Office of Energy and Climate Change

Energy Savings Scheme Rule Change 2022

Position paper

January 2023

NSW GOVERNMENT

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Cover image Fields of canola growing at a farm in Parkes. Copyright: Destination NSW

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Foreword

This paper explains our position on changes to the *Energy Savings Scheme Rule of 2009* (the ESS Rule) and responds to submissions received during our public consultation in October and November 2022.

During the consultation, we sought input from stakeholders to ensure any adopted changes are appropriate and reflect industry standards. The changes are part of our commitment to continuous improvement of the ESS.

This paper includes a summary of stakeholder submissions on the proposed Rule change, an explanation of the government's response and details of the final Rule changes.

This paper details changes made from the version of the ESS Rule that we consulted on. The accompanying consultation paper can be found our website.

All Rule changes will commence on 14 April 2023, unless stated otherwise.

Part 1: Introduction

The NSW Energy Savings Scheme (ESS) is the largest energy efficiency initiative in NSW and forms part of the NSW Government's Energy Security Safeguard (the Safeguard). The Safeguard also includes the new Peak Demand Reduction Scheme (PDRS).

The ESS reduces electricity consumption in NSW by creating financial incentives for organisations to invest in energy saving projects. Energy savings are achieved by installing, modifying, removing, or replacing energy saving equipment.

The ESS works by placing an obligation on NSW energy retailers and other liable parties to surrender energy savings in the form of Energy Savings Certificates (ESCs). These certificates are created by Accredited Certificate Providers (ACPs) when energy users undertake eligible energy savings activities.

The *Electricity Supply Act 1995* (the Act) allows the Minister for Energy to approve Rules that set out how ESCs can be created. This includes eligible activities and methods for calculating energy savings. These Rules are published in the ESS Rule.

1.1. Why is the ESS Rule updated?

The ESS Rule was first published in 2009. We've committed to updating the ESS Rule each year. The purpose of annual updates is to:

- respond to stakeholder feedback and evaluation
- keep the ESS Rule effective through updates to savings factors, changes to the Rule requirements and adding activity schedules for new technologies
- complement changes to building and equipment standards
- incorporate new methods for calculating energy savings
- make other enhancements to the ESS Rule to maintain its integrity and/or reduce transaction costs.

1.2. ESS Rule change amendments 2022

The final position on Rule changes incorporates feedback from 14 written submissions provided by a range of stakeholders. Feedback was received from 5 ACPs, one energy retailer, 2 manufacturers, 3 industry associations, 2 government bodies and the Independent Pricing and Regulatory Tribunal (IPART), the scheme administrator and regulator.

Where appropriate, we have amended the ESS Rule in response to the submissions we received. Differences from the draft ESS Rule presented at the public consultation are summarised in Table 1 and explained throughout this document.

Public submissions are available on our website.

Table 1: Summary of changes from the proposed draft Rule

Rule Method	Changes proposed in the draft ESS Rule and Consultation Paper	Summary of changes from the proposed draft Rule
General	Transitional arrangement	The proposed Rule indicated it would be effective from 8 February 2023. This has now changed to 14 April 2023.
	Changes to clauses 1-6 (simplified the Objects of the Rule, added, and removed terms)	Nil
	Inclusion of Fuel Switching	We have made the following minor changes to the Rule: • consistent capitalisation of defined terms • Rule now only refers directly to the Act or Electricity Supply (General) Regulation 2014 (the Regulation) and does not repeat definitions or Certificate Conversion Factors • reference to Table A28 was corrected in clause 5.4(j) • clause 5.4(n) has been rewritten.
	Update to D5 pool pump determination requirements	Nil
Project Impact Assessment with Measurement and Verification (PIAM&V) Method	Inclusion of Eligible Fuels	Nil
	Updated definitions	Based on stakeholder feedback we have: • amended the proposed new definitions for 'Measurement Boundary', 'Modelling Frequency', 'Measurement

Rule Method	Changes proposed in the draft ESS Rule and Consultation Paper	Summary of changes from the proposed draft Rule
		Frequency', and 'Effective Range Adjustment Factor'. • provided a new definition for 'Counted Energy Savings'.
	Changes to Interactive Energy Savings	Nil
	Clarify the meter calibration requirements for utility grade meters	Nil
	Non-Routine Events (NREs) and Non-Routine Adjustments (NRAs)	• We have updated equation NRA.F.1 in the Other Implementations (OIMP) Estimate Method to clarify that the Certificate Conversion Factor is at the time of ESC registration for the OIMP • We will collaborate with IPART to provide guidance on interpretation of the term "similar" in respect of the Short Energy Models Method.
	Amending equations 7A.2 and 7A.4	Nil
	Minimum statistical requirements	We have increased the proposed CV_{RMSE} threshold from 0.2 to 0.25 (where the Adjusted $R^2 > 0.5$).
	Facilitating the use of Short Energy Models Method to make NRAs	Nil
	Drafted/ future changes	Nil
	Update to Eligible Fuels	Nil

