



NSW Energy Savings Scheme

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Foreword

In November and December 2016 the NSW Government consulted on proposed changes to the NSW Energy Savings Scheme Rule ('the draft ESS Rule'), as part of the NSW Government's commitment to continuous improvement of the Energy Savings Scheme (the ESS).

This paper outlines the NSW Government's final position on changes that will be made to the ESS Rule, including with reference to submissions received regarding the draft ESS Rule. The NSW Government sought input from stakeholders to ensure the changes are appropriate and reflect industry standards.

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

The changes to the ESS Rule commence on 28 April 2017 and will be co-ordinated with the Scheme Administrator, the Independent Pricing and Regulatory Tribunal (IPART).

1 Introduction

The NSW Energy Savings Scheme (ESS) is the premier energy efficiency program in New South Wales. The *Electricity Supply Act 1995* (the Act) provides that the primary objective of the ESS is to create a financial incentive to reduce the consumption of energy by encouraging energy saving activities. The ESS works by placing an obligation on NSW energy retailers and other liable parties to purchase Energy Savings in the form of Energy Savings Certificates (ESCs) each year. These certificates are created by an Accredited Certificate Provider (ACP) when an energy user undertakes an eligible Energy Savings activity.

The Act allows the Minister for Energy and Utilities to approve rules (the ESS Rule) that set out how ESCs can be created, including eligible applicants, types of eligible activities, and calculation methods and Energy Savings factors.

The Rule amendment process

In 2014 and 2015 the NSW Government consulted on a statutory review of the ESS and on proposed reforms. The ESS Review process is documented at <http://www.resourcesandenergy.nsw.gov.au/energy-consumers/sustainable-energy/efficiency/scheme/energy-saving-scheme-review>.

The ESS Review Position Paper outlined the government's intention to proceed with annual updates to the ESS Rule. The regular annual updates to the ESS Rule are intended 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
- complement changes to building and equipment standards
- incorporate new methods or sub-methods for Energy Savings, and
- make other enhancements to the ESS Rule to maintain its integrity and/or reduce transaction costs.

The NSW Government also intends to conduct a major review of the ESS Rule every three years. The most recent major review was in 2015-16.

The Position Paper

As part of this 2016-2017 annual review of the ESS Rule, the Office of Environment and Heritage conducted a targeted consultation in July 2016 with a wide cross-section of ESS stakeholders on potential 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 the draft ESS Rule for public consultation.

A four week public consultation on the draft ESS Rule commenced in November 2016, and included an information forum and technical workshops on 7th December 2016.

Written submissions to the public consultation were received from 14 stakeholders across the energy efficiency industry. Stakeholder feedback from the public consultation has been considered by the NSW Government in preparing this paper. Necessary changes have been included in the final ESS Rule and are described in the following sections.

2 General ESS Rule

2.1 Data Requirements

Refer to the ESS Rule: §6.8

The NSW Government proposed to expand clause 6.8 to require ACPs to provide Electricity Savings and Gas Savings data for each Activity Definition Implementation under clause 9.8 and 9.9 of the Deemed Energy Savings Method. This would give greater transparency of the types of technology that are being installed under the ESS. The data will help further development of the ESS and evaluate the types of upgrades that are driving Energy Savings in NSW.

To minimise the administration burden of additional data requirements the NSW Government also proposed to only require this data for the HEER and HEAB sub-methods as this is where it offers most value.

There were six responses received to the proposal to expand clause 6.8 to collect electricity and gas savings data at the Activity level for the Home Energy Efficiency Retrofits (HEER) and High Efficiency Appliances for Business (HEAB) sub-methods. Five of these submissions were in support of expanding the clause.

One stakeholder raised concerns about the level of administration required, and that introducing this requirement into a sub-method that has not had any ESCs registered to date was pre-emptive and would discourage ACPs from participating (specifically in regards to HEER). Other submissions mentioned that there would be little administrative effort required to supply this data alongside the other requirements of 6.8, and this is a reasonable request to ensure savings are verified.

There were five responses received as to whether the Sale of New Appliances (SONA) and Removal of Old Appliances (ROOA) sub-methods should also have to provide the electricity and gas savings data. Three disagreed that these sub-methods should be included, and two submissions believed they should.

The main concern that stakeholders raised was that not including SONA and ROOA “would introduce data reporting requirement inconsistency across activities that may advantage SONA and ROOA methods to the detriment of HEER and HEAB”.

Government response

The proposal to expand clause 6.8 to include electricity and savings data for the HEER and HEAB sub-methods is to improve reporting on electricity savings and gas savings. It is expected that only minor changes will be required to processes to enable this, ensuring the additional administrative burden is small.

The SONA and ROOA sub-methods cover Energy Savings from upgrading or removing common household appliances, such as TVs, fridges and washing machines. In both of these sub-methods, the electricity savings arise from changes to the same category of End-User Equipment, that is household appliances. The existing requirements under clause 6.8 provide enough information for reporting requirements for the SONA and ROOA sub-methods. In addition, these sub-methods cover energy savings activities that are mutually exclusive to those covered by HEER and HEAB, so variation in data reporting requirements should not drive preferential activity in some methods at the expense of others.

Changes from the draft ESS Rule

There have been no changes from the draft ESS Rule.

2.2 Steps towards integration with the ACT Energy Efficiency Improvement Scheme

Refer to the ESS Rule: §1.1(b), 5.4(k), 5.9 and 9.4.1(h)

These amendments to the ESS Rule take a significant step towards an integrated approach to expanding eligible activities in the ACT Energy Efficiency Improvement Scheme (EEIS) through existing ESS methods.

The NSW Climate Change Policy Framework outlines the NSW Government's long-term aspirational objective to achieve net-zero emissions by 2050. This framework outlines the NSW Government's policy directions to provide investment certainty and seize opportunities to grow industries in NSW. This is consistent with the NSW and ACT Governments' agreement to 'align activities and reduce red tape where appropriate' in the NSW Energy Savings Scheme and the ACT EEIS and with the NSW Government's continued support for the harmonisation of energy efficiency schemes. It is also consistent with the Governments' support, through the COAG Energy Council of the National Energy Productivity Plan.

As part of the ACT Government's commitment to transition the ACT to net-zero emissions by 2050 they are proposing to expand the EEIS to include a new ESS integrated commercial lighting method. Integration with the ESS will allow savings from commercial lighting projects implemented in the ACT to create ACT ESCs under the current ESS processes.

The ACT Government intends to allow providers wishing to implement commercial lighting upgrades in the ACT to become accredited under the ESS or apply to amend existing ESS accreditations. Under this approach, ACT energy retailers could obtain ACT ESCs and apply an ACT emissions intensity conversion factor to calculate the equivalent EEIS Activity Abatement Value (AAV) to meet their obligation. ACT retailers could then transfer these ACT ESCs to the Territory to contribute towards their obligations, in accordance with their compliance plans.

