NSW GOVERNMENT Planning & Environment

Energy Savings Scheme

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Foreword

This paper is intended to explain the policy intent and detail behind the proposed changes to the Energy Savings Scheme (ESS) Rule and seek stakeholder feedback. The changes being proposed are part of the NSW Government's commitment to continuous improvement of the ESS. The NSW Government is seeking input from stakeholders to ensure the proposed changes are appropriate and reflect industry standards.

Written submissions

The release of this paper starts the consultation period. The NSW Government encourages stakeholders to provide written comments by COB 26 January 2018 to:

Tim Stock, Manager Clean Energy Programs
Energy Delivery and Coordination
NSW Department of Planning and Environment
Division of Energy, Water and Portfolio Strategy
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Stakeholder Forum

As part of this consultation period, the NSW Government will be holding an information forum to discuss the proposed changes and answer any stakeholder queries. The forum will be held on 13 December 2017 in the Sydney CBD. To register your interest in attending the forum, please visit http://register.environment.nsw.gov.au/ess-rule-change-public-forum.

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1 Introduction

The NSW Energy Savings Scheme (ESS) is the premier energy efficiency program in NSW. The *Electricity Supply Act 1995* (the Act) states 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, eligible participants, types of eligible activities, 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 outlines 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, changes to the rule requirements 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 next major review will take place in 2018-19.

As part of the 2017-2018 ESS Rule change process, OEH has conducted targeted consultation with ESS stakeholders on proposed changes. Stakeholder feedback from this targeted consultation has been considered in preparing this paper.

This consultation paper discusses the proposed changes for the 2017-2018 annual update to the ESS Rule. Part Two details proposed general updates and parts Three, Four and Five consider proposed changes to particular Methods or sub-methods for generating Energy Savings under the ESS. A glossary is provided in Part Six.

A draft version of the ESS Rule (the draft Rule), showing proposed changes, is available for review and should be read in conjunction with this consultation paper. This can be found at https://www.resourcesandenergy.nsw.gov.au/energy-consumers/sustainable-energy/efficiency/scheme/energy-savings-scheme-rule-change-2017-18.

The draft ESS Rule shows all proposed changes to the ESS Rule as coloured additions or strikethroughs. Where minor changes have been made for clarity or consistency they are shown coloured in the draft Rule but are not considered in this consultation paper.

2 General Rule updates

2.1 Commencement date, and transitional arrangements

Refer to the draft ESS Rule: §11.1 and §11.9

The gazettal of the amendments to the Rule will specify the date that the amendments will come into effect. For the majority of changes proposed in this paper, expected that gazettal will occur in approximately April and that the changes will commence on 31 July 2017. For the changes proposed to the Commercial Lighting Energy Savings Formula (CLESF) it is proposed that the changes come into effect on 31 October 2018. The NSW Government proposes to insert a new clause at 11.9 to provide clarification on the specific transitional arrangements that apply to commercial lighting.

Adhering to good legal practice, the NSW Government proposes to keep preceding transitional arrangements in the Rule, instead of annually updating clause 11.1 as previously done. Preserving preceding transitional clauses will enable stakeholders to access previous agreements for future reference. Accordingly, it is proposed that the definition of 'Previous Rule' in clause 11.1 will no longer be updated.

This proposed administrative change will result in increased transparency for stakeholders and represents standard legal practice, as also adopted by the Australian Energy Market Commission in the National Electricity Rules.

Question 1: Do you agree with the proposal to preserve preceding transitional arrangements within the Rule? If not, please provide an alternative approach and supporting evidence to justify your response.

2.2 Data gathering

The NSW Government intends to collect additional customer data to evaluate the effectiveness of the ESS and its linkage to other energy savings programs. This may include the National Metering Identifier (NMI) for electricity savings, and the Delivery Point Identifier (DPI) for gas savings.

The NSW Government is therefore considering a request for the NMI and DPI within the data provision requirements in clause 8.8 of the ESS Rule. This is not yet included in the draft ESS Rule as consideration of how best to collect the data is ongoing.