Rule Method	Changes proposed in the draft ESS Rule and Consultation Paper	Summary of changes from the proposed draft Rule
Metered Baseline Method (MBM)	Clarification of Normalised Baseline MBM calculation method	Nil
	Clarification for determining subsequent baseline Measurement Periods	We have amended the proposed note for more clarity, while maintaining its original interpretation.
	Clarification for calculating Energy Savings from Fuel Switching	Nil
	Introduction of new National Australian Built Environment Rating System (NABERS) building types	Nil
Project Impact Assessment Method (PIAM)	Deeming savings for PIAM	Nil
Definitions – clause 10.1	Definition changed for 'Gas'. Definitions added for: 'Biogas', 'natural gas', 'liquefied petroleum gas' and 'LPG'.	We have: • amended the definitions for biofuel, biogas, biomass and on-site renewable energy for consistency with the Regulation • amended the proposed new definitions for: – 'Measurement Boundary' – 'Modelling Frequency' – 'Measurement Frequency', and – 'Effective Range Adjustment Factor' • provided a new definition for 'Counted Energy Savings'.

Rule Method	Changes proposed in the draft ESS Rule and Consultation Paper	Summary of changes from the proposed draft Rule
Refrigerated cabinets activities F1.1 and F1.2	N/A	We have changed the co-payment from $250 to $200. F1.1 and F1.2 have been amended to allow products registered under the New Zealand Energy Efficiency (Energy Using Products) Amendment Regulations 2020.
Activity Definition F7	N/A	The name of Activity Definition F7 has been changed from 'Install a new high efficiency motor' to 'Install a new high efficiency motor or replace an existing motor with a high efficiency motor'.

Part 2: General Changes

2.1 Transitional arrangement

Summary of position

- It is expected that changes in this paper will be gazetted on 20 January 2023 and will commence on 14 April 2023.
- There is a 60-day notice period between gazettal and commencement.

Changes from the proposed Rule

The proposed Rule indicated that the Rule would be effective from 8 February 2023. This has now changed to 14 April 2023.

Stakeholder feedback

In response to question 1, 3 ACPs and IPART responded. Generally, stakeholders commented that there were not any foreseeable proposed changes which cannot be prepared for within the proposed timeframes.

Issue analysis

The timeline for this Rule change has altered since public consultation. We are now giving a 2-month notice period between gazettal and commencement.

This change is due to several factors. Feedback from IPART and industry has requested additional time for ACPs to prepare, and for IPART to ensure updated processes are in place to support the Rule change.

The NSW state election is being held on Saturday 25 March 2023. As a result, there are restrictions around Government communications from January 2023 until after the election.

2.2 Structural review of clauses 1-6

Summary of position

- The changes proposed in the consultation paper will be adopted.

Changes from the proposed Rule

Nil.

Stakeholder feedback

In response to question 2, 3 ACPs and one industry body responded. The stakeholders that responded generally agreed that the proposed changes to the first 6 clauses make the requirements of the Rule clearer.

In response to question 3, 4 ACPs and one industry body. Two stakeholders indicated that there were no other changes to clauses 1 to 6 that would improve the clarity of the Rule. One stakeholder was not sure.

One stakeholder proposed to change the wording under Equation 1 to include the words 'or a combination of these methods as approved by the Scheme Administrator'. This suggestion has not been adopted because this would allow the creation of ESCs using multiple methods for the same implementation.

One stakeholder suggested including a definition for 'Application for Registration' under clause 10 of the Rule. At this stage, we do not consider this necessary, noting that the ESS Rule only applies to ESCs registered after it comes into effect. Further, when using the PIAM&V Method, ACPs have the option of using an extended operating measurement period.

The same stakeholder recommended providing clarity around certificate conversion factors (when they will change and by what magnitude). We have provided further information in section 2.3.2 Certificate Conversion Factors below.

Issue analysis

We undertook a structural review of clauses 1-6 utilising the Better Rules approach. The proposed changes were presented in the consultation paper. The changes aim to make the first 6 clauses of the Rule clear, concise, and simple.

2.3 Inclusion of Fuel Switching

2.3.1 Eligible Fuels and their definitions

Summary of position

- Most stakeholders were in general agreement with the eligible fuels.
- Of the stakeholders who responded, most want more specific definitions to either restrict or specifically permit certain fuels.
- Fuels such as green hydrogen will be considered for future Rule changes.
- The definition of biomass was not changed as it currently excludes wastes containing fossil fuels

Changes from the proposed Rule

We have made minor changes to the Rule to ensure consistent capitalisation of defined terms.

Stakeholder feedback

Five submissions were received from ACPs and government stakeholders with regards to eligible fuels and their definitions. They are summarised in Table 2.

