Unlocking Energy Savings in NSW:

Enhancing the NSW Energy Savings Scheme

Rule change consultation paper 2013

About this document

The NSW Government is proposing to enhance the NSW Energy Savings Scheme (ESS) to make it easier for households and businesses to save energy.

This consultation paper provides the aims, descriptions and context for a range of proposed changes to the ESS Rule. A draft ESS Rule has also been issued, which shows how the proposed changes would alter details such as accreditation conditions, activity definitions, and methods and factors for calculating energy savings.

The Government invites submissions from all interested parties on these proposals, which will inform a new ESS Rule, planned to take effect in 2014.

This consultation paper asks questions for stakeholder consideration. To help us consider your submission, please address the questions of interest, and take care to clearly set out your responses correspondingly. **The closing date for submissions is 5.00pm on 11 DECEMBER 2013.** Submissions received after this time may not be considered. Submissions made on behalf of an organisation must be on letterhead, signed and dated.

As part of this consultation process the Government will be conducting a short survey of current and prospective Accredited Certificate Providers to understand the level of interest in accreditation under the new and changed methods. This will facilitate prioritised or staged commencement under the Rule. After the information session, the survey will be made available on the consultation website at webpage www.energy.nsw.gov.au/sustainable/efficiency/scheme.

Send submissions by post to:

Energy Savings Scheme Rule Change Consultation 2013

Department of Trade and Investment
GPO Box 3889
SYDNEY NSW 2001

Send submissions by email to:

ess@dwe.nsw.gov.au

Subject line: "[Your/company name] - ESS Rule Change Consultation 2013"

Phone enquiries: 02 8281 7414

The complete text of all submissions including the name of the submitter will be made publicly available on the NSW Trade & Investment website, subject to any claims to confidentiality or privacy. In publishing submissions, the NSW Government will comply with all requirements under applicable privacy laws.

Some terms in this document have specific meaning in the ESS. They are designated in title case (leading upper case letters). For definitions of these terms, please refer to Clause 10 of the draft ESS Rule, Section 99 of the *Electricity Supply Act 1995*, and Clause 78A of the *Electricity Supply (General) Regulation 2001*.

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1 Executive Summary

The NSW Government is proposing the first comprehensive enhancement of the NSW Energy Savings Scheme (ESS) since it commenced in 2009.

The ESS provides financial incentives to parties whose products or services save households or businesses energy. By driving energy savings, the ESS directly reduces the bills of households and businesses that take up these products and services. Furthermore, it benefits all NSW electricity customers because it will reduce future electricity price rises by avoiding the costs of additional electricity generation and supply infrastructure.

The proposed changes include enhancements for households, businesses and general improvements to the ESS.

Households

- incentives for tradespeople to reduce the cost and increase the quality of household upgrades to lighting, fixed appliances and building fabric
- incentives for appliance retailers to make high efficiency appliances more affordable and accessible for their customers
- lowering transaction costs for businesses to provide services to households to retire old and inefficient fridges and freezers
- incentives for electricity retailers, networks or other parties to give their customers tools and information that are proven to save energy in the home.

Businesses

- increased up-front incentives that more accurately reflect equipment lifetimes and require best practice measurement and verification of energy savings
- lowering transaction costs for Accredited Certificate Providers (ACPs) to offer their services across multiple sites
- ensuring commercial lighting service providers deliver lasting energy savings to customers.

General improvements

- simpler nomination process
- ensuring the ESS drives change
- transitional arrangements for existing ACPs
- streamlined certificate creation process and analysis
- annual timetable for future changes to the ESS.

The proposed changes are guided by these four objectives:

1. Encourage the take-up of a broader range of energy efficiency actions. The proposals will do this by:
   - including more household energy efficiency activities, while aligning more closely with the Victorian Energy Efficiency Target (VEET) scheme
   - providing more opportunities for more businesses to access the ESS
   - providing more accurate methods for calculating savings, allowing greater incentives for some activities.
2. Remove unnecessary red-tape that creates a barrier to households and businesses accessing incentives. The proposals will do this by:
   - minimising the administrative cost of delivering activities
   - clarifying technical requirements of the ESS
   - streamlining ESC creation processes.
3. Ensure consumers receive lasting savings through quality products and services. The proposals will do this by:
   - requiring co-payments for low-cost activities to improve customer engagement
   - clarifying product lifetime and quality test requirements
   - removing activities where there is high uncertainty over energy savings.
4. Drive change by targeting certificate creation to actions additional to what would have occurred in the absence of ESS support. The proposals will do this by:
   - updating ESS savings factors in line with market and regulatory changes.
   - ensuring service providers can include ESC revenue in their offerings
   - clarifying activities that are not eligible to create ESCs.

The Government recognises that changes to the ESS Rule may have an impact on Energy Savings Certificate prices. The purpose of the ESS Rule is to set an evidence based framework to provide certainty in calculating energy savings, while avoiding unnecessary red-tape. The proposed changes to the Rule will strengthen it. Some change may increase certificate supply, some may reduce supply. The ESS Rule is only one factor that can influence certificate prices. In the NSW Energy Efficiency Action Plan[1], the Government has

[1] Office of Environment and Heritage and State of NSW, Energy Efficiency Action Plan, 2013, www.environment.nsw.gov.au/climatechange/eeap.htm

committed to review the Energy Savings Scheme and examine the broader policy levers of ESS targets, penalties, and scope.

Summary of Questions

Number	Question
Home energy efficiency retrofits	
Q1 -	Can high quality, comprehensive home energy efficiency assessments and retrofits by skilled tradespeople be delivered for less than $150 out-of-pocket under the ESS?
Q2 -	The Government has proposed an expanded range of residential retrofit activities to be included in the attached draft ESS Rule. Are there any additional activities you think should be included?
Q3 -	Do the eligibility requirements, equipment requirements, and implementation requirements specified for Home Energy Efficiency Retrofits in Schedules D and E of the draft ESS Rule adequately ensure high quality performance and energy savings? If not, please propose alternative requirements and explain how they would better achieve these objectives.
Q4 -	Would the proposed requirements appropriately address the risks associated with installing ceiling insulation? How could this approach be further strengthened? What alternative approaches might better manage risks associated with insulation?
High efficiency appliances	
Q5 -	Are there any additional high efficiency appliances that could be included in the ESS?
Q6 -	Is assigning the role of Energy Saver for high efficiency appliances to the appliance retailer the best way to make ESC creation for high efficiency appliances viable and is the proposed proof of sale method appropriate? If not what might be a better solution?
Retiring old refrigerators and freezers	
Q7 -	Would the simplified eligibility criteria and Default Savings Factors encourage retirement of old fridges and freezers?
Q8 -	Could a similar incentive to the retirement of old fridges and freezers be introduced for the permanent removal and disposal of old and inefficient air-conditioners and save significant amounts of energy?
Beyond household fixtures and star-rated appliances	
Q9 -	Does the proposed Aggregated Metered Baseline Method achieve the desired balance between rigour and scope for competition and innovation? If not, how could it be improved?
Q10 -	Are there simpler or better ways to avoid double counting of savings from other activities and programs under the Aggregated Metered Baseline Method?
Q11 -	What expertise or qualifications would be required by an independent accredited statistician under the Aggregated Metered Baseline Method to ensure that the experimental design and methods used to calculate energy savings are accurate and high quality?
Q12 -	How could opt-in programs be designed so that energy savings can be reliably measured under the Aggregated Metered Baseline Method?

Number	Question
Clear requirements for measurement and verification	
Q13 -	Are there other reasons for the historical low uptake of projects under the PIA Method? Would the suggested changes sufficiently address these issues?
Q14 -	Would the draft Rule clearly set out the requirements under the proposed PIA with M&V Method? Would it allow ACPs to better estimate the costs of accrediting and implementing projects?
Q15 -	Would the proposed PIA with M&V Method align well with IPMVP, or is there a better standard approach that could be followed?
Q16 -	Would the proposed PIA with M&V Method allow flexibility for ACPs and their clients to choose cost-effective approaches to estimating energy savings, or how could it be made more flexible?
Q17 -	Would the proposed PIA with M&V Method ensure that high quality energy savings are realised?
Q18 -	The proposed PIA with M&V Method includes detailed instructions on how to calculate savings in Methods 7A.1 to 7A.6. What are the advantages and disadvantages of detailing these calculation steps in guidance documents rather than in the Rule?
Lowering transaction costs for multi-site activities	
Q19 -	Is sampling a cost-effective way of ensuring accurate M&V in small projects that are applied across multiple sites under the proposed PIA with M&V Method?
Better targeting of incentives for lighting upgrades	
Q20 -	If you do not support the removal of luminaire retrofits, what evidence is there that luminaire retrofits are free from all issues with performance, customer satisfaction, permanence, safety and the potential to void warranties of existing equipment?
Q21 -	Under the proposed changes to the Commercial Lighting Energy Savings Formula are there any additional building types for which the NSW Government should provide annual operating hours different from the default of 3,000 hours per annum? What evidence is there for other values?
Q22 -	How can the ESS cost-effectively ensure that lighting upgrades meet the recommended illuminance maintenance and uniformity specifications in accordance with AS/NZS 1680.1 over the lifetime of a project? Is there a better way of ensuring that lighting retrofits meet the needs of the end-user than using the Standard?
New Deemed Energy Savings for business	
Q23 -	Are there any issues with matching eligibility with VEET but providing different incentives in the ESS for Deemed Energy Savings for business equipment?
Q24 -	Are there any other standardised equipment used by businesses that could be included in the ESS under the Deemed Energy Savings Method?
Small business energy efficiency retrofits	
Q25 -	Are there any cases where energy savings factors for small businesses should be different from the value for households when considering extending the use of the Home Energy Efficiency Retrofits Method to small businesses?

Number	Question
Improved NABERS Baseline Method	
Q26 -	Is the proposed approach to the NABERS Baseline Method simple, effective and flexible?
Q27 -	How can ESS incentives be best targeted under NABERS to help transform the commercial building market?
Amendments to the Power Factor Correction Energy Savings Formula	
Q28 -	The proposed Power Factor Correction Energy Savings Formula assumes that 70% of upstream network losses, as represented by the Distribution Loss Factor are “technical” losses that can be reduced by reducing line current. Can this assumption be improved?
A simpler “nomination” process	
Q29 -	Are the proposed simplifications of Original Energy Savers optimal for each method?
Transitional arrangements	
Q30 -	Is there any need to provide different transitional arrangements for the changes proposed in this consultation paper?
Q31 -	Does allowing top-up ESC creation for previous PIA Method projects lead to additional energy savings?
Definition of energy savings	
Q32 -	Under the current ESS Rule, electricity networks are allowed to create ESCs for savings from reducing distribution losses. Would such projects also meet regulatory requirements such as the Regulatory Investment Test – Distribution (RIT-D), and, if so, how might this be taken into account in calculating additional savings under the ESS?
Streamlined ESC creation and analysis	
Q33 -	Are there any end-use categories that should be added to Table A17?
New timing for regular Scheme amendments	
Q34 -	Does the proposed annual timetable provide sufficient opportunities and realistic timeframes for stakeholders to participate in developing the ESS?

2 Energy efficiency puts downward pressure on bills

2.1 Why the NSW Government supports energy efficiency

The NSW Energy Efficiency Action Plan is part of the NSW Government's effort to deliver a secure, affordable and clean energy supply for NSW households and businesses and make NSW number one. The NSW Government is committed to reducing pressure on bills and future price rises. Government actions to limit the impact of the sharp increases in the cost of electricity bills and reduce pressures on future price rises include:

- energy market reform to enable consumer participation and enable consumer participation and remove perverse incentives that encourage investment that increases future prices
- energy efficiency programs that assist households and businesses to save money on bills in the short-term and reduce pressure on future prices
- energy rebates for low-income households to help reduce the immediate impact of price rises.[2]

One of the NSW Government's goals is to reduce the pressure on household budgets by dealing with the underlying causes of rising electricity costs. Households and businesses that take up energy saving products and services save on energy bills for themselves, and reduce the need for new power generation, poles and wires, placing downward pressure on electricity prices for everyone. For these reasons, the NSW Government has set a strong energy efficiency target. The Government's 10 year plan, *NSW 2021*, aims to assist businesses and households to realise annual energy savings of 16,000 gigawatt hours (GWh) by 2020 compared to 'business as usual' trends.[3]

2.2 What energy efficiency means to households and businesses

NSW Government programs have so far helped over 200,000 households and over 17,000 businesses to assess their energy use. These programs have found that by taking up cost-effective energy efficiency opportunities, households can reduce their energy use by up to 20% and businesses can reduce their energy use by up to 30%.