Question 2: Do you agree with the intention to collect additional customer data, including NMI and DPI? If not, please provide an alternative approach and supporting evidence to justify your response.

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 PIAM&V Method accounts for changes in operating conditions, which means that Energy Savings from a large variety of activities can be accurately estimated. The NSW Government has identified changes to strengthen the PIAM&V Method.

3.1 Lighting product requirements

Refer to the draft ESS Rule: §7A.21

In the absence of a national energy performance standard on LED technology, the ESS Rule requires that only LED products accepted by the Independent Pricing and Regulatory Tribunal (IPART) as meeting the equipment requirements can be used to calculate Energy Savings under the Commercial Lighting Energy Savings Formula (CLESF) and the Home Energy Efficiency Retrofits (HEER) sub-methods. The PIAM&V Method does not require End-User Equipment like LEDs to meet any equipment requirements specified in the ESS Rule.

It is important to ensure that lighting products installed under the ESS meet the same standards, and comprehensive LED lighting requirements are applied consistently throughout different methods under the ESS.

The NSW Government proposes that LED lights installed under the PIAM&V Method must also meet the relevant equipment requirements outlined in the ESS Rule.

Question 3: Do you agree with the proposal that ACPs are required to ensure that the LED lights installed under the PIAM&V method meet the relevant equipment requirements outlined in the ESS Rule? If not, please provide an alternative approach and supporting evidence to justify your response.

3.2 Forward Creation when using the Default Decay Factors

Refer to the draft ESS Rule: §7A.12

The current ESS Rule requires ACPs to set a Maximum Time Period for Forward Creation that does not exceed the expected lifetime of the End-User Equipment in whole years, as determined by a Persistence Model. This also applies when using the default decay factors.

Default decay factors are usually used when there is no Persistence Model available. The NSW Government therefore proposes that ACPs are not required to use a Persistence Model to set a Maximum Time Period for Forward Creation when using default decay factors.

Question 4: Do you agree with the proposed changes to the Maximum Time Period for Forward Creation when using the default decay factors? If not, please provide an alternative approach and supporting evidence to justify your response.

3.3 Top-up certificate creation

Refer to the draft ESS Rule: §7A.14

The ESS Rule provides additional incentives for energy users to continuously measure energy consumption after ESCs have been created using Forward Creation. If Additional Energy Savings can be proven based on measurements after ESCs have been created, ACPs may create ESCs from these Additional Energy Savings. This concept is referred to as “top-up”.

The current ESS Rule requires top-ups to be based on a full year of measurements. It prevents ACPs from performing a single top-up from measurements covering multiple years. For example, if an ACP wants to top-up ESCs three years after implementation, the current ESS Rule only calculates the Additional Energy Savings on the third year.

The NSW Government proposes to allow ACPs to top-up ESCs for one or more years at the same time, provided they calculate Additional Energy Savings for each year separately.

Question 5: Do you agree with allowing ACPs to top up ESCs for one or more consecutive years at the same time, provided they calculate Additional Energy Savings for each year separately? If not, please provide an alternative approach and supporting evidence to justify your response.

4 Metered Baseline Method

The Metered Baseline Method (MBM) compares energy consumption before and after an energy savings project is implemented. Savings are calculated based on actual measured energy consumption before and after an activity has been implemented. The NSW Government has identified changes to strengthen this Method.

4.1 Lighting product requirements

Refer to the draft ESS Rule: §8.1

In the absence of a national energy performance standard on LED technology, the ESS Rule requires that only LED products accepted by the Independent Pricing and Regulatory Tribunal (IPART) as meeting the equipment requirements can be used to calculate Energy Savings under the Commercial Lighting Energy Savings Formula (CLESF) and the Home Energy Efficiency Retrofits (HEER) sub-methods. The MBM does not require End-User Equipment like LEDs to meet any equipment requirements specified in the ESS Rule.

It is important to ensure that lighting products installed under the ESS meet the same standards, and comprehensive LED lighting requirements are applied consistently throughout different methods under the ESS.

The NSW Government proposes that LED lights installed under the MBM must also meet the relevant equipment requirements outlined in the ESS Rule.