Table 2: Summary of stakeholder feedback received on eligible fuels

Stakeholder	Summary of feedback
ACPs	In general, the ACPs broadly agreed with the proposed fuel definitions. There were two areas of concern identified: • the definition of biomass-based waste fuels should be tightened to preclude petroleum-based tyre products or oils • the potential need to prioritise land use for food production or environmental protection versus cropping for biofuels.
Industry associations	In broad agreement with proposed definitions. However, it was suggested that it would be beneficial to: • include biomethane in the definition of biogas • define biofuels more accurately.
Government	Government agencies suggested: • Specific mention of biomethane as a biogas • Definition of biomass be consistent with that used in the Regulation • Eligible wood waste sources be better defined.

Issue analysis

The proposed new eligible fuels include diesel, biofuel, biogas, biomass and on-site renewables. Definitions were provided for these fuels and 'Eligible Fuel' which is a collective term for the fuels. In addition, some existing definitions were amended to accommodate the new fuels.

We note that a separate definition for biomethane is not necessary as it falls under the definition of biogas.

2.3.2 Certificate Conversion Factors

Summary of position

- Certificate Conversion Factors are expected to change in the future, particularly as the proportion of renewable energy in grid electricity increases.
- ACPs need to have confidence that Certificate Conversion Factors are not going to be changed without notice and by large quantum.
- Prior to any change to Certificate Conversion Factors, we will consult with stakeholders.

Changes from the proposed Rule

We have amended the Rule so that it now only refers directly to Act or Regulation and does not repeat definitions or Certificate Conversion Factors.

Stakeholder feedback

Of the 9 submissions that addressed fuel switching activities, 4 expressed concerns over the Certificate Conversion Factors. Three of the submissions were from ACPs and the fourth from

an industry association. The primary concern was around possible future change to the Conversion Factors, specifically the magnitude of any change and the timing of the change. ACPs were particularly concerned as the Certificate Conversion Factors have a direct impact on incentives and therefore project financial feasibility.

One government stakeholder identified an issue with the way that the Conversion Factors were presented in the Rule and the way that the Act and Regulation were referenced. This poses an issue, in that if the Regulations are ever amended to change a Certificate Conversion Factor, the Rule would likely become invalid. This is because it required ACPs to use the factors specified in Table 1 of the Rule, rather than the factors from the Act and Regulation.

Issue analysis

As announced in the 2021 Energy Security Safeguard position paper, additional Certificate Conversion Factors are being introduced to provide an incentive for fuel switching activities. Conversion factors are based on the relative quantities of renewable and non-renewable primary energy in the different fuels. The Certificate Conversion Factor for grid electricity is expected to reduce over coming years as the proportion of renewable electricity generation increases. It is also expected that there will be additional eligible fuels such as green hydrogen introduced into the scheme in future years.

An additional concern raised by one stakeholder is that Conversion Factors appear in Table 1 of the Rule, section 37A of the Regulation and clause 33A(2) of Schedule 4A of the Act.

2.3.3 Recognised energy saving activities

Summary of position

- Clause 5.4 has been modified to identify activities which are not RESA.
- The changes proposed will increase the clarity of the clause wording.
- The ESS is focussed on reducing demand on the electricity grid and gas network. It does not incentivise export of electricity or gas from sites.

Changes from the proposed Rule

We have made the following minor changes to the Rule:

- the reference to Table A28 was corrected in clause 5.4(j)
- clause 5.4(n) has been rewritten for clarity.

Stakeholder feedback

A total of 8 changes were proposed to clause 5.4 ‘Activities which are not Recognised Energy Saving Activities’. There was general agreement across the stakeholder groups with most of the changes. The deviations from agreement with the proposed clauses are summarised in Table 3.

Table 3: Stakeholder feedback in disagreement with proposed clause 5.4 changes

Stakeholder	Summary of feedback
ACPs	The key message from ACPs was that there was general agreement with the proposed changes to clause 5.4. One ACP sought clarification that clause 5.4(m) does not discourage export of renewable energy to grid, but merely does not allow ESC creation for this activity.
Industry associations	One industry association disagreed with the new clause 5.4(m) which does not allow projects to be rewarded for energy exported to the grid. The submission suggested that renewable energy exported to grid should be encouraged.
Government	An agency noted an inconsistency between the proposed clause 5.4(f) and the Government's policy of not incentivising switching to natural gas. An agency suggested that clause 5.4(n) be broken into sub-clauses for ease of comprehension.

Issue analysis

With the simplified wording of the scheme objective, came the requirement to provide a comprehensive list of activities in clause 5.4 which are not Recognised Energy Saving Activities (RESA).

2.3.4 The exclusion of native forest biomaterials as fuel

Summary of position

- All native forest biomaterials are excluded as potential fuels in the Scheme.
- There will be no exceptions allowing the use of waste forest biomaterials.

Changes from the proposed Rule

Nil.

Stakeholder feedback

Comments from the stakeholders that did not support the inclusion of this clause are summarised in Table 4.

