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NSW Energy Savings Scheme and Peak Demand Reduction Scheme Statutory Review

Department of Climate Change, Energy, the Environment and Water

Email: energysecurity@environment.nsw.gov.au

6 Sept 2024

Dear Sir or Madam,

Discussion Paper – Energy Savings Scheme (ESS) and Peak Demand Reduction Scheme (PDRS) Statutory Review 2025

AGL Energy (AGL) welcomes the opportunity to provide feedback to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) Discussion Paper (the Paper).

Proudly Australian since 1837, AGL delivers around 4.3 million gas, electricity, and telecommunications services to our residential, small, and large business, and wholesale customers across Australia. In New South Wales, AGL is a Tier 1 energy retailer to residential customers, with 24% electricity market share and 39% gas market share[1]. As one of the largest providers of essential services, AGL is committed to meeting the needs of its energy customers both now and through the transition to a net zero emissions future. AGL offers products and services that assist our customers in decarbonising and to reduce their energy consumption through carbon offsets, demand response programs and participation in AGL's Virtual Power Plant (VPP).

AGL recognises the important role of both the NSW Energy Savings Scheme (ESS) and Peak Demand Reduction Scheme (PDRS) in achieving the Energy Security Safeguard objectives of ensuring the energy system is "more reliable, affordable and sustainable"[2]. We note our broad support for both schemes, given their likely positive efficiency and cost impacts for scheme participants, and ultimately, NSW customers.

While it is too early in the PDRS' implementation to discern whether the scheme is meeting its objectives, we believe the ESS scheme objectives and design remains largely relevant. As a liable entity within both schemes, AGL has proudly met its targets every year since the scheme's inception and is committed to its ongoing role in decarbonisation and supporting a more reliable and affordable energy system.

AGL's responses to the consultation questions in the Paper are set out in Appendix A.

If you have any questions in relation to this submission, please contact Jenny Kiim on jkim2@agl.com.au.

Yours sincerely,

Liam Jones
Senior Manager Policy and Market Regulation

[1] Australian Energy Regulator, *Annual Retail Markets Report 2022-23*, November 2023, p 10-11.

[2] https://www.energy.nsw.gov.au/nsw-plans-and-progress/regulation-and-policy/energy-security-safeguard

Appendix A – AGL's Responses to Consultation Questions

Part 1: Statutory Review	
Consultation Question	**AGL Feedback**
1. *Do you support the proposed approach to determining whether scheme objectives remain valid?*	AGL supports the department's proposed approach to determining whether the scheme objectives remain valid by assessing whether (1) the objectives address an ongoing issue or opportunities and (2) whether there is still a need for policy support to address this issue or opportunity.
2. *Are the ESS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.*	Yes, AGL considers the ESS' principal objective – 'to create a financial incentive to reduce the consumption of energy by encouraging energy saving activities' – as still valid. Other supporting objectives, which relate to assisting households and businesses to reduce energy consumption; complementing national schemes which seek to reduce carbon pollution; and reducing the need and associated costs for additional energy generation, transmission, and distribution infrastructure also remain broadly relevant. Alternative objectives are explored further in our response to question 6.
3. *Are the PDRS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.*	AGL considers the PDRS' principal objective – 'to create a financial incentive to reduce peak demand for electricity by encouraging activities that create peak demand reduction capacity' – as broadly valid. Supporting objectives which relate to improving the reliability of electricity supply, reducing cost for customers, and improving the sustainability of electricity generation also remain relevant. However, we believe the PDRS is still in its nascent stage of implementation and think that the department would benefit from testing whether the scheme meets its objectives, and the validity of the objective after 1 - 2 years. As the PDRS commenced in 2022, and the expansion of eligible activities under the scheme such as the inclusion of residential batteries for commercial and industrial participants are yet to come into effect (i.e. commencing on 1 November 2024), it is too early to consider the impacts or effects of the scheme settings.
4. *Is the ESS design appropriate for securing its objectives? What evidence should the department consider to assess design appropriateness? Please provide evidence to support your answer.*	Yes, AGL considers the market-based, certificate scheme design as still broadly appropriate in incentivising households and businesses to reduce energy consumption through energy saving activities which would have otherwise occurred. Energy Savings Certificate (ESC) price movements have evidently and predictably followed market fundamentals of supply and demand, whereby a very large oversupply of activities and generation of ESCs, has seen a proportional reduction in ESC price, and vice versa. This has allowed AGL, as a liable entity within the scheme to buy and surrender ESCs and operate with other scheme participants transparently.
5. *Is the PDRS design appropriate for securing its objectives? What evidence should the department consider to assess design*	As mentioned in our response to question 3, we consider it too early to determine whether the market-based, certificate scheme design is the most appropriate for incentivising peak demand reduction in NSW.

appropriateness? Please provide evidence to support your answer.	Nevertheless, we consider smart meter data as an important source of evidence to measure the operation and future impact of the PDRS, as this would allow for retailers to accurately gauge customers' consumption during the relevant peak periods, providing evidence of what impact, if any, each of the proposed recognised peak activities has on peak demand. Similarly, to assess overall system level demand, the department could assess aggregated smart meter data.

Part 2: Reform Opportunities	
Consultation Question	**AGL Feedback**
6. *What alternative or complementary objectives should the schemes focus on? Please provide evidence to support your recommendations, including reasons why the ESS and/or PDRS would be the best way to address the issue or opportunity you have identified.*	The 2020 Statutory Review final report indicated that the ESS was meeting its main objective. This was however largely due to lighting upgrades in commercial and industrial settings which accounted for approximately 70% of the energy savings activities.[3] As the scheme matures, and as commercial lighting activities will soon be exhausted, the department will need to consider alternative activities which help continue to create a consistent supply of ESCs. There are valuable learnings to be taken from other jurisdictions such as the Victorian Energy Upgrades (VEU) program that highlight the critical need to have an ongoing sustainable pipeline of creation activities to replace those that are finishing or being phased out. Complementary objectives that the ESS could consider include: **i) Electrification** Naturally, the ESS could expand its remit to include electrification activities and move households and businesses off gas. In line with the Victorian Government's Gas Substitution Roadmap, the VEU program has pivoted towards electrification as a means to offset the ramping down of VEEC producing activities and to address the structural adjustment needed for the program. There is also increasing interest in how the program might be leveraged to support vulnerable consumers with cost-of-living pressures. The introduction of space heating and cooling (changing gas heating and cooling to reverse cycle air conditioning), and water heating changes (replacing of gas water heaters with solar electric or heat pump water heaters) came into effect in May 2023 and has seen broad uptake in Victoria. As outlined in the Green Energy Markets VEEC Monthly snapshot, high efficiency air conditioner (Activity 6) remained the highest creating activity in July 2024, registering its highest monthly volume to date, of 144k VEECs. Creation under this activity has continually increased month-on-month since the activity commenced mid-last year.[4] Shortly, DEECA will also include the replacement of gas stoves with induction cooktops as an eligible activity within the VEU. While cooktops only account for roughly 1.5 per cent of typical household gas consumption, they typically present as the last household upgrade

[3] 2020 Energy Savings Scheme Statutory Review Final Report, p 2
[4] Green Energy Markets monthly analysis of Victorian Energy Efficiency Certificates (VEECs) July 2024

required before disconnecting from mains gas or LPG completely[5]. DEECA has highlighted the significant potential of this inclusion, with research from the department showing that in 2022, 53 per cent of Victorian households used gas cooktops. Avoided gas charge supply is estimated to equate roughly to $350 - $400 per annum in potential savings per household.[6]

Similar electrification activities could be considered within the ESS, with the scheme potentially adding a complementary objective to support household and business electrification.

7. *Are there opportunities to improve how scheme costs and benefits are shared? If so, please provide evidence of how any proposed changes would result in more equitable outcomes.*

AGL acknowledges the challenge of achieving equity and increasing accessibility across both schemes, particularly for lower-income families and renters who do not have the means to access higher value, and costly activities such as installing residential batteries.

Recognising the needs of different customer segments across residential households – such as renters, landlords, owner-occupiers, and or more vulnerable cohorts may assist in providing more targeted supports for each sub-group. More specifically, schemes could also provide higher incentives for priority cohorts. For example, under the SA Retailer Energy Productivity Scheme (REPS) households who are considered low income, hold certain concession cards, or are pensioners (among other eligibility criteria that signify them as more vulnerable consumers) are identified as a 'priority group' and will have their eligible activities multiplied by a 'transition factor' to increase their incentives compared to non-priority cohorts.

8. *What adjustments could the department make to scheme settings to improve performance against the legislated or proposed objectives? How would this provide a net benefit to NSW? Please provide evidence to support your answer, including any assumptions you have made.*

i) PDRS Target Setting

AGL is concerned that the cost of Peak Reduction Certificates (PRCs) under the PDRS could rise sharply as a result of targets increasing rapidly – from about 8 million PRCs in 2023 - 24 to 24 million in 2024 - 25, and nearly 45 million in 2025 - 26. These fast-growing targets may outpace the creation of PRCs through eligible activities, ultimately leading to decreased rebates for customers.

The recent rule change limits the eligibility for heat pump water heaters with capacity over 425L which significantly impacts their contribution to PRC creation. Currently, these heaters account for about 83.3% of PRC creation based on GEM's data up to July 2024.

Additionally, the introduction of BESS1 and BESS2 activities are expected to contribute around 6-8 million PRCs annually. However, the adoption of batteries may not increase quickly enough to offset the reduction from heat pump water heaters. To make a significant impact on battery uptake, subsidies would need to be in the range of $4-5k. Given the sharp rise in PDRS targets in the coming years, it is crucial to diversify the range of activities to ensure that the supply of PRCs keeps up with the growing demand. Enabling large C&I customers access to demand-side participation schemes without onerous scheduling requirements under the WDRM, such as retail demand response could substantially increase certificate creation. Alternatively, the department could consider slightly lowering targets in the interim period of transition.

[5] Department of Energy, Environment and Climate Action, VEU – Induction cooktops consultation paper, April 2024, p 4
[6] Ibid p 4.

ii) Compliance - Training incentives for installers

AGL considers quality installations and installations of high-quality appliances as integral to building and maintaining consumer trust in the schemes. We have observed lower quality installations for particular appliances such as hot water pumps over the last few years and believe there could be stronger compliance incentives for installers to complete quality installations. Facing similar challenges, the VEU program published their compliance and enforcement priorities for the March 2024 which included Heat pump water heater installations.

In line with our submission to the VEU Warranty Requirements Consultation Paper in April 2024, AGL believes that minimum product and installation warranty requirements for heat pump water heaters (HPWH) and reverse cycle air conditioners (RCAC) would likely increase consumer trust and confidence in relevant upgrades under the VEU program, as well as the ESS and PDRS. This is timely and appropriate given recent industry and public concerns around low quality products and installations. The inclusion of these supplementary express warranties for products and installations would make it clear as to consumers' entitlements and recourse in the event of a fault or issue.

iii) Broadening eligibility criteria for activities

As mentioned in our submission to the PDRS Rule Change 2, with the PDRS target set to sharply increase in the coming years, there is a need to introduce a wide range of activities so that supply can keep pace with demand.

AGL was supportive of the intent of rule change 2 to increase the number of activities within the scheme. However, we advocated to the NSW Government to consider all viable options for Demand Response (DR), to maximise market participation while reducing costs for customers, and to ensure that energy remains reliable and affordable.

Where possible, the PDRS should leverage existing suitable activities from similar jurisdictional schemes to reduce costs and streamline roll-out and implementation. Potential activities to be included in the scheme have been discussed in our response to question 6.

iv) Insulation

Insulation serves as one of the most effective ways to keep Australian homes warm in winter and cool in summer. Both the ACT and Victorian Government have recently sought to introduce regulations which establish new minimum energy efficiency standard for ceiling insulation in rental homes. NSW also already requires ceiling insulation installations in residential rental properties to have a minimum thermal resistance (R-value) of at least R2.5. Not only this, double-glazed windows are also becoming increasingly popular due to their effective thermal protection. Effective insulation in turn reduces reliance on heating and cooling appliances regardless of their energy efficiency. These existing and growing insulation activities could be considered for inclusion as eligible activities within the ESS.

9. *How could the Department improve transparency around how it makes decisions and how it communicates changes to the schemes?*

Communication of scheme updates

AGL has noticed a recurring challenge around the communication of technical updates and critical information across platforms and teams for the ESS and PDRS. These updates, which can at times have significant implications for market dynamics, are sometimes shared inconsistently, often reaching only certain technical personnel or specific groups (depending on certain mailing lists). For example, on the 12th of April 2024, an Energy Savings Industry Association (ESIA) member briefing issued an alert around loopholes potentially being exploited within the ESS and PDRS in relation to:

- ESS - IHEAB Method High Efficiency Refrigeration activities (F1.1 - new installation and F1.2 - replacement).
- PDRS – RDUE Method activity RF2 – replacement

This information was provided to Accredited Providers but not AGL. A week later, IPART then issued the same alert to market participants, however this message was not comprehensively received from the AGL trading team.

Inconsistent communication can lead to unanticipated market activities, affecting pricing strategies and customer relations. We see the importance of standardising the communication process and channels to ensure that all relevant information is disseminated uniformly across a single platform, or channel to ensure it is accessible to all scheme participants. While improvements have been noted across the years, the issue persists. AGL recommends the department to implement a more effective mechanism for scheme participants to subscribe to relevant updates relating to the scheme, ideally with the option to select specific themes or to periodically review mailing lists.

Technical specifications for poor quality products

There is a lack of transparency around who is responsible for, and how, certain technical specifications are established as they relate to preventing poor quality products entering the market. For example, specifications for heat pumps have not limited the flow of cheap and inefficient heat pumps being used by companies taking advantage of rebates for low or even no upfront cost to customer offers.

Increased transparency is needed, particularly regarding the minimum requirements for these specifications. There is also the opportunity to harmonise these requirements across jurisdictions and schemes to there is a level of standardisation around compliance.

10. *How could the Department improve the delivery of the schemes? Please provide examples of other jurisdictions and schemes where possible to support your recommendations.*

Please see our responses to question 6 – 9, 11 and 12 which relate to alternative objectives, shared benefits, scheme settings, improved transparency and governance, and data collection.

11. *How could the government improve the governance and administration of the schemes? Please provide examples to support your recommendations.*

There is a need for better alignment and harmonisation across related energy efficiency schemes to avoid duplicative governance objectives. For example, heat pumps currently have access to multiple schemes like ESCs, VEECs, and PRCs, each with their own governance and administration processes. These processes are not aligned, leading to

	inefficiencies in administration and potential confusion from consumers as to where to go to access grants.
12. *What additional scheme data should the department or IPART collect and for what purpose? How could the Department make better use of new and existing scheme data?*	**Post-installation data on product performance and lifespan** There is currently a lack of data collected after appliances have been installed in a customer's home or in a commercial building. Post-installation data on product performance and lifespan can benefit the schemes by: • Verification of energy savings - collecting post installation data allows both the customer and other scheme participants to confirm that the appliances are delivering the promised energy savings. This ensures that the expected benefits of the upgrade, such as reduced energy consumption and lower utility bills, are being realised from the upgrades. • Product reliability – monitoring product performance over time helps assess the reliability and durability of the appliances. This data can identify whether the products maintain their efficiency throughout their expected lifespan or if they degrade prematurely, leading to lower-than-expected savings. • Informed decision-making – this information can ultimately better inform future program adjustments, such as refining eligibility criteria, enhancing product standards, or adjusting rebate amounts to reflect real-world performance. **What data is collected?** It is not clear to AGL what ESS and PDRS related data is currently being collected by IPART or the department and for what purposes. We would benefit from a canvassing of data that is collected by both parties to comment on how existing scheme data can be better utilised and published.
13. *What additional reform opportunities should the Department consider for the ESS and/or PDRS? Please provide evidence to support your recommendations.*	No further comments. Please see our responses to previous questions.

13 September 2024

Department of Climate Change, Energy, the Environment and Water
New South Wales

Submitted through email to energysecurity@environment.nsw.gov.au.

Energy Savings Scheme and Peak Demand Reduction Scheme statutory reviews 2025 – Discussion Paper

Alinta Energy welcomes the opportunity to provide input to the NSW Department of Climate Change, Energy, the Environment and Water on the *Energy Savings Scheme and Peak Demand Reduction Scheme statutory reviews 2025* discussion paper.

We are an active investor in energy markets across Australia with an owned and contracted generation portfolio of over 3,300 MW and more than one million electricity and gas customers. We support the Australian Government's target of net zero emissions by 2050.

Alinta Energy recommends that the scheme objectives for both the ESS and the PDRS include a cost-minimisation objective.

We believe the stated objectives remain valid. However, the absence of an objective to minimise the cost impact is an oversight. An explicit cost minimisation objective would likely promote best practice regulation and strengthen the intent of the schemes.

Additionally, it is essential that the scheme's benefits and costs are reported transparently. This is crucial for consumer and industry confidence in the schemes.

We do not believe that the ESS would benefit from adopting elements of energy efficiency schemes from other jurisdictions. The ESS has successfully avoided the complexities and costs imposed by other jurisdictional energy efficiency schemes and maintained the flexibility for liable entities and service providers to respond to targets and market conditions.

Thank you for considering our submission. If you want to discuss this further, please contact Karan Sharma at karan.sharma@alintaenergy.com.au.

Yours sincerely

Graeme Hamilton
General Manager, Government & Regulatory Affairs

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From: [redacted]
Sent: Friday, 6 September 2024 3:40 PM
To: OEH PD Energysecurity Mailbox
Subject: Energy savings scheme and peak demand reduction scheme response.

Hi,
Sorry can not do as pdf file only email.

This is a submission from a private person invited to contribute to this review.

I am a Mechanical Engineer with a double major in Energy from UTS.

Energy saving scheme.
These areas need to be addressed:

1. Replacing, all forms of electric hot water systems including solar hot water with heat pumps as the being the only option pushed by those suppliers who are authorised (I have contacted all) under this scheme is not the most energy efficient approach. True a heat pump will use about 1/5 the power compared to an electric only hot water system. Many heat pump installations are combined with PV. However these reduce the PV power available for other uses.
Heat pump water heaters using PV power during the day will still require top up electric heating on a dedicated circuit in the early morning.
Heat pumps are complex machines requiring maintenance and have a finite life cycle. These machines use refrigerant (hydrofluorocarbons) which have known damaging effects on the atmosphere and are carcinogenic.

The most efficient form of hot water is solar with electric or heat pump top up at night. The Government should be funding replacing all forms of hot water system with solar hot water systems as the primary option for all authorised installers.

2. Air conditioners and refrigerators (same explanation below applies to all systems using refrigerant cycle).
All old air conditioners and refrigeration systems, especially in domestic installations that are not running the newer refrigerants that are less hazardous to the environment should be supported to be replaced by this Government energy savings scheme.
Air conditioners and all other refrigerant systems have a finite life, after which seals in pumps and circuits will perish and fail, allowing the toxic and environmentally damaging refrigerants to escape to the atmosphere. Most old air conditioners and refrigerant systems do not have any form of maintenance so this is happening now!
Additionally refrigerant systems and air conditioners running the latest environmentally friendly refrigerant materials are more efficient.
Example an old air conditioner running R12 refrigerant will consume twice as much power for the same cooling or heating output of a modern refrigerant material air conditioner. The same applies for all other machines with refrigerant systems.
Air conditioners in particular should be the primary heating and cooling used in all domestic, commercial and industrial heating and cooling applications. These should replace all other forms of heating that burn fossil fuel's that produce CO2.

Fire places burning any fuels should be banned. Especially those burning woods or coals as these produce other environmentally damaging gasses and soot.
3. Electric motors used for pumping water or other fluid.
Water pumping systems require a maximum head (pressure) and flow rate to achieve what is required in a system. Using a pump that has a higher design head and flow rate than what is required will use more electric power than is necessary as more work is being done. Additionally pumps are designed for a specific pressure and flow rate and this is the sweet spot for overall efficiency generally 90% of input electric motor power. A pressure head efficiency plot of a pump design will drop from 90% to 0 % efficiency depending on the actual usage.
Electric motor efficiencies are dependant on load. Near 100% load will yield around 90- 94% efficiency. Where as,low load will give low efficiencies, at 50% load electric motor efficiency is around 70%.
Example a pool pump may have a specific maximum head generally based in the maximum operating pressure if the filter units in the circuits, generally less than 30 PSI. Flow rate needed less than 2 litres per second. This is sufficient to filter more than 20000 litres in less than 3 hours running and can be scheduled with a timer to run on off peak. This size pump running at the design point will have around 90% efficiency and if the electric motor combined is sized correctly to be close to full load then the overall efficiency with motor losses Would be around 80%.
If the motor is too large a capacity or the pump is designed for higher or lower flow rate and or pressures then the overall efficiency is much lower.
Most back yard pool pumps 1 HP electric motors and pumps capable of hundreds of PSI and higher flow rates. So generally speaking consume more than 50% more power than a correctly designed pump and motor for the pool system.
This applies also to all electric motor installations where electric motors are not sized correctly to actual power outputs required.
4. Solar PV uptake needs to be accelerated. The incentive provided by State and Federal Governments should not reduce each year. Nor should the solar buy back price be messed with by electricity wholesalers or retailers. These 2 things give private and commercial investors a pay back period to their investment in saving the planet.
Shortly the rules are changing as determined supposedly independently with consultation with all stakeholders holders but the only beneficiaries of these rule changes to solar PV return to grid are the energy wholesalers and retailers.
Under these new rules PV generators will need to pay be kW hour returned to the grid during the day. Or if you have invested in a battery and export at night then you will receive a pittance payment less than the current low 7 cents per kW hour paid by electricity retailers who then sell the power at peak or shoulder rates upwards of 40 cents per kW hour. A nice profit for doing nothing.
So these rule changes are a disincentive to investing in solar PV. This needs to change.