Question 6: Do you agree with the proposal that ACPs are required to ensure that the LED lights installed under the Metered Baseline Method meet the relevant equipment requirements outlined in the ESS Rule? If not, please provide an alternative approach and supporting evidence to justify your response.

5 Deemed Energy Savings methods

5.1 Updates to Sale of New Appliances sub-method

The Sale of New Appliances (SONA) sub-method provides incentives for customers to purchase new appliances that are more efficient than the market average. Incentives are provided to encourage the purchase of appliances that have Energy Rating Labels and have been tested according to the relevant Australian Standard including: clothes washers, clothes dryers, dishwashers, refrigerators, freezers and televisions.

Adjustment to the SONA Equipment Electricity Savings

Refer to the draft ESS Rule: §9.3 Schedule B

The Equipment Electricity Savings for the SONA sub-method in Schedule B of the ESS Rule are calculated using a baseline derived from 2016 sales data and do not reflect the energy efficiency of products now sold in the appliance market.

The NSW Government proposes to adjust the Equipment Electricity Savings to use a baseline that reflects the sales weighted average star rating of appliance sales in 2017.

The 0.5-star threshold above the sales-weighted average star rating, under which appliances would not be eligible to create ESCs, remains the same.

The NSW Government proposes that the Equipment Electricity Savings tables be updated to provide Energy Savings for appliances with ratings up to 10 stars, and for appliances with ratings up to 6 stars, depending on the appliance category.

Question 7: Do you agree with the proposal to update the SONA Equipment Electricity Savings tables? If not, please provide an alternative approach and supporting evidence to justify your response.

5.2 Updates to the Commercial Lighting Energy Savings Formula

5.2.1 Updates to the Asset Lifetime

Refer to the draft ESS Rule: §9.4 Schedule A Table A10.6

The lighting market in NSW has undergone significant changes since the introduction of the ESS commercial lighting sub-method. The NSW Government recently commissioned research (Appendices B and C) to understand the impact of these changes, consider the influence of the ESS on the lighting market to date and inform potential changes to the ESS calculation framework.

The research involved qualitative and quantitative analysis that examined the structure, dynamics and performance of the lighting market. It found that the overall energy efficiency of the lighting market in NSW has been improved and, particularly in non-industrial building spaces, transformed by both the ESS and the evolution of the global lighting market. The ESS has facilitated the establishment of the lighting retrofit market, which has accelerated the installation of energy-efficient LED lights in NSW.

The research found that in some cases, due to the transformation in the lighting market, the installation of LEDs now occurs without the incentives provided by the ESS. This means that over time, if the NSW Government does not make changes to the ESS Rule, the ESS would provide incentives for Lighting Upgrades that would occur anyway.

The ESS will only be effective in meeting all its legislated objectives if more energy is saved than would have been saved without the Scheme. The current approach to calculating Energy Savings under the commercial lighting sub-method assumes that the existing lights would not be replaced with energy efficient lights without the support of the ESS. For some upgrades, this assumption will soon be invalid, due to the transformation in the lighting market, and lights would eventually be replaced with more energy efficient technologies without the support of the ESS.

The NSW Government proposes the following updates to the Asset Lifetime (Table 1) to reflect the transformation in the lighting market in NSW.

Table 1 Asset Lifetime (in years) by Equipment Group and Building/Space Group

Equipment Group	Building/Space Group	Asset Lifetime (in years)
I - Linear – T5 or T8/T12 to LED	A (Others)	6.7
	B (Office)	7.2
	C (Industrial)	11.6
	D (Retail)	7.3
II - Downlight - halogen/CFLn to LED	A (Others)	7.2
	B (Office)	7.2
	C (Industrial)	12.2
	D (Retail)	7.1
III - Bay/road - HID to LED	A (Others)	7.8
	B (Office)	7.8
	C (Industrial)	11.6
	D (Retail)	7.8
IV - Lighting for roads and public spaces or traffic signals	E (Public)	12

Further information on how these Asset Lifetime values have been calculated can be found in Appendix A.