Under this proposed new approach, the ACT would need to closely cooperate with the NSW Government on scheme policy and administration. There are several ACT legislative and policy requirements, which are most efficiently managed through inclusion of ACT specific clauses in the ESS Rule.

In taking this approach it means these requirements will be automatically addressed through normal certificate creation and compliance processes, without the need for additional administrative arrangements by the ESS Scheme Administrator. In managing these activities within the ESS framework it also reduces costs and removes the need for additional EEIS reporting and audit requirements for the ACT liable parties.

Therefore, we have made minor adjustments to the ESS Rule to accommodate the EEIS changes. These will provide greater certainty to all parties when negotiating service level agreements between the ACT Government and IPART, and greater administrative efficiency to retailers and ACPs. Please note that ACT ESCs cannot be created until the ACT EEIS is recognised by the NSW Minister for Energy and Utilities as an approved corresponding scheme and an EEIS integrated commercial lighting method is determined by the ACT Minister for Climate Change and Sustainability.

Changes from the draft ESS Rule

Inclusion of new Clauses 1.1(b), 5.4(k), 5.9 and 9.4.1(h).

3 Project Impact Assessment with Measurement and Verification Method

The Project Impact Assessment with Measurement and Verification (PIAM&V) Method provides a flexible, measurement and verification based approach for ACPs to calculate Energy Savings. The PIAM&V Method is designed to incentivise a broad range of energy saving activities, including those not currently covered by the existing Deemed Energy Savings Method. The Method accounts for changes in operating conditions, which means that Energy Savings from a large variety activities can be accurately estimated. The NSW Government has identified changes to improve the balance between transaction costs and accuracy of saving calculations.

3.1 Effective Range

Refer to the ESS Rule: §7A.8

The Effective Range is currently defined as between 95% of the minimum measured value and 105% of the maximum measured value of each Independent Variable.

The NSW Government proposed to change the calculation of Effective Range to be +/- 5% of the difference between maximum and minimum measured values for each Independent Variable, consistent with the original policy intent.

The proposed changes also clarified that it was not necessary to define an Effective Range for Site Constants. The requirement to exclude any time periods where the Site Constants are not their standard value from the Energy Savings calculation remains for single Site energy models (see Clause 7A.5(g) of the ESS Rule).

All three submissions received supported the proposed changes to the Effective Range.

Changes from the draft ESS Rule

There have been no changes from the draft ESS Rule.

3.2 PIAM&V sampling sub-method

Refer to the ESS Rule: §7A.20

The PIAM&V sampling sub-method allows the use of an energy model developed from measurements at multiple Sites to predict Energy Savings across a Population, with the potential to reduce measurement costs while maintaining the accuracy of the saving estimates.

The PIAM&V sampling sub-method was closed to new accreditations in the 2016 Rule change. Changes were proposed in clause 7A.1(c) to remove this restriction and allow new applications.

We proposed that the new sub-clause 7A.20(a), ACPs must define a set of Eligibility Requirements that must be met by all sites in the population. Eligibility Requirements are a set of criteria defined by ACPs and used to ensure that only sites with similar characteristics are included in the Population.

ACPs will need to define a Representativeness Test to determine whether the Sample Sites are representative of the Population by demonstrating that the distribution of the Site Constant among the Sample Sites are representative of the distribution of the Site Constant in the Population.

When using regression analysis or estimate of the mean to calculate Energy Savings, minimal measurement and statistical requirements apply as per clause 7A.2(a). The Rule requires that:

1. when using Estimate of the Mean, the Coefficient of Variation of the energy consumption over the Measurement Period is less than 15%;
2. when using Regression Analysis, the number of independent observations is at least the sum of six times the number of Independent Variables and six times the number of Site Constants, where relevant.

It was proposed that these requirements will also apply to each Sample Site for a Multiple Site model where the PIAM&V sampling sub-method is used. In addition, it was proposed that the minimum number of Sample Sites must be at least six times the number of Site Constants in the energy model.

We proposed that any Sampling Method that deviates from a simple random sample must include steps taken to minimise bias. The process for selecting Sample Sites must be deemed appropriate by a Measurement and Verification (M&V) Professional.

The NSW Government also proposed that for a multiple Site model, the procedure for determining the Normal Year for each Site is reviewed and deemed appropriate by the Measurement and Verification Professional, rather than each Implementation.

Stakeholders welcomed the proposed new sub-clause 7A.20, and acknowledged the sampling sub-method as “an important innovation to incentivise a broader range of projects and technologies”.

In general, submissions supported the proposed Eligibility Requirements and statistical requirements. Two stakeholders described the proposed Eligibility Requirements as “sufficient and appropriate”, and described the proposed statistical requirements as “reasonable”.

One stakeholder expressed concerns regarding the inclusion of End-Use Services in the proposed Eligibility Requirements, considering it unnecessary. They also suggested increasing the maximum Coefficient of Variation when using the *Estimate of the Mean* on a multiple Site Model from 15% to 30% to allow for additional variation due to “human behavioural impacts on energy use”.

Stakeholders requested further information on the basis for the proposed minimum number of sample sites required. One stakeholder believed the current proposal is reasonable, whilst one stakeholder described it as having “the potential to limit the scope of application of the method”.

Government response

The NSW Government is committed to providing flexible and robust methodologies to support innovative and scalable energy efficiency technologies and business models while maintaining the accuracy of energy saving estimates.

The proposed Eligibility Requirements are designed to ensure that only Sites with similar characteristics are included in a Population. The End-Use Services being provided by the equipment are an important factor in influencing the energy use, and therefore energy savings. It is essential that the End-Use Services being provided are included in the Eligibility Requirements.

One submission suggested the maximum Coefficient of Variation should be increased from 15% to 30% for residential and SME projects using the Estimate of the Mean method to develop multiple site energy models. Where the Coefficient of Variation is above 15%, there is significant variation in energy consumption between different Sites and measurement periods, and it would be unsuitable to use the Estimate of Mean method. In these cases, if suitable Independent Variables cannot be found to account for the variation, the Aggregated Metered Baseline method provides a statistically robust procedure to estimate energy savings.

A minimum number of Sample Sites is required to ensure any energy models are representative of the Population. To calculate the minimum number of Sample Sites required for each Population, the actual number of Sites within the Population, as well as an understanding of the sample variation are required. In many cases, it is likely that the ACP will not have a good understanding of the sample variation prior to the measurements being conducted. Furthermore, where there are multiple values for Site Constants, it will increase the minimum number of Sample Sites required. Setting the minimum number of Sample Sites at 6 sets a minimum benchmark that can help reduce transaction cost for simple projects by avoiding project specific sample size calculations. For more complex projects, including where there are multiple values for Site Constants, the sample size required to satisfy Representativeness Tests is likely to be larger than 6, and project specific sample size calculations are recommended. The minimum sample size requirement is unlikely to limit the scope of application of the method.