5. The electricity grid is a one direction supply. Transformers reducing the carriage voltage are one directional. Transforming voltage from higher to lower.
For the uptake of solar PV to work where the feed solar feed in point is at the lowest grid voltage generally 240 V single phase or 415 V 3 phase. These low voltage local grids can become saturated at peak PV generation periods cause other issues. We need to be able to redistribute power from one low voltage grid to another grid areas that needs power or a central mass storage facility. To do this Bi directional transformers are required to be installed between all voltage levels in the distribution grid by the power wholesalers.
The wholesalers also need to come up with large scale electricity storage systems that are environmentally friendly. Lithium batteries is not an environmentally friendly solution, that can go very wrong. Lithium once burning can not be extinguished and if not cooled can explode. Lithium fires produce toxic gasses. Currently pumped hydro is the best solution. Every major town or city

have a water supply. Those with natural nearby hills or mountains that give elevation pumped electricity storage should be commenced as soon as possible.
The current policy is to encourage private and commercial PV suppliers to instal non environmentally friendly and high danger lithium storage systems at their cost with lowered solar buy back based on the new solar feed in rules kicking in shortly that will make these systems not a viable option for private and commercial PV systems. This needs to change as well.
The energy wholesalers solution to PV feed in saturation under the new solar feed in rules is to supply smart meters to solar PV operators so they can remotely shut down the PV production at the private or commercial sites to balance local grid overload. This is not a solution as the energy potential is lost. Also the PV generators who have invested in solar PV will get even less return. This is another disincentive to install more PV. Those with PV and battery storage can additionally have their generated and stored PV powered stolen by the electricity wholesalers who can take the power remotely via the smart meter and pay a pittance to the PV generator for the privilege. The solar PV produce who has had their store solar PV power stolen from their batteries then has to pay to buy power later instead if using their own stored power. This too is a disincentive to install battery storage.

6. Power storage. As above in point 5 large scale pumped hydro storage systems need to be developed now.
Power needs to be stored close to the generation site and local grid. Distance and distribution voltage changes are less efficient and result in higher energy losses. So where possible storage should be local grid with possibility of redistribution at higher voltages only when needed.

7. New time of day meters. As per point 5 above there are many disincentives for PV power generators. However the new smart meters can not be read by any individual. Each metered rate kW hours used can not be read iff the meter anymore. So consumers with new smart meters have literally no way of being able to validate the power bills they receive.
If the usage data is disrupted then the energy wholesaler and retailer have literally no way to get the data needed for billing. They can only estimate and will never then correct wrong charges.

Peak demand reduction scheme.

The demands on the electricity grid are changing.
PV uptake is saturating local grid areas. This is occurring during day time hours where electricity rates are either shoulder or peak charges but are now no longer peak generation periods as the local grids are being saturated with electricity wholesalers answer to this is to use smart meters to shut down PV systems remotely.
Conversely evening hours currently charged at off peak rates are now becoming the peak period for electricity usage. Why?
The move driven by Government policy to use battery solutions to replace fossil fuel energy usage particularly in transportation requires large amounts of power to be used overnight to recharge vehicles and other battery appliances and machines.
If I dove an electric car to and from my old workplace each day around 50 km. It would require 2 times my daily household power usage to be supplied from the grid overnight to recharge the battery. This power overnight is mainly generated from fossil fuels.
With the rate of conversion to electric vehicles accelerating driven by Government policy and subsidy etc. overnight power demands will continue to rise as will the total electricity demand per capita which is likely going to double in 5 years.
Solutions we need more bulk power storage systems close to the generation and usage points and the safest storage system currently is pumped hydro.

We also need bidirectional transformers between differing grid voltages to allow redistribution of stored power to areas of demand.
We need to encourage not discourage investment in PV and power storage. See above points 5-7. This includes ongoing Government incentives for the uptake of all forms of green energy production and Government control of solar PV generation, buy back and access to stored private power rules and payments.

We need to change electricity charge rates for time of day to match current power demands.

Energy companies need to be accountable for under paying green energy generators.

Regard

[redacted]
[redacted]
[redacted]

Friday, 6 September 2024

Department of Climate Change, Energy, the Environment and Water
4 Parramatta Square
12 Darcy Street
Parramatta NSW 2150

Lodged via email: energysecurityy@environment.nsw.gov.au

Clean Energy Council Submission to Energy Saving Scheme and Peak Demand Reduction Scheme Statutory Reviews 2025 Discussion Paper

The Clean Energy Council (CEC) welcomes the opportunity to provide feedback to the New South Wales (NSW) Department of Climate Change, Energy, the Environment and Water's (DCCEEW) Energy Saving Scheme (ESS) and Peak Demand Reduction Scheme (PDRS) Statutory Reviews 2025 discussion paper.

The CEC is the peak body for the clean energy industry in Australia. We represent and work with Australia's leading renewable energy and energy storage businesses, as well as a range of stakeholders in the National Electricity Market ('NEM'), to further the development of clean energy in Australia. We are committed to accelerating the transformation of Australia's energy system to one that is smarter and cleaner.

The CEC are strongly supportive of the NSW Government's focus on reduced energy consumption, demand response and demand shifting mechanisms to both improve the reliability and sustainability of the energy system and reduce consumer bills. The greatest opportunities to enhance the energy transition reside in the demand-side of the market, and the CEC commends the important work NSW DCCEEW are doing. By improving our energy performance (including demand response, load shifting and energy efficiency), we can make the energy transition faster, cheaper, smoother and more reliable.

The current principle and additional objectives outlined in the discussion paper for the ESS and PDRS are supported by the CEC and considered to be fit-for-purpose. The least-cost pathway to meeting Australia's renewable energy and emissions targets, as modelled in the Australian Energy Market Operator's 2024 Integrated System Plan (ISP) Step Change scenario, requires four times more rooftop solar, 34 times more distributed battery capacity and 135 times more orchestrated battery capacity by 2050[1]. As the objectives highlight the importance of reliability, cost and

[1] AEMO | 2024 Integrated System Plan (ISP)

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sustainability of energy for consumers, they clearly address an ongoing issue and provide policy support to reach Australia's targets.

We encourage NSW DCCEEW to consider the addition of a principle surrounding equal access to benefits for non-participants or traditionally excluded consumer groups (such as renters or apartment-dwellers). This will ensure there is adequate consideration on how best to engage and ensure equal opportunities for these consumers across both schemes. As the upcoming NSW Consumer Energy Strategy included extensive consultation around improving equitable access, it is recommended the objectives of the PDRS and ESS scheme also incorporate these principles for consistency across policies.

To best provide informed feedback on the scheme reform opportunities outlined in the discussion paper, three key areas for improvement are identified and discussed. These include:

- Ensuring high-quality upgrades are installed in households with accompanying consumer protections.
- Creation of a strong audit program on installer and product compliance.
- Strengthening the design and outcomes of programs with ongoing industry consultation.

We offer the following considerations as a means of improving the impact the ESS and PDRS will have in building consumer participation, protections and trust in energy upgrades and CER products. We are interested in ongoing involvement in the development and design of the ESS and PDRS and view this an important step in securing the best practice implementation of energy efficiency and peak demand reduction for NSW consumers.

If you have any queries or would like to discuss the submission in more detail, please contact Emma Fagan (efagan@cleanenergycouncil.org.au).

Kind regards,

Emma Fagan
Acting Director of Distributed Energy
Clean Energy Council

Scheme Design

Inclusion of the New Energy Tech Code of Conduct

To ensure adequate consumer protection across both schemes, the CEC recommends the inclusion of a requirement for commitment to the New Energy Technology Consumer Code (NETCC) for retailers participating in both the ESS and PDRS programs[2].

The NETCC has been previously included as a requirement in State Government programs such as Victoria's Solar Homes and ACT's Next Gen Battery Storage Program, as well as the Federal Government's Household Energy Upgrades Fund (HEUF). Within these schemes, the inclusion of Approved Retailers through the Code has promoted trust for customers participating in the program and has ensured high quality products are being installed in households.

To become a New Energy Tech Approved Seller, a provider must demonstrate it meets the requirements of the NETCC and is committed to ongoing compliance with the standards.

The CEC, as the Administrator of the NETCC has been impactful in establishing and strengthening the NETCC program since its launch in 2023, including developing technology specific Consumer Information Products, which provide step-by-step guides that outline what consumers should look out for, what questions to ask which guides decision making. It has also helped implement the compliance program to ensure Code Signatories' practices adhere to the NETCC, and customer complaints of alleged non-compliance are investigated.

Signatories of the NETCC agree to comply with a several obligations, including:

- Avoidance of high-pressure sales tactics.
- No offers of finance in unsolicited sales not regulated by the National Consumer Credit Protection Act (2009).
- Responsible provision of consumer finance products, with effective dispute resolution and avenues to address customer hardship.
- Clear and accurate advertising.
- Education to consumers on their rights.
- Provision of clear product performance and maintenance information.
- Extra steps taken to protect vulnerable consumers.
- Implementation of effective complaints handling processes.

The NETCC program has been observing an increase in signatories from NSW as a result from local government sustainability rebate programs mandating the NETCC, including Shellharbour Council, Randwick City Council and the City of Canterbury Bankstown. The expansion of NETCC Authorised

[2] NETCC | Consumer protection standards for solar, batteries & more (newenergytech.org.au)

Sellers in the ESS and PDRS will ensure there is consistency both across the state and nationally regarding the level of consumer protection customers can expect when participating in schemes.

The NETCC currently has over 1,600 signatories and has been welcomed by the industry as an effective approach to inform consumers about their rights and afford them greater choice and protection. Hence, the inclusion of the NETCC as a requirement of the program will confirm the NSW Government's commitment to a safer and more accessible energy system for households and small businesses.

The first Annual Report of the NETCC provides a further overview of the impact of the Code to date[3].

Inclusion of the CEC's Approved Products List

High-quality upgrades and installations are essential to the success and consumer participation of the ESS and PDRS. Hence, it is recommended that any consumer energy resources (CER) products included in either program should meet the requirements of the CEC's approved products list.

The CEC maintains a list of approved products that are eligible for installation, based on their compliance with Australian and International Standards. The CEC's product accreditation program is delivered in collaboration with government, electrical safety regulators, certifiers, network providers and product manufacturers to ensure only approved products enter the Australian market.

The CEC's approved product list includes:

- Inverters and power conversion equipment – compliant with relevant Australian and International Standards.
- Solar PV modules – compliant with AS/NZS 5033.
- Energy storage devices – compliant with the Best Practice Guide: Battery Storage Equipment – Electrical Safety Requirements.

The integration of these two requirements within the scheme design ensure that consumers are protected at point of sale, during installation and use of their products. Clear requirements would remove uncertainty for retailers, installers and manufacturers at the announcement of a new program and ensure that consumers can easily access efficient, safe and high-quality upgrades and CER products.

[3] NETCC Annual Report 2023 Final v2

Scheme Delivery

Audit & Compliance

The CEC is supportive of the NSW Independent Pricing and Regulatory Tribunal (IPART) remaining the administrator and regulator of the ESS and PDRS. It is encouraged that as the scheme continues to evolve and additional Government bodies are involved to support scheme functions, such as product installation and compliance, the individual roles and responsibilities are clearly communicated.

In the future a strong audit program on installer compliance should be prioritised, ensuring best outcomes for consumers and best-practice safety standards. This should ensure installers are completing installations in line with the manufacturer's manuals as well as ESS/PDRS requirements.

IPART's role as administrator should extend to installer education and clear communication of the requirements for each activity. Collaboration with industry associations or the installer accreditation body, Solar Accreditation Australia, will be essential to ensure information is correctly distributed and understood. Easily accessible information through the website, workshops and online training videos, paired with printable checklists for installer requirements will assist compliance and reduce confusion around evidence criteria.

Regular feedback and information about the accessibility of information is essential to encouraging compliance, hence the CEC recommends the introduction of feedback pathways, such as surveys or consultations, upon the introduction of new activities in either the ESS or PDRS. This will ensure a smooth transition for stakeholders when understanding new requirements and allow IPART to address any ongoing concerns at the beginning of a new program.

Industry Consultation

Industry consultation regarding the future of the ESS and PDRS are integral to the success of the program objectives. The CEC is supportive of NSW DCCEEW continuing to have responsibility in the design and development of policy framework and legislation for the scheme, however more collaboration is required between industry and the Department and IPART.

The recent announcement of the residential battery incentive program (activities BESS1 and BESS2) under the PDRS serves as an example of the need for additional consultation with industry prior to the release of scheme requirements. Requirements on the warranted life, warranted energy throughput and operating temperature initially excluded most popular residential battery models, creating concerns from industry. The CEC recommends the establishment of an "Industry Working Group" between the Department, IPART and industry stakeholders to test scheme requirements and design prior to public release. This group could have an alternating membership dependant on the activities being assessed and include a range of installers, manufacturers, retailers and industry associations.

The release of consultation to wider industry also requires a review of timeframes and response periods. The recent consultations on the PDRS Rule Change 2 and Method Guide ran over a limited period, providing industry less than 30 days to respond for the Rule Change 2 and less than 20 days for the Method Guide. Given these consultations are often seeking feedback from Original Equipment Manufacturers it is essential to provide a longer response period to ensure the policy and regulatory teams can integrate region specific recommendations in their submissions.

Creditex Response for NSW Government

NSW Energy Savings Scheme and Peak Demand Reduction Scheme Statutory Reviews 2025

Part 1: Statutory Reviews

Part 2: Reform Opportunities

Table of Contents

Introduction

About Creditex

Creditex provides certificate compliance and creation services for Strategic Partners operating in the energy efficiency sector who wish to work in NSW under the HEER and IHEAB methods of the ESS and the RDUE method under the PDRS by simplifying the certificate creation process. Creditex assists our Strategic Partners to gather the required evidence, verify and calculate the energy savings for activities that install or replace energy savings equipment such as heat pumps and air conditioners, in accordance with the ESS and PDRS method guidelines.

The Creditex service is designed to increase opportunities to improve energy efficiency across metropolitan and regional NSW, by rewarding Strategic Partner organisations who undertake these eligible activities, using financial incentives.

Creditex has been operating as an Accredited Provider (AP) since 2013, building upon the established operations of SwitchLED. With a team of highly skilled professionals possessing significant experience and expertise in the industry, Creditex is well-equipped to support Strategic Partners with their certificate rebate needs.

Purpose of this Submission

The NSW Government will finalise the statutory review of the NSW Energy Saving Scheme and the Peak Demand Reduction Scheme in 2025. The purpose of Creditex's submission is to contribute feedback to the performance and validity of the scheme for the period of 2020-2025.

Consultation Questions and Creditex Response

Part 1 – Statutory Reviews

Legislative objectives – proposed approach

1. **Do you support the proposed approach to determining whether scheme objectives remain valid? Please provide evidence to support your answer.**

   Yes, We believe the objectives keep the statutory review on track and focused.

   - The scheme has encouraged new energy savings activities to occur
   - Scheme participants have continued to choose purchase certificates rather than paying penalties
   - ACPs have continued to create certificates albeit slowing down a bit in several areas
   - On-going issues are not overlooked and continued to be monitored and addressed

2. **Are the ESS objectives still valid, and what evidence should the Department consider assessing their validity?**

   Yes, we believe they are still valid but need to evolve further.

   ESS objectives that are still valid because:

   - Both households and businesses from all over the state are still actively participating in the scheme to reduce their annual energy usage
   - With the amount of certificate and energy reduction generated, additional energy generation, transmission and distribution infrastructure building cost is reduced, and it relieves the pressure of upcoming retiring power plants.
   - The great number of energy saving certificates generated shows that participating households and businesses are reducing their energy consumption which places a downward pressure on the cost of electricity for all customers.
   - With supply of energy certificates, reduction of greenhouse gas emissions is achievable at lower cost

   Market barriers continue with one of the most persistent being the gap in knowledge and education of householders of the benefits of the Scheme, around the state. Energy consumers across the state seem to be ignorant of the scheme and it benefits or feel that the schemes are not accessible or for them.

We believe the Scheme objective should include the undertaking to stimulate sustainable activities, that support the energy efficiency industry; quality installations by quality companies that can build steadily and confidently with rules that are certain and are fair, enabling discounts on quality products, encouraging product innovation and quality installations for the energy consumer. Methods introduced without this objective in mind, may result in activities that are "over abated". We have seen this result in Scheme participants flooding into the sector who search for loopholes in methods, with uncontrolled or poorly controlled activities which jeopardises the integrity of the scheme.

Instead of using Megawatt hour units, we encourage the overall target to transition to using carbon emissions units. Carbon, more than electricity, is the more necessary focus and we believe a Carbon emissions focus would make the scheme more relevant to householders who understand the need to address climate change through reduced carbon activities, such as increased incentives on degasification towards electrification.

We believe additional activities such as solar PV, batteries, induction cooktops, thermostat controls and eventually Electric Vehicles, should be included.

We have consulted the following reports in considering the validity:

- Report from IPART showing the number of certificates created from each scheme from 2020-2025
- Energy savings delivered by the ESS and the reduction of additional generation infrastructure cost
- The annual savings of energy costs for households and businesses
- IPART report showing the purchasing and surrendering of certificates from 2019-2024.

3. Are the PDRS objectives still valid, and what evidence should the Department consider assessing their validity?

Yes

We believe PDRS objectives still valid because:

- Both households and businesses are actively participating in the PDRS scheme. We see industry gearing up for Solar Battery PRCs which we hope will encourage more uptake of this technology
- The PRC incentive is assisting to permanently reduce peak demand and the load on energy generation by reducing the investment needed to install more efficient Air conditioning unit and heat pumps than would otherwise be installed.
- Replacing baseline inefficient equipment with new energy efficient equipment automatically helps households and businesses to reduce their energy consumption and therefore, reducing their energy bills at peak times
- We suggest however, that the Department considers introducing PRCs for residential heat pumps as we believe that this activity achieves the objectives of the PDRS scheme, and that additional PRCs incentives would considerably increase the uptake of households for heat pumps.

We have seen the evidence of the above by acting as a large generator of PRCS and we have reviewed:

- Report from Energy Security Safeguard (ESS) to show the reduction in peak demand from year 2021-2025
- Report from ESS showing annual PRCs creation from year 2021-2025
- Report from ESS showing annual average of savings from electricity bills of households and customers

Does the scheme design remain appropriate to secure scheme objectives?

4. Is the ESS design appropriate for securing its objectives?

The overall broad scheme design remains appropriate

What evidence should the department consider assessing design appropriateness?

From the statutory review of 2015 and 2020, and from our own experience actively participating in the sector over the past 2 years, stakeholders have felt that schemes for residential have been limited and designed more towards businesses. We recommend more must be done to address the market barriers for households to be educated in the new energy efficiency technologies available (What is a Heat Pump?), why they are important and what is available for them. Also, why getting off gas is important.

To trigger change in the household, and reach a broader market, marketing and state-wide education programs to drive update, is recommended.

One of the ways to address the market barriers for households would be to increase incentives for "priority households" as one of the primary targets. Priority households may include, pensioners, low-income households, vulnerable societies, etc.

The Scheme has already incorporated gas replacement activities, and we believe gas retailers and large gas consumers should be incorporated, with their liability, as Scheme Participants.

5. Is the PDRS design appropriate for securing its objectives?

It is difficult to comment on the design appropriateness. More access to data to assess this would be helpful and might include reports that show the reduction of peak demand savings on a monthly and yearly basis as well as the contribution of each activity under PDRS.

Reports showing how much operating load from certain equipment can be reduced temporarily during peak times would be helpful. Finally, report showing how much energy we can shift prior to peak times and analyse how much we reduce the demand from it.

Part 2 – Reform Opportunities

Design

Objectives, sharing costs and benefits, settings

6. What alternative or complementary objectives should the schemes focus on?

We recommend including a carbon emissions target annually, to address degasification.

Please provide evidence to support your recommendations, including reasons why the ESS and/or PDRS would be the best way to address the issue or opportunity you have identified.