The NSW Government proposes a transition period to allow the industry to prepare for this change. This will allow ACPs to implement savings and register ESCs until 31 October 2018 using the existing Asset Lifetime.

Currently there is no evidence to suggest the same level of transformation has occurred in regional areas. Hence, the NSW Government proposes to retain the current asset lifetime for regional areas.

Question 8: Do you agree with the proposed Asset Lifetime values? If not, please provide an alternative approach and supporting evidence to justify your response.

Question 9: Do you agree with the proposed transition period? If not, please provide an alternative approach and supporting evidence to justify your response.

Question 10: Do you consider that the proposed Asset Lifetime values should be rounded to the nearest year, or that that the proposal for portions of years is more appropriate?

5.2.2 Maximum Nominal Lamp Power for highbay lamps

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

There is a risk that the Lamp Circuit Power (LCP) of a removed lamp is misreported when claiming Energy Savings. This risk is greatest with high wattage lamps such as high-intensity discharge (HID) highbay lamps, including metal halide lamps, mercury vapour lamps and high-pressure sodium lamps. To protect the integrity of the Scheme and minimise audit costs for ACPs, the NSW Government proposes to set a maximum Nominal Lamp Power (NLP) cap for removed HID highbay lamps of 400W for replacement of lamps with non-integrated ballasts, and 450W for replacement of lamps with integrated ballasts, (see Table A9.2 of the draft Rule). This is proposed in order to avoid increased audit costs and protect the integrity of the Scheme.

Question 11: Do you agree that a Maximum NLP cap should be applied to all types of HID highbay lamps, or do you think it should only be applied to specific technology types of highbay lamps? Please provide supporting evidence to justify your response.

Question 12: Do you have any comments on the proposed maximum NLP cap?

5.2.3 Addition of the Maintained Emergency Lighting sub-clause

Refer to the draft ESS Rule: §9.4.1

There is a risk the ESS could provide an incentive for changing Space Types (see Table A10.2 of the draft Rule) when replacing a normal Luminaire (operating as needed) with an 'always on' emergency Luminaire, defined as Maintained Emergency Lighting in Table A10.2. The current ESS Rule allows the deemed 8,500 Annual Operating Hours (AOH) for Maintained Emergency Lighting to be applied to both the baseline and upgrade calculations. Therefore, the equation will capture the reduction in LCP, but not the actual change in operating hours. This means ESCs could potentially be created for a Site where increased energy consumption occurs due to an increase in operating hours.

For example, you could replace a 20W Luminaire in an office with 3,000 AOH with a 10W 'always-on' maintained emergency Luminaire. The original Luminaire would consume 20W x 3,000 AOH = 60kWh of electricity each year and the ‘always on’ Luminaire would consume 10W x 8,760 AOH = 87.6kWh. This equates to an increase of 27.6kWh per year for each Luminaire. Under the current ESS Rule, the

AOH for Maintained Emergency Lighting (8,500) could be applied to the baseline and the upgrade equations. This means baseline energy consumption would be 20W x 8,500 AOH = 170kWh per year and the upgrade consumption would be 10W x 8,500 AOH = 85kWh per year, which equates to 85kWh of savings, when actual energy consumption has risen by 27.6kWh. The discrepancy is highest when the actual hours of operation are lowest, e.g. 1,000 AOH.

This discrepancy between actual and calculated Energy Savings could risk incentivising the replacement of Luminaires with low operating hours with 'always on' Maintained Emergency Lighting.

The NSW Government proposes to include a sub-clause to only allow the replacement of existing Maintained Emergency Lighting with new (more efficient) Maintained Emergency Lighting.

Question 13: Do you agree with the inclusion of a sub-clause for Maintained Emergency Lighting? If not, please provide an alternative approach and supporting evidence to justify your response.

5.2.4 Mercury Vapour and Metal Halide lamps with built in ballast

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

The current ESS Rule does not consider self-ballasted mercury vapour and metal halide lamps in Table A9.2. These lamps historically came with non-integrated magnetic and electric ballasts but some companies offer lamps with integrated ballasts. The NSW Government proposes to amend Table A9.2 to include a "built in" category for mercury vapour and metal halide lamps with integrated ballasts to address this shift in the market.