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[2] Office of Environment and Heritage and State of NSW, Energy Efficiency Action Plan, 2013, www.environment.nsw.gov.au/climatechange/eeap.htm

[3] NSW Government, *NSW 2021*, p. 13.

Energy efficiency involves using existing electrical appliances in smarter ways and choosing more energy efficient options when purchasing new appliances. For households this might involve blocking draughts and replacing an old energy-guzzling air conditioner with a new high efficiency air conditioner; or making sure a new fridge or television has a high energy star rating. For businesses this might involve optimising the performance of building management systems; or replacing old lighting, refrigeration or heating ventilation and air conditioning (HVAC) systems with newer energy saving technologies.

Although these opportunities are cost-effective, there are barriers that prevent households and businesses from improving their energy efficiency. Some lack information on existing energy efficiency opportunities in their particular home or business. Some have limited time, skills and resources to properly research the options and implement the best option. Others lack access to finance to pay for the upfront costs of more energy efficient equipment, even though they will save money on lower energy bills over the equipment lifetime.

Through the Energy Savings Scheme, the NSW Government helps households and businesses overcome these barriers and implement projects to save energy to put downward pressure on bills.

2.3 The NSW Energy Savings Scheme (ESS)

The ESS is fundamental to delivering the *NSW 2021* energy savings target. The ESS is designed to support the steady growth of the energy efficiency services market in NSW. Through market delivery, the ESS encourages the delivery of energy savings at least cost, maximising the benefits to the NSW economy.

From when the ESS began in mid-2009 to 30 July 2013, the ESS secured over 5,400 GWh of electricity savings to be delivered over the life of implemented projects. A 2011 independent study by consultant Databuild found that energy savings through the ESS were achieved at a net benefit to the community of over $24 per ESC.[4]

[4] Databuild, *Energy Savings Scheme Cost Effectiveness Analysis Report 2011*

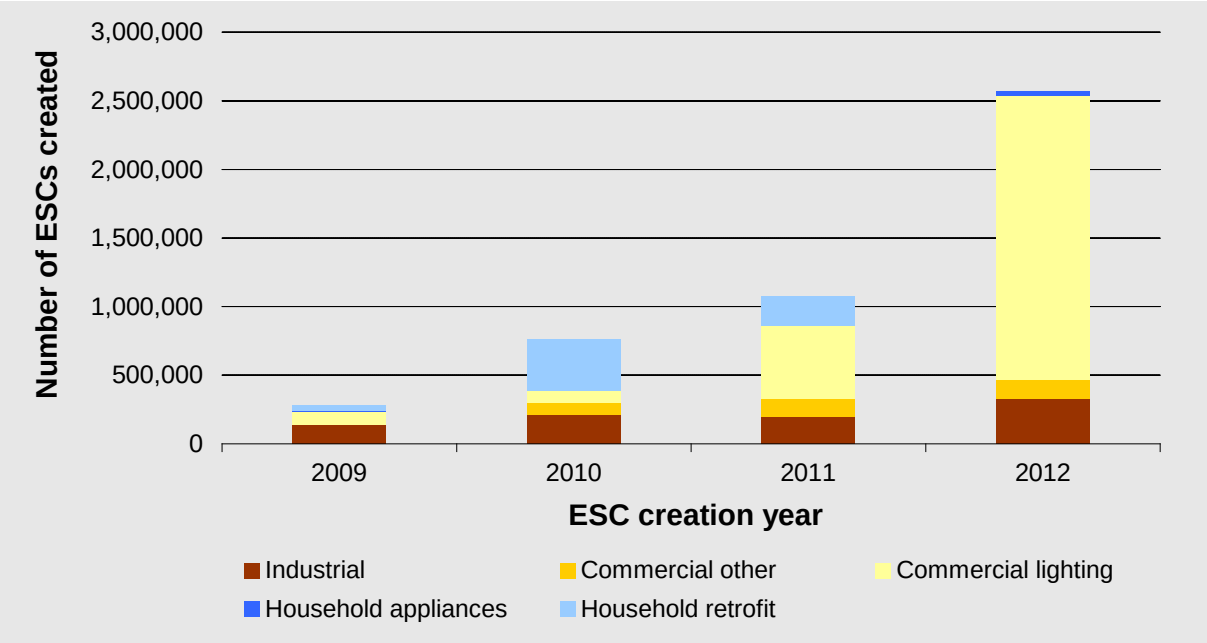

Figure 2 **Breakdown of ESC creation by year, sector and technology type**[5]

Figure 2 shows that the ESS has driven a range of residential, commercial and industrial energy savings projects. However, the ESS has mostly driven investment in commercial lighting and residential showerheads projects, where the ESS provides simple and transparent methods of creating ESCs and significant upfront incentives based on predicted lifetime savings.

2.4 How the NSW Energy Savings Scheme works

The ESS encourages energy efficiency in NSW by creating a market that helps fund households and businesses to save energy. A family that buys a high efficiency fridge might get a discount from their appliance retailer. A large industrial facility might have energy experts provide a free assessment and discounted upgrade to their compressed air system.

The ESS market trades in energy savings. Energy efficiency product and service providers can quantify and certify the energy they save and sell those ESCs on the market. Those companies use this funding to reduce the cost of, improve the quality of, or increase access to their products and services.

Households and businesses do not need to access the ESS directly. Companies provide them with easy access to cheaper, high quality energy efficiency products and services that help them take advantage of opportunities to save energy. Saving energy leads to sustained bill savings for participating households and businesses. It also places downward pressure on electricity bills for all customers in NSW.

[5] IPART, *ESS Registry*, 9 January 2013

The ESS market has three key features:

- an annual obligation on electricity retailers to purchase Energy Savings Certificates (ESCs)
- energy efficiency product and service providers, known as Accredited Certificate Providers (ACPs), who create ESCs for Energy Savings and sell them to electricity retailers (one ESC is equivalent to approximately one megawatt hour (MWh) of electricity saved[6])
- an ESS Rule (the focus of this document) that defines eligible energy saving activities and a set of methods for calculating Energy Savings from those activities.

Companies that wish to participate directly in the ESS must apply to the Scheme Administrator to become an ACP. Although households and businesses that wish to save energy can become accredited, the most cost-effective way to benefit from ESS funding is to engage participating ACPs or their business partners. A list of ACPs is available at:

www.ess.nsw.gov.au/How_to_be_involved/Work_with_an_Accredited_Certificate_Provider

The Electricity Supply Act 1995 (the Act) requires electricity retailers (and other parties who buy electricity on the wholesale electricity market) to surrender a number of ESCs each year. The target increases from 0.4% of electricity purchases in 2009 to 4% in 2014, and will remain at 4% until 2020. By setting targets out to 2020, the ESS provides long-term confidence to market participants and service providers that there will be an ongoing demand for energy savings activities. **Figure 3** below shows estimated future ESC demand to 2020 based on the most recent Australian Energy Market Operator (AEMO) forecasts for electricity demand.

If electricity retailers do not surrender enough ESCs, they must pay a penalty, which, in 2013, is equivalent to $36.36 (after tax) for every ESC they fail to surrender. This effectively sets the maximum price for an ESC. The actual price of an ESC depends on the supply and demand in the market. Since the ESS began in 2009 the reported prices of ESCs have been in the range of $15 to $32.[7]

For more information on how the ESS works and how to participate see:

www.ess.nsw.gov.au/How_the_scheme_works

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[6] 1 ESC = 1MWh x 1.06 (the certificate conversion factor, a remnant of GGAS).

[7] The Green Room, published by NGES (see www.nges.com.au). Note this data accounts only for certificates traded through Next Generation Energy Solutions (NGES) and may not be wholly representative of the price paid by certificate buyers. The NSW Government recommends that persons seek independent advice before buying or selling certificates, and cautions against making decisions based solely on this information.

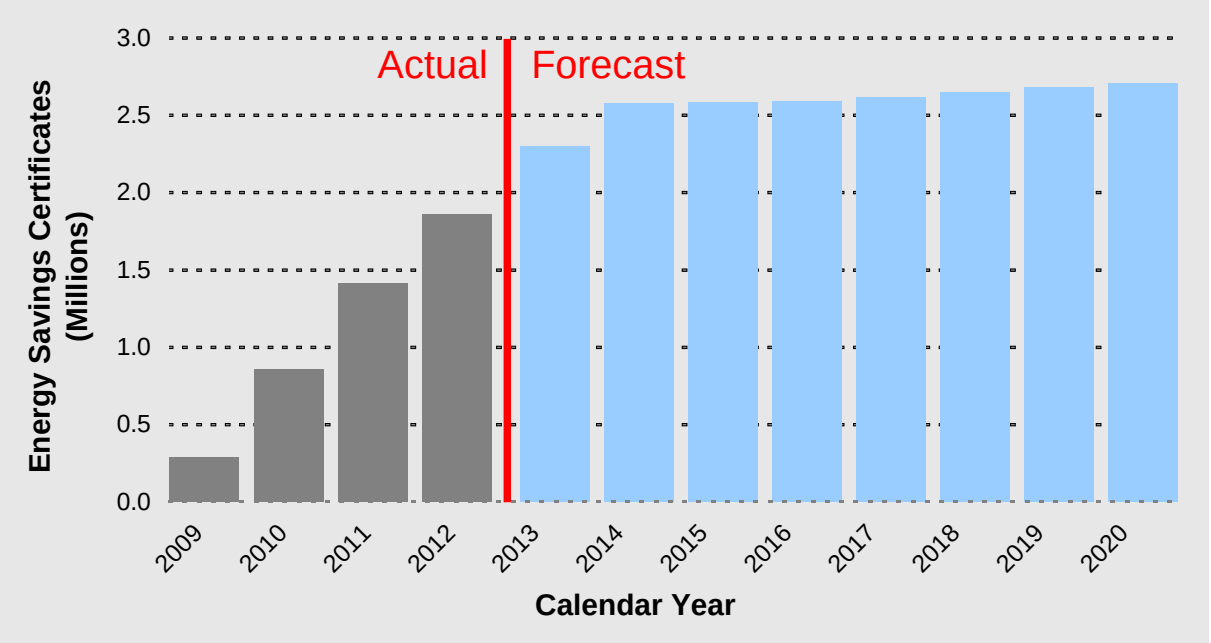

Figure 3 **Forecast demand for Energy Savings Certificates to 2020**
Source: NSW Government analysis of legislated targets applied to forecasts for liable electricity sales[8]

The legal framework of the ESS and the ESS Rule

The ESS was established under Part 9 of the *Electricity Supply Act 1995*[9] (the Act) on 1 July 2009. The ESS was created to replace and expand on the Greenhouse Gas Reduction Scheme (GGAS) Demand Side Abatement Rule. The Act sets the key objective of the ESS, to create a financial incentive to get higher productivity from end-use electricity.

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

- eligible applicants
- types of eligible activities
- calculation methods and factors.

The Scheme Regulator and Scheme Administrator is the Independent Pricing and Regulatory Tribunal of NSW (IPART). Updates to the ESS Rule are developed by the NSW Government with IPART's advice. IPART sets out additional guidance and requirements in accordance with the Act, Regulations and Rule.