Table 4: Summary of negative stakeholder responses to exclusion of native forest biomaterials as fuel

Stakeholder	Summary of feedback
ACPs	One ACP felt that consideration should be given to further defining how this would impact the use of waste residues from native forest activities for energy. For example, would energy

	generated from sawdust and waste off-cuts from production of native hardwood building timbers be excluded under this clause?
Industry associations	One industry association did not support the exclusion of native forest bio-materials from clause 5.4(o). They recommended that native forest biomass 'waste,' i.e., residues from sustainable forest management activities, is included as an eligible feedstock under the ESS.

Issue analysis

- Most submissions agreed with the inclusion of the proposed clause to specifically exclude native forest biomaterials. However, 2 submissions expressed that the clause was too restrictive, and that legitimate waste native forest biomass should be permissible as a fuel.
- Our decision to exclude all native forest biomaterials was a result of consultation with NSW Environment Protection Authority and Department of Regional NSW - Primary Industries - Forestry and Land Reform.
- From a sustainability viewpoint the use of waste native forest material is acceptable, however it would be impractical to monitor or audit ACP adherence to this exception.

2.3.5 Use of on-site solar energy

Summary of position

- NSW has seen high uptake rates of rooftop solar, and current costs allow domestic installation with short payback periods.
- The Commonwealth provides incentives for the installation of solar power systems.
- High upfront costs are presently a barrier for solar irrigation pumping.
- There is significant opportunity for switching from diesel fuel to solar in the agricultural sector.

Changes from the proposed Rule

Nil.

Stakeholder feedback

We received submissions from 3 ACPs which opposed the restriction to only allow on-site solar electricity production to be used for solar irrigation pumping. These stakeholders felt that the scheme should support other sectors to replace grid electricity with solar power.

Issue analysis

Australia has one of the highest uptake rates of rooftop solar energy in the world and NSW currently has around 2,000 megawatts (MW) of solar electricity generation capacity. As stated in the 2021 Energy Security Safeguard position paper, solar PV technology is commercially mature and already receives incentives from other schemes such as the Commonwealth Small-scale Renewable Energy Scheme (SRES) There is significant opportunity for switching

from diesel fuel in the agricultural sector. We will not allow switching to onsite solar for other activities.

2.4 Update to D5 pool pump determination requirements

Summary of position

- We will adopt the proposed changes.

Changes from the proposed Rule

Nil.

Stakeholder feedback

No submissions were received in relation to this proposed change.

Issue analysis

N/A

Part 3: PIAM&V Method

3.1 Updated definitions

Summary of position

- Proceed with the proposed updated definitions for 'Site Constant' and 'Non-Routine Events'.
- Proceed with the proposed new definitions for:
  - 'Normal Operating Conditions'
  - 'Implementation Period'
  - 'Coefficient of Variation of the Root Mean Square Error'
  - 'Adjusted Coefficient of Variation'
  - 't-statistic of Independent Variable'
  - 'Non-Routine Adjustments'
  - 'PIAM&V Method Application Requirements for Non-Routine Events and Adjustments'
  - 'Other Implementations (OIMP) Estimate Method'
  - 'Data Exclusion Method'
  - 'Short Energy Models Method', and
  - 'Sub-metering Method'.
- Amend the proposed new definitions for:
  - 'Measurement Boundary'
  - 'Modelling Frequency'
  - 'Measurement Frequency', and
  - 'Effective Range Adjustment Factor'.
- Provide a new definition for 'Counted Energy Savings'.
- Explore adding new definitions for Accuracy Factor and Relative Precision in the next Rule change.

Changes from the proposed Rule

Based on stakeholder feedback, we have:

- Amended the proposed new definitions for 'Measurement Boundary', 'Modelling Frequency', 'Measurement Frequency', and 'Effective Range Adjustment Factor'.
- Provided a new definition for 'Counted Energy Savings'.

Stakeholder feedback

Five submissions responded to the proposed updates to the definitions. All submissions agreed that the proposed new and updated definitions make the PIAM&V Method's terms easier to understand and apply. Among those submissions, 3 suggested improvements to several of the proposed definitions.

In response to question 18, 3 submissions suggested to include new definitions in the Rule for Accuracy Factor, Relative Precision, and Counted Energy Savings. We will consider these and consult on them as part of the next Rule change.

Issue analysis

The PIAM&V Method draws on the principles of the International Performance Measurement and Verification Protocol (IPMVP). PIAM&V uses similar concepts to IPMVP, but some terms have different names or slightly different definitions.

Following feedback from stakeholders to understand how to improve the clarity and accessibility of the PIAM&V Method, definitions for some terms were updated and others were added into the Rule.

3.2 Calibration requirements for utility grade meters

Summary of position

- Proceed with excluding utility electricity and gas meters from the calibration requirement in the ESS Rule.
- Consider whether further changes to the calibration procedures are warranted as part of future Rule changes.