Changes from the draft ESS Rule

An additional clause 7A.20 (j) was added requiring ACPs to meet any other criteria as Published, from time to time, by the Scheme Administrator. This change will allow the flexibility to adapt the method as the market grows, consistent with similar flexibility in other clauses in PIAM&V.

4 Metered Baseline Method

4.1 NABERS for Hospitals

Refer to the ESS Rule: §8.8

The NABERS program is launching another rating tool to measure the energy performance of public hospitals. The NSW Government proposed to expand the ESS Metered Baseline NABERS sub-method to allow Energy Savings to be calculated for NABERS rated hospitals.

All three submissions received from stakeholders welcomed the proposal to include NABERS rated hospitals in the NABERS sub-method. Two submissions noted energy loads in hospitals may be too complex to use the PIAM&V method, so NABERS would be positively received as an alternative option to calculate Energy Savings.

Government response

In response to the general support in submissions, the NSW Government will expand the ESS Metered Baseline NABERS sub-method to allow Energy Savings to be calculated for NABERS-rated hospitals. This change will provide more opportunities for businesses to access incentives to drive the energy efficiency market in NSW. Information on how to get an accredited NABERS public hospital rating is available on the NABERS website¹.

Changes from the draft ESS Rule

Values for the Benchmark NABERS Rating Index for hospitals have now been included in Table A20.

¹ <https://www.nabers.gov.au>

5 Deemed Energy Savings Method

The Deemed Energy Savings Method allows ESCs to be calculated for the lifetime Energy Savings for straightforward commercial and residential projects using simple tools and look-up tables. This simplifies Energy Savings calculations and makes it easier to participate in the ESS. In addition, ESCs can be claimed upfront after implementation, thereby helping to offset capital costs.

5.1 General Changes

5.1.1 Equipment Requirements and product approvals

Refer to the ESS Rule: §9.2A and relevant deemed sub-methods in the schedules of the draft ESS Rule from p.66 onwards

Minor changes were proposed to the current requirements to ensure consistency between sub-methods and allow operation of Scheme Administrator acceptance processes. It was also the policy intent to allow the Scheme Administrator to accept or reject an application if the requirements of 9.2A.3 have not been met. We proposed that this be stipulated in a new sub-clause, 9.2A.5A.

We received two submissions supporting the proposed changes to clause 9.2A. One submission suggested that the change will '*help ensure high quality products get installed under the Scheme*'. The Lighting Council of Australia agreed the change should clarify the policy intent.

Changes from the draft ESS Rule

There have been no significant changes from the draft ESS Rule.

5.1.2 Recycling of mercury in regional areas

Refer to the ESS Rule: §5.3A

The NSW Government included a requirement in the 2015-16 ESS Rule change to require that any lighting equipment containing mercury is recycled or safely and appropriately disposed of by adhering to the recycling and disposal guidelines of product stewardship programs such as Fluorocycle. It was noted that whilst it would be preferable to mandate the mercury recycling requirement across the whole State, there was concerns that it would be counterproductive to introduce the Regional Network Factor as well as the recycling requirement. Instead, the decision was made to make the change in a two-step gradual process whereby the requirement is extended to regional areas once more activity is occurring those areas. A commitment was made to monitor regional certificate creation and review this requirement during the next annual ESS Rule Change.

The NSW Government received three submissions requesting that we extend the mercury recycling requirement to regional areas. The Lighting Council of Australia made the case that there is capacity to recycle mercury in regional areas and expressed their concerns with the exemption from recycling requirements in large regional centres (such as Albury, Queanbeyan and Wagga Wagga). They also noted that there are numerous FluoroCycle signatories in various regional centres. The Lighting Council of Australia and Energy

Efficiency Certificate Creators Association (EECCA) both raised their concerns with the toxic effects of mercury and supported a state-wide recycling requirement. EECCA also suggested that the regional exemptions may encourage ACPs not to recycle mercury regionally, whilst unfairly penalising companies that do.

Government response

Monitoring of ESS activity in regional areas has revealed that there has not been a significant increase in certificate creation since the previous Rule change came into effect. The NSW Government will continue to monitor regional certificate creation with the aim to extend recycling requirements during the next Rule change process.

Changes from the draft ESS Rule

There have been no changes from the draft ESS Rule.

5.2 Sale of New Appliances

The Sale of New Appliances (SONA) sub-method provides incentives for householders to purchase new appliances that are more efficient than the market average. Incentives are provided for appliances that carry energy ratings labels and have been tested according to the relevant Australian Standard.

Appliances currently included in Schedule B are clothes washers, clothes dryers, dishwashers, refrigerators, freezers and televisions.

5.2.1 Adjustment to the SONA Equipment Energy Savings

Refer to the ESS Rule: §9.3

The NSW Government proposed to adjust the Equipment Energy Savings to use a baseline that reflects the sales weighted average star rating of appliance sales in 2016. It was proposed that the Equipment Energy Savings tables be updated to provide Energy Savings factors for appliances with ratings up to 10 stars and 6 stars, depending on the appliance category. Activity Definition B1 has also been revised to clarify that combination washer-dryers may only count the wash cycle, meaning you can't claim Energy Savings for the drying function.

There were multiple responses received to the proposed updated SONA Equipment Energy Savings tables. Although many agreed with the proposed updates, two stakeholders suggested the 0.5 star threshold above market average was punitive, would reduce the number of qualifying appliances by approximately 30%, and in turn would make it harder to drive behaviour change.

One stakeholder also brought to our attention that there are clothes dryers on the market with star ratings greater than 6 stars, but the Equipment Energy Savings table in activity B2 only covers up to 6 stars. In addition, although there are few clothes washers and dishwashers with star ratings great than 6, the Equipment Energy Savings tables currently prevent these products from calculating energy savings.

Government response

Applying a minimum 0.5 star threshold above market average continues to be an effective method of helping to ensure certificates generated represent real energy savings. Awarding certificates for above market average performance incentivises retailers to sell more efficient appliances, and assists households to purchase new appliances that are more efficient than the market average.

Where new products are introduced with a star rating above the current range of the Equipment Energy Savings tables, it is appropriate for these products to be eligible to create certificates at the current highest star rating until sufficient data is available for the table to be extended.

Changes from the draft ESS Rule

Default savings factor tables in Schedule B have been extended to 10 stars for clothes dryers, and revised to allow energy savings to be calculated for products greater than 6 stars for clothes washers and dishwashers.

5.3 Commercial Lighting

The Commercial Lighting sub-method allows ACPs to generate ESCs for projects which improve the efficiency of lighting in commercial buildings.

5.3.1 Purchaser Co-payment

Refer to the draft ESS Rule: §9.4

The NSW Government proposed that the requirements around the purchaser co-payment of \$5/MWh of Electricity Savings in the Commercial Lighting sub-method are clarified to state that the payment must have been completed at the time the Energy Savings Certificates are registered for the Implementation.