The ESS and PDRS methods' objectives have always been about energy savings and so it correlates well with carbon emissions. Knowing the number of carbon emissions have been reduced would be a great motivation for scheme participants to keep participating in going green for the planet.

Electrification since gas and other fuels are considered as high carbon emission sources. The government is striving to a net zero carbon emission by 2050, and electrification will help reach that target.

7. Are there opportunities to improve how scheme costs and benefits are shared?

ACPs generally find auditing costs are too high. Also, auditor standards vary.

Regulating the cost of audits, covering portions of audit costs could be an area to consider reducing costs of the scheme. Certainly, encouraging a wider pool of auditors would go part way to achieving this.

8. What adjustments could the department make to scheme settings to improve performance against the legislated or proposed objectives? How would this provide a net benefit to NSW?

There has been a surplus of ESCs creation in the last 2 years due to questionable activities particularly refrigerated cabinets. This has resulted in a significant and harmful sudden drop of ESC prices.

Tighter controls or coordination with GEMS register is needed to avoid products being distributed widely and quickly and used in ways not creating energy savings. The recent example was "Freezers" sold into the market based on massive energy savings which operate as a Fridge by simply turning the temperature dial. The scale and speed by which this type of apparent abuse of the system can be rolled out, is a warning for the Scheme. The GEMS product approval process appears to restrict

IPART from controlling these perverse product outcomes that cannot be foreseen, so more controls are desperately needed, and much closer observation.

Currently, the ESC spot price is at $13.50 (05/09/2024) and last year around the same time, it was at around $25.00. at these levels there is little ability to roll out "additional" energy savings activities. Perhaps only those activities, that were going to occur anyway.

Delivery

Making and communicating decisions, delivery of schemes, governance and administration

9. How could the Department improve transparency around how it makes decisions and how it communicates changes to the schemes?

General improvements on transparency and decision making:

- a group meeting discussing the changes and what kind of evidence could be used, some more detailed explanations
- an advance email notification to ACPs.

10. How could the Department improve the delivery of the schemes?

General improvements on delivery of schemes:

- Email abstracts that have been sent suffice so far. Links that direct users to the full detailed explanation is helpful as well
- Including PV, solar batteries and electrification of equipment would be good additions to the varied active activities.
- Insulation activity to be active once more

Targeted Improvements that can be done:

- For activities that has unlimited certificate creation, the calculation of the certificate generation should consider the site energy use as they do with commercial lighting's Annual Operating Hours and Building Class. This will clear up the abatement that occurs for the activity itself
- Definite differentiation between HEER small business and IHEAB commercial. Taking example from HEER lighting and commercial lighting, there is a clear difference between the 2 where commercial lighting is used only by large energy consumers and HEER is for SME (small medium enterprises) with annual energy consumption not more than 100MWh. This cause the IHEAB (i.e. F16/F17) activity to surge and have over-relieved small businesses. Leaving HEER (D17/D19) activity no longer a competition amongst the schemes available to the population.
- Governments need to motivate manufacturers in Australia to produce energy efficient products and not disincentivise innovation due to the surplus of ESCs.

Please provide examples of other jurisdictions and schemes where possible to support your recommendations.

CER/VEU

11. How could the government improve the governance and administration of the schemes?

The Government could improve the governance and administration of the schemes by communicating to participants more frequently and holding webinars more often to let participants know of everything coming up and allow them to ask as many questions as possible.

Please provide examples to support your recommendations.

We have had little communication on the lighting phase which was due in April so it's difficult for us to know what is going on at times.

Data and evaluation

Scheme data collection, how scheme data is used

12. What additional scheme data should the department or IPART collect and for what purpose?

It would be beneficial if we were able to see ESC creation at any point in time for specific methods. This would help give a deeper understanding of the trends taking place in NSW. The scheme could also benefit from additional end user feedback to let participants know how effective the scheme is.

How could the Department make better use of new and existing scheme data?

The Department could use the new and existing scheme date to give us a better understanding of the ESC & PRC yearly targets and the surplus quantities. Potentially having this feature on the website as a live total or a live surplus against the scheme targets, could be helpful.

Other reform opportunities

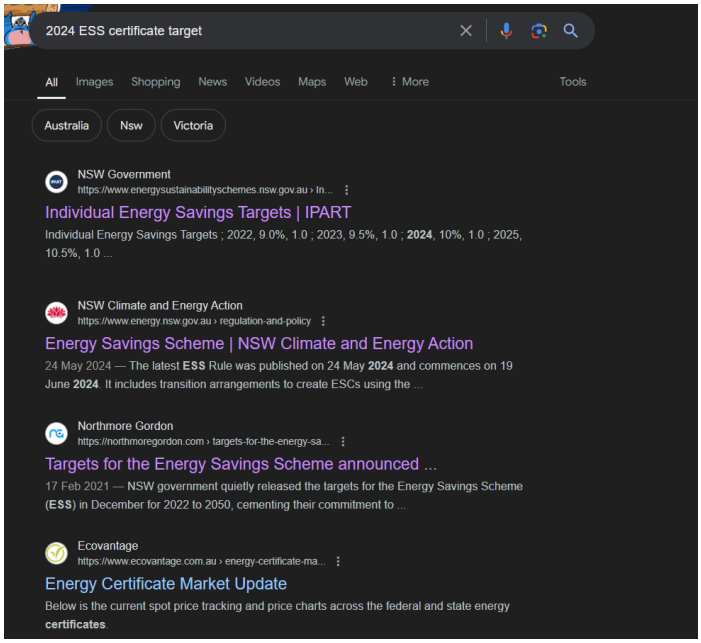
That fall outside the 3 identified in the discussion paper

13. What additional reform opportunities should the Department consider for the ESS and/or PDRS?

The department should improve the website for ease of access and make it easier to find scheme information. Having a more user-friendly website would allow for more user activity and a clearer scheme understanding

Please provide evidence to support your recommendations.

For example, users wanting to find the 2024 ESS certificate target would have a difficult time as seen below



Australia's National
Science Agency

CSIRO submission to consultation on the Energy Saving Scheme and Peak Demand Reduction Scheme statutory review 2025

CSIRO Submission 24/090

September 2024

Main Submission Author(s):

Dr Stephen White

Energy Performance Research Leader, CSIRO

Enquiries should be addressed to:

E GovernmentRelations@csiro.au

Introduction

CSIRO welcomes the opportunity to provide input to the NSW Government's consultation into the Energy Saving Scheme and Peak Demand Reduction Scheme statutory review 2025.

As Australia's national science agency, CSIRO uses innovative science and technology to help drive Australia's transition towards a more energy-efficient and sustainable future. This includes through the development of tools for assessing energy efficiency measures and their impacts on the economy and environment. CSIRO is currently leading the RACE for 2030 Industry 4.0 Opportunities in White Certificate Schemes project, in partnership with other industry and government stakeholders, including the Safeguard Implementation Team at DCCEEW and IPART. This project aims to investigate and test opportunities for digital tools within Australia's State-based certificate schemes.

We provide the following input based on our research and expertise and would welcome the opportunity to further discuss this submission if helpful. CSIRO has not responded to questions that are outside of our remit.

Response to consultation questions

Question 1: Do you support the proposed approach to determining whether scheme objectives remain valid? Please provide evidence to support your answer

Response:
Nil response.

Question 2: Are the ESS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.

Question 3: Are the PDRS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer

Response to Qu 2 and Qu 3 combined:

To give context to this response: The Australian electricity system is undergoing a rapid change from a predominantly centralised fossil-fuel based system, to one with high levels of variable renewable energy. The CSIRO GenCost report[1] shows that 'Solar PV and wind with firming' will be the lowest-cost electricity supply technology over the next decade.

This leads to some critical questions, that NSW certificate schemes may be well placed to respond to:

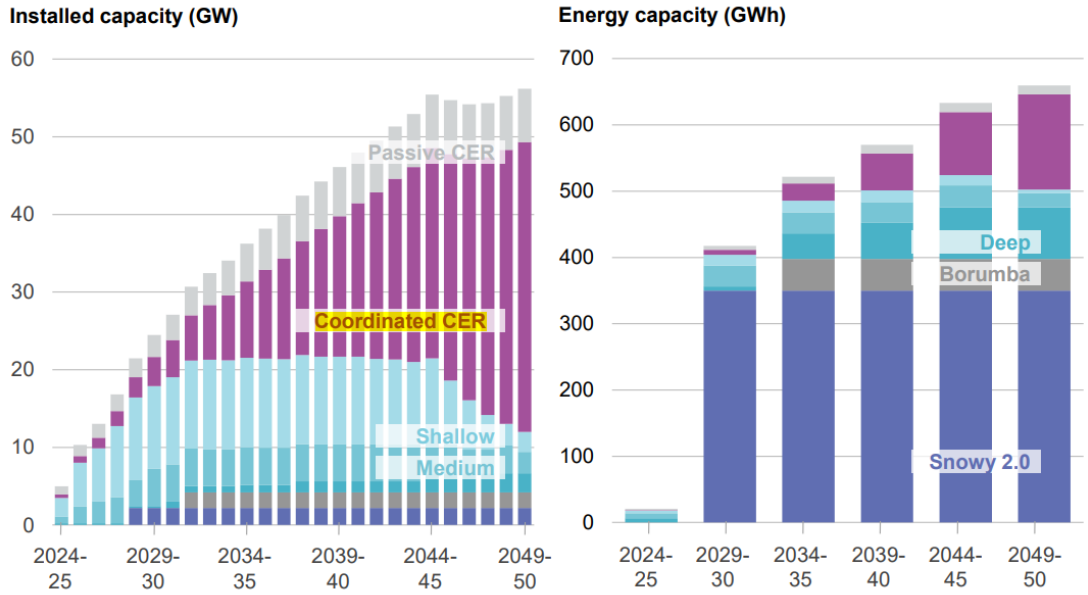
Key question #1: Where is this 'firming' capacity going to come from? One possible source is coordinated Consumer Energy Resources (CER). Critically, these resources (for example

[1] GenCost: cost of building Australia's future electricity needs - CSIRO

batteries, electric vehicles, hot water, load management controls) are owned and operated by consumers, rather than by electricity utilities.

AEMO's Integrated System Plan[2] (ISP) forecasts that coordinated CER storage will rise from today's 0.2 GW to 3.7 GW in 2029-30, and then to 37 GW in 2049-50 – by then, making up 66% of the NEM's energy storage capacity. The AEMO ISP claims that without effective orchestration of consumer batteries, around $4.1 billion of additional grid-scale investment would be needed, increasing costs that are reflected in consumer bills.

Figure 20 Storage installed capacity and energy storage capacity, NEM (2024-25 to 2049-50, *Step Change*)



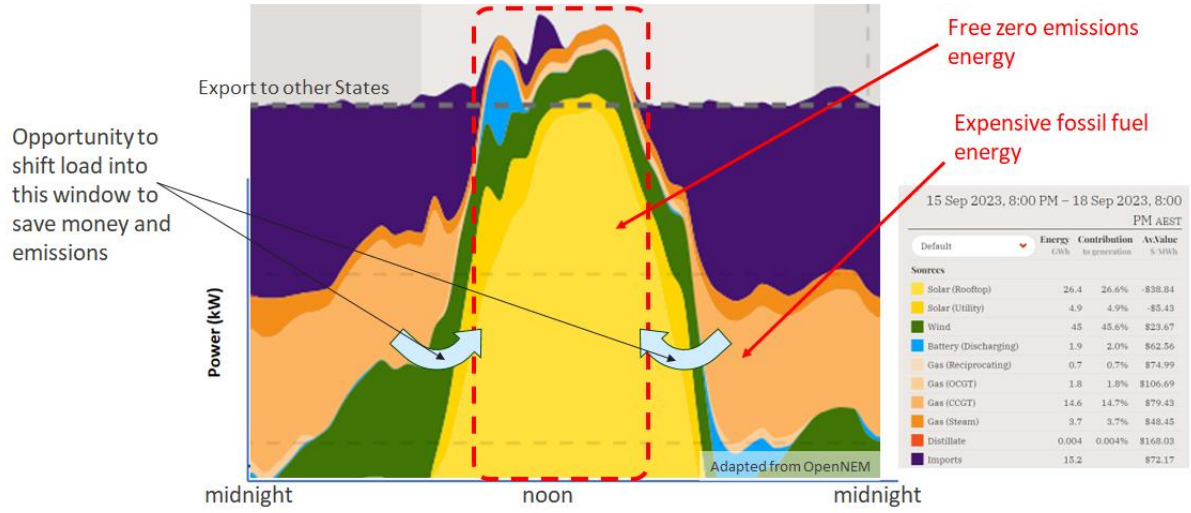
Existing electricity markets and regulations have been designed with the assumption that utilities will own and operate capacity. As a result, there is very little incentive baked into Australia's electricity system for consumers to offer their CER as a service to the industry, as envisaged by AEMO's ISP. This is a critical challenge in Australia's clean energy transition.

Consequently, there could be an opportunity for the NSW certificate schemes to fill this gap by providing incentives for consumers to contribute their CER in support of the clean electricity transition. As the national scheme with the greatest experience in measurement and verification (M&V) of customer loads, the NSW certificate schemes could be well placed to lead in this core transition task. Significantly, certificate schemes have the potential to take a whole-of-system cost/benefit perspective, as distinct from traditional electricity industry structures that treat the electricity system in separate silos, with ringfenced energy and network services.

Key question #2: How can customers reduce their greenhouse gas emissions? As the clean energy transition progresses and the electricity grid decarbonises, emissions will become increasingly tied to the time of day when electricity is used. Total annual electricity consumption will therefore become a less relevant proxy for emissions.

[2] 2024-integrated-system-plan-isp.pdf (aemo.com.au)

The importance of time-of-use based scope 2 emissions – and the ability for consumers to exploit their ability to shift the time of day when they consume - is illustrated below using NEM data from South Australia in September 2023.



The current NSW PDRS is a first step toward considering the time-of-the-day when energy is consumed (rather than just total annual energy consumption). With further development, the NSW PDRS could be well placed to drive emissions reduction through time-of-use accounting (rather than using average annual emissions accounting).

With consideration to the context provided above, CSIRO makes the following observations in relation to the consultation questions 2 and 3:

- Question 2: The ESS objective of reducing overall annual energy consumption remains a valuable way of reducing energy costs, reducing emissions and slowing down the need to invest in supply side infrastructure. While this will remain the case for the foreseeable future, a fully clean electricity system with electrification of appliances, will have less need for an annual energy consumption metric (if greenhouse gas emissions reduction is the primary desired policy outcome).
- Question 3: By focussing on time-of-use consumption (rather than just overall annual consumption), the PDRS could be well positioned to address Australia's emerging electricity transition needs. The PDRS objectives of improving the reliability of electricity supply and the sustainability of electricity generation are critical to NSW's prosperity.

Question 4: Is the ESS design appropriate for securing its objectives? What evidence should the department consider to assess design appropriateness? Please provide evidence to support your answer

Response:

Scheme administrators' reports show that the ESS has been successfully fulfilling its objective of incentivising substantial energy savings. Based on international literature, this

has presumably been highly cost effective. Giraudet and Finon (2014)[3] found that a British certificate scheme produced 7.41 euro in benefits for each Euro spent, excluding CO_2 savings. The ENEA (2015)[4] claim that an Italian certificate scheme was seven times more cost effective (in terms of the ratio of the scheme's annual cost and the energy savings achieved) than an alternative tax deductions approach also available in Italy.

CSIRO recently consulted with industry measurement and verification (M&V) specialists[5] tasked with creating certificates under the scheme. Those consulted expressed hope that there could be more performance-based generation of certificates using ex-post measured savings (rather than relying on deemed/ expected savings). However, it is important to note that there can be significant administrative burden associated with existing methods of performance-based certificate generation. In the RACE for 2030 project, CSIRO and the NSW Energy Security Safeguard Implementation Team are investigating the development and use of streamlined M&V tools as a way to reduce this administrative burden.

Question 5: Is the PDRS design appropriate for securing its objectives? What evidence should the department consider to assess design appropriateness? Please provide evidence to support your answer.

Response:

Scheme administrators' reports show that the PDRS has been successfully fulfilling its objective of encouraging peak demand reduction. Additional Activities (Recognised Energy Saving Activities) can be added, as the PDRS evolves, to increase the scope of peak demand reduction opportunities. The Wholesale Annual Response Mechanism (WARM), proposed for the PDRS in 2023, has the potential to increase the alignment of the PDRS scheme with the PDRS objective of improving the reliability of electricity supply (as discussed in the response to questions 2 and 3).

Question 6: What alternative or complementary objectives should the schemes focus on? Please provide evidence to support your recommendations, including reasons why the ESS and/or PDRS would be the best way to address the issue or opportunity you have identified.

Response:

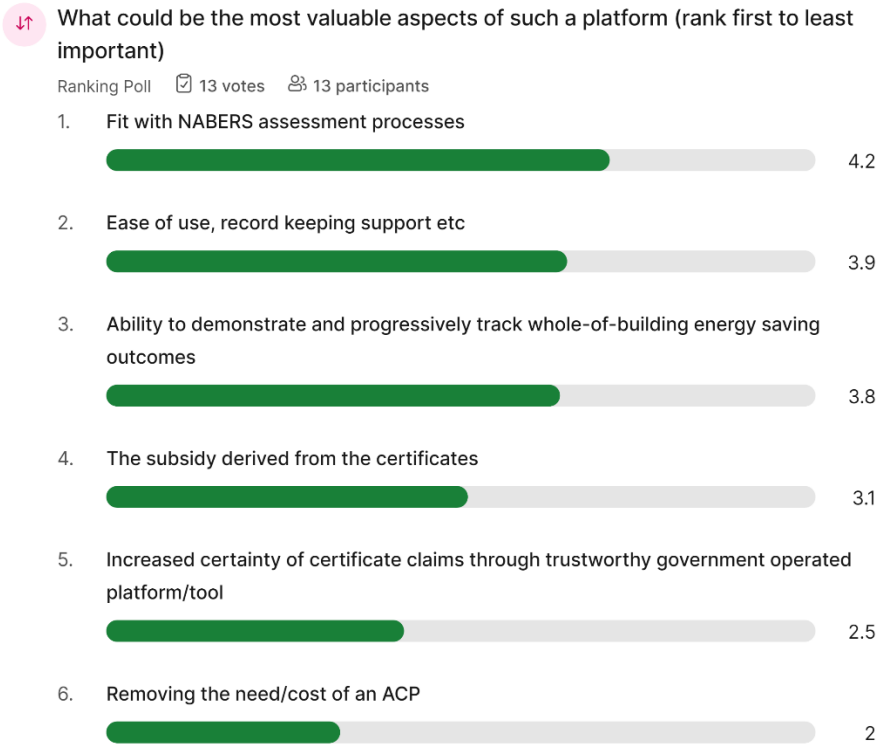
The opportunity to use the schemes to support the clean electricity transition is discussed in our response to questions 2 and 3. This is already an objective of the schemes. Increasing emphasis on this objective could lead to further innovation in scheme methods.

Question 7: Are there opportunities to improve how scheme costs and benefits are shared? If so, please provide evidence of how any proposed changes would result in more equitable outcomes.

Response:

[3] European experiences with white certificate obligations: A critical review of existing evaluations (hal.science)
[4] Executive summary - English version - REV (enea.it)
[5] CSIRO report (racefor2030.com.au)

CSIRO consultation with industry (as part of the Industry 4.0 Opportunities in White Certificate Schemes | RACE for 2030 project) found that energy savers from the property industry would like to reduce the cost and administrative burden of generating certificates. This would enable them to keep more of the benefits from their investment (with help from an M&V platform). To this end, they suggested that NABERS assessors could play a role in creating certificates. Avoiding administrative duplication between the NABERS rating scheme and the ESS/PDRS certificate schemes, appears to be the single most important way that this cohort could be encouraged to participate in the schemes.



This is just one example where, if record keeping and compliance can be demonstrated to the required level of rigour, then energy savings calculations could be accepted and used by both the certificates schemes and other complementary schemes, grants or loan programs.

Another example, relevant to the proposed WARM method in the PDRS, could be the use of baselining calculations in the wholesale demand response market (WDRM). ARENA[6] identified that the existing WDRM baseline calculation method may not be suitable for various load types.

Question 8: What adjustments could the department make to scheme settings to improve performance against the legislated or proposed objectives? How would this provide a net benefit to NSW? Please provide evidence to support your answer, including any assumptions you have made.

Response:

[6] baselining-arena-aemo-demand-response-rert-trial.pdf

Further research could help to assess how the time window (that the PDRS considers) could potentially evolve. For example, increasing demand for solar soaking around midday (during the spring months) is becoming another consideration for grid stability (see Business Power Flex | RACE for 2030).