Changes from the proposed Rule

Nil.

Stakeholder feedback

Five submissions responded to the proposed Rule change. Three of the submissions agreed that the proposed Rule change reduces the administrative burden of meter calibration requirements.

One submission suggested that "This change simply clarifies what has been accepted practice in PIAM&V to-date, and therefore does not reduce the administrative burden of metre calibration requirements."

Two submissions aligned on the suggestion to also address non-utility meters in the proposed calibration requirements. One submission requested "…to widen the [meters] calibration requirements to include any institution which publicly provides trustful information that can be used for modelling purposes such as the Bureau of meteorology…"

Two submissions aligned on suggesting meter validation provisions. One submission requested "… to consider provisions around meter validation procedures as a credible alternative to calibration procedures."

Issue analysis

Metering instruments used in the PIAM&V Method must be sufficiently accurate and fit for purpose. They must also follow specific calibration procedures to accurately capture energy savings.

A stakeholder has previously made a submission suggesting that "It is not practical nor necessary to obtain or provide calibration information on utility meters." They also proposed an amendment to the Rule to "... exclude utility meters (for both electricity and gas use) from this requirement."

This Rule change is in response to stakeholder requests to exclude these meters from the calibration requirements set out in clause 7A.5(f).

3.3 Non-Routine Events (NREs) and Non-Routine Adjustments (NRAs)

Summary of position

- Proceed with the proposed Rule change, replacing clause 7A.5(g) with clauses 7A.5B and 7A.5B1.
- Publish the NRE-A Requirements with amendments to improve the clarity of the Other Implementations Estimate Method and Short Energy Models Method.
- Maintain that activities for which ESCs have not yet been created cannot be accounted for as NREs using the OIMP Estimate Method.

Changes from the proposed Rule

Based on stakeholder feedback, we have:

- updated equation NRA.F.1 in the OIMP Estimate Method to clarify that the Certificate Conversion Factor is at the time of ESC registration for the OIMP
- collaborate with IPART to provide guidance on interpretation of the term 'similar' in respect of the Short Energy Models Method.

Stakeholder feedback

Five submissions responded to the proposed Rule change. All agreed, albeit with reservations, that this change increases the flexibility of the PIAM&V Method in addressing NREs.

Two submissions provided feedback on the Short Energy Models Method, raising concerns around the use and interpretation of the term 'similar'.

Two submissions provided feedback on the OIMP Estimate Method requesting that it be expanded to include other Implementations for which ESCs have not yet been created.

Two submissions also sought clarification on the 'Certificate Conversion Factor' term used in the OIMP Estimate Method, given the proposed change to the Conversion Factors in Equation 1 of the Rule.

Issue analysis

The current Rule has limited provisions to make NRAs to account for NREs. NREs must be excluded from the Measurement Period, ensuring that the time excluded is less than 20% (clause 7A.5(g) of the ESS Rule). There is no provision in the Rule to exclude permanent NREs or NREs that account for more than 20% of the Measurement Period.

Feedback from some stakeholders suggested that this does not enable longer lasting and more adverse NREs to be accounted for, such as those caused by COVID-19. Some stakeholders also provided feedback that the current Rule lacks a mechanism to adjust for Energy Savings from other Implementations within the Measurement Boundary.

In response to this feedback, we conducted a comprehensive stakeholder consultation process to understand the main market issues that require attention as part of addressing NREs. This process has culminated in a new Rule clause to provide more flexibility to address NREs through a range of NRA options, along with developing a supplementary document, the 'PIAM&V Method Application Requirements for Non-Routine Events and Adjustments' (NRE-A Requirements).

The NRE-A Requirements address stakeholder concerns by providing methods and procedures for addressing NREs and NRAs under the PIAM&V Method.

Energy Savings activities for which ESCs have not yet been created are excluded from the OIMP Estimate Method, because the Energy Savings have not been quantified or verified as part of the ESC creation process. Further, as ESCs from other energy saving activities have not yet been created, the Energy Savings from those activities could be included as part of the PIAM&V Measurement Boundary. Alternatively, the Measurement Boundary could be adjusted to exclude the other activities (e.g., through the installation of additional metering).

3.4 Minimum statistical requirements

Summary of position

- Proceed with mandating the minimum statistical requirements in the Rule.
- Amend the CV_{RMSE} threshold to 0.25 if the Adjusted $R^2 > 0.5$.
- Maintain the CV_{RMSE} threshold of 0.10 if the Adjusted $R^2 < 0.5$.
- Consider updates to the Accuracy Factor as part of future Rule changes.

Changes from the proposed Rule

In response to stakeholder feedback, we have increased the proposed CV_{RMSE} threshold from 0.2 to 0.25 (where the Adjusted $R^2 > 0.5$).

Stakeholder feedback

Mandating the minimum statistical requirements into the Rule (Question 21)

Six submissions responded to the proposed Rule change. Responses are summarised in Table 5.