The evidence requirements for the purchaser co-payment have recently been updated by the Scheme Administrator.

The purchaser co-payment requirement was introduced in 2014 to ensure that consumers are engaged with the project, and to help ensure customers receive quality products that are fit for purpose. The NSW Government remains committed to these objectives, and committed to working with stakeholders to ensure the requirements in the ESS Rule deliver these objectives without introducing unnecessary red-tape and increases in compliance costs.

The consultation paper sought suggestions for changes from stakeholders to ESS Rule requirements around the purchaser co-payment that could meet the objectives of consumer engagement and quality lighting outcomes while reducing red-tape and compliance costs.

A total of nine submissions addressed the co-payment for commercial lighting, and these are summarised by topic area below. Feedback was also received on the co-payment and bundling requirements for HEER, and these are discussed in section 5.5.5.

Timing of payment

There were mixed submissions received on the proposed changes to the timing of the purchaser co-payment for commercial lighting, with many submissions indicating both positive and negative aspects of the objectives of the co-payment. Several submissions focussed on whether the co-payment meets its original objectives, as opposed to discussing the timing changes proposed. These submissions concentrated specifically on the challenges faced in compliance and by auditors.

There were concerns raised around financing and not allowing the consumer to pay costs through energy savings. It was suggested that this could preclude activities that are only feasible with the support of finance models, potentially limiting the structure of larger projects. There were also concerns that the proposed changes could increase transactional costs.

One submission stated that their invoicing terms were 30 days, so the change would affect their ability to pass on the ESC value through a reduction in invoiced prices. Additionally they raised that the new requirement does not allow for 'late payers or bad debts'.

Evidence requirements

Although no submissions directly addressed the proposed changes to the wording on evidence requirements, several mentioned that the requirements for documentary evidence of payment were ‘unreasonable and impractical’, and stated that it is cumbersome for larger businesses to provide evidence of transactions.

Two stakeholders focussed on additional measures to ensure a co-payment has been paid, and one suggested implementing an audit strategy to detect breaches of this method.

Policy intent and alternative to co-payments

Stakeholder feedback was mixed on the policy intent and call for suggested changes to the current co-payment requirements. A number of suggestions were made of alternative ways to meet the objectives of consumer engagement and quality lighting outcomes, including:

- increasing the co-payment to \$7.50/MWh for commercial lighting;
- prohibiting ACPs from undertaking unsolicited marketing (e.g door to door sales);
- approving only high quality ELT products;
- having product approvals carried out by an independent third party;
- requiring a cooling off period between the quote and installation;
- requiring that warranties are clearly communicated to the consumer;
- increasing the number of audits; and
- requiring the registration of opportunities by the energy consumer in an IPART database prior to the upgrade.

Government response

Timing of payment

The proposal to require that the payment is made prior to ESC creation was made in response to audit findings that some ACPs were requesting payment from Energy Savers significantly after the ESC creation date, for example at the time of audit. The policy intent of the ESS Rule is that all requirements are met prior to ESCs being created. The existing clause 9.4.1(e) is ambiguous with regards to timing requirements due to the use of “pays”, and it is also inconsistent with the householder co-contribution under HEER (clause 9.8.1(g)) which requires that the purchaser “has paid” the amount. The proposal to clarify the requirements in clause 9.4.1(e) has been implemented as proposed.

Evidence requirements

The Rule text relating to evidence requirements has been changed slightly for clarification.

Policy intent and alternative to co-payments

From the submissions, there are no clear stakeholder supported changes to the requirements around the purchaser co-payment that could meet the objectives of consumer engagement and quality lighting outcomes while reducing red-tape and compliance costs. The ideas suggested by stakeholders will be reviewed and consulted on as part of the 2017-18 Rule change process.

Changes from the draft ESS Rule

Wording relating to evidence requirements has been clarified.

5.3.2 Air-conditioning Multiplier

Refer to the ESS Rule: §9.4 Table A10.5

The NSW Government proposed to reduce the air-conditioning multiplier in Table A10.5 from 1.3 to 1.07 for air-conditioned spaces. Reducing the multiplier will help ensure certificates created reflect the actual electricity savings achieved. The proposed factor of 1.07 is based on an analysis of historical weather data for locations in NSW. Using the weather data to calculate heating degree days and cooling degree days, the heating season and cooling season were estimated at 48% and 91% respectively. These figures total to more than 100% and reflect that systems can operate in both heating and cooling mode on the same day.

There were multiple responses received to this proposed change. Most stakeholders were generally supportive of reviewing and revising the existing air-conditioning multiplier. Some stakeholders stated that humidity and climate zones would have differing effects across NSW. There were also suggestions made to provide exemptions for certain building types, particularly those that are cooled constantly.

One stakeholder raised that as the multiplier in the Victorian Energy Efficiency Target (VEET) scheme is 1.05, it appears inconsistent to adjust the multiplier under the NSW ESS Scheme to 1.07.

Several stakeholders requested that as these proposed changes will affect Energy Savings estimates for projects that have been quoted or commenced planning, but have not yet been implemented, there should be a notice period provided before the new multiplier takes effect.

Government response

The proposed multiplier was calculated from an analysis of multiple climate zones, weighted towards the most populated areas. The most populated areas are also the areas with warmer climate zones, making the proposed multiplier higher than it would have been if based on an average of all climate zones. A single multiplier was proposed to minimise administrative costs for ACPs by avoiding the requirement to collect evidence for the climate zone.

Given the differences between the climate conditions in Victoria and NSW, it is appropriate for the air-conditioning multiplier in the VEET scheme and ESS to have different values.

Where lighting upgrades are conducted in spaces continually in cooling mode, such as data centres and refrigerated rooms, it is appropriate for the multiplier to remain at 1.3.

The NSW Government agrees there should be a transition period for this change, and as such has included the general transitional arrangements in clause 11.1 that allow ESCs to be created under the previous version of the Rule until 30 June 2017 where the project was implemented prior to 28 April 2017.

Changes from the draft ESS Rule

Projects implemented before 28 April 2017 will have until 30 June 2017 to implement and register their savings under the previous version of the Rule.

The multiplier will remain at 1.3 where the space is a data centre or a refrigerated space.

5.3.3 Control Gear for fluorescent lamps

Refer to the ESS Rule: §9.4 Table A9.2

Stakeholders have raised that there are products which don't fit into the current Control Gear classification of ballasts in Table A9.2 because of the technology type requirement. We proposed to amend this classification to be based solely on the EEI rating of the ballast in accordance with AS4783.2:2002 Performance of electrical lighting equipment. This will simplify the Rule and make it easier to interpret.

Five submissions were received from stakeholders supporting the proposed change to Table A9.2, agreeing that it would simplify the Rule.

Changes from the draft ESS Rule

There have been no changes from the draft ESS Rule.