For further information on the ESS legislative framework and the ESS Rule, see: www.ess.nsw.gov.au/How_the_scheme_works/Framework_and_Rules

[8] AEMO, 2013, *2013 National Electricity Forecasting Report*.
[9] www.legislation.nsw.gov.au/maintop/view/inforce/act+94+1995+cd+0+N

Case study – how the ESS works

An example of the ESS in operation is an energy efficiency project undertaken by Penrith City Council. In 2010, Penrith City Council partnered with an Accredited Certificate Provider (ACP) to implement a number of projects to improve the energy efficiency of the heating, ventilation and air-conditioning (HVAC) system at the Penrith Civic Centre.

The project involved replacing two existing chillers with one high efficiency two stage centrifugal compressor, with variable speed drives and magnetic levitation bearings.

The ACP used an engineering assessment to calculate the energy savings generated from the project, and the number of Energy Savings Certificates (ESCs) that can be created. This method is called the Project Impact Assessment Method. This calculation method was used because the energy savings from the project were small compared to the overall consumption of the Civic Centre, the energy savings of the chillers could be quantified using an engineering assessment and because the method allows the ACP to create ESCs for the lifetime savings of the project at the time the project is implemented and paid for.

The revenue from ESCs reduced the upfront capital required, and brought the payback period down below six years. A summary of the savings is shown below:

Project cost	**$350,000**
ESS contribution (945 ESCs)*	$23,500
Cost after ESS contribution	$326,500
Energy savings (331 MWh/year)**	$49,650/year
Payback period	5.8 years

Because this type of upgrade can be implemented across many different sites and locations, the ACP had used a multiple-site accreditation, which allows them to create ESCs for similar chiller upgrades at other sites using the same calculation method, without having to go through the accreditation process again.

*Estimated ESC value at the time of project of $25.

** Estimated electricity price of $150 per MWh.

2.5 The ESS can help more households and businesses

The ESS is successfully meeting its targets and can assist more NSW households and businesses. There remain significant cost-effective energy savings opportunities for households and businesses that are yet to be realised.

For businesses, the most common energy savings opportunities are in lighting, air conditioning, compressed air units, and refrigeration. The ESS is currently driving significant investment in energy saving lighting upgrades, but is having a smaller impact on other commercial and industrial opportunities.

For households, there are many residential opportunities that have not been taken up or are not included in the ESS. These include high efficiency appliances, retrofitting the structure of the house and its fixtures, and smarter use of equipment.

The changes proposed in this consultation paper aim to enhance the ESS to realise more of these cost-effective opportunities, and contribute to NSW Government actions to limit the impact of the sharp increases in the cost of electricity bills and reduce pressures on future price rises.

3 Helping households save energy

The NSW Government is committed to placing downward pressure on the cost of living by containing electricity costs through efficient energy use. Households account for about 30% of total electricity consumption in NSW[10] and the average NSW household electricity bill will cost $2,073 in 2013/14.[11]

By choosing high efficiency appliances, removing the inefficient spare fridge in the garage, and carrying out a home energy efficiency retrofit, a household can save about $450[12] a year on their electricity bills.

The proposed changes to the ESS will provide incentives for a broad range of energy savings activities that can be implemented in the home. This will also help harmonise the NSW and Victorian energy efficiency schemes by more closely aligning the list of eligible energy savings activities offered in the ESS with those in VEET. These changes broadly fit into four categories:

1. **Home energy efficiency retrofits**
   Comprehensive retrofits to deliver high quality cost-effective energy savings to households that will last for years.
2. **More high efficiency appliances**
   Adding high efficiency televisions and clothes dryers to the ESS and targeting the incentive at appliance retailers to increase sales of all high efficiency appliances.
3. **Retiring old fridges and freezers**
   Lower transaction costs for retiring old and inefficient fridges and freezers.
4. **Better information for households**
   A new incentive for retailers and networks, and other organisations to provide energy saving information and tools to help large numbers of NSW households.

[10] based on Energy Supply Association of Australia (ESAA), *Electricity Gas Australia 2012*
[11] IPART, 'Review of regulated retail prices and charges for electricity: *From 1 July 2013 to 30 June 2016'*, fig. 2.1, p. 18, access http://www.ipart.nsw.gov.au/Home/Industries/Electricity/Reviews/Retail_Pricing/Review_of_regulated_electricity_retail_prices_2013_to_2016/17_Jun_2013_-_Final_Report/Final_Report_-_Review_of_Regulated_Retail_Prices_for_Electricity_-_From_1_July_2013_to_30_June_2016
[12] NSW Government analysis based on savings estimated using ESS methods

3.1 Home energy efficiency retrofits

By retrofitting a home with energy efficient lighting and an ultra-low flow showerhead, a household can save about $190 a year on their electricity bills.[13]

The NSW Government has significant experience in delivering energy efficiency retrofits for NSW households through the Home Power Savings Program, which has delivered energy assessments and power savings kits to over 200,000 low income households across the state.

The ESS, including its predecessor in GGAS, has helped drive the transformation of the market for high efficiency light bulbs and showerheads through mass roll-out programs, with very high levels of compliance. There are many more opportunities to improve the energy efficiency of homes, but these opportunities require greater levels of skill and customisation to ensure NSW households get high quality products and services.

Nationally there have been issues with mass roll-out programs. When products are free or nearly free as a result of excessive government subsidies, compliance problems have been particularly high. These "give-away" programs tend to attract new low-cost business models, often resulting in low-quality outcomes, that undercut existing service offerings. These new business models then cannot be sustained once Government funding is removed. Mass roll-outs of energy efficiency products and services are commonly characterised by boom-bust cycles that make it difficult for energy services companies to set up long-term sustainable business models.

The proposed new ESS incentives for home energy efficiency retrofits have been designed to facilitate the market for affordable retrofits to NSW homes, while ensuring that retrofits are high quality and that incentives enable the sustainable growth of the energy efficiency services sector in NSW.

It is important to bundle energy efficiency measures in order to achieve greater energy savings for each household retrofit. While programs have previously seen the mass roll-out of one type of energy efficiency upgrade at a time, there is a significant benefit in encouraging multiple activities to be implemented in each visit.[14,15]

Given that the role of the ESS is to provide financial incentives to overcome barriers to energy efficiency, rather than fully fund energy efficiency activities, the NSW Government is

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[13] NSW Government analysis based on savings estimated using ESS methods

[14] Chris Neme, Meg Gottstein, Blair Hamilton, *Residential Efficiency Retrofits: A Roadmap for the Future*, Regulatory Assistance Project, May 2011, www.raponline.org/document/download/id/918

[15] York et al, 'Frontiers of Energy Efficiency: Next Generation Programs Reach for High Energy Savings', American Council for an Energy-Efficient Economy, January 2013, access http://aceee.org/press/2013/01/new-report-reveals-how-next-generati

proposing to set a minimum sales amount to ensure that customers are engaged with the benefits of the home energy efficiency retrofit.

Proposal

(Refer draft ESS Rule: §9.8, Schedule D, Schedule E)

The NSW Government is proposing to create new incentives in the ESS so households will have opportunity to access to affordable, high-quality energy savings home retrofits.

The ESS will provide incentives where a household carries out a bundle of energy efficiency upgrades. The home energy assessment tool will also double as a streamlined record-keeping tool for ACPs and the Scheme Administrator.

The proposed list of home energy efficiency retrofit activities includes the retrofitting of homes with:

- high efficiency pool pumps
- high efficiency air conditioners
- high efficiency window glazing
- insulation
- window film
- draught-proofing of doors
- draught-proofing of windows
- chimney dampers
- high efficiency lighting
- ultra-low-flow showerheads.

Existing and previous activities

The NSW Government is proposing to change the way existing and previous retrofit activities are delivered to households by including them in home energy efficiency retrofits:

- a new and broader range of lighting technologies will be eligible to receive ESCs as part of a home energy efficiency retrofit, to allow households to realise all cost-effective opportunities for installing high efficiency lighting in their homes.
- showerhead activities were removed from the ESS in 2011 following compliance issues associated with high levels of saturation in the market. Through the assessment tool, the ESS will be able to target those remaining households that have inefficient showerheads, so it is proposed to re-introduce showerhead installation as an eligible activity within home energy efficiency retrofits.

ACP Eligibility Requirements

To ensure quality of the products and services offered to NSW households, ESS incentives will only be available where businesses:

- offer a range of bundled energy efficiency products and services, tailored to households' needs
- require a minimum customer co-payment
- use an approved home energy assessment tool
- employ appropriately skilled retrofit workers (e.g. licensed tradespeople).

Minimum co-payments

In order to ensure that a customer-focused, high quality and sustainable market is facilitated through the ESS, the NSW Government is proposing to set a minimum sales amount of $150 (ex. GST) for home energy efficiency retrofits. This $150 amount represents a reasonable stake to ensure the customer is engaged with the benefits to be delivered by the retrofit, and a minimum amount required by businesses to deliver high quality assessment and retrofit services.

Assessment process

A participating household will receive a streamlined home energy efficiency assessment designed for use with the ESS. An energy assessor will identify the eligible energy savings activities in a participating home by entering the required data into an approved home energy assessment tool. The home energy efficiency assessment tool will then convert the information gathered from the assessment into a personalised action plan for the household, detailing the energy efficiency retrofit activities that can be carried out in the home, and estimated energy bill savings.

Home energy assessment tool

It is envisaged that the home energy assessments will be streamlined assessments that can be conducted by the ACP or their agent. These assessments must be conducted prior to implementation. Partial assessments could be carried out over the phone or internet to establish whether it is worthwhile visiting the home, with a full assessment completed onsite prior to implementation.

These assessments will need to use an approved tool, to ensure a standard of quality and help streamline compliance with administrative requirements. Subject to further consultation, the functionality of an approved tool could include:

- assessing what energy savings opportunities exist in the home;
- collecting records required by the Scheme Administrator;

- determining the minimum implemented energy savings activities required to comply with the Rule;
- calculating the number of ESCs attributable to an upgrade; and
- electronically collecting signatures for nomination forms

The NSW Government will consult further with stakeholders on options for approved tools, as part of this consultation process and beyond, should this proposal be included in changes to the ESS Rule. Options could include the Government developing a tool and accreditation framework, or the Government developing the technical specifications for developing third party tools, or the Government developing an application programming interface (API) to allow third parties to develop approved tools which could interface with central compliance and reporting database.

It is proposed that the commencement of this method would be delayed until at least six months after the commencement of the Rule, to allow time for this additional consultation, development and approval of tool(s).

Warranty Requirements

The home energy efficiency retrofit method requires minimum manufacturer or product warranties to ensure that only quality products are used, as detailed in Table 2 below.

Table 1 - Eligibility criteria for home energy efficiency retrofits

Category	Activity	Minimum Conditions
General Activities Schedule D of draft ESS Rule	Installation of: ▪ insulation ▪ pool pumps ▪ air conditioners ▪ window glazing	▪ a minimum of 25% (or a percentage published by the Scheme Administrator) of identified savings from Schedule E activities are implemented ▪ activities carried out in accordance with equipment and implementation requirements ▪ carried out by qualified persons ▪ minimum $150 payment for retrofit
Low Cost Activities Schedule E of draft ESS Rule	Installation of: ▪ lighting ▪ draught-proofing ▪ chimney damper ▪ ultra-low-flow showerhead ▪ window film	▪ a minimum of 75% (or a percentage published by the Scheme Administrator) of identified savings from Schedule E are implemented ▪ activities carried out in accordance with equipment and implementation requirements ▪ minimum $150 payment for retrofit

Table 2 – Warranty requirements

Product	Warranty period
▪ Window glazing ▪ Air conditioner ▪ Pool pump ▪ Chimney damper ▪ Insulation	5 years
▪ Ultra-low-flow showerhead ▪ Draught-proofing ▪ Window film	2 years

Question

Q1 - Can high quality, comprehensive home energy efficiency assessments and retrofits by skilled tradespeople be delivered for less than $150 out-of-pocket under the ESS?