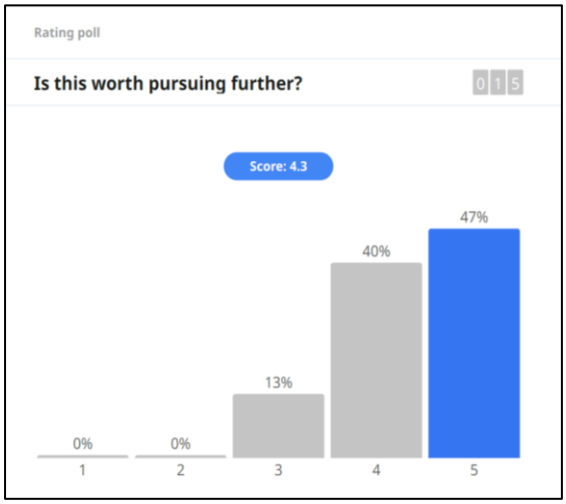
Question 9: How could the Department improve transparency around how it makes decisions and how it communicates changes to the schemes?

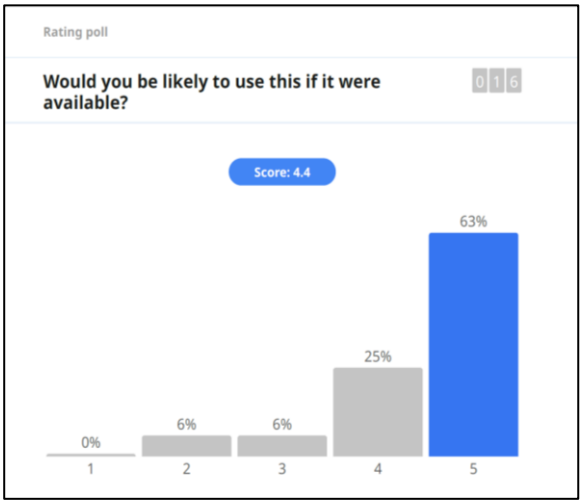
Response:
Nil response.

Question 10: How could the Department improve the delivery of the schemes? Please provide examples of other jurisdictions and schemes where possible to support your recommendations.

Response:

CSIRO consultation with industry (as part of the Industry 4.0 Opportunities in White Certificate Schemes | RACE for 2030 project) found strong support for an independent scheme-administrator operated digital-platform for streamlining measurement and verification. This could help drive more performance-based certificate generation, increase certainty, reduce ability for gaming and reduce compliance costs.





Similar approaches have been developed in California (OpenEEmeter History - OpenEEmeter (caltrack.org))

Question 11: How could the government improve the governance and administration of the schemes? Please provide examples to support your recommendations.

Response:
See response to 10

Question 12: What additional scheme data should the department or IPART collect and for what purpose? How could the Department make better use of new and existing scheme data?

Response:

As part of the Industry 4.0 Opportunities in White Certificate Schemes | RACE for 2030 project, CSIRO and the NSW Energy Security Safeguard Implementation Team have identified an approach for low administration data collection. With the resulting low-cost burden, and upcoming changes to government data sharing provisions, there is an opportunity to collect NMI data from certificate generation projects. This could be used for programmatic measurement ad verification, increasing the credibility and transparency of savings claims made at the scheme level. Data could also be used for research. It is noted that one of the core priority themes under the National Energy Transformation Partnership is 'Understanding demand evolution'. There is a lack of relevant data for this, in the commercial and industry sector.

Question 13: What additional reform opportunities should the Department consider for the ESS and/or PDRS? Please provide evidence to support your recommendations

Response:

Nil response.

electric future
sustainability services

13 September 2024

ESS Team
IPART
Level 16, 2-24 Rawson Place
SYDNEY NSW 2000

ESS/PDRS Statutory review and reform consultation

Dear ESS team,

Electric Future Sustainability Services (EFSS) welcomes the opportunity to comment on the statutory review consultation for ESS and PDRS.

Response to the Consultation Questions

1. Part 1: statutory reviews

Do the objectives remain valid?

1. **Do you support the proposed approach to determining whether scheme objectives remain valid? Please provide evidence to support your answer.**
2. **Are the ESS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.**
3. **Are the PDRS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.**

Answer: *Given the government's ambitious commitment to reduce greenhouse emissions and renewable energy target ending in 2030, we suggest adjusting the ESS principal objective of the scheme to be shifted from creating financial incentive to save energy or reduce peak demand to optimise energy use and promoting electrification. Reducing energy waste, replacing consumption of fossil fuels with electricity and shifting the time of use to when renewable electricity is available should be the focus for the new objective.*

This will allow the scheme to maintain it's current metric while electrification that encourages switching from fossil fuels to electricity will support NSW to achieve its legislative emission reduction target.

We also suggest considering adjusting the objective to encourage investment, employment and technology development in industries that supply goods and services that supports scheme activities.

Does the scheme design remain appropriate to secure scheme objectives?

4. **Is the ESS design appropriate for securing its objectives? What evidence should the department consider to assess design appropriateness? Please provide evidence to support your answer.**
5. **Is the PDRS design appropriate for securing its objectives? What evidence should the department consider to assess design appropriateness? Please provide evidence to support your answer.**

Answer: *The scheme design can be improved by:*

- *Addressing the current over supply of the certificates, potentially by bringing forward the target, create additional sub targets ie priority or other measures*
- *Introducing new sub-targets for priority household and regional to specifically address the low-income/renters households needs as well as targeting the uptake in regional areas.*
- *Incorporating technologies such as batteries, electric vehicles (EVs), and solar PV to align with electrification goals.*
- *So far the scheme largely provided benefit to commercial customers, the scheme should proactively incentivise the residential customers more to ensure that the residential customers of NSW who contributed to ESS will be appropriately benefited from the scheme.*
- *We need more clarity to define businesses that are eligible under IHEAB and HEER method. Currently it is not clear and one method may reward the same installation more than other.*

2. Part 2: reform opportunities

Scheme design

6. **What alternative or complementary objectives should the schemes focus on? Please provide evidence to support your recommendations, including reasons why the ESS and/or PDRS would be the best way to address the issue or opportunity you have identified.**
7. **Are there opportunities to improve how scheme costs and benefits are shared? If so, please provide evidence of how any proposed changes would result in more equitable outcomes.**

Answer: *We recommend incorporating gas retailers and major gas users as liable parties. This would align the schemes more closely with broader energy and emissions goals.*

8. **What adjustments could the department make to scheme settings to improve performance against the legislated or proposed objectives? How would this provide a net benefit to NSW? Please provide evidence to support your answer, including any assumptions you have made.**

Answer:

- ***Abatement calculations:*** *Massive oversupply of ESCs resulted by incorrect design of the IHEAB activities (specially HP and RDC) has significantly impacted the ESC price.*

The oversupply issue must be addressed immediately in the short term, we suggest that the incorrect abatement calculation resulted from these examples must be considered in design of future activities. Department must ensure not only correct energy saving calculations are considered based on the type of sites but also prepare to take immediate actions when noticing the unintended consequence for any activity.
While we do not suggest changing the metric for the ESS we recommend updating the gas emissions to be set in advance for rolling 5 years and 12 years dimming period. Department may also need to consider different emission factors for each activity.

- ***Activity Installations:*** *Where activity is installation of a new product, careful and strict requirement must be considered including an appropriate co-payment to prevent unintended consequences and ensure genuine savings.*

Close collaboration with industry during the design stage is essential to minimize unintended consequences and ensure the effectiveness of new activities.

Scheme Delivery

9. **How could the Department improve transparency around how it makes decisions and how it communicates changes to the schemes?**
10. **How could the Department improve the delivery of the schemes? Please provide examples of other jurisdictions and schemes where possible to support your recommendations.**

Answer-

The REPS and ACT scheme have effectively addressed priority household groups by setting the specific separate sub-target. We suggest department using these programs as a case study and adopt the same approach. Additionally, we would like to see more alignment between NSW schemes and other state-based schemes in general.

We believe that NSW schemes must establish a separate accepted list of products like VEU with focus on transparency and consistency for product registration and testing requirements.

11. **How could the government improve the governance and administration of the schemes? Please provide examples to support your recommendations**

Answer- *We suggest more alignment and cooperation between IPART and Department or even a new different structure to ensure that issues are identified and addressed in a timely manner. Due to having two separate department in charge of rule and governance, there are delays in addressing immediate issues and concerns in the scheme.*

Additionally, this cooperation must be expanded to other relevant NSW agencies such as NSW building commission during the design and delivery of the activity so that enough requirements, guidelines and training are incorporated with new activities. This will ensure that any activity installed under the scheme is compliance with relevant regulations.

Data and valuation

12. What additional scheme data should the department or IPART collect and for what purpose? How could the Department make better use of new and existing scheme data?

Answer:

1. ***Timely and Accurate Evaluation of Activities:*** *It is essential for the Department and IPART to conduct regular and timely evaluations of each new activity to ensure that the deemed methods accurately reflect energy savings. Recent issues, such as those observed with Commercial HP activities, where incorrect design and overstated savings adversely affected the market, underscore the importance of this practice. Addressing such issues promptly is crucial to prevent prolonged market disruptions. Therefore, we suggest a structured validation to be considered for any new activity coupled with power and flexibility for the department to take timely action upon identifying an issue.*
2. ***Enhanced Monitoring and validation:*** *The Department and IPART should closely monitor submission data for each activity to better understand market trends and detect any unusual registration volumes. Collaborating with industry stakeholders and energy market bodies will help discern whether observed trends represent natural uptake or unintended consequences. Improved monitoring will facilitate timely interventions and adjustments.*
3. ***Improved Data Transparency:*** *Although the visibility of the data has been improved in TESSA, we suggest publishing more detailed data to enable the industry to have a better understanding of the market and at the same time flag any unusual volume to the department and IPART.*

   The issue around the refrigerated cabinets was a good example on how IPART and Department did not recognise the unusual volume of the activity, and due to limited available data, it took industry a while to recognise the issue and flag it to IPART and department. Once it was flagged, it did not result in an immediate response and therefore resulted a negative impact to the market.

4. ***Streamlined M&V method****- We suggest introduction of streamlined approach for M&V method for standard energy upgrade activities which may be capped with a limit for their ESC creation.*

13. What additional reform opportunities should the Department consider for the ESS and/or PDRS? Please provide evidence to support your recommendations

Answer- *In designing new activities and methods, the Department should incorporate lessons learned from previous initiatives, considering factors such as scheme product quality, customer feedback, and market responses. It is crucial to avoid the introduction of new, hastily developed activities that may flood the market with low-quality products. Such actions can lead to the premature termination of activities, which may discourage installers and product suppliers from participating in the scheme or operating within the state. Ensuring the introduction of well-vetted and high-quality products, accompanied by robust after-sales support, will promote the longevity and sustainability of the activities, ultimately safeguarding NSW consumers.*

Kind Regards,

Mahsa Sistani
Chief Operating Officer
Electric Future Sustainability Services

Energy Savings Scheme and Peak Demand Reduction Scheme statutory reviews 2025

EEC Submission

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About the EEC

EEC is the peak body for Australia's energy management sector.

We are a membership association for businesses, universities, governments and NGOs that have come together to ensure Australia harnesses the power of efficiency, electrification and demand management to deliver a prosperous, equitable, net zero Australia with:

- People living and working in healthy, comfortable buildings;
- Businesses thriving in a decarbonised global economy; and
- An energy system delivering affordable, reliable energy to everyone.

EEC works on behalf of its members to drive world-leading government policy, support businesses to rapidly decarbonise, and to ensure we have the skilled professionals to drive Australia's energy transformation.

Summary

Thank for providing the opportunity to comment on the Energy Savings Scheme (ESS) and Peak Demand Reduction Scheme (PDRS) statutory reviews 2025 Consultation Paper.

The EES and PDRS have been crucial in driving energy performance improvements in NSW. The next statutory review comes at a critical junction in NSW's energy transition, characterised by the need to:

- rapidly reduce emissions associated with fossil fuel use,
- unlock the power of energy management to integrate more variable renewables into the electricity grid while retiring the coal power fleet, and
- improve the thermal performance of buildings to support higher levels of electrification and flexible demand as well as the other co-benefits for NSW homes and businesses.

With reforms to their objectives, design and delivery, the ESS and PDRS could deliver even greater improvements to energy performance. These reforms are summarised below.

Scheme objectives

- Ensure the objectives of the ESS and PDRS complement each other and focus on the desired end states of each scheme.
- Change the primary objective of the ESS to be optimising energy use, including fuel switching to drive electrification.
- Retain a focus on 'capacity' in the PDRS objective to complement other incentives for flexible demand 'generation'.

Scheme design

- Change ESS certificate conversion factors for electricity in the Act to drive electrification.
- Consider sub-targets or certificate multipliers for vulnerable cohorts to improve equity.
- Consider complementary measures to manage equity concerns associated with retiring the gas network.
- Consider adjusting the summer peak demand periods and rewarding winter peak demand reductions.
- Add new methods to encourage thermal performance upgrades, potentially packaged with other upgrades.

- Add new baseline measurement methodologies to unlock commercial and industrial flexible demand in the PDRS.

Scheme delivery

- Ensure better transparency and consistency of guidance on product registration and testing methods.
- Work closely to align NSW schemes with other state schemes.
- Improve consultation with scheme participants to provide certainty.
- Improve coordination between NSW agencies to strengthen compliance.

Data and evaluation

- Conduct higher levels of ex-post evaluation to verify the accuracy of deemed methods.
- Consider leveraging new technologies for M&V and to underpin new methods.
- Work with energy market bodies to obtain and share data to inform place-based activities.

More information on each of these reforms is provided in the sections that follow.

For further information, or to discuss any of the ideas contained within this submission, please contact jeremy.sung@eec.org.au.

Yours sincerely,

Jeremy Sung, Head of Policy

1. Scheme objectives

Ensure objectives focus on the desired end state

It is important that objectives focus on the clear 'end state' which the schemes are designed to achieve.

The objectives of both the ESS and the PDRS currently refer to the creation of a 'financial incentive.' This is the mechanism for achieving the ultimate goal of energy saving activities (in the case of ESS) and activities that create peak demand reduction capacity (in the case of the PDRS).

A precise reading of the current wording, the schemes' success is based on whether they *created a financial incentive* to save energy or reduce peak demand, rather than whether they saved energy or reduced peak demand. Put another way, the current wording allows for both schemes to be evaluated as successful if they create financial incentives, even if these incentives are not taken up by businesses and households, meaning no energy is saved or peak demand reductions occur.

Changes to the wording of both objectives to improve their use in assessing scheme efficacy are suggested below.

Optimising energy use should be the primary objective of the ESS

The EEC recommends that the primary ESS objective should become optimising energy use, rather than creation of financial incentives or energy savings per se. Increasing levels of renewable energy are profoundly changing the characteristics of our electricity system. *When* energy is used is increasingly important, both financially and for system management. For example, one byproduct of the rising penetration of rooftop solar is that the electricity system operator is increasingly concerned about maintaining minimum operational demand in the middle of the day to maintain the integrity of the electricity system and minimise the curtailment of renewables.

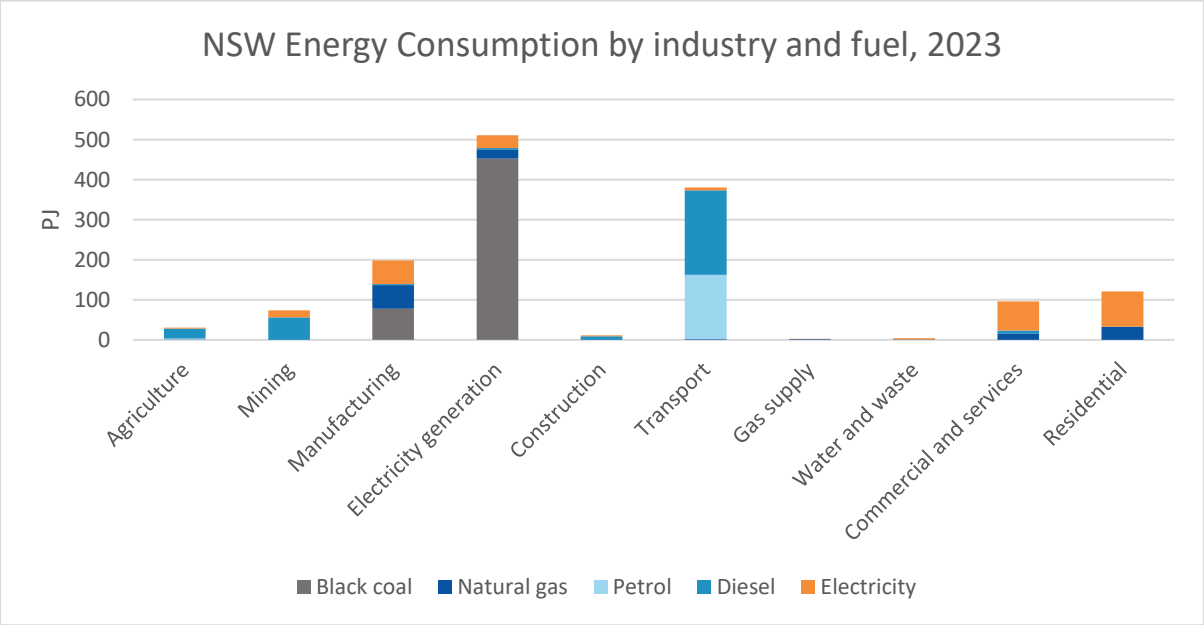
Optimising energy use encompasses:

- Reducing energy waste, for example by improving the poor thermal performance of existing buildings.
- Replacing the consumption of fossil fuels with electricity (electrification). Efficient electric devices tend to reduce energy waste by converting electrical energy into useful energy with fewer losses compared with devices that combust fossil fuels. As the electricity grid decarbonises, they will also produce less GHG emissions than devices that combust fossil fuels.
- Shifting electricity consumption to times of the day when there is a surplus of emissions-free renewable electricity and reducing or avoiding demand when variable renewable energy generation is low.

All three of these strategies will be critical if NSW is to meet its legislated emissions reduction targets cost-effectively.

Optimising energy use also drives down emissions. Data from the Australian Energy Statistics (Figure 1) show that NSW's energy consumption is dominated by fossil fuels, so reducing wasted energy, particularly fuels other than electricity, will directly reduce greenhouse gas (GHG) emissions reductions.

Figure 1 NSW energy consumption by industry and fuel, 2022-23



Source: Australian Energy Update 2024, Table F, Australian energy consumption, by state and territory, by industry and fuel type, energy units

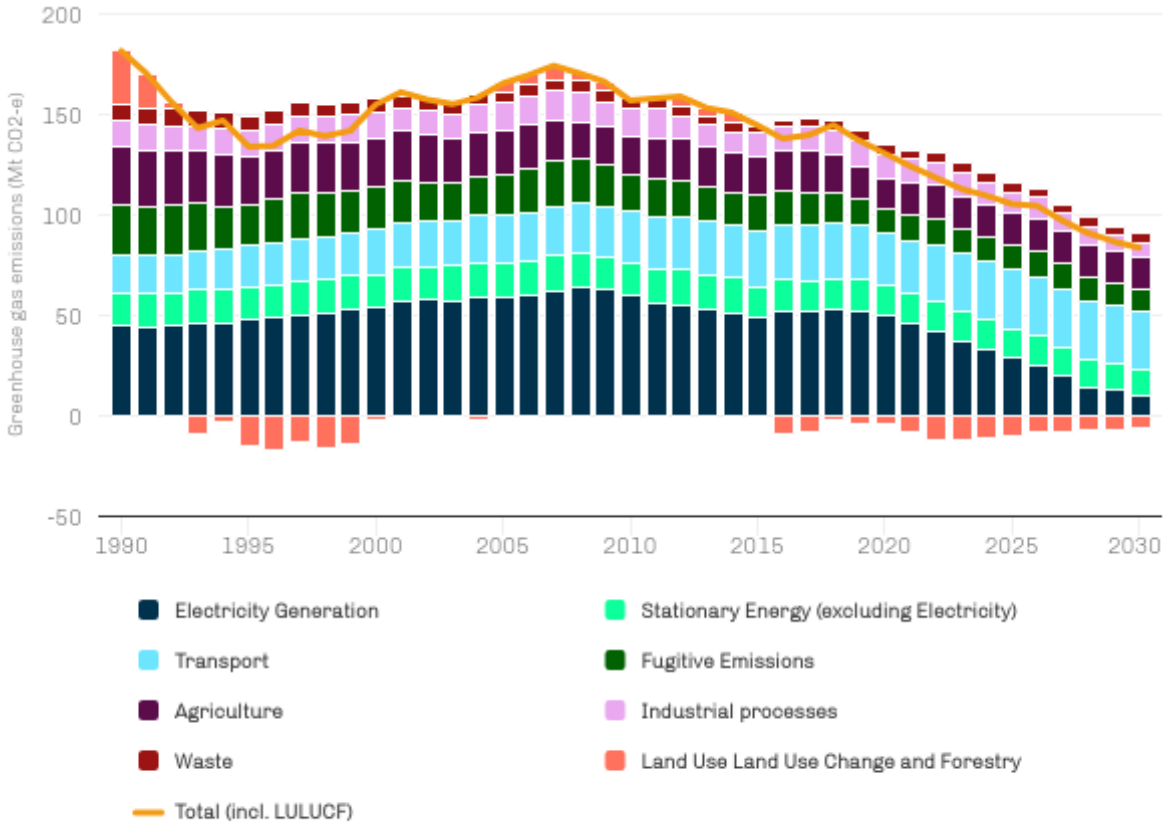
With NSW committed to ambitious emissions reduction targets for 2030 and particularly 2035, the primary reason for reducing energy waste is to reduce fossil fuel related GHG emissions. Nonetheless, there are also compelling reasons for the proposed objective of 'optimising energy use', including:

1. **Optimising energy use as the primary objective maintains a focus on the demand side of the energy system**, for which policy is generally under provided. Making GHG emissions reduction the primary objective opens the possibility that other emissions reduction activities should be included in the scheme – unrelated to reducing energy waste.
2. **Optimising energy use as the primary objective would maintain energy as the metric used to measure the impact of activities under the scheme**. Shifting to an emissions reduction objective would imply a change to GHG emissions as the metric used to measure the impact of scheme activities, which could take time to accurately calibrate.