5.4 Public Lighting Energy Savings Formula

The Public Lighting Energy Savings Formula under Clause 9.4A provides opportunities for ESCs to be generated for the installation of energy efficient public lighting equipment. This includes cases where the existing equipment is owned by a Distributor and regulated by the Australian Energy Regulator.

5.4.1 Activities which are not RESAs

Refer to the draft ESS Rule: §.5.4

Clause 5.4(c) is included to prevent electricity networks from generating Energy Savings Certificates for some network service activities regulated under the National Electricity Law, including network infrastructure delivery. The exception in the clause is cases where the ESS might incentivise energy savings that would not otherwise have occurred.

Stakeholders have noted that the current wording of 5.4(c) could make it unclear whether energy savings may be generated under the ESS for cases where the public lighting equipment is owned by an electricity distribution network.

We sought nominees in the consultation paper to be part of a targeted consultation to clarify clause 5.4(c)

The NSW Government undertook targeted consultation in January 2017 on a proposed amendment to clause 5.4(c) and the addition of an explanatory note and two additional definitions to clause 10.1, in order to make clear that existing equipment owned by an electricity distribution network is eligible for the Public Lighting Energy Savings Formula.

At present, the Australian Energy Regulator treats public lighting services as 'alternative control services' from electricity distribution networks, which are separate from 'standard control services'.

The proposed wording consulted on was as follows:

5.4 Recognised Energy Saving Activities do not include any of the following:

- c) an activity that is a Standard Control Service or Prescribed Transmission Service undertaken by a Network Service Provider in accordance with the National Electricity Rules;

Note: Clause 5.4(c) does not prohibit the creation of Energy Savings under the Public Lighting Energy Savings Formula in clause 9.4A.

In addition, two new definitions were proposed for Clause 10.1:

“Prescribed Transmission Services” has the same meaning as it has in the National Electricity Rules

“Standard Control Services” has the same meaning as it has in the National Electricity Rules.

Several stakeholders noted that the revised wording does make clear that public lighting equipment owned by distributors may be eligible for generating ESCs. Several stakeholders noted that the changes appeared appropriate and had no additional comments.

One stakeholder noted that the changes appear to meet the intent to include public lighting, but that if the Australian Energy Regulator reclassifies public lighting services for distribution networks as standard control services then the proposed Rule amendment would not be effective. The NSW Government does not currently consider this to be a likely outcome, as the Australian Energy Regulator’s decisions in recent Framework and Assessment papers about how to classify public lighting services have considered whether sufficient competition exists to allow the service to be moved to a less tightly regulated category (‘unclassified’) rather than to a more tightly regulated category (the ‘standard control’ services which are excluded in the proposed 5.4(c) wording).

One stakeholder noted that the revised clause excludes the potential for networks to invest in innovative demand management which integrates the use of energy efficiency, as the delivery of non-network options (also commonly known as demand management) are included in the definition of standard control services.

Government response

In response to stakeholder feedback, the NSW Government has revised the scope of the exclusion to allow Network Service Providers to undertake Recognised Energy Saving Activities that include non-network options, including demand management. Where there is an energy efficiency benefit, it may be appropriate to allow these projects to access the incentive provided by the ESS. The NSW Government will monitor activity under the ESS by Network Service Providers, and developments in the National Electricity Rules to ensure this policy intent remains appropriate.

Changes from the draft ESS Rule

The final Rule includes amendments to clause 5.4(c), the addition of an explanatory note, and the addition of two definitions, as follows:

5.4 Recognised Energy Saving Activities do not include any of the following:

- (c) an activity that is a Standard Control Service or Prescribed Transmission Service undertaken by a Network Service Provider in accordance with the National Electricity Rules under the *National Electricity (NSW) Law*, except if the activity is a Non-Network Option;

Note: Clause 5.4(c) does not prohibit the calculation of Energy Savings under the Public Lighting Energy Savings Formula in clause 9.4A.

New definitions added to Clause 10.1:

“Non-Network Option” has the same meaning as it has in the National Electricity Rules under the *National Electricity (NSW) Law*.

“Prescribed Transmission Services” has the same meaning as it has in the National Electricity Rules under the *National Electricity (NSW) Law*.

“Standard Control Service” has the same meaning as it has in the National Electricity Rules under the *National Electricity (NSW) Law*.

5.5 Home Energy Efficiency Retrofits

The HEER sub-method provides financial incentives through the ESS to expand the energy efficiency market and deliver lower cost, high quality retrofits to homes and small businesses in NSW. Significant changes were implemented during the 2015-2016 Rule change to reduce costs and make it easier for businesses to deliver the retrofits. Eligible upgrade activities include lighting, air-conditioning, gas water and space heaters, pool pumps, showerheads, and various building fabric upgrades.

5.5.1 Definition of Small Business Building and Residential Building

Refer to the ESS Rule: §9.8 and 10.1

The NSW Government proposed to amend the ESS definition for a Small Business Building to include BCA classification 5, 7b and 8 buildings. It was also proposed to expand the ESS definition for a Residential Building to include BCA Class 4 buildings – a dwelling in a building that is Class 6.

The NSW Government received 7 submissions supporting the proposed changes to the Small Business Building definition. Three of the submissions stated the changes would make it easier for small businesses to participate in the ESS. Four submissions were also received supporting the proposed changes to the Residential Building definition.

Government response

In investigating the different BCA classifications further we have determined that small businesses may also operate in Class 9 and Class 10 buildings. These BCA class types are now eligible under the Small Business Definition in the Rule. This will expand the market for energy efficiency service providers and provide greater access to the ESS for small businesses and households.

Changes from the draft ESS Rule

The definition of a Small Business Building has been expanded to include BCA class 5, 6, 7b, 8, 9 and 10 buildings. The Residential Building definition has been expanded to include BCA class 4 buildings.

5.5.2 Small Business Building default savings factors

Refer to the ESS Rule: §9.8 Activity E1 - E5 and E11

We proposed provide separate default savings factors for Small Business Buildings in the Activity Definitions for lighting E1, E2, E3, E4, E5 and E11. It was proposed to deem the savings factors by averaging the operating hours for the above eligible Small Business BCA classifications in Table A10.3, which equates to 4,200 hours.

The NSW Government proposed to also limit Energy Savings for Lamp only replacements to 30,000 hours for small businesses in HEER, and that the lifetime deeming period be limited to 10 years to align with the Commercial Lighting sub-method. The 15 year deeming period for residential buildings in activities E1 and E5 will remain the same.

The NSW Government received six submissions from stakeholders supporting the proposed changes to the Small Business Building default savings factors. Two submissions highlighted that upgrades will now occur in businesses previously deemed too small by ACPs that are active in the commercial lighting sub-method. The Lighting Council of Australia stated the proposed deemed Energy Savings better reflect the lifetime of small business lighting upgrades.

Changes from the draft ESS Rule

There have been no changes from the draft ESS Rule.