Q2 - The Government has proposed an expanded range of residential retrofit activities to be included in the attached draft ESS Rule. Are there any additional activities you think should be included?

Q3 - Do the eligibility requirements, equipment requirements, and implementation requirements specified for Home Energy Efficiency Retrofits in Schedules D and E of the draft ESS Rule adequately ensure high quality performance and energy savings? If not, please propose alternative requirements and explain how they would better achieve these objectives.

Can the risks of installing ceiling insulation be effectively managed?

One of the most effective ways households can save energy is by ensuring they have adequate ceiling insulation. The experience of the Commonwealth Government's Home Insulation Program clearly demonstrated the need for insulation programs to be properly designed and implemented to manage risk. The NSW Government is seeking feedback on how households might be helped to save on their energy bills by installing insulation, while addressing these risks.

Benefits of ceiling insulation

NSW Government modelling estimates that a typical Sydney household can save around $90-150 a year on electricity bills by installing insulation.[16] A significant number of households in NSW still do not have ceiling insulation. Analysis of data from the Australian Bureau of Statistics and IPART indicates that more than 740,000 NSW households (30%) do not have ceiling insulation. Of these, around 600,000 are suitable to insulate.

There are also social equity benefits from retrofitting homes insulation. Analysis of OEH's Home Power Savings Program has estimated that around 185,000 low-income households do not have ceiling insulation. As low-income households are less likely to be able to access higher cost upgrades such as double glazing, including insulation in the ESS would allow for more equitable access to the direct benefits of saving energy.

Prior to the Commonwealth Government's Home Insulation Program, the NSW Government had an effective program that offered modest rebates for households that installed ceiling insulation. The Home Saver Rebates program offered $150 rebates from 1 October 2007 to 30 June 2009 and helped 26,094 households reduce their energy bills.[17] The Commonwealth Home Insulation Program commenced in July 2009. The NSW rebate ceased and insulation was not included in the ESS at the time, because continuation would have meant duplication.

Risks associated with insulation programs

The Commonwealth Government's Home Insulation Program received significant attention for problems with safety and quality. Over one million homes were insulated under Home Insulation Program in a very short time (8 months from July 2009 to February 2010). Four deaths and 224 house-fires were associated with the installation of insulation under Home Insulation Program.[18] A further 15,269 houses had foil insulation removed following safety inspection.[19]

The Home Insulation Program has been subject to a number of major reviews including the 2010 Hawke review of the administration of Home Insulation Program,[20] the Australian Government's Home Insulation Safety Plan,[21] and the 2013 Queensland Coronial Inquest into the deaths of three of the men who died under this program.[22]

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[16] NSW Government analysis based on savings estimated using proposed ESS methods
[17] www.environment.nsw.gov.au/rebates/
[18] http://ee.ret.gov.au/energy-efficiency/homes/home-insulation/key-statistics
[19] http://ee.ret.gov.au/energy-efficiency/homes/home-insulation/key-statistics
[20] http://ee.ret.gov.au/review-administration-home-insulation-program-hawke-2010
[21] http://ee.ret.gov.au/energy-efficiency/homes/home-insulation
[22] http://www.courts.qld.gov.au/__data/assets/pdf_file/0019/203374/cif-fuller-mj-barnes-rk-sweeney-ms-20130704.pdf

These reviews produced extensive findings on the causes of these problems, and recommendations on how these can be managed. These findings and recommendations included problems with program administration, the scale of Home Insulation Program, training, occupational work and safety, building regulations and product standards.

Managing risks associated with insulation programs

Significant changes have been made to the way ceiling insulation is installed in Australia in response to the outcomes of the Home Insulation Program and subsequent reviews. The Australian Standard for insulation installation has been updated by Standards Australia to address installer and occupant safety and changes in building design and energy efficiency requirements. Training modules for insulation installation have been developed by the Commonwealth Government and the Construction and Property Services Industry Skills Council to reflect these revised standards. Manufacturers also now offer extended warranties of up to ten years for their products.

The NSW Government is considering whether these changes are sufficient to manage the risks associated with ceiling insulation. In particular, the Government is seeking submissions on whether modest incentives for insulation could be incorporated into the Home Energy Efficiency Retrofit method.

If the risks can be satisfactorily managed, it would be proposed that ceiling insulation (excluding foil) be included as a Schedule D activity as part of the Home Energy Efficiency Retrofit method. Details of default savings factors and quality and safety requirements are set out at Activity D6 and D7 in Schedule D of the draft Energy Savings Rule.

As with all activities under the proposed new Home Energy Efficiency Retrofit approach, ESCs could only be created if:

- households first undergo an approved home energy assessment to identify energy savings opportunities
- the incentives provided are modest and targeted, based on energy savings from the activity
- householders make a material financial co-contribution
- other energy savings opportunities are also implemented as a bundle
- activities are implemented by qualified professionals
- products meet appropriate national standards, and
- products meet minimum warranty requirements.

If ceiling insulation were to be included within this framework it would be subject to at least the following additional requirements:

- foil insulation would be excluded
- the insulation product must comply with the performance requirements of AS/NZS 4859.1:2002
- insulation must be installed in line with the revised Australian Standard for installation AS 3999_1992 (incorporating Amendment No. 1: Thermal insulation of dwellings – Bulk insulation – Installation requirements)
- the insulation product must achieve a minimum winter R-value, when measured in accordance with AS/NZS 4859.1:2002, which will vary for each climate zone
- the insulation product must have a warranty of at least 5 years
- installers must have a Statement of Attainment stating they have successfully passed and completed:
    - work safely in the construction industry (CPCCOHS1001A)
    - work safely at heights (CPCCCM2010A)
    - apply OHS requirements, policies and procedures in the construction industry (CPCCOHS2001A)
    - install ceiling insulation – updated to reflect the revised Australian Standard (CPCCPB3027A), and
    - any other training requirements as Published by the Scheme Administrator.

Question

Q4 - Would the proposed requirements appropriately address the risks associated with installing ceiling insulation? How could this approach be further strengthened? What alternative approaches might better manage risks associated with insulation?

3.2 High efficiency home appliances

By 2020, appliances may account for as much as 45% of all electricity consumed in the home.[23] The efficiency of appliances will therefore have a growing influence on household energy bills over the next decade.

The ESS currently 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 in the ESS are clothes washers, dishwashers, refrigerators and freezers.

By purchasing a television and a fridge with a higher energy star rating than the average appliance, a household can save about $40 a year on their electricity bills.[24]

Proposal

(Refer draft ESS Rule: §5.2, §9.3, Schedule B, and section 5.1 of this consultation paper)

Adding more energy star rated appliances to align with Victoria

It is proposed to include high efficiency televisions and clothes dryers in the ESS, to provide incentives for more appliances that carry energy star ratings. This will also help to harmonise the ESS with the VEET scheme by better aligning the range of appliances for which both states offer incentives. Note that air conditioners and pool pumps must be installed and so are included within Home Energy Efficiency Retrofits (see section 4.1 above).

Appliance Retailers to be the original Energy Saver

The Energy Saver

Section 132 of the Act prohibits creating ESCs for the same Energy Savings twice. One of the ways that the ESS Rule helps prevent this “double-counting” is by unambiguously assigning the original right to create ESCs to a single person, called the Energy Saver.

At present for high efficiency appliances under the current ESS Rule, the householder who pays the electricity bill is the original Energy Saver. An ACP wishing to create ESCs for the sale of high efficiency appliances must therefore get each customer to sign a nomination form to transfer the right to create ESCs. This may have inhibited ESC creation for high efficiency appliances.

[23] DEWHA, *Energy Use in the Australian residential sector 1986-2020*
[24] NSW Government analysis based on savings estimated using ESS methods

To reduce red tape from collecting nomination forms, it is proposed to assign the role of Energy Saver for high efficiency appliances to the appliance retailer. Acceptable proof of sale would be an extract of records from a retailer's sales ledger, showing the make, model and serial number of an appliance with a NSW delivery address.

Proof of installation would not required for high efficiency point of sale appliances, as their high cost of purchase, relative to ESC contribution, means that Government would have confidence that customers will purchase a high efficiency appliance with an intention to install it.

Question

Q5 - Are there any additional high efficiency appliances that could be included in the ESS?

Q6 - Is assigning the role of Energy Saver for high efficiency appliances to the appliance retailer the best way to make ESC creation for high efficiency appliances viable and is the proposed proof of sale method appropriate? If not what might be a better solution?

3.3 Retiring old refrigerators and freezers

The existing Rule provides incentives for households to permanently dispose of old refrigerators and freezers, which are inefficient and can add about $225 a year to electricity bills.[25] The NSW Government's successful Fridge Buyback program has demonstrated the potential uptake for such activities, by removing over 30,000 spare, old refrigerators from homes across NSW.

However, there has been limited take-up of this activity under the ESS due to restrictions with the current eligibility criteria, particularly requirements about demonstrating the age of products.

Proposal

(Refer to draft ESS Rule: §9.7, and Schedule C)

The NSW Government has reviewed the activity definition and proposes simplified eligibility criteria that reduce red tape, and revised Default Savings Factors matching those new criteria. This will help the market provide cash or discounts to households to remove their old and inefficient refrigerators and freezers.

[25] NSW Government analysis based on savings estimated using ESS methods

Question

Q7 - Would the simplified eligibility criteria and Default Savings Factors encourage retirement of old fridges and freezers?

Q8 - Could a similar incentive to the retirement of old fridges and freezers be introduced for the permanent removal and disposal of old and inefficient air-conditioners and save significant amounts of energy?

3.4 Beyond household fixtures and star-rated appliances

There are many simple, cheap ways households can save energy that do not involve upgrading their home or purchasing new appliances. Changing temperature settings on heating and cooling appliances, turning appliances off at the wall, and remembering to turn off lights before leaving the house all help lower household energy bills. Standby power can account for 5% of appliance energy consumption in the average home.[26] Most of this energy is providing no useful service.

A lack of information is often the main barrier to saving energy in the home. Householders are usually unaware of how much electricity is being consumed and where savings can be made.

Both in Australia and internationally, governments, energy utilities and other organisations have developed a range of innovative programs to provide information and low cost devices to households to help them save energy, including:

- "how-to" websites
- direct mail campaigns
- community engagement
- household assessments
- energy bill benchmarking
- innovative pricing structures
- installing in-home displays
- installing standby power controllers.

[26] DEWHA, Energy Use in the Australian residential sector 1986-2020

Such programs have proven to be effective. The NSW Government funded the 2011 Climate Clubs program, which engaged more than 450 households in school communities through education activities to achieve average energy savings of 5-10%. The NSW Government also partnered with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in 2011-12 to deliver the NSW Energymark program. The program engaged 571 households state-wide in facilitated group discussions on energy use in the home. Energymark delivered a 12% drop in energy usage per person, delivering an average electricity bill saving of $150 a year per household.

It is difficult and costly to measure the effectiveness of such programs on a house-by-house basis. Energy savings vary greatly according to household makeup, how the program is delivered and how well each household engages with the program.

Measuring average changes in energy use among groups of households is a way to overcome this. A before-and-after approach of the Metered Baseline Method, along with standard statistical methods, is already being used by energy utilities in the US to estimate energy savings from these kinds of programs.