Question 14: Do you agree with including a "built in" category for mercury vapour and metal halide lamps with integrated ballasts? If not, please provide an alternative approach and supporting evidence to justify your response.

5.3 Updates to the Public Lighting Energy Savings Formula

Refer to the draft ESS Rule: §9.4A

In the current ESS Rule, the Public Lighting Energy Savings Formula refers to the equations in the Commercial Lighting Energy Savings Formula to calculate Energy Savings.

Unlike the commercial lighting sub-method, the NSW Government does not propose any changes to the Energy Savings under the public lighting sub-method, as there is currently insufficient data to justify a change.

The NSW Government proposes to introduce standalone, simplified equations to the public lighting sub-method so that the Energy Savings are not impacted by the proposed changes to the commercial lighting sub-method. The proposed equation removes the control multiplier and air-conditioning multiplier as they are not relevant to public lighting upgrades.

Question 15: Do you agree with introducing standalone, simplified equations to the public lighting sub-method? If not, please provide an alternative approach and supporting evidence to justify your response.

5.4 Updates to Home Energy Efficiency Retrofits sub-method

5.4.1 Addition of BCA Class 3 to HEER and ROOA

Refer to the draft ESS Rule: §10.1

BCA Class 3 buildings are currently not eligible sites under the Home Energy Efficiency Retrofits (HEER) and Removal of Old Appliances (ROOA) sub-methods of the ESS Rule. A Small Business Building includes BCA Class 5, 6, 7b, 8, 9 and 10 buildings, less than 200m^2. BCA Class 3 buildings apply to long term or transient living for unrelated people and include buildings such as guest houses, hostels, motels, aged care centres or residential parts of hotels.

OEH consulted stakeholders about including BCA Class 3 buildings under the current definition of a Residential Building or a Small Business Building. Stakeholders stated that BCA Class 3 buildings are most likely operating like a business and were supportive of including BCA Class 3 buildings under HEER and ROOA. It is the intent of the HEER sub-method to be straightforward, so both residential householders and small businesses can easily access incentives to upgrade various equipment types.

The NSW Government proposes to include BCA Class 3 buildings under the current definition for a Small Business Building.

Question 16: Do you agree with allowing BCA Class 3 buildings to become eligible sites under the HEER and ROOA sub-method? If not, please provide an alternative approach and supporting evidence to justify your response.

5.4.2 Updates to savings factors for building fabric activities

Refer to the draft ESS Rule: §9.8

To maintain the integrity and validity of ESCs generated under the HEER sub-method, the NSW Government proposes to update the Energy Savings provided for the building fabric activities.

The existing Deemed Savings Factors (DSFs) may no longer reflect actual Energy Savings when implementing building fabric activities, due to technology advancement, shifts in energy use patterns among the NSW population and changes in the housing mix. The NSW Government has used more recent data to model Energy Savings and calculate more representative baselines. Furthermore, the HEER building fabric activities do not provide separate DSFs for Small Business Buildings because savings were not modelled using separate parameters specific to small businesses. As part of this update to the existing DSF the NSW Government proposes to also provide separate DSFs for Small Business Buildings.

The NSW Government also proposes to change some of the eligibility requirements to improve accessibility and encourage greater Energy Savings. Where possible, we have tried to harmonise these proposed changes with the Victorian and South Australian State Schemes.

To ensure the accuracy and integrity of the ESS, Energy Savings should reflect current energy consumption data. The Activity Definitions listed below have been updated to reflect the results of modelling using the most recent data.

- D1 - Replace an external single-glazed window with thermally efficient window
- D2 - Modify an external window by installing secondary glazing
- E7 - Modify an external door with draught proofing
- E8 - Modify an external window with draught proofing
- E9 - Modify a fireplace chimney by sealing with a damper

In addition to updating the DSFs, the NSW Government proposes further changes to encourage greater Energy Savings and include two additional activities in the ESS Rule: sealing exhaust fans and installing external blinds. These changes are explained under the activity headings below.