That said, revising the objectives as proposed would require a change to the certificate conversion factors in schedule 4A of the Act to ensure the scheme drives electrification activities (See Section 2 below for more detail).

Why electrification should be included in the primary objective

Figure 2 NSW projected greenhouse gas emissions, 1990-2030



Source: Greenhouse Gas Emissions | NSW State of the Environment

Electricity-related emissions are projected to decline to 2030 as the state's coal-fired power stations reach their end of life (Figure 2). In contrast, other stationary energy-related GHG emissions are currently projected to remain relatively unchanged, as the consumption of fossil gas and diesel continues in sectors of the economy beyond electricity generation.

Encouraging fuel switching from fossil fuels to electricity should therefore become a primary objective of the ESS as it will support NSW to achieve its legislated target to achieve net zero emissions, by reducing sources of emissions from the Stationary Energy (excluding Electricity) sector.

Efficient electrical devices also tend to be more efficient at converting energy into useful services, like heat. For example, an electric heat pump hot water heater has a coefficient of performance of at least 3, versus gas boiler of less than 1. Switching from fossil fuelled devices

to efficient electric devices therefore supports the EEC's proposed objective of optimising energy use, by reducing energy waste.

Finally, only grid-integrated electric devices – unlike fossil fuel burning devices – can provide grid services (e.g. demand response, frequency control, etc) that are increasingly valuable for electricity system management.

Retain 'capacity' in the PDRS objective

The PDRS's primary objective contains a reference to 'capacity'. The EEC supports retaining a focus on capacity as it reinforces that the scheme exists partly to reward providers of 'flexible demand capacity'.

This is important given that current market mechanisms for flexible demand – for example the Wholesale Demand Response Mechanism (WDRM) – tend to reward providers of flexible *energy* demand (i.e., providers of MWh) as opposed to *capacity* providers, that may be called upon to provide grid services (MW).

The PDRS can play an important complementary role, alongside other flexible demand energy markets (like the WDRM) by providing direct incentives for the 'construction' of flexible demand capacity, similar to the incentives that exist for both the construction and operation of renewable energy assets on the supply side.

Proposed changes to the ESS objectives

The EEC proposes the following changes to the ESS objectives, to improve clarity and better reflect the current policy and energy market context:

To ~~create a financial incentive to reduce~~ optimise the consumption of energy by encouraging energy saving and fuel switching activities

- To assist households and businesses to reduce ~~energy consumption and~~ energy costs.
- To ~~complement any national scheme for carbon pollution reduction by making the~~ reduce~~tion of~~ energy-related greenhouse gas emissions ~~achievable at a lower cost~~.
- To reduce the cost of, and the need for, additional energy generation, storage, transmission and distribution infrastructure.

Proposed changes to the PDRS objectives

The EEC proposes the following minor changes to the PDRS objectives:

To ~~create a financial incentive to~~ reduce peak demand for electricity by encouraging activities that create peak demand reduction capacity.

- To improve the reliability of electricity supply.
- To reduce the cost of electricity for customers.
- To improve the sustainability of electricity generation.

2. Reform opportunities

2.1 Scheme design

Objectives should support ESS and PDRS alignment

As discussed in section 1 above, the EEC recommends adjusting the objectives to better reflect the changing nature of the energy system.

Irrespective of the precise wording in the schemes' objectives, it is critical that the ESS and PDRS are aligned and complement each other: energy savings should not be achieved at the expense of flexible demand, and vice versa.

In practice, this means closely examining the methods under each scheme to ensure they reinforce each other. For example, hot water and space heaters installed under the ESS will align well the PDRS if they are controllable, with the potential to shift their energy use away from peak periods to periods of high solar penetration. Conversely, incentivising a switch from gas to electric water and space heaters through the ESS that only operated during peak periods would directly contradict the aims of the PDRS.

Change ESS certificate conversion factors for electricity in the Act to drive electrification

Clause 33(1) of Schedule 4A in the *Electricity Supply Act 1995* (the Act) effectively rewards activities that reduce electricity demand over activities that reduce consumption of other fuels via certificate conversion factors that function as de facto emissions factors. Energy savings from electricity are multiplied by 1.06, which is higher than other fuels, a legacy of the scheme prioritising savings from an electricity grid dominated by coal power throughout the day.

The changing nature of electricity supply – dominated by renewables in the middle of the day – and the need to incentivise electrification activities, necessitates a more nuanced approach to certificate creation from electricity savings, which recognises that:

- savings at peak periods are more valuable than savings in the middle of the day; and
- minimum operational demand is a growing problem that could be reduced by shifting some electricity consumption in the middle of the day.

There are a range of policy options available to the NSW Government including:

1. Adjusting the certificate conversion factors to reduce the difference between electricity and other fuels.
2. Removing certificate conversion factors altogether so electricity savings are not prioritised over other fuels.
3. Introducing time-of-use electricity certificate conversion factors that award more certificates from electricity savings at certain times of the day. An illustrative example of what these factors might look like is provided at Appendix A.

There may be other options to address this issue and it is up to the NSW Government to determine which would best address the policy problem while striking the right balance of administrative burden versus accuracy. The ECC suggests that certificate conversion factors are removed from the Act, and any replacement factors are instead included in the Scheme Rule, to allow for the Government to respond more nimbly as new energy system challenges emerge over time.

Consider sub-targets or certificate multipliers for vulnerable cohorts to improve equity

EEC members report that a large share of energy savings activities under the ESS have taken place in commercial buildings relative to households, including vulnerable households. This is backed up by data showing that 85% of the energy savings from deemed methods were from commercial lighting between 2009-21[1].

To ensure that a greater diversity of energy consumers benefit from the schemes, the NSW government could consider setting sub-targets to ensure a minimum level of activity occurs within vulnerable households, similar to the approach adopted in the South Australian Retailer Energy Productivity Scheme. An alternative would be to introduce certificate multipliers for certain activities, where those activities are delivered to vulnerable households.

Setting sub-targets for priority customers may impose additional costs to obligated parties so the Government would need to conduct a thorough cost-benefit analysis to confirm that the

[1] Energy Security Safeguard Schemes - Schemes update 2022–23 - Supplementary data | IPART (nsw.gov.au)

additional costs of compliance do not exceed the benefits and to determine if other complementary measures might be a better way of assisting vulnerable cohorts.

Consider complementary measures to manage equity concerns associated with retiring the gas network

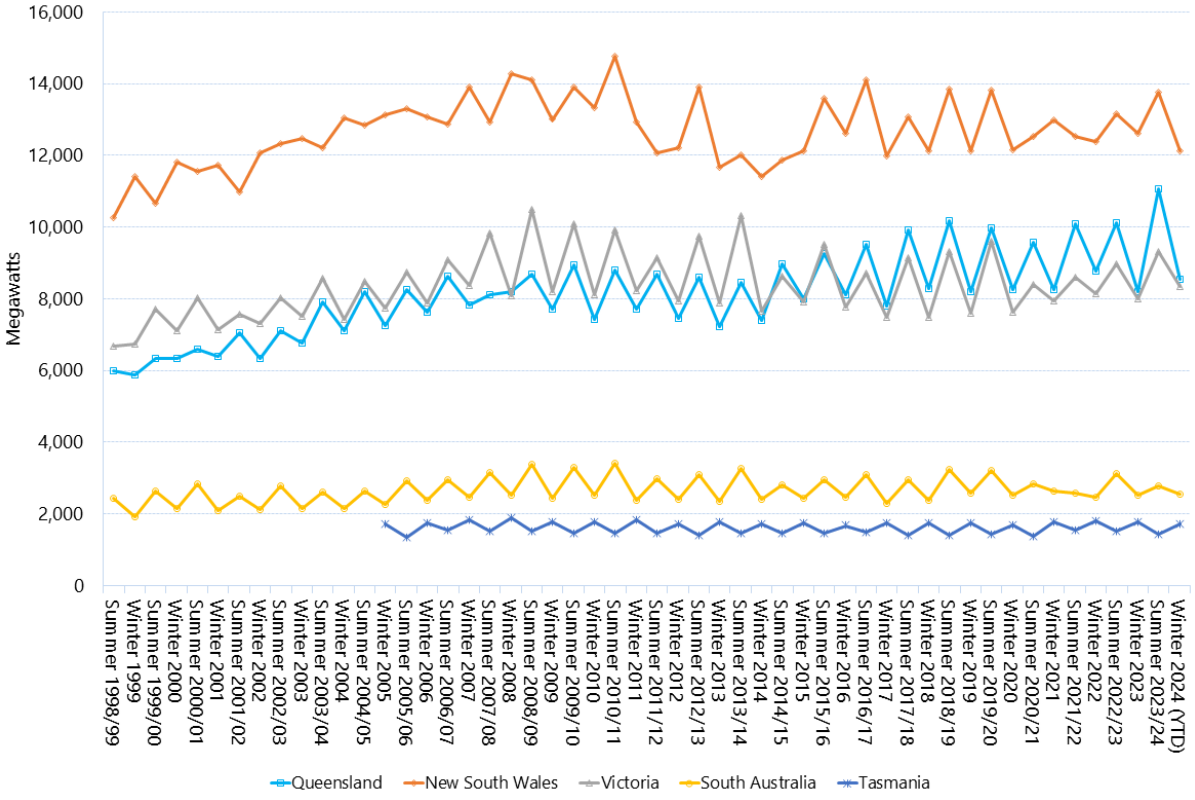
Adjusting the ESS to include electrification as a primary objective will incentivise energy consumers to leave the gas network. Over time, consumers that remain connected to the gas network (often not by choice, in the case of cohorts such as renters) will face higher fees to remain connected unless action is taken to manage those costs in other ways. Complementary policies will be needed to ensure the most vulnerable consumers are not left paying higher connection fees to remain connected to the gas network serving fewer and fewer connections over time.

Consider adjusting the summer peak demand periods and rewarding winter peak demand reductions

The PDRS currently defines the peak demand period as being between 2:30pm and 8:30pm from 1 November to 31 March (i.e. summer peak demand). Some of the EEC's members have suggested minor adjustments could be made to recognise that summer peak demand periods appear to continue beyond 8:30pm.

Winter demand is already high in NSW, and with the shift to electric space and water heating, is likely to become 'peakier'. Already NSW electricity demand has experienced years (for example in 2012-13 and 2020-23) when there is less difference between the Winter and Summer peaks (Figure 3). This indicates there would be merit in rewarding winter peak demand reductions through the PDRS.

Figure 3 Winter and Summer peak demand by region



Source: Seasonal peak demand - regions | Australian Energy Regulator (AER)

Add new methods to encourage thermal performance upgrades, potentially packaged with other upgrades

Improving the thermal performance of residential buildings has significant peak demand benefits. Good thermal performance allows smaller reverse cycle air conditioners can be installed and means they do not need to run as 'hard' to maintain a comfortable temperature.

Good thermal performance also opens the opportunity of pre-heating or cooling residential buildings, shifting load out of peak periods and assisting with managing minimal operational demand.

Conversely, space conditioning activities under ESS and PRSR are less likely achieve their desired outcomes in buildings with poor thermal performance: Even using high quality reverse-

cycle air conditioners, occupants are more likely to experience discomfort[2] and continue to condition their spaces during peak periods[3].

This suggests there is a strong imperative for thermal performance activities to be added into the ESS, as a complement to the PDRS.

Any move to introduce insulation into the ESS should ensure the following:

- **Trained and certified installers**: insulation installation must be undertaken by an EEC Certified Insulation Installer, or equivalent;
- **Product certification**: insulation materials used should have independent third-party building product certification through the Australian Building Codes Board administered CodeMark Certification Scheme, or similar JAS-ANZ governed certification scheme;
- **Application**: products should be applied where they are fit for purpose, supported by appropriate warranties;
- **Electrical safety**: electrical safety inspections should undertaken by a licensed electrician prior to installation;
- **Compliance**: independent audits should be conducted after insulation installs, with material consequences for non-compliance; and
- **Stability**: the activity should be kept in the scheme for a sustained period of time to avoid goldrush scenarios that create conditions for non-certified installers and non-conforming product to flood the market.

One possible barrier to including insulation in the ESS is that the certificate price may not be sufficiently high to drive uptake of an insulation activity on its own, if only the direct energy savings or GHG emissions impacts of the activity are accounted for. However, given the co-benefits that flow from well insulated homes – including improved comfort and health outcomes[4], not to mention peak demand reduction – there is a strong argument for including a certificate multiplier as part of the design of any new thermal performance activities.

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[2] Replacing gas heating with reverse-cycle aircon leaves some people feeling cold. Why? And what's the solution? (theconversation.com)

[3] Wilmot, K. et al. (2021). Residential solar pre-cooling and pre-heating. Final report of the H1 Opportunity Assessment. RACE for 2030 CRC. https://racefor2030.com.au/wp-content/uploads/2023/03/H1-Residential-Solar-Pre-cooling-OA-report_Final-1.pdf

[4] Page, K. *et al.* (2024). Outcomes from the Victorian Healthy Homes Program: a randomised control trial of home energy upgrades. medRxiv preprint doi: https://doi.org/10.1101/2024.07.24.24310955

There could also be benefits in packaging insulation upgrades with other technology upgrades as part of a new integrated retrofit activities. For example, there is a logical fit with upgrading a home's insulation and its space heating and cooling systems. In Ireland, government programs require a minimum level of thermal performance to be achieved as part of electrification of space heating, ensuring that the reverse cycle air conditioner is appropriately sized.

Additional opportunities for integration include home energy management systems or simple timers to control electric devices, as well as upgrades to lighting upgrades and related electrical infrastructure that require access to the roof cavity.

The relationship between ceiling insulation and lighting is significant from both a safety and energy performance perspective. For example, downlights are common in many homes but are often not designed and certified by the manufacturer for contact with combustible materials or for enclosure by thermal insulation. They also tend to have large gaps where heat can escape into the ceiling in winter, or cool in summer. Upgrading the lighting system to modern, IC4 rated LED fittings saves energy from the lighting and by preventing heat losses around the light fitting in winter, or cooling losses in summer. These light fittings also allow for the safe installation of ceiling insulation above them, offering even greater energy savings benefits.

New baseline measurement methodologies to unlock commercial and industrial flexible demand in the PDRS

The proposed Wholesale Annual Response Mechanism method requires commercial and industrial facilities to be eligible to participate in the WDRM. However, the WDRM, as currently designed, has stringent eligibility criteria that essentially limits participation to facilities with flat load profiles. Some EEC members estimate this excludes 80–95% of commercial and industrial loads and is therefore a major barrier to scaling.

To assist with the challenges of baseline measurement in commercial and industrial facilities, which are an impediment to the scaling of flexible demand, the PDRS could enable testing of alternative baseline measurement methodologies that are recognised in international jurisdictions – similar to the metered baseline approach in the ESS. Impacts could be reviewed after 2–3 years.

2.2 Delivery

Ensure better transparency and consistency of guidance on product registration and testing methods

EEC members report that the existing processes for registering new products under the schemes can be opaque and confusing, with different processes required for registering and testing similar products. This is resulting in barriers for reputable product manufacturers registering their products under the schemes.

In addition, some EEC members report that scheme administrators providing guidance on product testing methods have sometimes provided inconsistent advice, leading to confusion. These issues were mentioned in relation to heat pump products, but may be present in other product categories.

Work closely to align NSW schemes with other state schemes

EEC members note that while the ESS shares many similar activities with other state schemes, alignment between the schemes could be improved. This includes but is not limited to product registration and installation requirements.

For example, for heat pump hot water systems, the Victorian Energy Upgrades program (VEU) sets several product and installation requirements that are absent from the ESS, such as use of refrigerants with a global warming potential of less than 700, inclusion of timers, and appropriate sizing. These requirements are designed to shift the market towards higher-quality and appropriately-sized products, installed to higher standards. Aligning with other schemes in instances such as this will improve quality, reduce ambiguity for businesses operating across borders, and increase consumer trust in energy efficient products.

It is positive that administrators of each of the state schemes are meeting more frequently and the EEC would be happy to provide more detailed feedback from our members on areas where collaboration and alignment could improve scheme

Improve consultation with scheme participants to provide certainty

EEC members suggested that improvements could be made to the way the NSW Government consults with industry on changes to the schemes. Some members noted that while the annual stakeholder forum is useful, email communications from IPART are sometimes missed, meaning industry stakeholders miss important news about changes to the schemes.

Some members suggested that NSW could adopt features of Solar Victoria's industry consultation processes. For example, each year Solar Victoria publishes an annual notice to market[5] that provides industry with clarity as to what is required to participate in the programs for the coming year, noting that many of the changes tend to be flagged one year in advance, providing adequate lead time to prepare.

Improve coordination between NSW agencies to strengthen compliance

Some EEC members noted that coordination between NSW agencies responsible for overseeing the schemes, electrical work, plumbing work, and building work is not well coordinated, meaning oversight of certain activities may be poor. These members pointed to recent efforts in Victoria to create a regulatory taskforce to oversee energy performance upgrades. This involved the scheme regulator (Essential Services Commission) collaborating with Solar Victoria, DEECA, Energy Safe Victoria, and the Victorian Building Authority, to ensure that heat pump hot water systems being installed under Victorian Government incentive programs are done safely and in compliance with relevant regulations.

[5] For a recent example, see: Notice to Market 2024-25 | solar.vic.gov.au

2.3 Data and evaluation

Conduct higher levels of ex-post evaluation to verify the accuracy of deemed methods

While there are obvious cost advantages to using deemed energy savings methods as part of the ESS, the trade-off with deemed energy methods is accuracy. Deemed methods that overstate energy savings and emissions savings risk compromising NSW's progress towards achieving its ambitious emissions reduction goals by misrepresenting the impact of the schemes. This also adds unnecessary costs for energy consumers.

EEC members have raised particular concerns with methodologies for commercial and industrial heat pump hot water systems that may be overstating energy savings due to inaccurate assumptions on their time of use, among other issues.

Deemed methods that do not accurately capture the time of energy savings are increasingly problematic as the timing of energy savings becomes more important with the shift to greater shares of variable renewables in the grid.

With these issues in mind, deemed methods should be adjusted and developed that better consider the timing of energy savings. Importantly, ex-post evaluation should be conducted on a representative sample of installations to verify that the deemed savings assumed are accurate. Alternatively, new methods could be developed that make better use of metered data and new technologies (see below).

Consider leveraging new technologies for M&V and to underpin new methods

Technology has advanced significantly since the ESS was established. Technologies such as artificial intelligence and machine learning increasingly allow for the precise identification of changes to energy use patterns with relatively few data points from smart meters. This opens the possibility of creating new methods that can more accurately predict ex ante energy savings.

Examples from other jurisdictions include various US states where smart meter data is used in concert with weather and other data in machine learning algorithms that generate predicted energy savings from energy efficiency upgrades with very high accuracy[6].

For monitoring and evaluation, these technologies hold the prospect of reducing the administrative burden, time and cost, which some EEC members report is relatively high in NSW compared with other states, owing to 'double handling' by auditors and IPART.

Work with energy market bodies to obtain and share data to inform place-based activities

Ideally, both the ESS and PDRS should support the efficiency, reliability and sustainability of the National Electricity Market (NEM) in NSW, especially given one of the current objectives of the ESS is to reduce the cost of, and the need for, additional energy generation, transmission and distribution infrastructure.

This implies better data sharing, between scheme administrators, retailers, network operators and energy market bodies. Scheme administrators would benefit from having data from retailers and DNSPs highlighting constraints in the distribution network where targeted investments in energy performance upgrades in homes and businesses could reduce pressure on the grid. This data is available at the NMI level but is not easily available to policymakers working on the schemes. Having access to this data would permit scheme administrators to design targeted interventions by geographical location (i.e., potentially setting sub-targets for network-constrained areas of the grid).