It is estimated that energy saving information programs have the ability to help households save about $135 a year on their electricity bills.[27]

Proposal

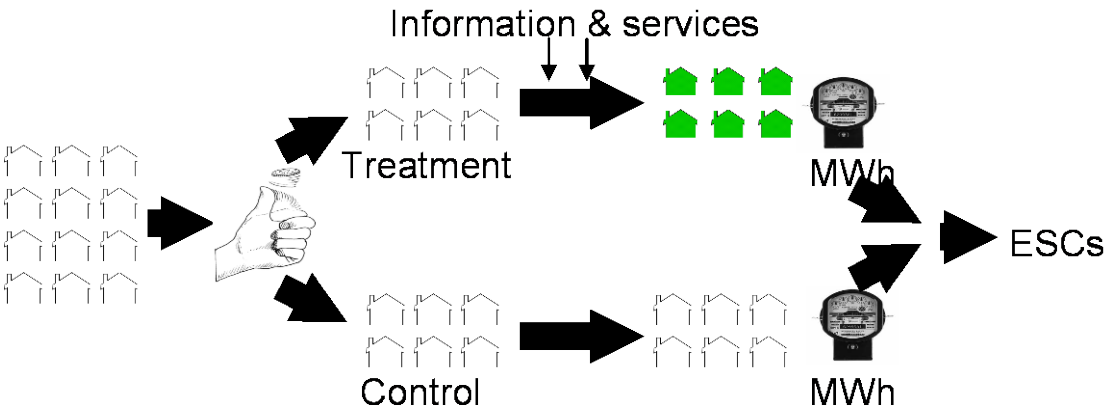
(Refer draft ESS Rule: §8.9)

It is proposed to include a new method called the Aggregated Metered Baseline Method (AMB Method) in the ESS Rule. The AMB Method will allow ESCs to be created from programs that help households better manage their energy use.

The AMB Method proposed is based on the standard experimental approach of the randomised controlled trial (see **Figure 4**). It requires a group of households to be split without bias into treatment and control groups. The treatment group receives the information and services over the implementation period, while the control group does not. The energy savings due to the program are calculated according to the measured difference in average household energy consumption between the two groups.

[27] Based on an average household electricity consumption of 7MWh a year, an electricity tariff of 28c/kWh, and 6.9% energy savings per household as used in the "Energy Bill Benchmarking: Decision Regulatory Impact Statement" (access p.38 http://www.ret.gov.au/Documents/mce/_documents/2010%20bulletins/No.182%20-%20Decision%20RIS%20Energy%20Bill%20Benchmarking%20(2).pdf)

Figure 4 – the Aggregated Metered Baseline Method requires two groups



This method has been drafted to encourage program innovation and competition, while ensuring rigour in the measurement of savings that cannot be measured under other methods. There are four areas in particular where this method has been developed in a way to achieve this balance: group size, project origination, overlap with other savings programs and statistical validity.

Minimum group sizes

To allow small innovative projects, there are no requirements for minimum sizes of treatment or control groups. However, the method prescribes a minimum confidence factor and discounts savings based on the level of accuracy. The creates a positive incentive for project proponents to develop programs with control groups and sample stratifications that increase accuracy, where it is cost effective to do so.

Project origination

Electricity retailers and networks are well placed to originate projects due to their customer relationships and access to consumption data. However a wide range of other parties could also develop effective and rigorous energy savings programs without being aligned to a particular retailer or network. Section 6.1 of this consultation paper outlines arrangements for the definition of “energy saver” that would allow this innovation and competition.

Overlap with other savings programs

There are potentially strong synergies between the types of programs that can be delivered under the AMB method and energy savings measures under other methods in the ESS. For example, an information program accredited under the AMB method, could be used to deliver highly targeted promotion of a home retrofit program that is accredited under the deemed energy savings method. This could potentially lead to higher energy savings at a lower cost. But it also risks ESCs being claimed twice for the same savings, known as double counting.

To avoid the risk of double counting while encouraging innovation, savings need to be subtracted for ESCs that have been claimed for under the ESS. Savings also need to be subtracted for activities that reduce energy consumption but are excluded from the ESS (like the activities under the Commonwealth Government's Small-scale Renewable Energy Scheme).

Statistical validity

The statistical methods to be used to calculate savings must be verified by an independent accredited statistician to ensure that the experimental design and calculations are statistically valid within the required level of confidence. Statisticians will also be used by auditors to verify those calculations.

Question

Q9 - Does the proposed Aggregated Metered Baseline Method achieve the desired balance between rigour and scope for competition and innovation? If not, how could it be improved?

Q10 - Are there simpler or better ways to avoid double counting of savings from other activities and programs under the Aggregated Metered Baseline Method?

Q11 - What expertise or qualifications would be required by an independent accredited statistician under the Aggregated Metered Baseline Method to ensure that the experimental design and methods used to calculate energy savings are accurate and high quality?

Opt-in programs

At this stage, the NSW Government is only considering opt-out programs that are based on principles similar to randomised controlled trials (i.e. where households are not recruited to participate in the program, but are included by default and can choose to leave at any time). This approach has been successfully used by energy regulators in many states in the United States.

NSW Government recognises that significant savings can be realised by opt-in programs such as Climate Clubs and EnergyMark mentioned above. However, opt-in programs involve a degree of selection bias and require different statistical methods to calculate savings. In future, statistical methods to measure opt-in programs will be considered for potential inclusion in the ESS Rule.

Question

Q12 - How could opt-in programs be designed so that energy savings can be reliably measured under the Aggregated Metered Baseline Method?

4 Helping businesses access energy saving opportunities

NSW Government programs have helped over 17,000 businesses to assess their energy use. These assessments have found that by taking up cost-effective energy efficiency opportunities businesses can reduce their energy bills by up to 30%.

Based on an analysis of these programs, the Government estimates that there is over 5,500 GWh per year of cost effective energy savings opportunities for NSW. Around 60% of this opportunity is from five main technologies:

- commercial lighting (1,260 GWh per year)
- heating, ventilation, and air-conditioning (HVAC) and process cooling (880 GWh per year)
- industrial refrigeration (480 GWh per year)
- compressed air (360 GWh per year)
- building management systems (170 GWh per year).

Opportunities in the ESS to date

Improving the accessibility of the ESS will assist more NSW businesses to save energy by taking up opportunities from a broader range of technologies

The ESS has been very successful in driving energy savings from lighting upgrades using the Commercial Lighting Formula under the Deemed Energy Savings Method. The Commercial Lighting Formula has been used in,69% of all ESCs created for business projects (as of 26 June 2013).[28]

This is because a lighting upgrade is a relatively easy energy savings activity to implement, with a fast payback period. The Commercial Lighting Formula is also one of the easiest methods to become accredited for and create ESCs with. This is due to its standardised and transparent methodology for calculating the ESCs and upfront recognition of lifetime savings.

Lighting only represents 23% of estimated potential commercial and industrial sector energy savings opportunities. ESS incentives for the remaining 77% of non-lighting savings opportunities can be accessed through either the Metered Baseline or Project Impact Assessment methods. However, to date these methods have only accounted for 30% of ESCs created for business energy savings.

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[28] IPART, *ESS Registry*, 26 June 2013

These methods involve much higher complexity, uncertainty and transaction costs for business. Many businesses that primarily help clients implement non-lighting types of projects have been reluctant to participate in the ESS. Thus, many energy savings opportunities remain unrealised that would proceed if revenue from ESCs was included in their business cases.

Methods for ESC creation for business

The ESS has three methods which can be used to create ESCs projects that improve business energy efficiency. Revenue from these ESCs can be used to offset the costs of these energy savings projects. These methods are:

1. **Project Impact Assessment Method** – allows ESCs to be calculated using standard engineering's methods for any type of project, with basic assumptions about lifetime savings. ESCs can be claimed for up to three years upfront at implementation, on a case by case basis.
2. **Metered Baseline Method** – allows ESCs to be calculated for measured energy savings for large projects where the savings are great enough to compare against baseline energy consumption for a site, either using NABERS ratings or customised measurement approaches. ESCs can only be claimed retrospectively, one year at a time.
3. **Deemed Energy Savings Method** – allows ESCs to be calculated for the life-time energy savings for straightforward commercial projects, such as lighting and high efficiency motors, using simple tools and look-up tables. ESCs can be claimed upfront at implementation, thereby offsetting capital costs.

A limited range of opportunities, such as refrigerated display cabinets, have existing Australian Standards with procedures to estimate annual energy consumption and definitions of high efficiency products. The energy savings from these products are straightforward to calculate but the existing ESS Rule does not provide deemed savings factors.

Improvements to processes and systems, such as a building management system, require ongoing maintenance and optimisations. The ESS Rule provides Metered Baseline Methods to create ESCs periodically but it does not clarify how to calculate a baseline nor target the incentives to drive continuous improvement.

Large and complex opportunities, such as compressed air or HVAC upgrades, require project by project assessment. The existing ESS Rule provides a project-based method that allows more complex energy efficiency projects to access the ESS. The Project Impact Assessment (PIA) Method is currently undersubscribed, with only around 11% of all ESCs created using this method.

There are several issues with these methods which limit use:

- The accreditation requirements for the PIA Method are not standardised and are opaque to new entrants. This creates cost uncertainty for potential ACPs and extended delays in accreditation of projects.
- The upfront incentives from forward deeming of ESCs under the PIA Method are significantly lower than in deemed methods despite the high level of evidence and confidence required.
- The ability for ACPs to use their accreditation at multiple sites for multiple projects is permitted under the current ESS Rule, but the requirements for evidence and record keeping are not clear and accreditation of such projects is minimal.
- The accreditation and ESC creation process for these methods is inflexible and does not align with the business processes involved in undertaking energy efficiency projects. This has led to duplication of work after projects have been implemented and uncertainty for businesses about whether they will be able to create ESCs to offset costs.

Enhancements for business

The NSW Government has identified changes to improve the balance between transaction costs and incentives available under the PIA Method, make the NABERS Method easier to use, and provide simple deemed savings factors for a greater number of activities and business types.

The proposed changes to the ESS Rule are each addressed in turn in the sections following and include:

1. **Project Impact Assessment Method**
    - provide transparent requirements for engineering assessments by basing the PIA method on the International Protocol for Measurement and Verification
    - link upfront ESC creation to evidence based predictions of energy savings persistence under the PIA Method
    - provide transparent requirements for businesses that wish to be accredited to roll out similar projects to multiple sites or clients under the PIA Method
2. **Metered Baseline Method**
    - a simplified and more accurate NABERS Metered Baseline Method
3. **Deemed Energy Savings Method**
    - ensure the accuracy of Commercial Lighting Formula by updating baselines in line with regulatory changes, and ensure incentives are targeted at quality products that will achieve predicted lifetimes.

- amendments to the Power Factor Correction Energy Savings Formula
- introduce new deemed savings factors for commercial refrigeration, packaged air conditioners and chillers
- introduce a new deemed energy efficiency retrofit approach to deliver comprehensive long-term savings to small businesses.

4.1 Clear requirements for measurement and verification

The Project Impact Assessment (PIA) Method is versatile, enabling an ACP to create ESCs based on an engineering assessment of the equipment, process or system being upgraded, for the full lifetime of the project. Almost any project can be assessed in this way.

Currently the ESS Rule does not specify what constitutes an acceptable engineering assessment. Uncertainty over what is required to become accredited under the PIA Method can be a barrier to ACPs submitting applications. Applications for accreditation under the PIA Method often lack key information resulting in ongoing requests for information and delayed accreditation. Once accepted, an approximate discount of between 0% and 20% is applied to account for potential measurement inaccuracy.

The current approach for PIA Method can result in:

- uncertainty over what is required to become accredited
- high costs for the ACP and the Scheme Administrator to develop, assess and finalise applications
- long accreditation times
- uncertainty around the accuracy of the calculations
- audit costs that vary greatly between projects
- failure to drive additional energy savings *(see section 5.2 of this consultation paper for more detail*).

Proposal

(Refer draft ESS Rule: §7A)

The Government is proposing to provide clear requirements for engineering assessments of energy savings projects under the PIA Method. These requirements will be based on measurement and verification (M&V) principles from the International Performance Measurement and Verification Protocol (IPMVP). IPMVP is the international standard for demonstrating investment-grade energy savings. It is supported by an internationally recognised framework of training, guides and professional qualifications.

IPMVP is a flexible framework that allows energy efficiency project proponents to choose the balance between cost and accuracy of M&V. If IPVMP will be used to help create ESCs, the Government will also need to be satisfied that it is applied in a way that delivers appropriate levels of accuracy. How the draft ESS Rule prescribes how IPMVP is used is summarised below and can be found in the *draft ESS Rule: §7A*. This approach aims to strike a balance between accuracy and commercial viability, to allow ESS incentives to be accessed for as wide a range and size of energy savings projects as possible.