5.5.3 ELV Halogen to 240V LED

Refer to the ESS Rule: §9.8 Activity E1

The NSW Government proposed to expand Activity E1 to allow Energy Savings to be calculated when replacing an ELV halogen downlight with a 240V LED.

We received six submissions welcoming the change to allow Energy Savings to be calculated when replacing an ELV halogen downlight with a 240V LED. One submission stated that “it closes an unnecessary gap in the type of lighting upgrades that could potentially be offered to the end users.” The Lighting Council of Australia highlighted that an electrician is needed to carry out any replacements involving the re-wiring of mains voltage fittings, and expressed concerns about allowing modification of an ELV halogen lamp and driver fitting to install a 240V LED lamp.

Two submissions were also received stating that Energy Savings should be allowed to be created for LED lamp only replacements of ELV halogens with magnetic transformers. The Energy Efficiency Certificate Creators Association (EECCA) highlighted that magnetic ballasts last longer than electronic and are compatible with most ELV LED lamps. They also stated that deeming should be capped at 30,000 hours.

Government response

The NSW Government has expanded Activity E1 to allow Energy Savings to be calculated when replacing an ELV halogen downlight with a 240V LED. This will allow businesses to offer more incentives to end-users through the scheme. It will also provide greater opportunities for households and businesses to participate in the ESS and harmonise with schemes in other jurisdictions.

The existing implementation requirements already address the Lighting Council’s concerns about the use of licensed electricians and modification of ELV halogen luminaires.

Performing an LED lamp only replacement with an existing magnetic transformer can lead to very low power factors with some equipment combinations. The original intent for excluding LED lamp only replacements of ELV halogens with magnetic transformers was to avoid negative impacts on the electricity network due to the low power factor, and to encourage deeper energy savings. Further discussions with stakeholders revealed that there are LED lamp only products available that are designed to have an acceptable power factor when used with magnetic transformers.

The Scheme Administrator may consider amending the requirements relating to the acceptance of lighting products to address potential power factor issues.

To be consistent with lamp only replacements under the commercial lighting sub-method, the deeming period is capped at 30,000 hours.

Changes from the draft ESS Rule

Correction of Electricity Savings Factor error for ‘LED Lamp only – ELV’ LCP category for <15W when replacing ELV with electronic transformer.

Inclusion of new category to allow Energy Savings for replacing an ELV halogen with magnetic transformer with a ‘LED Lamp only – ELV’.

5.5.4 Replacing a T8 or T12 Luminaire with a LED Luminaire

Refer to the ESS Rule: §9.8 Activity E5

The NSW Government proposed that the banding is split into 5W increments (currently in 10W increments) which will provide more representative Electricity Savings Factors for more efficient products.

The NSW Government received five submissions supporting the 5W increment banding of luminaires in Activity E5, with stakeholders agreeing that this would allow for more accurate calculation of Energy Savings.

Changes from the draft ESS Rule

There have been no changes from the draft ESS Rule.

5.5.5 Co-payment and bundling requirements

Refer to the ESS Rule: §9.8

The purchaser co-payment requirement was introduced in 2014 to ensure that consumers are engaged with the project, and to help ensure customers receive quality products that are fit for purpose. The NSW Government remains committed to these objectives, and committed to working with stakeholders to ensure the requirements in the ESS Rule deliver these objectives without introducing unnecessary red-tape and increases in compliance costs.

The consultation paper sought suggestions for changes from stakeholders to ESS Rule requirements around the purchaser co-payment for HEER that could meet the objectives of consumer engagement and quality energy efficiency outcomes while reducing red-tape and compliance costs.

We received two submissions from stakeholders suggesting that the minimum 4 ESC requirement and minimum co-payment should only need to be met for the first Implementation at a Site. The EECCA highlighted that energy efficiency measures at a household may be implemented over time, especially in cases where significant capital is required, and that these requirements could become unnecessary barriers.

Two stakeholders suggested removing the co-payment altogether would increase uptake. One of these stakeholders stated it would allow low-income households that fall outside any approved Low Income Programs easier access to the scheme.

Government response

The intent of the co-payment is to ensure that the purchaser is engaged in the upgrade activity and receives a quality outcome. This risk of low engagement or a poor outcome is primarily with low cost upgrades, as it is unlikely that the incentive from the ESS would enable a free installation of a high cost Schedule D activity. Therefore, we have decided to amend the co-payment amount to reflect market conditions and the average size of a low cost upgrade in the home.

For a lighting upgrade of an average home in NSW, approximately 6 ESCs could be created. Taking into account typical equipment and installation costs, the cost to the householder is expected to be around \$30 after deducting ESC revenue.

Based on this analysis, the co-payment will be reduced from \$90 to \$30 ex GST. This figure is also consistent with the minimum Commercial Lighting co-payment amount of \$5/MWh. This figure will be reviewed during each annual Rule change process.

4 ESC minimum threshold

The intent of the minimum 4 ESC threshold is to encourage deeper retrofits in the household and small business. We acknowledge that this could introduce unnecessary barriers for households where they wish to implement activities in a staged approach. However, exempting subsequent implementations at a site from the bundling and co-payment requirements would be complex to administer and would introduce unnecessary costs.

The activities that are more likely to be implemented in a staged approach are those from Schedule D that have a higher capital cost. These activities may not meet the minimum 4 ESC if implemented individually. The bundling requirement has been revised to exempt implementations that include one or more high cost activities from Schedule D, including when implemented in conjunction with Schedule E activities. This will make it easier for households and small businesses to access the Scheme and remove an unnecessary barrier for suppliers of these technologies.

The 4 ESC thresholds has been retained for Schedule E activities to encourage deeper retrofits. Our analysis indicates that this requirement can easily be met for a lighting upgrade of an average NSW household.

Approved Low-income Energy Programs are exempt from meeting the minimum 4 ESC threshold for all upgrades.

Changes from the draft ESS Rule

Clause 9.8.1(f) has been amended to apply the 4 ESC threshold to implementations that consist of activities from Schedule E Activity only.

Clause 9.8.1 (g) has been amended to reduce the minimum co-payment requirement to \$30 ex GST per Implementation.

Wording relating to evidence requirements has been clarified.

5.6 High Efficiency Appliances for Businesses

The Installation of High Efficiency Appliances for Business (HEAB) sub-method allows ESCs to be created more simply for some technologies for use in businesses. The sub-method can be used for a range of technologies that have been tested against Australian Standards and so can be assigned lifetime Energy Savings with high confidence.

5.6.1 Installing a New High Efficiency Air-conditioner in Small Business Buildings

Refer to the ESS Rule: §9.9 Activity F4

The NSW Government proposed to allow Small Business Buildings to generate Energy Savings under Activity Definition F4, and under the HEER sub-method. This will allow participants to choose which sub-method best suits their project.