Conversely, DNSPs and the energy market operator responsible for designing and delivering new generation, transmission and distribution infrastructure would benefit from having more detailed information about recently installed and planned energy performance upgrades by post-code or NMI, which would allow them to better predict future demand and avoid overbuilding and overinvesting in more costly supply-side infrastructure.

[6] See for example, products from Recurve, used by various US utilities, https://www.recurve.com/.

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ESIA Submission:

NSW Government
Energy Savings Scheme and Peak Demand Reduction Scheme Statutory Reviews 2025
Part 1: statutory reviews
Part 2: reform opportunities

6 September 2024 (extended to 13 September)

Submitted to Department of Climate Change, Energy, Environment and Water
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1. Introduction

The Energy Savings Industry Association (ESIA) welcomes the opportunity to provide this submission to the New South Wales Government for the **NSW Energy Savings Scheme and Peak Deman Reduction Scheme Statutory Reviews 2025** which commenced on **14 August 2024**. This consultation is being managed by the **Department of Climate Change, Energy, Environment and Water, New South Wales Government**.

The ESIA has referred to https://www.energy.nsw.gov.au/nsw-plans-and-progress/regulation-and-policy/energy-security-safeguard/review-and-reform

Next steps and purpose

In 2025, the NSW Government will finalise statutory reviews of the Energy Savings Scheme and the Peak Demand Reduction Scheme. The purpose of these reviews is to assess whether scheme objectives remain valid and whether scheme design is still appropriate to achieve them.

The Government will also use these reviews to consider scheme reform opportunities.

About ESIA

The Energy Savings Industry Association (ESIA) is the peak national, independent association representing and self-regulating businesses that are accredited to create and trade in energy efficiency certificates in market-based energy savings schemes in Australia. These activities underpin the energy savings schemes which facilitate the installation of energy efficient products and services to households and businesses. Members represent most of the energy efficiency certificate creation market in Australia. Schemes are established in Vic, NSW, SA and ACT. Members also include product and service suppliers to accredited providers under the schemes. As well, the ESIA represents member interests in national and state initiatives that include energy efficiency and demand reduction, such as the Federal Government's Carbon Farming Initiative energy efficiency methods and the NSW Peak Demand Reduction Scheme.

Further engagement

We welcome the opportunity to discuss this submission further, please contact the ESIA Executive Director at comns@esia.asn.au.

This submission can be made public.

2. Consultation questions and ESIA responses

2.1 Part 1 – statutory reviews

2.1.1 Legislative objectives – proposed approach

2.1.1.1 Do the objectives remain valid? (p8)

1. **Do you support the proposed approach to determining whether scheme objectives remain valid? Please provide evidence to support your answer.**

   Yes.

   - Barriers to energy savings upgrades still exist including lack of upfront capital and knowledge of benefits to energy consumers to support upgrades.

   Further:
   - Climate action urgency is accelerating.
   - Delays to large-scale renewables rollout are slowing greening of the grid.
   - Given a shift in consumer sentiment on climate change urgency and mandatory reporting and disclosure requirements increasing, it may be timely to shift the core messaging from electricity savings to emissions reductions, energy and bill savings.
   - Improving cost of living, health and wellbeing and return on investment is increasingly being linked to affirmative climate action.

   This would open the way to expanding the objectives of the program.

2. **Are the ESS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.**

   Yes.

   - There is still no national energy savings scheme.
   - The RET including the SRES and LRET is legislated to cease at the end of 2030.
   - While the Safeguard Mechanism is a stick for reducing emissions for large Scope 1 emitters, and the Capacity investment Scheme supports large-scale renewables and storage, there is no mechanism to support hot water and solar PV post 2030 or other energy efficiency upgrades for households and smaller businesses.
   - The ESS is the only legislated mechanism to 2050 that supports energy savings, emissions reductions and storage in NSW.
   - The ESS can also reduce emissions more broadly across NSW including from the transport sector which is not currently an objective.
   - The Victorian Energy Upgrades (VEU) program has adopted a strong electrification message and while that state is more reliant on gas, NSW is also adopting similar messaging. It makes sense for the ESS to officially be a primary vehicle to deliver these changes.
   - A stronger signal is needed to electrify and get off fossil gas and other fossil

fuels sooner to better support the NSW greenhouse gas emissions reduction target of 70% on 2005 levels by 2035 and net zero by 2050.

Therefore, additional objectives could be added highlighting the need to deliver:

- emissions reduction;
- electrification; and
- equitable access.

Other objectives could include:

- encourage, investment, innovation, employment and technology development industries that supply goods and services to support the above objectives.

3. **Are the PDRS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.**

Yes.

- There is no national peak demand reduction scheme.
- The PDRS targets are being achieved with plenty of opportunity for more activities to be included.
- The transparency of upgrades undertaken that are eligible for PRCs is greater than that for ESCs, providing strong confidence in the level of evidence-based data available to support peak demand reduction.

2.1.1.2 Does the scheme design remain appropriate to secure scheme objectives? (p9)

4. **Is the ESS design appropriate for securing its objectives?**

Yes, mainly but:

- it needs some enhancements so it can **deliver more energy savings and emissions reductions at lowest cost** for NSW.
- The current oversupply of certificates may not change for the next couple of years so upgrades that could be occurring will be delayed. While the ESS has a **'Target Trigger'** option to increase or decrease targets, it takes a couple of years to take effect and so on two key occasions in the past two five-yearly periods, while it could have been useful to use, even if half way to the next target setting period it has been considered unlikely to be able to justify the pulling forward of the required departmental work. However, the collapse of the sector in the interim periods has not been officially evaluated.
- More upgrades need to be delivered to the **residential sector** which is especially reasonable given that sector pays for the ESS.

What evidence should the department consider to assess design appropriateness? Please provide evidence to support your answer.

- Genuine energy savings delivered.
- More rapid and responsive ways to mitigate unintended consequences when activities are found not to deliver energy savings as anticipated e.g.:
    - Refrigerated display cabinet (RDC) activity which had few requirements to avoid 'deliver, drop and drive away' operators whose

accountability for providing an energy-saving product was too low a bar to negate poor practice at a scale and speed that the regulator could not stop quickly.
    - C&I HWHP activity over abatement that could have been avoided had evidence included electricity bills that would help determine that savings being incentivised were a reasonable portion of the bill and/or at least not more than the entire bill for a year. Alternatively, reasonable space type benchmarks can be established (e.g. pinpointing businesses with high hot water use such as hairdressers)
- Provide an additional layer of protection around the federal GEMS register as the VEU program does. This would help to mitigate the size of non-determinable impact of the RDC scenario where 14 products were removed from GEMS and the ESS regulator did not have evidence regarding those products to determine if energy savings had in fact been delivered.

5. **Is the PDRS design appropriate for securing its objectives?**

    Yes

    What evidence should the department consider to assess design appropriateness? Please provide evidence to support your answer.

    -

2.2 Part 2 – reform opportunities

2.2.1 Design

2.2.1.1 Objectives, sharing costs and benefits, settings (p10-11)

6. **What alternative or complementary objectives should the schemes focus on? Please provide evidence to support your recommendations, including reasons why the ESS and/or PDRS would be the best way to address the issue or opportunity you have identified.**

    (See answer to Q1)

7. **Are there opportunities to improve how scheme costs and benefits are shared? If so, please provide evidence of how any proposed changes would result in more equitable outcomes.**

    - Introduce a **Priority Household Target (PHT)** as operates in the SA REPS(*) and ACT EEIS. This could be set potentially as a percentage of the total component of the target likely to be delivered under residential updates. E.g. if 40% of NSW residents have concession eligibility, then set the PHT at that level.
    - Continue to provide **a regional factor**. This currently considers network loss factors.
    - Consider how both above points interrelate and if/how they are likely to change of the next five years e.g.:
        - are there more concession households in the regions?

    - what is a reasonable network loss factor now?
    - are upgrades slower in the regions and priority households and therefore can the regional factor be reasonably adjusted and so reasonably increased?
- **Include in the PHT:**
    - all concession card holders in NSW (which is around 40% of the residential population) and
    - all households and small business across NSW with a regional postcode.
- **Don't remove activities when 'saturation' has been achieved in large cities**, but consider continuing so slower uptake, harder to abate sectors can be reached over time.
- **Expand tenders for ACPs for ESCs** funded by the NSW Climate Change Fund for difficult-to-access markets (noting this initiative does not deliver large-scale transformation given the limited capital available in the Fund).

  Note that a PHT and regional factor (or some other strong signal to support more regional access) is likely to provide a stronger signal than CCF tenders to support industry investment and capacity and skills building in the regions and hard to abate sectors.

(*) **SA REPS references:**
Targets including PHT: https://www.energymining.sa.gov.au/industry/energy-efficiency-and-productivity/retailer-energy-productivity-scheme-reps/reps-thresholds-and-targets
Priority group definitions - https://www.energymining.sa.gov.au/industry/energy-efficiency-and-productivity/retailer-energy-productivity-scheme-reps/reps-priority-groups
https://www.climatechoices.act.gov.au/policy-programs/energy-efficiency-improvement-scheme
ACT EEIS: (Contact - Rahul.Ravindranathan@act.gov.au, 02 6205 3076 or Damien.Hillcrest@act.gov.au)
Targets: https://www.climatechoices.act.gov.au/policy-programs/energy-efficiency-improvement-scheme
PHT component: https://www.climatechoices.act.gov.au/policy-programs/energy-efficiency-improvement-scheme/information-about-scheme-settings

8. **What adjustments could the department make to scheme settings to improve performance against the legislated or proposed objectives? How would this provide a net benefit to NSW? Please provide evidence to support your answer, including any assumptions you have made.**

   Emissions factor, target ambition and metric changes are interrelated and require *significant explanation in simple terms as there is significant misunderstanding of how they work together.*

   Emissions Factor
   There are a few possible approaches:
   - The electricity emissions factor of 1.06t/MWh could be adjusted as it is out of date since it was established in 2009 and given the progressive greening of the grid.

- Alternatively, it could be left as is for the next five years and instead the gas factor changed to compensate (as is currently the case with adjustments having been made periodically).
- Consider how other fuel factors currently pegged to this will move as a result (i.e. gas factors).
- Gas certificate conversion factors would need to be applied to most effectively support electrification.
- **Activity-specific emissions factors would enable greater financial incentives for upgrades that deliver energy savings at specific times of day** when coupled with other technologies on site (e.g. solar PV combined with a battery and time of use appliances such as hot water heat pumps and EV charging).
- It is crucial to find a way where:
    - electrification activities are not disadvantaged and the level of emission reductions from an electrification activity (e.g. replacing gas heating) are properly reflected over the deemed lifetime of the activity, and
    - electrification is supported (short term policy imperative) without eroding reward for efficiency (long term policy imperative).
- Consider the impacts of any change on the current oversupply of certificates that may undermine the ambition of the scheme.
- Explain any proposed changes in terms of impacts on:
    - the real size of the target (i.e. it can result in reducing the target which would be a perverse outcome)
    - obligated party liabilities
- **Underlying baseline calculations can cause unintended consequences** at scale when combined with a lack of evidentiary requirements of energy savings and fast and loose delivery channels to market. Issues can be magnified where the activity is a new installation without any decommissioning and replacement of an existing appliance. Therefore, more industry engagement and early activity implementation monitoring and audit is needed (e.g. C&I hot water heat pumps and refrigerated display cabinets). This needs collaboration between the Department, the regulator and industry and enablement of rapid changes where major program risks are pinpointed.

Target ambition

- Possibly increase i.e. given the current significant surplus e.g.
    - increase the ramp rate to 13% as soon as possible and
    - consider greater than current 13% of electricity sales by 2030.

- Forward looking opportunities could be considered which would justify a much larger target and pool of eligible activities e.g.:
    - include as liable parties gas retailers and large gas users that are not covered under the federal Safeguard Mechanism.
    - expand the range of electrification activities that are eligible including electric cooktops, gas water heating replacement, gas heating replacement, solar PV, batteries and electric vehicles.
    - include insulation.
- Analysis by Green Energy Markets (GEM) indicates that the ESS could deliver five million tonnes of emissions reductions per year (5mt/a) by 2035. GEM also considers that the volume of ESCs required to continue to deliver 5/t/a would be considerably greater at nearly 40 million ESCs per year if the grid

electricity emission factor was appropriately adjusted and forward looking. (Source: NCBA/GET Submission, p2)

Metric changes

- **ESS** – explore an emissions metric, however while this will support short term electrification it won't support long term efficiency

Surrender period for ESCs – reduce back to 12 months instead of recent extension to 18 months as:

- while this may suit obligated parties, it does not support the certificate trading market and is exacerbated by ESC oversupply as is currently the case
- having ESCs and PRCs at 12 months is more supportive to the certificate market, rather than having 18 and 12 months respectively.

Streamline M&V as this activity is still significantly constrained and can deliver high volumes of proven electricity savings. (Refer to ESIA Discussion Paper: NSW ESS Streamlining PIAM&V, Sept 2021)

Maintain underperforming activities as a lack of activity does not mean they will not be viable at some point e.g. increase in certificate prices, reduced low-hanging fruit opportunities such as:

- commercial lighting is far from saturation in regional NSW and
- residential rollout of several activities has been low to date across NSW.

Consider how over abated activities impact targets and if/how any portion of the target can be adjusted to deal with negative impacts of oversupply i.e. such as recently transpired with IHEAB C&I HWHPs and RDCs.

Broaden the scope for electrification activities under the ESS i.e. batteries, EVs, solar PV and additional recognition for HWHPs where solar is installed.

Wait for MEPS to be introduced before setting policy and terminating eligible scheme activities on the assumption that governments will deliver as per their commitments e.g. MEPS for residential hot water heat pumps and LED lights just prioritised by the ECCMC on 19 July 2024.

Prioritise GEMS register protection for the NSW Safeguard as demonstrated by the recent removal of 14 refrigerated cabinet products and the challenges that posed for IPART. Consider the VEU approach having a scheme-specific register.

Consider the commercial viability of rollout at scale for all major scheme redesign and reform in relation to all above points (e.g. hard-to-abate customer types, technologies and locations).

2.2.2 Delivery

2.2.2.1 Making and communicating decisions, delivery of schemes, governance and administration (p11-12)

9. How could the Department improve transparency around how it makes decisions and how it communicates changes to the schemes?

- Generally, the way in which the NSW government provides position papers and online sessions on these, including responses to consultation, is very effective.
- More transparency and engagement with consultants undertaking government work would help, including how assumptions are made and the data sets being used e.g. for the lighting consultations in recent years.
- Timing and length of time to respond to consultations is always an ongoing challenge for industry and associations.
- Further enhance engagement between the NSW DCCEEW scheme policy and implementation teams, as more opportunities and issues could be tackled in a timelier manner.

10. **How could the Department improve the delivery of the schemes? Please provide examples of other jurisdictions and schemes where possible to support your recommendations.**

    -

11. **How could the government improve the governance and administration of the schemes?**

    IPART can work more closely with the GEMS regulator to understand which entity has what level of power to undertake product check testing and when and how this information can be shared.

    Please provide examples to support your recommendations.

    -

2.2.3 Data and evaluation

2.2.3.1 Scheme data collection, how scheme data is used (p12-13)

12. **What additional scheme data should the department or IPART collect and for what purpose?**

    - Details on activity implementations that make it easier and quicker to track where opportunities and issues are emerging e.g.
        - TESSA needs to provide implementation data that is specific to the type of upgrade that is occurring such as under IHEAB and HEER including for RDCs and hot water heat pumps.

    How could the Department make better use of new and existing scheme data?

    - Publish audit and complaints data in a more granular level, specific to activity types such as under IHEAB and HEER including for RDCs and hot water heat pumps.
    - Data should be accessible to the regulator to support potential product recalls.

- Data download capacity needs to be greater as the current cap of 20,000 lines is cumbersome and time consuming for users.

2.2.4 Other reform opportunities

2.2.4.1 That fall outside the 3 identified in the discussion paper (p14)

13. What additional reform opportunities should the Department consider for the ESS and/or PDRS? Please provide evidence to support your recommendations.

PDRS:

- consider changing the metric to 1kW rather than 0.1kW as vintages no longer apply
- More activities could be eligible under the PDRS sooner such as methods are already included under the ESS such measurement and verification methods.

Build on learnings from other proven complementary energy upgrade programs e.g.:

- Learnings from programs in other states:
  - **Victorian Small Business Energy Saver** (SBES) program – which fully leveraged the VEU products and compliance framework.
  - **Victorian Healthy Homes Program** - which showed that for every $1 in energy upgrades spent, $10 was saved in health costs.
  - **Victorian Solar Homes program including solar PV and hot water heat pumps** which has an **installer register** enabling poor operators to be removed from the published listed and ineligible to deliver under that rebate program and so reducing the likelihood of repeated poor practices.

Align with other NSW strategies e.g.:

- NSW Consumer Energy Strategy

Align with, or mobilise prior to, federal initiatives e.g.:

- Mandatory energy disclosure schemes, minimum standards and ratings for residential and commercial properties for rent and sale.
- Advocate for a refresh of the Greenhouse and Energy Minimum Standards (GEMS) register which is the national workhorse and framework for product energy efficiency standards and ultimately consumer protections and confidence.
- Advocate for Minimum Energy Performance Standards (MEPS) for more products and services and to be accelerated for those eligible under the schemes.

For more information regarding this submission, please email ESIA Executive Director, comns@esia.asn.au

THE ENERGY WARRIOR

Discussion Paper Submission

Energy Saving Scheme(ESS) and Peak Demand Reduction Scheme (PDRS)

6 September 2024

Author: Timothy Etheridge, Director. Energy Cost Attack Pty Ltd. ABN. 94 163 810 964

Issued 6 SEP 24. V.1

Background

The author has been an energy consultant since 2013, after leaving Chubb (ACE) Insurance at the end of 2012. He undertook his training with B.E.S.T Energy in Cornwall, UK (https://www.best.energy) in 2013 with a focus on energy monitoring.

He has engaged hundreds of clients and organised the installation of well over 250,000 Dimming LED luminaires, primarily in strata buildings, since joining Proenergy as an energy consultant in October 2014.

In the last 3 years he has acquired supplier relationships to install EV charging and Heat Pump Hot Water systems. He launched Energy Warrior in 2022, to bring these service streams under a single umbrella. Recently, he has added a high-grade solar PV supplier to his deliverables.

The delivery of this cross section of energy services and the required technical and commercial expertise, encourages me to make a few observations, primarily in relation to Part 2, questions 9 and 10, delivery of the ESS, as outlined in the Discussion paper August 2024.

Home Energy Efficiency

There have been instances where the HEER program has been abused by contractors. For example, the property at 91 Bridge Rd, Westmead (Monarco Estate) consumed a great deal more than the 100 mW/h, set as the upper limit for inclusion in the $30 lighting up-grade. The property had in excess of 800 fittings but used the HEER program.

The very low quality of fittings to meet the "$30 bargain" offer has been a predictable failure. Fittings rated to IP20 and with an expected working life of 10-20,000 will not endure more than a few years.

Governments should be mandating high-grade, long life energy products, even if they cost a bit more to acquire. Good products will keep saving energy much longer than 'price-driven' products.

Residential Heat Pump Hot Water

The proliferation of low-grade, short-life Heat Pump Hot Water (HP-HW) installations around New South Wales, under the Energy Saving Scheme have resulted in a huge waste of public funds.

It has also left many consumers stranded with a mal-functional or failed hot water system, largely paid for by the H-ESS.

In about 2017-18, the IPART- ESS administrators woke up to the need for specification standards for luminaires under the ESS. Fluorescent tube replacements with LED Tubes were stopped and all appliances needed to go through a National Standards approval procedure, that involved technical experts and expertise, to define and apply the resulting standards.

This commitment to underwriting the technical specification of luminaires immediately removed the opportunists from the market. Common area lighting gets cheaper, the longer it works as specified and requires no maintenance. Durability & reliability should be heavily weighted in any government sponsored product approvals.

It seems these lessons have NOT been applied to the HP-HW program, where low quality, generic manufactured compressors and evaporators

have flooded the market. Most of these residential units come with a 1 kW electric. Heating element, to mask the deterioration of the compressor efficiency.

The result has been a collapse in the ESC price, resulting from a flood of certificates being created on short life hardware. This means that many residents have trusted the government backed program, only to find their reliable gas or electric hot water unit has been removed and replaced by scrap metal, with very little value.

In addition, the NSW government should be integrating its TAFE program to train technicians and assist them finding experience, in this energy efficiency sector. Why then, does the ESS program enable foreign sub-contract labour to be used, to do the installations? Why do we have young people looking for work when we import labour from other countries where standards that (should) apply in Australia, are not part of their training?

I am unable to document the scale of this failure in HP-HW units funded by the NSW Government. Rather, I am relying on anecdotal comment from plumbers who have had large numbers of call-outs to HP-HW units, installed under the HEER scheme, after 2 or 3 years.

With the value of ESCs now half what they were a year ago, the incentive for good operators to keep "hunting" for energy saving projects from lighting, heat pumps and solar PV install etc, is greatly reduced.