Windows

DSFs for windows are currently split out using the Windows Energy Rating System (WERS) star rating, with a 4-star rating as the threshold for claiming ESCs. WERS uses the product U value and the Solar Heat Gain Coefficient (SHGC) to rank it against alternative products using a ten-star scale and 17 generic window types.

- The U value is a measure of how much heat is transferred through the window – the lower the U value, the better level of insulation the window provides.
- The SHGC is a measure of the solar radiation admitted through a window. A product with a high SHGC rating is more effective at absorbing solar heat during the winter. A product with a low SHGC rating is more effective at blocking heat gain from the sun during the summer.

Considering the difference of benefits between summer and winter, and the range of climates in NSW, it is proposed that the U value alone is a better measure of efficiency for our purposes in the ESS Rule.

The NSW Government proposes that DSFs for thermally efficient windows and secondary glazing are split out by U value. This will provide greater incentives for those who choose to install more efficient products. Small Business Buildings DSFs have also been added as tables in Activities D1 and D2.

Question 17: Is the U value of the windows a better indicator of efficiency than the Window Energy Rating Scheme (WERS) star rating? If not, please justify your response.

Draught Proofing

Currently, the draught proofing door activity provides DSFs per door per Climate Zone. Products must have a minimum two-year warranty, but the assumed lifetime is set at five years. It is proposed to provide an additional DSF for products with a five-year warranty that have an assumed lifetime of ten years. This encourages better quality products to be installed and allows the NSW Government to harmonise the ESS with the Victorian, Australian Capital Territory and South Australian State Schemes.

Question 18: Is the warranty period a good indicator of the lifetime of the product? Is there a better way to distinguish products with longer lifetimes?

Chimney Dampers

Chimney dampers can have a significant impact on building efficiency by restricting the air flow in and out of the building. Chimney damper products on the market can vary in quality and durability, making it difficult to assume an average lifetime for this activity. Most fixed chimney dampers have a warranty period of five years but can last for ten years. Chimney balloons which typically only last a few years have therefore been excluded from this activity and the assumed lifetime has been extended from five to ten years.

Question 19: Is the ten-year lifetime for fixed chimney dampers reasonable? If not, please provide an alternative approach and supporting evidence to justify your response.

Exhaust fans

The activity of sealing exhaust fans can cover an array of products for installation, including those on walls or ceilings, those that are self-closing or manually closed and those which leave a small gap or close completely. Exhaust fans are most commonly used in kitchens and bathrooms or wet rooms for the elimination of steam. Exhaust fan sealing is done to restrict the air flow into or out of the premises. This saves energy due to the reduced load on the air conditioning system, either from hot or cold air entering the building from outside, or through losing heated or cooled air from inside the building. It is important that the changes made to the exhaust fan still allow the egress of air to outside of the building as an air quality and safety measure. An equipment requirement will be added into the Rule to this effect.

It is proposed to align with the Victorian Scheme by adding an additional two activities for the sealing of exhaust fans; one to modify an existing exhaust fan with a sealing product added into Schedule E (as a low-cost activity), and another to replace an existing exhaust fan with a new self-sealing exhaust fan to be added into Schedule D (as a high-cost activity).

Question 20: What evidence could be used to show the requirement that the installed End-User Equipment must allow the egress of air when the exhaust fan is in operation?

Question 21: Is it reasonable to consider the replacement of an existing exhaust fan with a new self-sealing exhaust fan as a high-cost activity to be added into Schedule D, as opposed to a low-cost activity which would be added in Schedule E?

External blinds

The current window film activity encourages the installation of a reflective film which is adhered onto the outside of the window. This activity currently provides up to 0.07 MWh per m^2 of window covered, which is a relatively small incentive and is only applicable in Climate Zones 2 – 4. This is because the efficiency benefit occurs in the spring and summer months when the sun's rays are reflected off the window and do not contribute to the internal cooling load. However, in the autumn and winter months, the internal heating load can be higher as a result of the reflective window film reflecting solar gains.