We received four submissions supporting the proposed change to allow Small Business Buildings to claim Energy Savings under Activity Definition F4. One submission highlighted that it would reduce red tape and allow small businesses greater access to the scheme. One stakeholder was unclear if the change would allow small businesses to claim twice under both HEER and HEAB. Another stakeholder suggested that Residential Buildings should also be allowed to claim Energy Savings under F4 to give an alternative option to HEER, which may inhibit participation in some cases.

Government response

A Small Business Building is now eligible to claim Energy Savings under Activity Definition F4. This provides additional flexibility for how small businesses can participate in the Scheme, while maintaining the consistency of savings calculations between methods.

Clause 6.4 of the Rule stipulates that Energy Savings Certificates cannot be created more than once for the same energy savings, so ACPs will have to choose either HEER and HEAB for eligible small business High Efficiency Air-conditioner upgrades.

The savings calculations in Activity Definition F4 are based on data from the commercial air conditioner market, so it is not appropriate to include residential projects in this activity.

Changes from the draft ESS Rule

There have been no changes from the draft ESS Rule.

5.6.2 Business operating hours for Chillers and Air-conditioners

Refer to the ESS Rule: §9.9 Activity F2 and F4

The NSW Government proposed to amend the Equivalent Full Load Hours in Activity Definitions F2 and F4 to align with the 2016 consultation Regulation Impact Statement.

We received three submissions supporting the proposed changes to Activity Definition F2 and F4.

Changes from the draft ESS Rule

There have been no changes from the draft ESS Rule.

5.6.3 Deemed Gas Efficiency Activity Definitions

Refer to the ESS Rule: §9.9 and Schedule F

The NSW Government proposed four new draft deemed Activity Definitions under clause 9.9 and Schedule F - High Efficiency Appliances for Business to provide an easily applicable financial incentive for gas efficiency projects.

All stakeholder submissions and workshop feedback supported the inclusion of deemed gas efficiency Activity Definitions in the Scheme. All stakeholders supported the approach taken to keep the deemed savings conservative and make the Activity Definitions easy to apply.

No additional requirements were proposed for replacing dual fire boilers or burners, or for proving that a boiler has not been down rated.

Government response

Several of the gas Activity Definitions contained multiple technologies. This grouping was logical in that the technologies are related. However, to ensure that the administrative process is clear, each technology has now been assigned its own Activity Definition. This will avoid the same Activity Definition being applied multiple times to the same boiler or water heater.

Changes from the draft ESS Rule

The four Activity Definitions have been split into eight Activity Definitions (F8 to F15).

Boiler replacement

The Default Efficiency Improvement (DEI) for a boiler replacement is based on an assumed efficiency improvement from installing a new boiler. The NSW Government proposed Equipment Requirements that:

- all replacement boilers with a nameplate rating of 1000 kW or more must have a minimum turndown of 4:1. Turndown relates to the boiler's ability to fire at different rates, thereby being able to respond to variable demand without cycling off and losing energy through pre and post purge of the combustion chamber.
- an oxygen trim system must be included on replacement End-User Equipment with a nameplate capacity of 2000 kW.

We sought feedback on the savings factors, Equipment Requirements, definitions and warranty requirements.

All submissions and stakeholder feedback supported the savings factors used for replacing steam boilers, hot water boilers and water heaters (Activity Definitions F8 and F9). Stakeholders recognised that it is difficult to assign an average saving and that the savings factor should therefore be conservative.

Feedback on the minimum turndown ratio and oxygen trim requirements was varied. One submission supported both requirements and one suggested that they both be removed. Feedback received as part of the public consultation process suggested that the turndown ratio could be increased to 6:1. One stakeholder also suggested that the threshold for requiring oxygen trim on boilers could be dropped to boilers with a nameplate capacity of 1,500kW or more.

Feedback on whether boilers should be defined by an Australian Standard was also mixed. Some stakeholders were concerned that the definition would be too narrow and inadvertently exclude some products.

Stakeholders were asked whether warranty requirements for boilers should be included. The unanimous response was that setting minimum warranties would do little to ensure savings are achieved.

Government response

The savings factors are suitably conservative for a deemed Activity Definition and no changes are required.

Boilers with no turndown can be operated efficiently in circumstances where demand is flat, or where boilers are run in a lead/lag setup. However, both the demand profile and boiler setup can change over the life of the asset. The 4:1 ratio will ensure that boiler is able to respond to changes in circumstances and continue to operate efficiently. The option to raise the ratio to 6:1 was also considered, however more market data is required before the ratio could be increased.

The savings factor for replacing boilers and water heaters in Activity Definitions F8 and F9 include the savings for installing oxygen trim. Decreasing the size threshold at which oxygen trim is required was considered. However, the additional cost of installing oxygen trim on a boiler that is smaller than 2,000kW was considered to be too high compared to the potential benefit. If a business wants to replace a small boiler and install oxygen trim, they will be eligible to access both incentives using Activity Definitions F8 or F9, and Activity Definition F10.

The purpose of providing a definition of a boiler is not just to ensure that the intended equipment is installed, but also to provide certainty to businesses accessing the ESS. Broad definitions have therefore been included in all Activity Definitions, and we have referenced Australian Standard definitions where applicable.

None of the submissions suggested that the minimum efficiency requirements of 80% for replacement steam boilers and 85% for hot water boilers and water heaters were unreasonable. There was general agreement that there are few products that have efficiency ratings below these thresholds, regardless of how efficiency is measured. The word fuel-to-fluid was added to the better define the type of efficiency that is intended.

Although warranties can help ensure a minimum product quality, the technologies covered in the Gas Activity Definition are designed to last for more than ten years if properly operated and maintained. A warranty would not meaningfully contribute to ensuring that these savings are achieved.

Changes from the draft ESS Rule

Broad definitions of steam boilers, hot water boilers and water heaters based on Australian Standards have been included in all gas Activity Definitions.

Boiler efficiency has been further defined as “fuel-to-fluid” in the equipment requirements for Activity Definitions F8 and F9.

Oxygen trim systems and replacement burners

These activities include the installation of an oxygen trim system with a flue oxygen level signal being sent to the boiler's existing burner, or replacing a burner with a newer, more efficient burner (with or without oxygen trim). The DEI is a measure of the reduction in heat lost from the stack through inefficient burner operation. This results in decreased gas use.

The key mechanism for efficiency improvement from these activities is a reduction in the excess air used by the burner to achieve combustion. The DEI was calculated from the theoretical savings delivered through this mechanism. These results were compared with actual savings data from several installations to determine a savings value that is reasonable across a range of projects.

We sought feedback on distinguishing features of the systems, testing standards to determine quality and expected lifetimes that should be considered as an equipment requirement to ensure that savings are achieved.

No formal submissions on additional equipment requirements for oxygen trim systems or burners were received. Nonetheless, discussions with stakeholders did highlight the need to ensure that burners and controllers are capable of receiving and responding to a trim signal.

Government response

The NSW Government saw benefit in clearly defining both technologies and making sure that they are able to interact properly.