Flexible approach

Under this proposed new approach for the ESS PIA method, the engineering assessment would take the form of an M&V plan centred on energy models for the system before and after upgrade and verified by an independent Certified Measurement and Verification Professional. All projects would need to have their M&V plan approved prior to project implementation. It would be up to ACPs to decide for each accreditation an appropriate balance between upfront work on an M&V plan at the time of accreditation and project-specific M&V implementation for each site. ACPs would conduct sufficient M&V before and after implementation to gain the desired level of accuracy. The energy models would then be used to estimate energy consumption before and after upgrade over a “normal year” of operation. The difference represents the typical expected annual energy savings.

The method is flexible enough to allow a large number of variables to be taken into account. In most cases, it is expected that very simple linear models can be used with just 1 or 2 or even zero variables to model energy use. For example, M&V applied to lighting projects may be even simpler than using the tools provided under the commercial lighting formula.

Accuracy

The ACP and its client can decide how rigorously to apply M&V. The basic principle would be that if more rigour put into measurement and verification of savings, the higher the accuracy and the greater the ESCs that can be created. However, even simple approaches will be able to create ESCs where energy has clearly been saved. Accuracy would be accounted for through an Accuracy Factor, based on various sources of error that influence the overall accuracy of the estimation. The Scheme Administrator would publish methods for calculating Accuracy Factor for different situations.

Simple and repeatable

M&V could occur across a sample of similar sites where the same activity is conducted, in order to keep the costs of M&V to reasonable levels for small projects. Using sampling and parameterisation, simple methods for calculating savings at small sites based on standard technologies can be developed by an ACP. This would be essentially similar in requirements to the Deemed Energy Savings methods in the ESS Rule.

Transparent guidance

To assist ACPs with their M&V plan, the Scheme Administrator may also publish guidance documents for common projects, detailing:

1. acceptable M&V options (A, B, C or D) from the IPMVP
2. energy models
3. key parameters and variables for M&V
4. methods/instruments and acceptable periods for measuring or estimating key parameters
5. example calculations for energy savings based on the energy model and key parameters
6. the expected accuracy for the chosen method
7. acceptable sampling of sites and end use equipment
8. tools, such as spreadsheets, for calculating energy savings
9. sources of further technical information.

The aim is for ACPs to:

- be better able to predict the costs of accreditation and audit
- incur lower per-ESC costs and shorter timeframes for accreditation
- incur lower audit costs.

ACPs that follow the guidance documents in putting together their application will enjoy the greatest benefits.

Transition

ACPs will be allowed to continue to create ESCs under existing PIA Method accreditations for a period of 12 months after the commencement of the new ESS Rule. After that time ACPs will need to amend their accreditation to conform with the new PIA with M&V Method. However, ACPs will be able to continue to create top-up ESCs for past projects under the current method for the life of that project under the ESS, where the project was implemented before the new Rule's commencement. *(Refer draft ESS Rule: §1.5 (b))*

Question

Q13 -Are there other reasons for the historical low uptake of projects under the PIA Method? Would the suggested changes sufficiently address these issues?

Q14 - Would the draft Rule clearly set out the requirements under the proposed PIA with M&V Method? Would it allow ACPs to better estimate the costs of accrediting and

implementing projects?

Q15 - Would the proposed PIA with M&V Method align well with IPMVP, or is there a better standard approach that could be followed?

Q16 - Would the proposed PIA with M&V Method allow flexibility for ACPs and their clients to choose cost-effective approaches to estimating energy savings, or how could it be made more flexible?

Q17 - Would the proposed PIA with M&V Method ensure that high quality energy savings are realised?

Q18 - The proposed PIA with M&V Method includes detailed instructions on how to calculate savings in Methods 7A.1 to 7A.6. What are the advantages and disadvantages of detailing these calculation steps in guidance documents rather than in the Rule?

4.2 Persistence of savings for deeming

Introducing formal measurement and verification to the PIA Method will improve the accuracy of estimating the initial energy savings of a project. The lifetime energy savings of a project depend on those initial savings, the useful lifetime of the equipment and the degradation of its performance over that lifetime. The last two factors make up the "persistence" of energy savings.

The current PIA Method conservatively assumes that savings last up to a maximum of 5 years and that they reduce by 20% per year, even though the equipment owner has usually invested significantly in the project and would expect long-lasting savings. In effect this allows a project accredited under the PIA Method to claim up to 3 times the first year savings.

However, the typical equipment upgraded in projects that could use the PIA Method have recognised lifetimes much longer than 5 years, for example:

- motors: 10-30 years
- air compressors: 7-20 years
- refrigeration equipment: 10-25 years
- centrifugal chillers: 20 years[29]

[29] Australian Taxation Office Ruling TR 2012/2

Low Carbon Australia Ltd has developed a Persistence Factor Model of the lifetime savings of upgraded equipment, which models both the lifetime of equipment and how the equipment components degrade in performance over time, taking into account various factors such as operating hours and ambient temperature.

Proposal

(Refer draft ESS Rule: §7A, Table A16)

It is proposed to increase the default maximum lifetime for PIA Method forward creation from 5 to 10 years, and change discounting from linear to exponential. It is also proposed to allow ACPs to use an approved persistence model instead of the default values, in order to more accurately model the lifetime and degradation of performance of equipment.

The maximum 10 year time period will balance increased upfront ESS incentives with greater certainty over savings. To ensure that the ESS supports the stable growth of energy efficiency services in NSW, delivering to a large number of households and businesses, it is proposed to cap the first year savings at 10,000 MWh.

It is proposed to change the default discount factor from a 20% annual linear decline to 20% compounded annually, to align it with the persistence model approach. Combined with a default maximum lifetime of 10 years, this will effectively increase maximum upfront creation from 3 to around 4.5 times the first year savings.

Low Carbon Australia Ltd (now part of the Clean Energy Finance Corporation), has licensed its Persistence Factor Model to the NSW Government. It is proposed that applicants would be given the option of adopting the default factors above or providing evidence from an approved persistence model (e.g. Low Carbon Australia's Persistence Factor Model) that more accurately models the lifetime and performance degradation of End-Use Equipment at the specific site.

These third party discount factors would be estimated on a number of input parameters including but not limited to:

- equipment type
- industry (by ANZSIC[30] code)
- location (by postcode)
- operating hours.

[30] ABS, Australia and New Zealand Standard Industrial Classification

Where a common equipment type or industry is not included in the persistence model, the NSW Government will work with Low Carbon Australia Ltd or other persistence model owners to have them included in the future. Using a persistence model, it is anticipated that a project could create ESCs upfront equivalent to as much as 10 times the first year savings.

In addition, by undertaking M&V in future years, businesses that maintain their equipment better than expected, such that actual energy savings are greater than the discounted energy savings, will be able to create extra ESCs for that difference to help pay for their maintenance program.

4.3 Lowering transaction costs for multi-site activities

Typically, a single technological solution can be applied to a large number of sites across NSW. The current ESS Rule implicitly allows for one Recognised Energy Savings Activity (RESA) to be used across multiple sites and multiple pieces of equipment at the discretion of the Scheme Administrator. A multiple site RESA reduces transaction costs by spreading accreditation and compliance costs across multiple sites.

The Deemed Energy Savings Method explicitly allows the same equipment to be installed across a number of sites. The Project Impact Assessment (PIA) Method is a flexible method for estimating and rewarding future energy savings, regardless of the equipment type or size of a project. Multi-site RESAs are allowed under the PIA Method, but the ESS Rule does not clearly define how they are dealt with.

Preparing an application to include a RESA in an ACP's accreditation under the PIA Method can be time consuming. This transaction cost means that it is less likely that the PIA Method will be used for smaller projects that take place over a large number of sites and implies that small projects are limited to only technologies covered by the Deemed Energy Savings Method.

Proposal

(Refer draft ESS Rule: §5.5, Equation 1, §6.8, §7A, §9.4)

It is proposed to reduce the costs of accreditation by clarifying how multi-site RESAs are handled by the ESS by:

- defining an activity to be made up of one or more implementations
- detailing how ESCs can be created across multiple sites for the same activity, regardless of calculation method
- defining data that characterises an implementation at a site
- defining how site sampling can be used to minimise measurement and verification costs for the PIA Method.

Question

Q19 - Is sampling a cost-effective way of ensuring accurate M&V in small projects that are applied across multiple sites under the proposed PIA with M&V Method?

4.4 Better targeting of incentives for lighting upgrades

The ESS has driven a significant increase in energy efficient commercial lighting upgrades since the ESS began in 2009, with about three million ESCs created through commercial lighting activities to date.

That growth has corresponded with significant changes in the commercial lighting market, regulatory framework, and available technologies. The NSW Government has reviewed the ESS Commercial Lighting Energy Savings Formula in order to take these changes into account:

Ensuring savings are beyond the regulatory minimum

Under Minimum Energy Performance Standards (MEPS), since 14 April 2012 it is only legal to sell ELV halogen reflector lamps with an average measured wattage of more than 37W if it can be proven that they were imported or manufactured prior to the date of the ban. The NSW Government estimates any existing stocks above 37W will be exhausted by the end of 2013.

Ensuring quality, accuracy and persistence of savings for emerging technologies

Luminaire retrofits

The NSW Government commissioned Beletich Associates, working with lighting consultants Light Naturally, to explore a wide range of commercial lighting issues. The consultants' report provided advice and discussed the importance of achieving quality lighting outcomes through the ESS[31]. One issue raised is concern over the quality of lighting outcomes through the modification of existing luminaires using T5 adaptors and linear LED adaptors, which can lead to sub-standard lighting outcomes, pose potential safety concerns, and can void the warranty of existing luminaires and control gear when retrofitted, leading to early removal so that savings are not realised.

Any other luminaire retrofits that modify parts of the luminaire other than the control gear and the lamps can also result in similar issues, as the retrofitted luminaires may no longer function as designed. Such activities can lead to energy savings, and can satisfy the customer's needs for performance at relatively low cost, and so ACPs should not be prevented from offering such services as part of a lighting upgrade. However those savings do not meet the quality standards required to attract an incentive under the ESS.

[31] www.ess.nsw.gov.au/Projects_and_equipment/Lighting/Commercial_Lighting_Issues_Paper

Voltage reduction units

The consultants' report also raised concerns relating to the certainty of energy savings through the use of Voltage Reduction Units. While T12 and T8 linear fluorescent lamps with magnetic ballasts can use Voltage Reduction Units to save energy, these lamps are likely to be replaced by more efficient T5 or LED lamps in the near future, negating those savings. Voltage Reduction Units are also poorly specified, have no standard performance test, and can lower illuminance to unacceptable levels.

LED performance requirements

Further, the lighting consultants' report discussed the need for more stringent product testing requirements to prove the performance claims of Emerging Lighting Technologies and provide increased certainty of energy savings. To improve product performance requirements, the report proposed leveraging recognised international performance testing standards, such as specified in the US Energy Star and DesignLights certification schemes, where Australian Standards do not exist for a product category.

Reducing red tape

The default operating hours in the ESS are suited to commercial offices and do not suit other commercial workplaces such as retail centres or warehouses. Proving annual operating hours other than the default 3,000 hours per year is time-consuming for both participating businesses and the Scheme Administrator.

There has been an increase in lighting replacement giveaway programs occurring through the ESS, in particular through halogen downlight and fluorescent tube replacement programs, leading to poor customer engagement and higher compliance costs.

The acceptance procedure for LED lamps and other emerging lighting technologies is time-consuming for both ACPs and the Scheme Administrator. Multiple ACPs need to submit applications to have the same product approved, leading to increased costs for businesses and the Scheme Administrator.

The costs of ensuring that lighting upgrades comply with the recommendations of AS/NZS 1680 are substantial, for both the ACP and the Scheme Administrator.