It is proposed to include an alternative activity to install external blinds, which can be used more effectively to reduce the cooling load in the summer and make the most of the sun in the winter. Savings will only be made for windows facing within a specified range of true north. Both manual and

automatic blinds will be eligible, and factors have been included for small business as well as residential buildings.

Installers must apply the product as instructed by the manufacturer to maintain proper intended use of the blind and ensure the Energy Savings occur. It is likely that the installer will be required to use a ladder to install the blinds and it is proposed to include a requirement that the person performing the activity must hold a valid NSW White Card to ensure they have attended safety training for working at height.

Question 22: Can the requirement that the window or door must not face south (between 135 degrees and 225 degrees of true north) be easily evidenced?

Question 23: Is the requirement to hold a NSW White Card an appropriate measure to ensure safety for working at height?

Question 24: Should deemed savings factors for external blinds that are operated manually, rather than automated, be discounted to account for the risk that user behavior is not as assumed in the modelling?

5.4.3 BCA Climate Zones

Refer to the draft ESS Rule: Table A26

To remove any ambiguity around which Climate Zones should be used from the tables under the HEER activities, the NSW Government proposes to provide a table in Schedule A (see Table A26 in the draft Rule) to easily identify the relevant Climate Zone for each NSW postcode.

Question 25: Please provide any comment on the proposed table of BCA Climate Zones by postcode.

5.4.4 Updates to Pool Pump factors

Refer to the draft ESS Rule: §9.8 Activity Definition D5

The replacement of a pool pump with an energy efficient pool pump is currently an eligible activity under the HEER sub-method. The NSW Government proposes to revise the method for calculating Energy Savings for Pool Pumps and update the savings factors.

Previous market surveys projecting the breakdown of pool pump sales in Australia suggest that the market average for pool pumps is slightly under 4 stars, and that this average has only moved slightly over the last five years. Currently, the benchmark is set to 5.5 stars in the ESS (5 stars with a 0.5-star threshold). The VEET sets a 2-star market average, with a 1-star threshold. ACT is set to adopt a 3-star market baseline.

Approximately 10 per cent of all pool pump sales within Australia come directly from internet sales, with most of these being single speed pool pumps. There is currently no mechanism by which to accurately measure sales of pool pumps via the internet, however the 4-star average of a replaced pool pump will ensure that default savings factors remain conservative in the determination of ESCs in this sub-method.

A comparison of the calculation of savings factors for pool pumps across other states has highlighted that the lookup table for default savings factors of pool pumps in the ESS is complex. The lookup table will be simplified to one value for each star-rating, reflective of a pool pump used on its lowest setting (as tested in AS/NZS5102.1 and 5102.2).

Given that Energy Rating Labels for pool pumps within Australia are voluntary, the lower market average baseline will provide an incentive for some product manufacturers/suppliers to have their products tested and classified.

Default savings factors over the lifetime of a pool pump (4-star market average with a 0.5-star threshold, 12-year lifespan) have been calculated for review in the draft Rule. The minimum warranty period has been reduced to three years, to match best practice within the market.

The requirement for pool pumps to be in working order at time of replacement has been changed to only requiring a pool pump to have been installed at time of replacement. The equipment requirement for pool pumps to have not less than 300W of input power has been reduced to 100W, reflective of incremental increases in efficiency.

Question 26: Do you have any interest in becoming accredited to undertake pool pump replacements using the HEER method? Why/why not?

Question 27: Regarding evidence requirements, how can we ensure a pool pump was installed prior to replacement?

Question 28: Are the savings factors representative of the average efficiency improvements achieved by an efficient pool pump? If not, please provide supporting evidence to justify your case.

5.4.5 Ventilators

Refer to the draft ESS Rule: §9.8 Activity Definitions D13 and D14

Ventilators are a proven and increasingly popular technology that can meet a portion of a building's heating and cooling requirements and thus reduce energy consumption. Ventilators exchange ambient (outside) air with the air contained inside the roof space and/or occupied-space (room) of a building. This air exchange can provide heating or cooling, when the outside air is hotter or cooler, respectively, than the air contained in the building. They can also change the humidity of the air contained in the building if the outside air is wetter or drier than the inside air. This means excess moisture can be removed from the building. This exchange of ambient air can therefore reduce the energy consumption needed to maintain comfortable conditions in a building.

