency Motors (HEMs)

### Proposal

ESS Rule: §9.5, §9.9, Schedule F

The NSW Government proposed to:

- to change the HEMs sub-method to use the Full Load Efficiencies of the new and old

motors as listed in the GEMS registry where available, or a default baseline Full Load Efficiency where the old motor is not listed in the GEMS registry. The new replacement motor must have the same rated power (shaft power) and speed (number of poles) as the original motor in order to provide the same level of service.

- to merge this sub-method into the High Efficiency Appliances for Business Method to simplify the ESS Rule.

### Motor Load Efficiencies

One stakeholder responded in support of the proposed changes. This will enable an effective, equitable and enhanced incentive for participants to undertake HEMs replacement projects.

## 10 High Efficiency Appliances for Business

### Proposal

ESS Rule: §9.9, Schedule F

The NSW Government proposed to:

- make amendments to Activity Definition F5 (Refrigerated Display Cabinets) to clarify that this can involve both the replacement of a full fan unit (motor and impeller), and motor only replacements.
- introduce a new Activity Definition (Activity Definition F6). This new Activity Definition will cover the replacement of shaded pole motor and permanent split capacitor ventilation fan motors with electronically commutated ventilation fan motors.

### Refrigerated Display Cabinets (Activity F5)

The two ACPs accredited to use the method were both supportive of the proposed changes to allow motor only replacements, adding that “this will correct an issue that has prevented commercial viability of projects that are highly replicable and represent significant potential energy savings across the scheme”.

One stakeholder asked that these changes allow application retrospectively for those ACPs who already have the F5 Activity RESA, “to restore the credibility of the scheme for a range of technology suppliers, and to help build awareness of a technology that has wide applications”.

### Government response

We recognise that industry may choose not to upgrade the full fan unit in refrigerated display cabinets and wish to enable ESC creation from motor only replacements, and the changes to the Activity Definitions have been adopted as proposed.

As described in the section on Transitional Provisions, the new Rule applies to the calculation of Energy Savings for all applications for registrations made on or after the commencement date, unless provided otherwise. Implementations under existing RESAs may therefore calculate energy savings and apply to create certificates using the updated Activity Definitions where they meet all the requirements in the updated Rule.

### HVAC Activities in HEAB (Activity F2, F3 & F4)

One stakeholder raised that the technical standards applicable to the HVAC systems in the High Efficiency Appliances for Business (HEAB) Method and also the Home Energy Efficiency Retrofit (HEER) Method should be updated to the latest standards.

### Government response

Updating the technical standards applicable to Methods that upgrade HVAC equipment in HEAB to reference the Greenhouse and Energy Minimum Standards (GEMS), rather than the specific Australian Standards, will minimise future updates to the Rule of this nature, as GEMS will be updated by the Australian GEMs Regulator.

**Changes from the proposed Rule**

Activities F2, F3 & F4 have been updated to delete reference to the Australian Standards and instead refer to GEMS.

## 11 Glossary

| Acronym | Definition   |
|---------|--|
| AMB     | Aggregated Metered Baseline                                    |
| CLESF   | Commercial Lighting Energy Savings Formula                     |
| EPA     | Environment Protection Authority                               |
| ESS     | Energy Savings Scheme  |
| IPART   | Independent Pricing and Regulatory Tribunal of New South Wales |
| LED     | Light Emitting Diode   |
| M&V     | Measurement and Verification                                   |
| MEPS    | Minimum Energy Performance Standards                           |
| NABERS  | National Australian Building Environmental Rating Scheme       |
| NSW     | New South Wales  |
| PIAM&V  | Project Impact Assessment with Measurement and Verification    |