Table 5: Summary of stakeholder feedback on minimum statistical requirements

Stakeholder	Summary of feedback
ACPs and industry association	• One submission agreed on adding the minimum statistical requirements into the Rule, but requested "… the possibility to challenge them with the endorsement of an independent M&V professional …" • Four submissions disagreed, or did not wholly agree, with the introduction of mandated minimum statistical requirements, providing the following feedback: o "The proposed requirements are not unreasonable, but … would much rather see consistency with IPMVP literature …", noting that they considered the requirements are a departure from the guidance in the IPMVP. o "It would be most helpful if the IPMVP literature could be relied upon by ACPs as the universal benchmark." o "Proposing minimum statistical requirements does not necessarily add certainty but can add significant limitations." o "If OECC [Office of Energy and Climate Change] are concerned about the accuracy factor resulting from low R2 models, it would be more appropriate to adjust the accuracy factors…".
Government	Strongly agreed with the proposal and suggested that "…it ensures consistency with the NRE/A Requirements and support the generation of more robust energy models to calculate energy savings."

Reducing the Adjusted Coefficient of Determination (R^2) threshold (Question 22)

Six submissions responded to the proposed Rule change. One did not support reducing the Adjusted R^2 threshold suggesting that "Reducing the minimum threshold for the Coefficient of Determination may lead to less robust models, increasing the risk that the number of certificates created may not reflect the actual energy savings from an implementation."

The other 5 submissions did not agree that mandating a reduced Adjusted R^2 threshold into the Rule improves the flexibility of the method.

Issue analysis

In considering this Rule change, we consulted with M&V experts who strongly advocated for the need to mandate minimum statistical requirements.

The introduction of the NRE-A Requirements significantly increases the flexibility of the PIAM&V Method to deal with NREs and NRAs. However, NRAs also introduce increased uncertainty in the savings calculation that is not accounted for by the Accuracy Factor.

Setting statistical thresholds to evaluate whether a model is acceptable is consistent with industry M&V guidance, including the IPMVP and American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) guidelines.

For example, the IPMVP Core Concepts state:

> "Statistics are used when summarizing, analysing, interpreting data, and when evaluating results. They are therefore often required in M&V, including when evaluating measured data, validating any mathematical models developed to routinely adjust energy consumption …"
>
> "Statistical regression models may be required to meet certain minimum criteria to ensure the validity of reported savings results. Such assessments are necessary to 1) validate the significance of independent variables, 2) ensure a model is of sufficient accuracy to determine savings and 3) to validate the assumptions of regressions."[1]

When establishing an energy model using regression analysis, statistical indicators such as Adjusted R^2, CV_{RMSE} and t-statistic are an important tool when assessing how well the energy model predicts energy use.

Where an energy model established using regression analysis does not meet minimum statistical requirements, this means the energy use and energy savings are unable to be reliably predicted. These projects may not be suitable for forward creation using the PIAM&V Method but may still be able to create ESCs using annual creation under PIAM&V. Alternatively, they may be more suited to another calculation method such as the Metered Baseline Method.

Not having agreed minimum statistical requirements could result in audit delays and increased costs due to uncertainty as to whether the approach to account for NREs and NRAs resulted in acceptable energy models.

Mandating the minimum statistical requirements that determine whether an energy model is acceptable or not provides clarity and certainty for the ACP, M&V Professional, auditors, and the scheme administrator.

In response to the targeted consultation, some stakeholders raised concerns around the requirement that the Adjusted R^2 be greater than 0.5. We acknowledge the IPMVP guidance that energy models should not be rejected or accepted solely based on the Adjusted R^2. We responded by amending the minimum statistical requirements to allow energy models with an Adjusted R^2 of less than 0.5, provided that the CV_{RMSE} is less than 0.1.

In response to feedback to the public consultation, we have increased the proposed CV_{RMSE} threshold from 0.2 to 0.25 (where the Adjusted $R^2 > 0.5$). This provides additional flexibility to the minimum statistical requirements and is expected to allow a wider range of projects to access the PIAM&V Method.

[1] International Performance Measurement and Verification Protocol (IPMVP®) Core Concepts, March 2022, EVO 1000 – 1:2022, Section 12.6, pages 69 – 70

Part 4: Metered Baseline Method

4.1 Clarification of Normalised Baseline Calculation Method

Summary of position

- Proceed with the proposed Rule change to Method 3 in Clause 8.7 which clarifies that the normalisation process of the baseline should occur after each measurement period.

Changes from the proposed Rule

Nil.

Stakeholder feedback

Two submissions responded to this Rule change. They agreed that the proposed change clarifies the calculations of the normalisation method.

Issue analysis

Feedback from some stakeholders indicated that under the Normalised Baseline MBM Method it is not clear that the normalisation process of the baseline should occur after each measurement period. This Rule change is to clearly state the normalisation process.