It is an important role of government and their departments to inform the market, having themselves been informed by experienced people from business and industry.

Durability and reliability in hot water is on par with lighting. It's assumed that they will always be available, working as expected. When they don't, there's trouble and the ESS has brought trouble to many unsuspecting residential clients.

Sensor activated lighting

To date, in my experience, the best energy saving dividend is STILL delivered by replacing Non-sensor light fittings with Dimming & Motion – Daylight sensor LED fittings.

This motion and daylight sensor technology is about 50% of the energy dividend from undertaking a lighting up-grade – and the other half results from using LED technology to produce the light, rather than a legacy technology.

The administrator of the commercial ESS should give consideration to being flexible about the luminaire being replaced and attribute a certificate creation value to all types of existing luminaire INCLUDING non-sensor LED luminaires, not on a control circuit.

Any luminaire running on full power in an infrequently occupied space, should have a control system to dim to a standby light level or switch to off, as programmed.

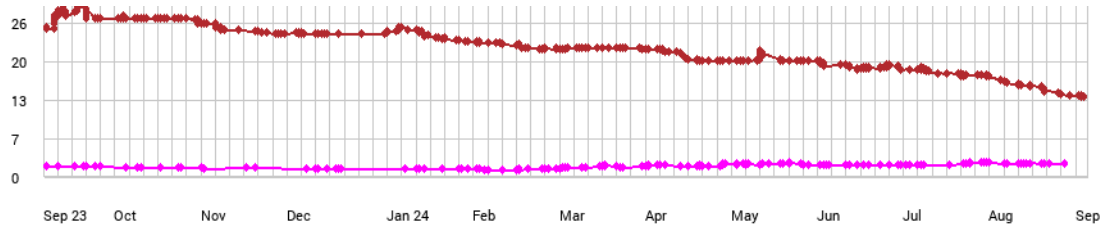
Fire compliance companies and developers typically install non-sensor LED battens and oyster luminaries. The ESS should encourage the replacement of any "lazy" luminaire with one rated to 50,000 hours and with control systems to minimise energy waste.

Supporting the ESC price

Now that the LED "up-grade wave" has washed through most of the built environment, thought needs to be given to cleaning up the tail-end of legacy lighting technologies.

Getting the ESC price back above $20 and easing up on the definition of legacy lighting types will help chase the last of the 'lazy' lights out of our built environment.

The ESC has been very stable since 2014, when I was first exposed to this rebate mechanism, up until this year when it has been in steady decline.



Given this certificate is the main means of creating an incentive to undertake energy efficiency projects in NSW, the administrators should be very disappointed in their recent management of the program.

They have greatly diminished the attractiveness of good quality energy efficiency projects, just to enable thousands of low-grade, short life HP-HW units to flood the market.

Thought and action need to be applied to resuscitating the ESC price. This will stimulate good quality energy efficiency projects to be identified and implemented.

I hope these observations from the market 'coal-face' are of help in advancing energy efficiency in New South Wales and beyond.

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6 September 2024

Department of Climate Change, Energy, the Environment and Water
Submitted electronically: energysecurity@environment.nsw.gov.au

Review of NSW Energy Savings Scheme and Peak Demand Reduction Scheme – Public

EnergyAustralia is one of Australia's largest energy companies with around 2.4 million electricity and gas accounts in NSW, Victoria, Queensland, South Australia, and the Australian Capital Territory. EnergyAustralia owns, contracts, and operates a diversified energy generation portfolio that includes coal, gas, battery storage, demand response, solar, and wind assets. Combined, these assets comprise 4,500MW of generation capacity.

EnergyAustralia welcomes the opportunity to provide this submission to the Energy Savings Scheme (ESS) and Peak Demand Reduction Scheme (PDRS) statutory reviews.

Overall, EnergyAustralia supports the objectives of the two schemes. However, we also are acutely aware that the cost of these schemes are spread across all customer bills and have an end user price impact at a time when cost of living is a persistent issue. We also note the recent VEU supply shortages which resulted in upward pressure on customer bills. **It is important to ensure that the two schemes are operated in a way which will keep certificate prices stable.** The risk seems to occur around the transition phases between activities. Ensuring that new activities are introduced in time, and that existing activities are retired in a gradual manner taking into account that new activities might take time to scale, is key. We also encourage that the regulator actively monitor the availability of activities and respond quickly. To facilitate this, the framework needs to have flexibility e.g. to allow the quick extension of existing activities or the roll-back of retired activities, as required when there is unsustainably high certificate prices.

We also note that the **review should consider whether electrification should be reflected in the objective of the ESS**. While emissions reduction via electrification is not currently an objective of the ESS, financing electrification at the customer's premises and replacement of gas powered assets is a real issue that customers will face into in the next decade. This is an area which could provide potentially greater value to customers, compared to some of the energy efficiency activities.

Our other comments relate to the Peak Demand Reduction Scheme, and are specific to the battery (BESS) activities.

- **Value of BESS 2 (demand response contracts) should be increased so its closer to BESS 1 (battery install):** BESS 2 should have a higher Peak Demand Response Capacity (PDRC) which could be achieved through a higher Firmness Factor. This is warranted given BESS 2 likely has a stronger contribution to peak demand reduction, compared to BESS 1, as there is an actual linkage to a demand response program which means the battery will actually be able to operate to successfully shift peak demand. In comparison, BESS 1 (battery install only) cannot provide any guarantee or indication of the battery' operation.

- **Equivalent BESS 2 activities in other states award a higher value, further supporting increases:** Other schemes like South Australia's Retailer Energy Productivity Scheme attribute more value to their equivalent VPP contract activity[1], which further supports raising the PDRC for BESS 2. For example, based on a 10kWh battery, REPS will provide 86.2 Productivity Factors. Based on current prices, this is over 5 times the amount that the PDRS provides for essentially the same activity. [Confidential:

  ].[2] If the PDRS does not change, then retailers and aggregators might prioritise the SA market over NSW in terms of investing for new VPP products.

- **BESS 2 contract period of 3 years is too long:** The PDRS' BESS 2 requires a contract of at least three years. Our market experience indicates this is probably unrealistically long:

  - Only 4 out of 18 VPP offerings have a contract length of over 3 years.[3]
  - A 3 year contract is unlikely to have wide appeal for many customers, especially where many VPP contracts have no required contract length so the customer can opt out at any time (Virtual Power Plant (VPP) Comparison Table - SolarQuotes).
  - SA REPS also does not require a certain contract length.

  However, we accept that the PDRS scheme might want to specify a contract length to guarantee a length of demand response benefit for the scheme. We recommend that this be changed to one year – which balances what is realistically likely to have appeal among customers, and presents a reasonable mid point in the contract length of market offers.

- **Support BESS 1 and 2 being expanded to Commercial and Industrial customer *behind the meter* demand response:** We support the expansion of the battery activities to Commercial and Industrial customers, without a linkage to the wholesale demand response mechanism which has had negligible uptake, or any linkages to other wholesale market participation. We caution against mandatorily linking BESS activities to any wholesale market participation, for example, the new Integrating Price Responsive Resources (Voluntary Scheduled Resources) mechanism. This is because wholesale market participation is extremely costly to establish, and will therefore be a likely barrier to the PDRS. Further, Behind the meter (off market) demand response programs involving large batteries have the potential to significantly contribute to Peak

[1] REPS specification (energymining.sa.gov.au)
[2] $205 for 10 kWh system, based on PDRS calculator located here: NSW Solar Battery Storage Systems | MAC Trade Services
[3] Virtual Power Plant (VPP) Comparison Table - SolarQuotes

Demand Reduction Capacity, and so they should be recognised under the scheme. This significant potential benefit would justify the further work required to set up any necessary calculations or additional administration.

- **BESS 1 activity appears to require solar PV to already be installed** – This means the activity will not count towards the scheme, where battery and solar PV are installed at the same time. We do not believe this is the intent of the scheme. This should be changed to make it clear that installation of a battery, at the same time as install of solar PV, will be eligible under the PDRS.

- **BESS 2 activity should qualify for the scheme where it is a battery only (without solar PV)** – We question whether the pre-requisite of a customer's premises having solar PV, should be required under the PDRS. A battery asset, operating alone (without solar PV) under a demand response program will still be capable of reducing peak demand, simply by using energy that has been charged by the battery at off peak times, during peak times.

- **PDRS should consider new activities for smart EV chargers** – As EV uptake increases, and EV batteries are used as storage, we anticipate that smart EV chargers will be key in orchestrating demand response. For example, BESS 2 could be expanded to demand response contracts using smart EV chargers as the asset.

If you would like to discuss this submission, please contact Selena on 03 9060 0761 or Selena.Liu@energyaustralia.com.au.

Regards

Selena Liu

Regulatory Affairs Lead

Ref: 20250218:CC/JH

19 February 2025

Leigh Burrell
NSW Department of Climate Change, Energy, the Environment, and Water
Sent via: energysecurity@environment.nsw.gov.au and leigh.burrell@environment.nsw.gov.au

Dear Leigh,

Essential Energy submission to the review and reform of the NSW Energy Saving Scheme and Peak Demand Reduction Scheme.

Essential Energy is grateful for the opportunity to provide a late submission to the review and reform of the NSW Energy Saving Scheme (ESS) and Peak Demand Reduction Scheme (PDRS).

As you are aware, Essential Energy has recently formed a team focused on supporting the electrification of our customers - from households through to large commercial and industrial businesses. In this context, we are seeking to proactively and constructively engage across the range of relevant policies and schemes at a state and federal level to support electrification and decarbonisation.

Essential Energy notes that one of the opportunities that the NSW Government wants to consider as a part of the review and reform process is how to maximise, 'the schemes' contribution to meeting NSW's legislated emissions reduction targets'.[1] For this to occur, Essential Energy believes it is imperative that the ESS is reformed so that creating a financial incentive for electrification and decarbonisation is recognised as a formal program objective – perhaps even as a principal objective of the scheme alongside energy saving activities.

Within this, we believe that the programs could be improved through addressing the following items:

1. **Widening the scope of the ESS to better include decarbonisation through electrification:** Essential Energy understands that the ESS does support fuel switching to a limited extent. However, our understanding and experience of this is that it offers no effective support to fuel switching technologies that are above the temperature range serviced by heat pumps, especially the technologies relevant for the decarbonisation of industrial heat. Providing better incentives for fuel switching through electrification will ensure that the ESS is able to maximise its contribution to achieving NSW's emissions targets. As renewable energy generation makes up an ever-increasing portion of the National Electricity Market (NEM), any appliance or process connected to the grid will become less carbon intensive and reduce the emissions intensity associated with its operations.

   If the ESS remains focused on energy efficiency as a means of addressing emissions, it will be incentivising investment towards emissions that are already being substantially addressed through the decarbonisation of grid energy. At the same time, it will be failing to address outstanding direct emissions from fossil fuel

[1] Energy Savings Scheme and Peak Demand Reduction Scheme statutory reviews 2025 discussion paper, p.5.

emitting processes such as fossil fuel reliant industrial heat processes. In the absence of change, the ESS will be left targeting a diminishing subset of emissions while large emissions categories that more urgently require policy incentives are left unaddressed.

An excellent example of the need for change is demonstrated in emissions from industrial heat processes in NSW. Emissions from industrial and business activity in NSW, including industrial heat processes, make a material contribution to NSW's emissions profile. We estimate industry and business to contribute approximately 75% of NSW's stationary emissions, or around 10% of NSW's current overall emissions. Technologies exist to address these emissions, but they are not being adopted at the speed required to meet our legislated emissions targets.

Due to its current focus on promoting increased energy efficiency, the ESS does not support the technologies that will be necessary for the decarbonisation of industrial process heat above the temperature ranges that are serviced by heat pumps. This is because the solutions available on the market to electrify and decarbonise higher temperature industrial processes such as thermal storage, electrode boilers, or resistive boilers do not result in significant energy savings, but instead involve the electrification of processes currently supported by burning fossil fuels. Essential Energy believes that the ESS should support these and other related technologies that achieve the decarbonisation of higher temperature industrial processes through electrification.

While other avenues may also be appropriate, Essential Energy believes one mechanism to achieve this would be to create a new specific certificate conversion factor or adjust the current certificate conversion factors so that there is a financial incentive to adopt the technologies available for decarbonising temperature ranges beyond those serviced by industrial heat pumps. In stating this, it is also important to note that any incentive for the decarbonisation of industrial process heat provided by the ESS, regardless of the precise mechanism, should seek to balance abatement outcomes (focusing on speed and cost of abatement) with the efficient and wise use of public capital. The level of incentives provided should reflect the public good delivered by the abatement of emissions and be proportionate to any support for abatement delivered through other means, so that we can achieve a level playing field for all technologies that provides a least-cost path to decarbonisation for households and businesses.

Electrified industrial heat technologies that are connected to the grid will deliver lower carbon emissions over their asset lifetimes compared to the fossil fuel dependant processes that they typically replace. This is because as the grid decarbonises the carbon intensity of the electricity associated with operating these assets will gradually reduce towards zero. Depending on the time of day when they are used (discussed further below), their carbon intensity may already be lower than the fossil fuel machines that they are replacing. This is due to the varying carbon intensity of grid served energy, which reaches minimum levels during peak solar photovoltaic peak production times. The higher efficiencies often achieved by electric machines compared with their fossil fuel alternatives contributes further to their lower emissions profile.

2. **Mandatory enrolment in peak demand reduction:** Without careful management and sequencing of newly electrifying loads there is the prospect that electrification will increase peak demand (increasing network and energy costs) rather than increasing network utilisation (leaving network costs static and decreasing energy costs). As such we believe that the ESS should include a requirement (wherever possible from a technical and business process perspective) for eligible equipment installed under the scheme to be capable of digital communication and enrolled in some form of peak demand management scheme – allowing it to contribute to the outcomes of the Peak Demand Reduction Scheme. This will ensure that distribution networks are better able to manage peak demand during the energy transition.

3. **Incentivise load shifting to lower carbon intensity + minimum demand periods:** Approximately one third of Essential Energy's network operates with reverse power flows (and as a result near zero carbon emissions) during the peak daily solar photovoltaic production times. To achieve greater decarbonisation, the ESS should support load shifting not just from peak times of use, but also to periods where there is a

lower carbon intensity associated with the electricity that has been generated. Again, this will ensure the ESS supports the objectives of the PDRS.

Typically, periods of lower carbon intensity in the middle of the day correlate with times of lower wholesale energy pricing and minimum network demand. Incentivising the operation of any new, flexible load during these periods should not only speed up our emissions reduction but will also provide an important avenue to address the difficulties presented by minimum demand periods by increasing load and utilisation of the distribution network during these periods. Failing to reform the ESS and leaving it with a focus on energy saving and a reduced energy consumption risks exacerbating the emerging difficulties associated with minimum demand periods.

Increasing load during these times of lower carbon intensity and minimum demand will also open the opportunity for additional incremental growth in renewables connected to the grid. This will accelerate the reduction in grid carbon intensity and support an even greater reduction in overall emission reductions attributable to the ESS scheme.

Beyond emergency response capabilities, supporting the communication capability required to respond to both peak demand and minimum demand events will also allow these flexible load devices to be able to respond to regular wholesale market signals and opportunities (not just to emergency network requirements), contributing to the effective functioning of NEM. This will add important market depth and diversity to the NEM, while also helping with the long-term competitiveness of NSW's industrial base, supporting industrial businesses in their endeavours to access energy when it is at its cheapest in the wholesale market.

Electric thermal energy storage (e-tes) units are an emerging technology solution particularly suited to facilitating load shifting and supporting flexibility of load by industrial customers. If the ESS can facilitate the adoption of e-tes units through bundling better support for fuel switching with an incentive for load shifting, then this technology has the potential to deliver substantially beneficial outcomes for customers (through improved energy management and on-site capabilities), networks (through improved grid utilisation and stability) and the public (through accelerated decarbonisation).

4. **Grow the number of regionally based accredited certificate providers:** The lack of regionally based accredited certificate providers (ACPs) is currently slowing the uptake of equipment associated with ESS incentives by regional households and businesses. As most ACPs are based in metropolitan areas, it can be difficult to secure interest in installing or even quoting for an eligible product. If they do not have a locally affiliated business or tradesperson to support them, providing services to a region may require additional scheduling from an ACP, or the build-up of an order book in an area before they commit resources to visiting a region. Any additional travel incurred by an ACP also adds to the costs associated with procuring both the desired technology and the associated Energy Savings Certificate, reducing the financial attractiveness of the scheme. Finding a mechanism to facilitate easier engagement with the scheme for regionally based customers will be crucial to its ongoing success.

Yours sincerely,

Justin Hillier
Chief Commercial Officer

FREEWATTS PTY LTD

Energy Savings Scheme and Peak Demand Reduction Scheme statutory reviews 2025 discussion paper

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Consultation questions and answers

1. Do you support the proposed approach to determining whether scheme objectives remain valid? Please provide evidence to support your answer.

I believe the recent approach is heading in the right direction, particularly with the pool pump incentives. These incentives are now substantial enough to attract the interest of Original Energy Savers (OES) and installers.

On the other hand, I believe the PDRS may be impacting the ESC price, which is currently at its historical low. While I may be mistaken, after conducting inquiries with known suppliers and ACPS, they appear to share similar concerns.

2. Are the ESS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.

I believe the PDRS and ESS programs may be overlapping in some cases, affecting each other. Specifically, the additional incentive expected from a PRC may be contributing to the decline in the ESC price. As a result, from a monetary perspective, the incentive may ultimately be the same, regardless of the ESC price fluctuation."

3. Are the PDRS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.

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Yes, they do appear to be, although the changes necessary to create this environment take time to implement. For instance, the Pool Pump and Air Conditioning Activities have been part of the scheme for many years, but only recently have the calculations and criteria been adjusted to reasonable standards, leading to the implementations we are now witnessing. However, in my view, this delay could have been easily avoided years ago.

4. Is the ESS design appropriate for securing its objectives? What evidence should the department consider to assess design appropriateness? Please provide evidence to

support your answer.

I believe the timing for the Site Assessment and Nomination Form could be reconsidered. Often, if these two documents are not signed at the appropriate time, the extensive efforts of various stakeholders—such as sales teams, accounting departments, and qualified installers—are rendered void, negatively impacting the OES as well. Adjusting the timing criteria for these documents could potentially lead to a significant increase in the number of implementations submitted, thereby enhancing the recorded energy savings.

For instance, there are cases where the OES is not home when an upgrade is scheduled, and several qualified installers are involved in completing the upgrade. Even when the upgrade is performed correctly and all other required evidence is collected, the lack of the OES's signature at the time of the upgrade prevents the submission needed to generate certificates. If the OES returns the next day and is willing to sign, the implementation may no longer be valid for submission, creating a scenario that affects all parties involved, despite the energy savings achieved.

5. Is the PDRS design appropriate for securing its objectives? What evidence should the department consider to assess design appropriateness? Please provide evidence to

support your answer

6. What alternative or complementary objectives should the schemes focus on? Please provide evidence to support your recommendations, including reasons why the ESS and/or PDRS would be the best way to address the issue or opportunity you have identified.

I would recommend reconsidering the criteria for eligible air conditioning units to align precisely with the requirements of the D16 activity.

7. Are there opportunities to improve how scheme costs and benefits are shared? If so, please provide evidence of how any proposed changes would result in more equitable outcomes.

8. What adjustments could the department make to scheme settings to improve performance against the legislated or proposed objectives? How would this provide a net benefit to NSW? Please provide evidence to support your answer, including any assumptions you have made

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9. How could the Department improve transparency around how it makes decisions and how it communicates changes to the schemes?

I would like to understand who was involved in developing the new activity and the methodology behind the associated calculations. As ACPs, we could also provide valuable assistance in this process.

10. How could the Department improve the delivery of the schemes? Please provide examples of other jurisdictions and schemes where possible to support your recommendations.

1. **For instance, I believe the calculations for the D16 and HVAC1 activities could be improved by adjusting the methodology for hot climate areas to align more closely with that of average regions. Residents of Tweed Heads, for example, use their air conditioning units significantly more throughout the year than households in Sydney. Furthermore, the per capita air conditioning usage in Tweed Heads is higher than in Sydney. Consequently, if an OES in Tweed Heads selects an energy-efficient air conditioning unit, the potential annual energy savings would be considerably greater compared to those in Sydney.**

2. **The energy.nsw.gov.au website lists all ACPs accredited for each activity; however, this does not necessarily mean that the ACP actively performs the activity. Even on their own websites, many ACPs do not advertise the activity, and when contacted by phone, they may either offer the service through their own qualified installers or simply provide the necessary calculation tools. This creates a significant issue for OESs, who rely on the website's list and often find that most ACPs do not actually perform the activity they claim to be accredited for. For instance,**

with the D16 activity, many OESs abandon their search after contacting only three or four ACPs.