Natural Roof Space Ventilators are driven by buoyancy, where hotter inside air rises and is exhausted through an outlet or outlets on the roof, or by the wind, which causes negative pressure that extracts air through the roof outlet and lower vents refill the roof cavity with outside air. A Fan-Forced Roof Space Ventilator uses electricity to drive a motor to exchange air between inside and outside, often at significantly higher air-change rates or flow rates than Natural Roof Space Ventilators. Fan-Forced Roof Space Ventilators can use mains electricity or can have all or a portion of its electricity consumption supplied by a photovoltaic (PV) cell. Occupied Space Ventilators provide controlled

ventilation in the occupied space of a building via a fan forced ventilation, controller and temperature or humidity sensors or both.

The NSW Government proposes to include a new Activity Definition for Natural Roof Space Ventilators and a separate Activity Definition for Fan-forced Roof Space Ventilators, PV power Fan-Forced Roof Space Ventilators and Occupied Space Ventilators. These are considered to be high-cost upgrades and are proposed to be included under Schedule D. This will provide more energy efficiency opportunities for households and small businesses under the ESS.

Question 29: Do you have any interest in a new activity for ventilators under the ESS? If not, please provide further explanation and supporting evidence to justify your response.

Question 30: Do you agree with the Eligibility, Equipment and Implementation requirements proposed for ventilators in Activity Definitions D13 and D14 of the draft ESS Rule? If not, please provide an alternative approach and supporting evidence to justify your response.

5.5 Updates to High Efficiency Appliances for Businesses

Refer to the draft ESS Rule: §9.9 Activity Definitions F8 and F9

Activity Definitions F8 and F9 provide incentives for upgrading existing boilers or water heaters to high efficiency boilers or water heaters. The Default Efficiency Improvement for a boiler or water heater replacement is based on an assumed efficiency improvement from installing a new boiler or water heater.

The current ESS Rule text does not specify that the replacement boiler or water heater must be new, which is the NSW Government's policy intent for these activities. The draft Rule text will clarify that only new boilers or water heaters can be installed under Activity Definitions F8 and F9.

Question 31: Do you agree with ensuring only new boilers or water heaters can be installed under Activity Definitions F8 and F9? If not, please provide an alternative approach and supporting evidence to justify your response.

6 Glossary

Acronym	Definition
ACP	Accredited Certificate Provider
AMB	Aggregated Metered Baseline
AOH	Annual Operating Hours
BCA	Building Code of Australia
CLESF	Commercial Lighting Energy Savings Formula
DA	Development Application
DPE	Department of Planning and Environment
DPI	Delivery Point Identifier
DSFs	Deemed Savings Factors
ESC	Energy Savings Certificate
ESS	Energy Savings Scheme
HEER	Home Energy Efficiency Retrofit
IPART	Independent Pricing and Regulatory Tribunal
IPD	Illumination Power Density
LCP	Lamp Power Circuit
LED	Light Emitting Diode

M&V	Measurement and Verification
NABERS	National Australian Built Environment Rating System
NLP	Nominal Lamp Power
NMI	National Metering Identifier
NSW	New South Wales
PIAM&V	Project Impact Assessment with Measurement and Verification
PV	Photovoltaic
RESA	Recognised Energy Saving Activity
ROOA	Removal of Old Appliances
SONA	Sale of New Appliances
VEET	Victorian Energy Efficiency Target
WERS	Window Energy Rating Scheme

7 List of appendices

Please see the the Rule change website for copies of the three appendicies listed below

resourcesandenergy.nsw.gov.au/energy-consumers/sustainable-energy/efficiency/scheme/energy-savings-scheme-rule-change-2017-18

Appendix A Updates to the commercial lighting sub-method

Appendix B NSW Lighting Market Impact Evaluation – Impacts of NSW Government energy efficiency programs

Appendix C NSW Lighting Market Impact Evaluation – Modelling Assumptions Report