Proposal

(Refer draft ESS Rule: §9.4, Tables A9, A10.1, A10.2, A10.3 & A10.4)

The NSW Government proposes to:

- revise savings factors for activities involving the replacement of 50W ELV halogen to set the baseline as energy consumption for a 35W ELV halogen reflector lamp
- specify performance testing requirements for all Emerging Lighting Technologies, to improve the quality of lighting upgrades through the ESS, with reference to performance

requirements detailed in internationally accepted certification schemes (such as the US ENERGY STAR and DesignLights) to ensure quality of lighting products

- accept registration of a product under recognised certification regime as sufficient proof of product performance. Alternatively, a product may be tested against the same standards required by a recognised certification scheme in a National Association of Testing Authorities (NATA), Australia accredited laboratory. The Scheme Administrator will, from time to time, publish a list of recognised certification schemes for Emerging Lighting Technologies
- allow existing accepted products to used for 6 months after the new Rule commences, after then they will be required to provide additional evidence to meet the new requirements.
- exclude induction lighting products until an acceptable test standard or certification scheme has been developed
- exclude T5 Adaptors and Linear LED Adaptors from the ESS, and all other types of luminaire retrofits that modify parts of the Luminaire apart from the control gear and the lamps
- exclude Voltage Reduction Units from the ESS
- require that all lighting upgrades are conducted under the supervision of a licensed electrician
- provide a list of default operating hours for different building types in order to reduce red-tape for commercial lighting projects, based on activities previously accredited
- require that the end-user pays at least $5 (ex. GST) per MWh of projected energy saved for lighting upgrades, to ensure that customers are engaged with the project to ensure the quality of the lighting is fit for purpose, e.g. that it meets the AS/NZS 1680 recommended minimums
- have the Scheme Administrator publish a list of all accepted emerging lighting products so that each product only needs to be accepted once (this will only apply to new applications).

These changes will improve the quality of lighting upgrades for businesses and ensure that incentives are targeted at high quality, additional energy savings.

Questions

Q20 - If you do not support the removal of luminaire retrofits, what evidence is there that luminaire retrofits are free from all issues with performance, customer satisfaction, permanence, safety and the potential to void warranties of existing equipment?

Q21 - Under the proposed changes to the Commercial Lighting Energy Savings Formula are

there any additional building types for which the NSW Government should provide annual operating hours different from the default of 3,000 hours per annum? What evidence is there for other values?

Q22 -How can the ESS cost-effectively ensure that lighting upgrades meet the recommended illuminance maintenance and uniformity specifications in accordance with AS/NZS 1680.1 over the lifetime of a project? Is there a better way of ensuring that lighting retrofits meet the needs of the end-user than using the Standard?

4.5 New Deemed Energy Savings for business equipment

Apart from commercial lighting, there are other high efficiency technologies that can be deployed in NSW businesses that have been tested against Australian Standards and so can be assigned lifetime energy savings with high confidence. The Victorian Energy Efficiency Target (VEET) includes:

- commercial refrigerated display cabinets
- commercial refrigeration fans
- commercial HVAC systems.

Proposal

(Refer draft ESS Rule: §9.9, Schedule F)

The NSW Government proposes to include the following standardised high efficiency technologies:

- refrigerated display cabinets
- liquid chilling packages
- close control air conditioners
- air conditioners

Where an activity is common to VEET, similar eligibility criteria apply. However, the lifetime energy savings estimates reflect the principles of ESS and so differ from VEET incentives.

Including these activities will help harmonise the ESS with the VEET scheme and increase the opportunities for businesses to save energy through simple calculation methods.

Question

Q23 -Are there any issues with matching eligibility with VEET but providing different incentives in the ESS for Deemed Energy Savings for business equipment?

Q24 -Are there any other standardised equipment used by businesses that could be included in the ESS under the Deemed Energy Savings Method?

4.6 Small business energy efficiency retrofits

Like households, small businesses face significant pressure from energy bills. They are small users of energy, but those bills are a significant proportion of their business costs. They also often occupy similar premises to households, either small shops or properties that were built as residential premises but later rezoned as commercial premises, and have lighting, heating and building fabric that is very similar to the average home. They have many opportunities to save a significant percentage of their energy use.

They also face similar barriers to households. They lack the time, knowledge and skills to manage energy efficiency projects themselves. Section 4 outlined a home energy efficiency retrofit method that can help households save energy, which can be adopted for use with small business.

The Victorian Energy Efficiency Target scheme includes many activities that can be applied to both households and small business, including using the same savings factors. The operating hours for small business are usually greater than a household, so using the same savings factors would be a conservative but simple approach. Generally, if a business has greater operating hours, then lifetime of equipment is reduced proportionally.

NSW energy efficiency programs have been working with small businesses for a number of years, and have developed energy assessment tools that could be adapted for use with the ESS to assess opportunities and provide savings estimates for small business.

Proposals

Small Business Retrofit

(Refer draft ESS Rule: §9.8, Schedule D, Schedule E)

The NSW Government proposes to allow small businesses to access incentives, applicable to the building type they operate in, using the Home Energy Efficiency Retrofits method. It is proposed that small businesses are able to access all of the household activities in Schedules D and E. Businesses tend to use equipment more frequently than households, however this leads to lower lifetimes, so the same lifetime energy savings have been assumed for small businesses as for households.

Aggregated Metered Baseline Method

(Refer draft ESS Rule: §8.9)

As with households, there are many actions that small business can take that are not appropriate for deemed ESC creation because the savings vary too greatly from site to site or there is too much uncertainty over how long the savings will last. Section 4.4 of this consultation paper outlines a proposal for a new "aggregated metered baseline method" to allow savings to be statistically measured across multiple site using experimental design principles. This method has been drafted in a way to allow proponents to also use it for small businesses, if they can statistically demonstrate savings for their programs across multiple sites.

Question

Q25 - Are there any cases where energy savings factors for small businesses should be different from the value for households when considering extending the use of the Home Energy Efficiency Retrofits Method to small businesses?

4.7 Improved NABERS Baseline Method

Over 450 buildings in NSW have a current NABERS energy rating, which measures the energy efficiency of offices, shopping centres, hotels and, as of February 2013, data centres. Many more buildings in NSW are eligible for a NABERS rating. Currently, around 80 of those buildings are accredited to create ESCs under the NABERS Baseline Method.

The current NABERS method in the Rule allows existing buildings to establish a baseline from any previous rating year, and new buildings are set a benchmark rating of 4 stars. Although conceptually simple, in practice there are some administrative issues with comparing performance relative to current and past building configurations. In addition, the current method only provides a practical incentive for one-off building retrofits rather than continuous improvement and maintenance, which is typically required to keep a building performing at the top end of the NABERS ratings scale. These factors may account for the slow take-up of the method.

Proposal

(Refer draft ESS Rule: §8.8, Tables A20, A21 & A22)

It is proposed to simplify the NABERS Baseline Method by using the NABERS Reverse Calculator to compare a building's current rating with either an historical rating or a benchmark rating. This new approach models what would have happened without the energy savings activity, by estimating electricity consumption for a building with the same configuration and fuel mix (electricity and gas) as the current rated building. The only

difference is the star rating (either historical or benchmark). This is simpler and more accurate than the old approach.

In addition:

- The market will be segmented by calculation method and building type, to allow ESS incentives to be targeted at the market to drive change.
- Only buildings in the top 15%-25% of each segment will receive an incentive.
- There is no distinction between new and existing buildings - each building can create ESCs either against a baseline (for one-off retrofits) or a benchmark (for continuous improvement).
- Baselines and benchmarks increase over time to drive continual, additional change.
- The method will include buildings rated under the new NABERS for Data Centres tool.

Better targeting the incentive will also help the NSW Government meet its *NSW 2021* target to achieve a 4-star NABERS energy rating for 50% of NSW commercial floor space by 2020.

All NABERS baseline method accreditations will automatically transition to the new NABERS methods at the commencement of the new Rule. Where the end of the ”Baseline Period” under a current NABERS accreditation is not more than 3 years old, the same baseline rating can be used.

Question

Q26 - Is the proposed approach to the NABERS Baseline Method simple, effective and flexible?

Q27 - How can ESS incentives be best targeted under NABERS to help transform the commercial building market?

4.8 Amendments to the Power Factor Correction Energy Savings Formula

The ESS Rule allows ACPs to create ESCs for projects that improve the power factor of sites, primarily where a high proportion of the load is due to the use of motors. The energy savings arise because less current is required in order to service loads that have power factors closer to unity. Given that sites on the low voltage network are required by regulation to have a minimum power factor of 0.9, the ESS only provides incentives to improve power factor above 0.9. However, the current Power Factor Correction Energy Savings Formula does not correctly calculate the savings for power factor correction where the existing power factor is greater than 0.9.

Proposal

(Refer draft ESS Rule: §9.6)

It is proposed to update the Power Factor Correction Energy Savings Formula in the ESS Rule to account for sites with existing loads having power factor greater than 0.9. The changes also update some of the assumptions that lead to factors or terms in the formula. The formula assumes that energy will be saved by avoiding line losses on the distribution network between the transmission network and the site's connection point.

Question

Q28 - The proposed Power Factor Correction Energy Savings Formula assumes that 70% of upstream network losses, as represented by the Distribution Loss Factor are "technical" losses that can be reduced by reducing line current. Can this assumption be improved?

5 General improvements

In addition to the above changes specifically aimed at improving access to energy savings opportunities for households and businesses, it is proposed to introduce a number of improvements to the ESS Rule that will:

- reduce the costs of participation in the ESS by cutting red tape
- ensure the ESS is built into the business case for energy efficiency projects and that it drives greater investment in energy efficiency.

5.1 A simpler “nomination” process

(Refer draft ESS Rule: §5.2)

The Act prohibits creating ESCs for the same Energy Savings twice. One of the ways that the ESS Rule helps prevent any possible “double-counting” is by assigning the original right to create ESCs to a single person, called the Energy Saver.

Under the current ESS Rule, the original Energy Saver is the electricity bill payer. There are two current exceptions: for administrative simplicity the NABERS Metered Baseline method designates the NABERS rating holder as the original Energy Saver, and for improvements to the NSW electricity network the original Energy Saver is the network service provider.

However, due to split incentives or administrative complexity, often the electricity bill payer is not the person in the best position to create ESCs. If the person who holds the rights to be the original Energy Saver may not want to become an ACP. In these instances, the original Energy Saver can “nominate” an ACP to create ESCs on their behalf whereby a person transfers the right to create ESCs for a particular energy savings project to an ACP. The nomination process allows the market to find the best person to create ESCs for each energy savings project, although there are costs involved with setting up and managing the nomination process for the original Energy Saver, the ACP and the Scheme Administrator.

For administrative simplicity, and to address landlord/tenant split incentives, the nomination process works best if the Energy Saver is the person who can decide whether to fund a project, usually the equipment owner.

Proposal

The NSW Government has reviewed the definition of Energy Saver, and has found that the objective of avoiding double-counting can be met while reducing costs for the Scheme Administrator, ACPs and businesses and households.

It is proposed to modify the ESS Rule to improve the nomination process by allocating the role of the original Energy Saver for each method to the person generally best placed to

ensure that an Energy Savings project goes ahead. Where the original Energy Saver chooses not to become an ACP, they can nominate an ACP to become the Energy Saver and create ESCs for the project on their behalf.

Further, it is proposed that the concept of 'chain of nomination' is removed from the ESS Rule, in order to simplify the nomination process and reduce the possibility of two ACPs claiming to be the nominated Energy Saver for the same energy savings project.

Table 3 – Proposed simplification of Original Energy Saver by calculation method

ESS calculation method	'Energy Saver'
NABERS Metered Baseline	NABERS rating owner
Aggregated Metered Baseline	person who holds the Electricity Consumption data for all Sites in a Population
Other Metered Baseline	electricity bill payer
Project Impact Assessment	purchaser of goods or services
Project Impact Assessment with Measurement and Verification	purchaser of goods or services
Deemed Energy Savings for High Efficiency Appliance Purchases	appliance retailer
Deemed Energy Savings for Home Energy Efficiency Retrofit	purchaser of goods or services
Other Deemed Energy Savings (e.g. commercial lighting)	purchaser of goods or services

Question

Q29 -Are the proposed simplifications of Original Energy Savers optimal for each method?