Boiler combustion systems require regular checking and maintenance in order to operate properly and safely. Once linkage-less burners have been installed and oxygen trim integrated into the combustion system, there is no reason to revert back to a less efficient system. In the unlikely event that either of the technologies were to fail within ten years, they would most likely be replaced by an equivalent or more efficient system. For this reason, the End-User Equipment lifetime was increased from 6 years to 10 years.

Changes from the draft ESS Rule

Definitions for oxygen trim and burners have been added as an equipment requirement to Activity Definitions F10 and F11. A change was also made to the eligibility requirements for Activity Definition F10 to ensure that the boiler has a controller capable of receiving and responding to a trim signal.

The End-User Equipment lifetime has been increased to 10 years.

Economisers

The DEI for an economiser installation is a measure of the Gas Savings achieved by recovering heat from the exhaust into another liquid stream, such as boiler feed water.

The savings calculations are based on the minimum performance requirements. It is assumed that heat can be recovered from boiler exhaust gas to just above dew point, and that there is a suitable stream of receiving water for the recovered heat. These assumptions are reinforced in the eligibility and equipment requirements. A conservative efficiency factor was also applied to the heat exchanger.

We sought feedback on whether the stack test a good measure of the minimum and maximum stack temperature, suitable evidence of the results of this test, and if a position on the stack be specified to measure temperature.

Stakeholder feedback supported the proposal to use a stack test as a reliable measure of temperatures exiting the economiser. One submission suggested that maximum distances be set for the temperature testing point.

Government response

Setting the testing points for temperatures on the boiler stack is difficult as the point where stack testing is usually carried out will differ from boiler to boiler. If the temperature exceeds the thresholds defined in the Implementation Requirements at any point after the economiser, it would likely mean that the system has not been commissioned properly. We consider the Scheme Administrator could manage this risk through its compliance processes.

As economisers are relatively simple heat exchangers, the energy savings persistence is expected to be good if they are properly maintained. As such, the deemed lifetime has been increased from six years to ten years.

The underlying calculations were reanalysed during the consultation process. The maximum stack temperature in the calculation was reduced to better account for lower stack temperatures at mid and low firing rates. This resulted in a small reduction in the savings factor for steam installations on steam boilers.

Changes from the draft ESS Rule

A definition of an economiser has been included as an equipment requirement in Activity Definition F12.

The End-User Equipment lifetime has been increased to 10 years.

The savings factor for installing an economiser on a steam boiler was reduced from 0.048 to 0.041.

Heat recovery from blowdown flash steam and/or via a heat exchanger

The Energy Savings assume that the recovered heat will reduce the overall output required by the boiler. The amount of energy saved is estimated from an average blowdown rate of 2%. The amount of flash steam generated from 2% blowdown and the enthalpy of both the flash steam and the blowdown condensate have been calculated using standard thermodynamic calculations. The savings from the heat exchanger are based on the assumption that the energy from the flash steam has already been recovered, and that the energy is being recovered to boiler make-up water.

We sought feedback on whether 2% average blowdown was a reasonable basis for the calculations?

Feedback on whether 2% blowdown was a reasonable basis for calculations of deemed savings for blowdown-based Activity Definitions was mostly positive. Subsequent targeted discussions with stakeholders presented an alternative approach to calculations and underlying assumptions.

Government response

Over the course of the public consultation, additional work was completed on the three blowdown-based Activity Definitions. Rather than basing the calculations on straight percentage savings, assumptions have been made about average total dissolved solids (TDS) concentrations in boiler feed water and average boiler set points.

The savings calculation for installing a sensor-based blowdown control is based on a lowering of the TDS set point in the boiler. The recoverable energy from flash steam is based on simple thermodynamic calculations. The deemed savings from installing a heat exchanger (Activity Definition F15) is based on the remaining recoverable energy in the blowdown water after flash steam has been recovered. The savings decrease for the heat exchanger as the operating pressure increases as more heat is recovered through the flash vessel.

We've also made sensor-based blowdown control a requirement for both blowdown heat recovery Activity Definitions (F13 and F14). This is because modern sensor-based controllers are able to better control blowdown flow to maximise the heat recovered.

After discussions with industry stakeholders, we have increased the lifetime for the energy savings from six years to ten years. This is in recognition of the fact that the two heat recovery technologies do not have many moving parts and should have a long life if properly maintained. If the controller needed replacing within ten years, reverting back to a timer-based controller is considered to be unlikely.

Changes from the draft ESS Rule

The savings factors have been changed to reflect the changes to the underlying calculations for Activity Definitions F13 to F15.

Definitions for all three technologies have been included.

Sensor-based blowdown controls are now an eligibility requirement for Activity Definitions F14 and F15.

The End-User Equipment lifetime has been increased to 10 years.

Load utilisation factor (LUF)

Load utilisation factors were estimated using hourly gas interval data from 491 businesses across several states in Australia. The maximum site load was estimated from the top 0.05% of hourly intervals. Since boilers are the major gas load in many businesses, the load utilisation factor can be estimated directly from the overall gas usage on the site.

There were difficulties analysing the data by ANZSIC code. For this reason, the NSW Government took the 40th percentile of the mean LUF to ensure that the figure is conservative for 60% of the sample. This figure is 0.206.

Stakeholders were asked if there was an evidence base that demonstrates that one or multiple industry sectors were significantly disadvantaged by this approach to estimating LUF.

No evidence base was provided by stakeholders that would support a change in the LUF.

Government response

Without an evidence base to justify a change in the LUF, it will remain at 0.206.

Changes from the draft ESS Rule

There have been no changes from the draft ESS Rule.

Potential Activity Definition for Insulation

The NSW Government considered including an additional Activity Definition for insulating pipes, valves and tanks. This would provide an incentive to insulate equipment containing or conveying hot water or steam that has been heated by a Gas fired steam boiler or Gas fired water heater, thereby reducing heating demand on the boiler and reducing Gas use.

We sought feedback on whether there are there pipes, valves or tanks in multi-dwelling residential, commercial or industrial buildings that aren't currently insulated, and if there was a case to provide an incentive to go beyond current Australian Standards or NCC specifications for insulating pipes, valves and tanks.

There was broad support for incentives for insulation in commercial and industrial buildings from written submissions and from the consultation workshop.

Government response

There are still several challenges associated with providing ongoing incentives for insulation. The deemed savings are straightforward, but there are still issues around the eligibility requirement that need to be resolved. The Office of Environment and Heritage is currently providing funding for insulation projects in order to get more implementation data and further assess the possibility of include insulation in the ESS. For more information on this opportunity, see <http://www.environment.nsw.gov.au/business/gas-efficiency-funding.htm>.

6 Glossary

Acronym	Definition
AMB	Aggregated Metered Baseline
CLESF	Commercial Lighting Energy Savings Formula
EPA	Environment Protection Authority
ESC	Energy Savings Certificate
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