4.2 Clarification for determining subsequent baseline

Summary of position

- Proceed with the proposed Rule change which adds a note under Clause 8.3 explaining how to set new baseline Measurement Periods using Implementation Dates from new Implementations.

Changes from the proposed Rule

Based on stakeholder feedback, we decided to amend the proposed note for more clarity, while maintaining its original interpretation.

Stakeholder feedback

Three submissions responded to this Rule change. Two agreed that the proposed change provides clarity that an ACP may set new baseline Measurement Periods, based on new implementations of the same RESA at the site.

One submission indicated that "…the proposed wording of the note does not make it clear that an ACP may set a new baseline Measurement Period based on a new implementation of the RESA at the site." The submission suggested an edit to the proposed note.

Issue analysis

It is currently not clear in the Rule how to set new baseline Measurement Periods using Implementation Dates from new Implementations under the Metered Baseline Method. This Rule change allows Energy Savings to continue to be claimed for any ongoing energy efficiency improvements that take place following the original Implementation Date.

4.3 Measurement Periods Clarification for calculating Energy Savings from Fuel Switching

Summary of position

- Proceed with the proposed Rule change to Clause 8.5.1 which makes the requirement that, where energy savings are achieved through fuel-switching, changes in consumption to all Eligible Fuels must be calculated.

Changes from the proposed Rule

Nil.

Stakeholder feedback

Two submissions responded to this Rule change. One agreed that this change clarifies the requirement to calculate energy savings from all eligible fuels. The other submission argued that "…the proposed change appears to be arbitrary."

Issue analysis

Where energy savings are achieved through fuel-switching, changes in consumption to all eligible fuels must be calculated to ensure that net energy savings are positive. The current wording in the method to describe this is imprecise.

This Rule change makes the requirement about calculating energy savings from fuel switching clearer.

4.4 Introduction of new NABERS building types

Summary of position

- Proceed with the proposed Rule change which expands the NABERS baseline method to allow energy savings to be calculated for NABERS-rated buildings in the warehousing and cold storage sectors.

Changes from the proposed Rule

Nil.

Stakeholder feedback

Two stakeholders (both industry associations) responded in agreement to this Rule change.

IPART identified the potential for fuel switching within the NABERS method. We note that NABERS are planning to launch a Renewable Energy Indicator in the future and will consider fuel switching within the NABERS method at that point.

Issue analysis

This Rule change proposes to expand the NABERS baseline method, to allow energy savings to be calculated for NABERS-rated buildings in the warehousing and cold storage sectors.

Part 5: Project Impact Assessment Method

5.1 Deem Savings for PIAM

Summary of position

- Proceed with the proposed Rule change to Clause 7.1(e), which clearly identifies the date on which energy savings occur and after which ESCs can be created.

Changes from the proposed Rule

Nil.

Stakeholder feedback

Only one submission responded, agreeing with the proposed Rule change.

Issue analysis

Though ESCs can still be created under PIAM, the method does not specify when energy savings are deemed to have occurred. This can create issues with the vintage deadline.

This Rule change proposes that energy savings are to be taken to occur on the last date of the period for which the energy savings are calculated. Following this date, ESCs can be created.

Part 6: Other submissions

We received submissions outside of the questions asked in the consultation paper. These submissions relate to commercial lighting and refrigerated cabinets. These submissions, and our response, is outlined in sections 6.1 and 6.2 below.

6.1 Submissions related to Commercial Lighting

Summary of position

- Changes to the commercial lighting method form part of the next Rule change: the 2023 Rule change.
- We will consult with industry again regarding changes to the lighting methods.

Changes from the proposed Rule

Nil.

Stakeholder feedback

One ACP and one industry association provided feedback on this topic.

The industry association commented that we have not responded to the consultation process launched in 2020. They noted that the commercial lighting sector is not a single homogenous market and each subsector need to be considered separately. They also noted that industry needs to be given sufficient consultation, notice and transition time to navigate any changes to the activity.

The ACP also reflected these comments.

Issue analysis

In mid-2020, we commissioned Beletich Associates, Common Capital and Light Naturally to review and update all 3 deemed lighting methods. This was to reflect the latest market and policy developments, and to provide detailed recommendations on the improved delivery of the lighting upgrades.

A targeted consultation workshop was held on Wednesday 9 September 2020 where Beletich Associates, Common Capital and Light Naturally presented their draft findings along with future options for lighting in the ESS.

We are committed to giving sufficient consultation, notice and transition time to industry. We will consult with industry again regarding the proposed lighting changes as part of the 2023 Rule change.

6.2 Submissions related to refrigerated cabinets

Summary of position

- We have changed the co-payment from $250 to $200.
- F1.1 and F1.2 have been amended to allow products registered under the New Zealand Energy Efficiency (Energy Using Products) Amendment Regulations 2020.

Changes from the proposed Rule

We have changed the co-payment from $250 to $200.