5.2 Additionality - Ensuring the ESS drives change

There should be a high level of confidence that ESC creation under the ESS reflects real and additional energy savings. For the ESS to drive uptake of electricity savings, the decision to implement an energy savings project must take into account the expected revenue from the sale of ESCs. This requires both certainty that a number of ESCs will be able to be created and also that the ESCs will be created and sold soon after the project is implemented to offset the implementation costs of the project.

To create certainty over the number of ESCs to be created, an ACP must have an accreditation that clearly sets out a calculation method for the project. Note that as part of the transition from GGAS to the ESS, ESCs could have been created for projects implemented prior to accreditation, to allow projects to go ahead while ACPs gained accreditation. However, given that the ESS is now mature, with a large number of accreditations across a broad range of technologies, this concession is no longer required.

The Act requires that ESCs be created no later than 6 months after the calendar year in which the project was implemented. This allows ACPs to create ESCs for projects up to 18 months after they were implemented. It is considered that any income from ESCs created more than 6 months after project implementation is unlikely to have materially affected the decision to commit to a project. That is, the savings are not additional to those that would have occurred in the absence of ESCs being created.

Proposal

(Refer draft ESS Rule: §6.2)

It is proposed to improve confidence that ESC creation reflects additional energy savings by requiring that every ACP has secured the legal right to create ESCs at the time a project is implemented.

This means that ACPs can quote for services taking into account certain ESC revenue. The legal right is established in two ways:

1. the ACP must be accredited prior to implementation
2. if a nomination form is required, it must be signed prior to implementation.

5.3 Product lists

Currently, the Scheme Administrator must accept products that meet the requirements of the ESS Rule for each ACP, even if the same product is used by multiple ACPs. ACPs must apply to have the products accepted, even if the ACP is not an expert on the technology nor the ESS requirements. This process still imposes a significant cost on both the Scheme Administrator and ACPs, even though a large number of emerging lighting products, such as LED lamps, have been accepted in the past year, and the Scheme Administrator has achieved significant reductions in processing times for these applications over time. The proposed ESS Rule also increases the range of products that may need to be accepted for use by ACPs.

Proposal

(Refer draft ESS Rule: §9.2A)

It is proposed to streamline the product acceptance process by:

- allowing third parties, such as manufacturers or distributors, to apply to have their products accepted. This means products need only be accepted once, and also allows the person with the technical expertise to apply for acceptance.
- requiring the Scheme Administrator to publish a list of accepted products, or to refer to an existing list from a certifying body or a labelling scheme.

- allowing the Scheme Administrator to impose additional product requirements where problems have been found.
- allowing the Scheme Administrator to remove their acceptance of a product that no longer meets the requirements.

5.4 Transitional arrangements

Most existing ACPs will be able to continue operations under the new Rule without any change to accreditation. Some ACPs will need to make simple amendments to their existing accreditation in order to create ESCs under the proposed new Rule. For a few ACPs, their calculation methods may need to be resubmitted, and a 12 month transitional timeframe is provided to allow this.

Proposal

(Refer draft ESS Rule: §1.3, §1.4)

The following timeframes will apply for transition of RESAs to the new Rule (times are from that the commencement of the new Rule):

- Project Impact Assessment Method – no new RESAs may be accredited under the existing method. New implementations are allowed for 12 months. Top-up ESCs for previous implementations are allowed until exhausted. Existing RESAs must amend accreditation within 12 months to the Project Impact Assessment with Measurement and Verification Method
- Metered Baseline Method – no transition required
- NABERS Baseline Method – existing buildings may continue to use their current ratings baseline if it meets the new criteria, otherwise they will need to provide a new baseline rating
- Deemed Energy Savings Method – all RESAs must meet new requirements for ESC creation upon commencement of the Rule; in some cases this may require minor amendment to prior accreditation before ESCs can be created
- If ESCs are created after commencement of the new Rule for implementations completed prior to the Rule's commencement, any previous nomination is valid, but ESCs must be calculated under the new Rule.
- ESCs cannot be created if the method or project is no longer eligible under the new Rule once it commences.
- Accreditations for one-for-one light replacement (formerly Tables 1-3) will cease; in future all lighting retrofits are to be conducted as part of a Home Energy Efficiency Retrofit or the Commercial Lighting Formula.

Question

Q30 - Is there any need to provide different transitional arrangements for the changes proposed in this consultation paper?

Q31 -Does allowing top-up ESC creation for previous PIA Method projects lead to additional energy savings?

5.5 Remove installation discount factors

Some activities in the current ESS Rule specify an Installation Discount Factor or Sales Discount Factor to account for the risk that equipment will not be installed, be incorrectly installed or be later removed. Those activities have now either been deleted from the ESS or quality requirements have been tightened to ensure installation in previous changes to the ESS Rule. All Sales Discount Factors remaining in the ESS Rule are now a factor of 1, meaning no discounts are applied.

Proposal

(Refer draft ESS Rule: §9)

It is proposed to remove Installation Discount Factors and Sales Discount Factors from the ESS Rule along with all references to their use in calculation methods. This will simplify administration of the ESS.

5.6 Definition of energy savings

The principal objective of the ESS, according to the Act, is to provide incentives to save energy by improving the efficiency of electricity consumption. While the current ESS Rule defines RESAs in line with the Act, there are some grey areas that are not addressed.

Proposal

(Refer draft ESS Rule: §5.4)

It is proposed to clarify that a RESA does not include:

- activities carried out as part of statutory or regulatory compliance
- activities that reduce metered electricity consumption by reducing service levels
- activities that reduce electricity consumption through onsite electricity generation or by consuming non-renewable energy (e.g. gas) to provide the same service
- activities that reduce electricity consumption and are eligible to create tradeable certificates under the Renewable Energy Target or other schemes.

Question

Q32 - Under the current ESS Rule, electricity networks are allowed to create ESCs for savings from reducing distribution losses. Would such projects also meet regulatory requirements such as the Regulatory Investment Test – Distribution (RIT-D), and, if so, how might this be taken into account in calculating additional savings under the ESS?

5.7 Waste and recycling

Many activities within the ESS involve the permanent removal and disposal of equipment. Large scale equipment removal could create larger than normal amounts of waste equipment, which could be problematic if that equipment contains substances that are harmful to the environment or human health.

Proposal

(Refer draft ESS Rule: §5.3)

It is not proposed to make recycling and safe disposal of products mandatory under the ESS, as this would duplicate existing regulatory regimes, leading to increased costs to government and ACPs. However, the Scheme Administrator may cooperate with other regulatory bodies to assist with compliance regarding waste and recycling legislation.

It is important that ACPs are aware of their obligations to safely dispose of or recycle end-user equipment under relevant legislation and regulations. For example, ACPs may be required to comply with regulations when disposing of the following equipment:

- Air conditioners, refrigerators, and freezers – may contain ozone depleting gases that require destruction under the *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989*
- Fluorescent lamps, and High Intensity Discharge lamps – contain mercury and in certain quantities may bring the transport and disposal of products under the regulation of the *Protection of the Environment Operations Act 1997*

5.8 Streamlined ESC creation and analysis

At present, the Scheme Administrator is not provided with the information required to validate activity data prior to the creation of ESCs. This presents a risk that ESCs will be created based on erroneous data, and then later corrected by the Scheme Administrator cancelling those ESCs or equivalent actions. If errors can be detected prior to ESC creation it will be simpler for the Scheme Administrator and ACP to correct.

Proposal

(Refer draft ESS Rule: §6.8, §6.9, Table A17, Table A18)

It is proposed that each ACP will be required to provide basic data about the implementations of an activity at various sites prior to registering ESCs. The Scheme Administrator can then validate that data to ensure it is in the correct format before allowing the ACP to create those ESCs.

Validation will ensure that the data is in the correct form, and that the ACP is creating a valid number of ESCs for the activity. Validation does not replace auditing.

Proposed activity data requirements for each Implementation at a Site include:

1. the ACP
2. the RESA
3. the address and identification of the Site where the energy savings occurred
4. the Implementation Date
5. the Energy Savings from the Implementation
6. the cost to the Purchaser of the Implementation at the Site (excluding GST)
7. the end-use service for which energy was saved
8. the business classification of the business at the Site where the activity took place (if known)
9. any other data providing evidence of Energy Savings as required by the Scheme Administrator.

The Rule includes lookup tables for business classifications and end-uses, to standardise the process. The Scheme Administrator will provide a template spreadsheet for ACPs to complete.

The provision of this data in a standard form will also allow for enhanced reporting by the Scheme Administrator and improved analysis by the NSW Government in further developing and streamlining the ESS.

Question

Q33 - Are there any end-use categories that should be added to Table A17?

5.9 New timing for regular ESS amendments

The Minister has powers under Part 9 of the Act to add, amend or revoke rules from time to time. Since the ESS commenced on 1 July 2009, the Minister has approved two Rule

amendments, the first effective on 24 December 2010, and the second on 22 December 2011.

Proposal

To improve the agility of the ESS it is proposed that there be a stated policy intention to make annual adjustments to the ESS Rule. Although it would not be incorporated into the ESS Rule or a regulatory requirement, the Government would work towards an indicative annual schedule. These annual changes would allow the Minister to add new activities as technologies mature. This would provide:

1. a regular timeframe for consultation periods and ESS Rule changes, allowing stakeholders to plan ahead
2. an opportunity for stakeholders to propose new ideas about energy saving activities that could be included in the ESS
3. an opportunity for the NSW Government to improve proposed amendments to the ESS Rule through public consultation
4. an opportunity for the NSW Government to adjust baselines for appliances and other technologies as those markets transform, to ensure that savings are additional and incentives are well-targeted
5. greater transparency and predictability for ESS Rule changes, striking a balance between investor confidence and ESS flexibility.

The proposed timetable is shown in Table 4 below:

Table 4 – Indicative annual timetable for ESS Rule changes

Time of year	Action
June-July	Minister invites new ideas from the public and stakeholders
August	NSW Government considers submissions and integrates with Government proposals
September	Minister releases draft ESS Rule and consultation paper
October	NSW Government considers submissions and finalises new ESS Rule
November-December	Minister gazettes new ESS Rule
1 January	New ESS Rule takes effect 1 January each year

The Minister retains the power to make changes to the ESS Rule outside of the annual timetable, and may do so as required to reflect external changes (such as regulatory changes) and safeguard the integrity of the ESS.

Question

Q34 - Does the proposed annual timetable provide sufficient opportunities and realistic timeframes for stakeholders to participate in developing the ESS?

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Glossary

Acronym	Definition
ACP	Accredited Certificate Provider
AEMO	Australian Energy Market Operator
AMB	Aggregated Meter Baseline
ANZIC	Australia and New Zealand Industry Classification
AS	Australian Standard
CLF	Commercial Lighting Formula
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DEWHA	Department of Environment, Water, Heritage and the Arts
ELV	Extra Low Voltage
ESC	Energy Savings Certificate
ESS	Energy Savings Scheme
GST	Goods and Services Tax
GWh	Gigawatt hours
HVAC	Heating Ventilation and Air Conditioning
IPART	Independent Pricing and Regulatory Tribunal of New South Wales
IPMVP	International Performance Measurement and Verification Protocol
LED	Light Emitting Diode
M&V	Measurement and Verification
MEPS	Minimum Energy Performance Standards
MWh	Megawatt hour
NABERS	National Australian Building Environmental Rating Scheme
NATA	National Association of Testing Authorities
NSW	New South Wales
PFC	Power Factor Correction
PIA	Project Impact Assessment
RESA	Recognised Energy Savings Activity
SRES	Small-scale Renewable Energy Scheme
US	United States
VEET	Victorian Energy Efficiency Target