F1.1 and F1.2 have been amended to allow products registered under the New Zealand Energy Efficiency (Energy Using Products) Amendment Regulations 2020.

Stakeholder feedback

Five submissions were received with regards to refrigerated cabinets activities. They are summarised in Table 6.

Table 6: Summary of stakeholder feedback received for refrigerated cabinets activities

Stakeholder	Summary of feedback
ACPs	The feedback received from ACPs was varied. One ACP suggested a lower co-contribution and suggested the co-payment to be split. Whereas another ACP was supportive of the current level of co-payment and opposed any watering down of the requirement. An ACP wanted products registered under either Australian or New Zealand standards to be accepted and for the Rule to include decommissioning of old fridges on a fleet level. They also asked that the factors used for determining the baseline be revised.
Industry associations	Feedback centred on a different minimum co-payment amount for new versus replacement refrigerated cabinet and a different rate based on Product Class and/or unit volume.
Manufacturers	One manufacturer suggested a lower co-payment for smaller refrigerators and split between new and replacement. Another manufacturer commented that due to the reduced EEI for baselines: • it is no longer viable to operate • there are no options for replacing refrigerated cabinets at a fleet level • the scheme should allow both GEMS registrations under the New Zealand and Australian determinations.

Issue analysis

In July 2022, we made the following changes to the refrigerated cabinets activity in the ESS Rule:

- separating new and replacement into separate activities
- reducing the energy efficiency index (EEI) for baselines
- the introduction of a minimum $250 co-payment requirement.

These changes were made in response to a rise in bad practice associated with refrigerated cabinet activities. For more information, read the refrigerated cabinets position paper.

In response to stakeholder feedback (see section below), we will reduce the co-payment from $250 to $200. At this stage, we will not reduce the co-payment further, as this may once again encourage bad practice under the refrigerated cabinet activities. We are not considering distinctions due to Product Class and/or unit volume at this stage as there are some issues with regards to the higher rated refrigerated cabinets that we are speaking to Greenhouse and Energy Minimum Standards (GEMS) about.

With regards to splitting the co-payment between replacement and new refrigerated cabinets, we do not believe that the co-payment is a barrier for replacement activities. We iterate that an additional incentive is available for replacement refrigerated cabinet activities under the PDRS.

With regards to fleet activities, the concept that equipment that is replaced or removed cannot be refurbished, reused, or resold is an important one. Therefore, we are not proposing any changes to Activity Definition F1.2 or clause 5.3A of the ESS Rule at this stage.

We recognise that the Australian and New Zealand determinations are harmonised. For this reason, products registered under either standard will be accepted.

We are not proposing to amend the baselines for refrigerated cabinet activities currently.

Part 7: Other Changes

Summary of position

- We updated the name of Activity Definition F7 to include replacement of an existing motor within the activity.

Changes from the proposed Rule

The name of Activity Definition F7 has been changed from 'Install a new high efficiency motor' to 'Install a new high efficiency motor or replace an existing motor with a high efficiency motor'.

Stakeholder feedback

N/A.

Issue analysis

We did not consult on this issue but have resolved to change Activity Definition F7 to allow replacement of an existing motor within the activity. This is to encourage additional energy savings to occur under the Rule. We note the activity does not explicitly exclude replacement activities. Therefore, the only change we will make is to update the name of the activity to include replacement.

Appendix

Appendix A: Acronyms

Acronym	Definition
ACP	Accredited Certificate Provider
Covid-19	Disease caused by the virus SARS-CoV-2
EPA	Environmental Protection Authority
ESC	Energy Savings Certificates
ESS	Energy Savings Scheme
EUE	End-User Equipment
GJ	Gigajoule
GWh	Gigawatt hours
HEER	Home Energy Efficiency Retrofits
IPART	Independent Pricing and Regulatory Tribunal
IPMVP	International Performance Measurement and Verification Protocol
ISO	International Organization for Standardisation
LPG	liquified petroleum gas
M&V	Measurement and Verification
MBM	Metered Baseline Methods
MW	Megawatts
MWh	Megawatt hours
NABERS	National Australian Built Environment Rating System
NOx	Nitrogen oxides
NSW	New South Wales
NRA	Non-Routine Adjustment
NRE	Non-Routine Event
PDRS	Peak Demand Reduction Scheme

Acronym	Definition
PIAM	Project Impact Assessment Method
PIAM&V	Project Impact Assessment with Measurement & Verification
PJ	Petajoule
$PM_{2.5}$	Particles with a diameter of 2.5 micrometres or less
PV	Photovoltaic
R^2	Adjusted Coefficient of Determination
RESA	Recognised Energy Saving Activities
SRES	Renewable Energy Scheme
CV_{RMSE}	Coefficient of Variation of the Root Mean Square Error
ERAF	Effective Range Adjustment Factor

Energy Security Safeguard

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For more information

To learn more about the Energy Savings Scheme or Energy Security Safeguard, please visit or contact:

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