This situation poses a major problem for ACPs like FREEWATTS, which actively advertise and provide the service, either with qualified installers or by offering calculation tools that allow the OES to use their own qualified installer. Unfortunately, OESs may not reach us due to the current lack of clarity in identifying ACPs that genuinely perform these activities. If the Department could implement changes to address the issue outlined above, it would significantly benefit both OESs and ACPs that actively perform these activities.

11. How could the government improve the governance and administration of the schemes? Please provide examples to support your recommendations.

12. What additional scheme data should the department or IPART collect and for what purpose? How could the Department make better use of new and existing scheme data?

I believe the recently updated implementation data sheets (IDS), which now request additional information, could be significantly improved. For example, the new IDS requires details on the refrigerant used in each installed air conditioning model. However, by simply submitting the model number, the Department or IPART could easily obtain the refrigerant type for that specific model. Requiring ACPs to provide this additional data is inefficient and time-consuming, as it necessitates modifications to our calculation tools, data import/export

processes, and other systems. Both the Department and IPART already possess the necessary resources to access this information, which would streamline operations and improve efficiency for all parties involved.

Additionally, the IDS contains an error or inconsistency when requesting the number of units installed, followed by the brand and model. If more than one unit is installed with different brands or models, the current format does not allow for the accurate input of multiple models and brands, rendering the request impractical.

Maybe also have the photo ID of the OES to be necessary in order for the incentive to be effective.

13. What additional reform opportunities should the Department consider for the ESS and/or PDRS? Please provide evidence to support your recommendations.

propose that incentives or regional factors be significantly increased compared to those in metropolitan areas. Regional areas face distinct challenges, such as a shortage of qualified installers, a concern less prevalent in metropolitan regions. Additionally, several factors contribute to higher installation costs in regional areas, including increased shipping fees, limited access to installers, the need for specialized equipment, storage requirements for new products, and greater distances to recycling facilities.

The current regional factor does not adequately account for these additional costs, resulting in dissatisfaction among OESs in regional areas. They often cannot receive the necessary implementations for several activities due to these challenges or because the incentives fail to cover the full range of expenses, leading ACPs to refrain from

performing activities in regional areas. An adjustment in incentives or the regional factor would help address these disparities and encourage greater participation in these regions.

FUJITSU

AIRSTAGE

03/09/2024

Feedback on the ESS and PDRS Statutory Reviews 2025

Dear Energy Security Safeguard team,

I hope this letter finds you well. I am writing to provide feedback on the recent discussion paper regarding the statutory reviews of the Energy Savings Scheme (ESS) and Peak Demand Reduction Scheme (PDRS). I appreciate the opportunity to contribute to this important consultation process.
Based on our experience and interactions with various stakeholders, I would like to answer the consultation questions as follows:

1. Do you support the proposed approach to determining whether scheme objectives remain valid?
Yes, we support the proposed approach. The focus on assessing ongoing relevance and the need for policy support is essential for adapting to the evolving energy landscape. Evidence from our industry shows that energy efficiency remains a critical concern due to increasing energy costs and climate change imperatives.

2. Are the ESS objectives still valid, and what evidence should the Department consider to assess their validity?
The ESS objectives are still valid. Encouraging energy-saving activities remains crucial for reducing greenhouse gas emissions and lowering energy costs. The Department should consider the ratio of the quantity of ESS registered AC installation to all AC installation in NSW.

3. Are the PDRS objectives still valid, and what evidence should the Department consider to assess their validity?
The PDRS objectives are valid, particularly in improving electricity supply reliability and reducing costs. Peak demand reduction is increasingly important as electrification of homes and businesses accelerates. Evidence from grid performance during peak times should be considered.

4. Is the ESS design appropriate for securing its objectives?
The ESS design is generally appropriate but could benefit from enhancements. Evidence of its impact on reducing energy consumption is positive, but more accessible information and tools for participants would improve its effectiveness.

FUJITSU GENERAL assist
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5. Is the PDRS design appropriate for securing its objectives?
Similar to Q4.

6. What alternative or complementary objectives should the schemes focus on?
lower GWP of the refrigerant used in air conditioner.
Demand response compatibility.

7. Are there opportunities to improve how scheme costs and benefits are shared?
Yes, simplifying access to the calculation method of certificate quantity would ensure more equitable distribution of benefits. Transparent communication about cost-sharing mechanisms and how they benefit different stakeholders would also enhance fairness.

8. What adjustments could the department make to scheme settings to improve performance against the legislated or proposed objectives?
The Department could increase outreach efforts and simplify information dissemination to improve scheme participation. Clearer guidelines and accessible resources would help stakeholders better navigate the schemes.

9. How could the Department improve transparency around how it makes decisions and how it communicates changes to the schemes?
The Department could enhance transparency by holding regular seminars and workshops, both online and offline, for stakeholders. These sessions should focus on clarifying scheme rules, updates, and decision-making processes.

10. How could the Department improve the delivery of the schemes?
The delivery could be improved by simplifying scheme information through video tutorials and PowerPoint presentations. Additionally, creating a comprehensive list of eligible models for stakeholders would streamline participation and compliance.

11. How could the government improve the governance and administration of the schemes?
Governance could be improved by establishing a centralized platform for all updates, eligible products, and compliance requirements. This would reduce confusion and enhance coordination among all parties involved.

12. What additional scheme data should the department or IPART collect and for what purpose?
The Department should collect data on user satisfaction of the scheme. This data would help refine future scheme designs and ensure they meet user needs effectively.

13. What additional reform opportunities should the Department consider for the ESS and/or PDRS?
The Department should consider automating the process of generating a list of eligible models based on energy performance factors, directly extracted from the GEMS database. This would simplify participation for manufacturers and installers while ensuring compliance.

In conclusion, would like to propose the following suggestions to enhance the effectiveness and accessibility of these schemes:

a. Increase Government Outreach Efforts:
   Organize online and offline seminars and workshops to engage local installers, manufacturers/importers, and Accredited Certificate Providers (ACPs). These events can serve as platforms to disseminate information, address queries, and foster collaboration among stakeholders.
b. Simplify Scheme Information:
   The current textual descriptions on the official website are extensive and complex. To lower the learning curve for industry participants, consider creating simplified video or PowerPoint tutorials. Additionally, organizing training sessions to explain the basic rules and operations of the schemes would be highly beneficial.
c. Create an Eligible Model List:
   Develop a comprehensive list of eligible models on the official website to facilitate easy reference for all parties, especially end users and installers. The GEMS website already contains the energy performance factors for all registered models. By automatically comparing these factors with the scheme requirements, it would be straightforward to generate an eligible model list.

These initiatives would significantly improve the understanding and participation in the ESS and PDRS, ultimately contributing to their success. Thank you for considering these suggestions.

Yours sincerely,
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Discussion Paper on Peak Demand Reduction Scheme

Background
We would like to provide feedback on the Peak Demand Reduction Scheme. Geni.Energy is a not-for-profit company based in Narrabri in northwest NSW. Our mission is to create more localized benefits from renewable energy. We see the transition to renewables as inevitable and that the greatest impacts and the greatest opportunities will be in rural areas. We are working to ensure these changes are community led and locally beneficial.

We have had a main street shopfront in Narrabri since 2020 and service the broader northwest region. We have helped over 75 homes, farms and businesses to install solar and batteries. We understand the customer demands and spend considerable time in educating locals about the technologies, the incentives and the regulations.

Delivery of PDRS
In terms of the Peak Demand Reduction Scheme, we understand the program's objectives and agree with them. We have concerns about its delivery.

I have raised with Minister Sharpe (via local member the Hon Roy Butler) the issue that all of the Accredited Service Providers (ASP) are city based. Whilst Minister Sharpe reported to me in a letter of response (Ref: MD23/7170) that there have been 466 residential upgrades

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using the PDRS in Barwon since 2021, ***this is a take up of 0.8% of the residential population.*** I would consider this a very low uptake of the incentive.

It is worth considering that the Barwon electoral division covers 44% of the state's landmass in NSW, so people can be located over 1,200 kilometres from Sydney. We are not being properly serviced by this program.

We believe the lack of ASP's located west of the great divide is hampering our communities' ability to take up PDRS incentives.

Local Energy Hubs as a Vehicle
We have been working with other organisations such as RE Alliance and Community Power Agency to advocate for a network of Local Energy Hubs. Geni.Energy provides a model for these Hubs and we believe they could be another good vehicle to deliver the PDRS incentives to the community.

These physical drop-in centres, staffed by well-networked, respected local people, who are independent from industry could help people step through the requirements.

PDRS Battery Incentive Draw Backs
In order for locals to participate in the PDRS battery incentive due to come online in November will require our installer to undertake a number of extra administrative tasks which is burdensome on installers who are often limited in their administrative support. It is not uncommon for our installer to be doing his paperwork in the wee hours of the morning before hitting the tools all day.

Secondly, our installer will need to create a partnership with an existing ASP located in the cities and settle on a deal. Initial conversations have presented two models for how this might work; one is similar to how STCs are handled for solar installs currently and one is a more integrated model where the ASP funnels jobs, provides the products and virtually determines the sub contract price for the installer. In this second model, often local installers do not feel they get a fair deal and are left with the customer follow up.

Perhaps one solution is to actively encourage more ASPs in rural and regional areas, reducing the barriers to becoming an ASP and broadening the scope of eligible organisations. Potentially, organisations like Geni.Energy or Local Energy Hubs could provide this role in rural communities, further creating income streams in rural towns.
We have been discussing the likely incentives for batteries through the PDRS lately with customers to test their response. Most people have told us that the expected $1,500-$2,000 incentive plus $300 p.a. on an $18,000 investment of the battery is probably not likely to be enough to encourage large take up of batteries.

So a lackluster customer demand, combined with the extra work required to prove the installation combined with the inconvenience of new arrangements with ASPs located long distances away, all makes it a difficult and appealing concept for us.

Green Building Council Australia

Building a sustainable future

18 September 2024

NSW Climate and Energy action
Department of Climate Change, Energy, the Environment and Water

Via email: energysecurity@environment.nsw.gov.au

Dear Energy Security Team,

Re: Energy Saving Scheme and Peak Demand Reduction Scheme statutory review 2025

The Green Building Council of Australia (GBCA) welcomes the opportunity to provide feedback to the Department of Climate Change, Energy, the Environment and Water, New South Wales (the NSW Government) statutory reviews of the Energy Savings Scheme (ESS) and the Peak Demand Reduction Scheme (PDRS).

About GBCA
GBCA's purpose is to lead the sustainable transformation of the built environment. We do this primarily through our core functions:

- We advocate policies and programs that support our vision and purpose.
- We collaborate with our members and other stakeholders to achieve our mission and strategic objectives.
- We educate industry, government practitioners and decision-makers, and promote green building programs, technologies, design practices and operations.
- We rate the sustainability of buildings, fitouts and communities through Australia's largest national, voluntary, holistic rating system – Green Star.

Green Star is Australia's most widely used sustainability rating system for the design, construction and performance of buildings – including social infrastructure – fitouts and communities. Green Star aims to transform the built environment by:

- reducing the impact of climate change
- enhancing our health and quality of life
- restoring and protecting our planet's biodiversity and ecosystems
- driving resilient outcomes for buildings, fitouts, and communities
- contributing to market transformation and a sustainable economy.

Statutory Reviews

As an overall statement, GBCA encourages alignment between states and territories for schemes of this nature. Nationally consistent programs to encourage energy efficiency and demand reduction will make it easier for stakeholders to participate in these programs, especially for service providers operating across jurisdictions.

We note that since inception the ESS has reduced 23 megatonnes of greenhouse gas emissions and has supported projects that will deliver 48,000 gigawatt hours (GWh) of energy savings by 2033. With its

projected savings of around $1.2 billion for households and businesses in New South Wales between 2022 and 2040 under the PDRS, GBCA is pleased to see the NSW Government is addressing the opportunities to reduce emissions through demand side activities. This will play a critical role in the NSW Government's targets of reducing emissions by 70% by 2035 and achieving net zero by 2050. GBCA provides further comments with regards to the specific points raised in the discussion paper below:

1. **Do you support the proposed approach to determining whether scheme objectives remain valid?** GBCA supports the proposed approach framed around, a) whether the objectives of the scheme remain valid and, b) whether the scheme design remains appropriate to secure scheme objectives.

   For a) the two main questions listed in the discussion paper are:

   1. Do the objectives address an ongoing issue or opportunity?

      Please see further comments below regarding the objectives.

   2. Is there still a need for policy support to address this issue or opportunity?

      GBCA believes this question is highly relevant for this review and policy support is still very much required to address the issue of energy savings and decarbonisation. The Victorian and Australian Capital Territory governments have introduced regulations to ban new gas connections to help meet their net zero targets. The New South Wales Government's new Consumer Energy Strategy also focuses on making energy-saving technologies like solar, batteries, and energy efficiency upgrades more accessible to households and businesses across the state.

      The Built Environment sector report[1] recently issued by the Climate Change Authority states:

      The Authority is of the view, however, that in the long-term complete electrification of buildings is the optimal decarbonisation approach and governments should develop strategies to efficiently and equitably realise this.

      Please also see further comments below regarding the objectives.

   For b) the review focuses on the following three questions:

   1. Is a certificate scheme an effective policy instrument to deliver these objectives?
   2. How has the scheme performed against its objectives?
   3. Are key design features still appropriate?

      Please see comments below in response to Questions 4. & 5.

2. **Are the ESS objectives still valid, and what evidence should the Department consider to assess their validity?**

   Principal objective:

   - To create a financial incentive to reduce the consumption of energy by encouraging energy saving activities.

[1] Climate Change Authority. 2024. https://www.climatechangeauthority.gov.au/sites/default/files/documents/2024-09/2024SectorPathwaysReviewBuilt%20Environment.pdf

According to the 2024 Integrated System Plan,[2] the National Energy Market (NEM) currently delivers just under 180 TWh of electricity per year, but demand could continue to rise to over 410 TWh per year by 2050.

Energy efficiency and demand reduction activities have historically played a part in ensuring that energy supply can meet energy demand during peak periods. As old forms of baseload generation become increasingly unreliable during peak demand periods (for example in summer) and we navigate a once in a generation energy supply transition in Australia, these measures are becoming crucial.

While there are some energy saving activities that can be undertaken at minimal cost to households and businesses, peak energy efficiency will not be achieved without some investment. Examples include upgrading appliances and equipment to more energy efficient and/or electric models, undertaking energy efficiency upgrades to homes and other buildings such as improving insulation, glazing, draught-proofing and upgrading to LED lighting.

The cost of upgrades can be a barrier to many households and businesses, and it is important that a range of options exist to provide financial incentives to reducing consumption of energy. GBCA agrees that the principal objective for the ESS remains valid.

Other objectives:

- To assist households and businesses to reduce energy consumption and energy costs.

As the cost of electricity and fossil gas rises, along with a steep increase in the cost of living overall, it has never been more important to assist households and businesses to reduce energy consumption and energy costs.

In Every Building Counts[3], we note that high efficiency, high performance, all electric homes with integrated solar PV and electric vehicle management should be affordable for all. We call on governments to develop a plan for a just transition for the built environment, underpinned by incentives, minimum standards, information & education campaigns and innovative financial mechanisms to deliver a more efficient and resilient built environment for all Australians. The ESS, and this objective, will help to ensure that households and businesses are not left behind.

- To complement any national scheme for carbon pollution reduction by making the reduction of greenhouse gas emissions achievable at a lower cost.

Buildings account for over half Australia's electricity usage and almost a quarter of emissions through their operations, approximately half each for residential and commercial buildings.[4] Many of Australia's buildings in use today will still be operating in 2050 when we are due to achieve our national, and NSW, net zero emissions target.

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[2] Australian Energy Market Operator. 2024. https://aemo.com.au/-/media/files/major-publications/isp/2024/2024-integrated-system-plan-isp.pdf?la=en

[3] https://www.propertycouncil.com.au/wp-content/uploads/2023/12/GBCA_EBC-StateandTerritory-2023-PolicyDoc_FA_18Aug_Digital_LR-6.pdf

[4] Australian Government, Department of Industry, Science, Energy and Resources, National Energy and Emissions Audit 2020.

The Australian Sustainable Built Environment Council's report Unlocking the pathway: Why electrification is the key to net zero buildings,[5] shows that 100 percent electrification with renewable electricity is the lowest cost, fastest emissions reduction pathway for Australia's built environment. However, it is not a zero-cost pathway. Renewables accounted for almost 40% of the total electricity delivered through the NEM in 2023, momentarily reaching up to a 72.1% share on 24 October 2023.[6]GBCA recommends the Other Objectives are amended to include support for households for fuel switching to maximise the benefit this opportunity can deliver.

The ESS plays an important role in collective efforts to decarbonise our built environment, particularly as the scheme is well-placed to assist households and businesses to electrify. GBCA agrees that this objective remains valid.

- To reduce the cost of, and the need for, additional energy generation, transmission and distribution infrastructure.

Energy efficiency, load-shifting (such as grid-interactive buildings) and enabling demand-response (such as consumer energy resources) should be prioritised by all governments in tackling energy management. Every Building Counts recommends that Australian governments should establish a national demand side organisation to lead on energy management, ensure that relevant institutions are considering demand-side options. The ESS and PDRS have an important role to play in encouraging demand-side management to reduce the cost of, and the need for, additional energy generation, transmission and distribution infrastructure.

3. Are the PDRS objectives still valid, and what evidence should the Department consider to assess their validity?

Principal objective:

- To create a financial incentive to reduce peak demand for electricity by encouraging activities that create peak demand reduction capacity.

Peak demand overtaking supply continues to be a significant risk to Australia's electricity grid and overall energy security. Without significant action to encourage households and businesses to reduce peak demand, this risk will only continue to grow. Particularly as electrification of the built environment and transport sectors (particularly the use of electric vehicles (EVs)) increases across Australia.

Every Building Counts (see Theme 5, Energy Market Reform) calls on government to consider how demand-side measures can play a crucial role in lowering total energy demand and demand at key times, reducing the need for expenditure on generation, storage and networks and lowering the cost of transforming the NEM. However, the current planning for the future of the grid does not extensively explore the use of energy management to reduce the cost of guaranteeing access to reliable and clean electricity systems. This means the PDRS objectives are not just still valid, but essential.

Other objectives:

- To improve the reliability of electricity supply.
- To reduce the cost of electricity for customers.
- To improve the sustainability of electricity generation.

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[5] ASBEC. 2022. https://www.asbec.asn.au/research-items/unlocking-the-pathway-why-electrification-is-the-key-to-net-zero-buildings/

[6] https://aemo.com.au/-/media/files/major-publications/isp/2024/2024-integrated-system-plan-isp.pdf?la=en

GBCA agrees that these objectives are still valid. AEMO's 2024 Integrated System Plan[7] forecasts that coordination of consumer batteries can offset the need for an additional $4.1 billion in grid-scale storage investment, as well as help deliver more reliable and secure energy and contribute to lower emissions, if coordinated effectively. Please see comments above in response to ESS objectives.

4. & 5. Are the ESS and PDRS designs appropriate for securing their objectives? What evidence should the department consider to assess design appropriateness?

GBCA does not have specific comment to make on the design of the ESS and PDRS. However, we note that it is important to make sure scheme design reflects, and has regard to, lessons learned in other jurisdictions operating similar schemes. We note that there are unique challenges for people living in apartments to install energy saving technologies. Navigating the approval process of an owners' corporation can be complicated and costly. It is important that the review process also considers regulatory barriers and develop solutions to minimise such barriers and associated costs.

Every Building Counts recommends that governments harmonise energy efficiency and electrification obligation schemes (EEOs) across jurisdictions to improve program design and administration and reduce costs for delivering energy efficiency upgrades.

Best practice elements of harmonised EEOs will include:

- consistent application and rules
- a national market for white certificates
- eliminating subsidies for gas appliances and increasing subsidies for electric equivalents
- wide coverage of sectors.

State and territory-based schemes should be developed to support the long-term goal of a single national scheme to maximise their impact and effectiveness.

We welcome the opportunity to provide further detail on any of the points or reports outlined above. For further information or to arrange a briefing, please contact Shay Singh, Senior Manager Policy and Government Relations, via email at shay.singh@gbca.org.au.

Yours sincerely

Andrew Fischer

Andrew Fischer
Head of Policy and Research
Green Building Council of Australia

[7] AEMO. 2024. https://aemo.com.au/-/media/files/major-publications/isp/2024/2024-integrated-system-plan-overview.pdf?la=en

National Carbon Bank of Australia

Green Energy Trading

10 September 2024

Department of Climate Change, Energy, the Environment and Water

RE: Energy Savings Scheme and Peak Demand Reduction Scheme statutory reviews 2025

National Carbon Bank of Australia (NCBA) and its parent company Green Energy Trading (GET) welcome the opportunity to make a submission on the 5 yearly review of the NSW Energy Savings Scheme (ESS) and the Peak Demand Reduction Scheme (PDRS).

We have been operating in the ESS for more than 10 years and over this time have consistently been one of the largest certificate creators. We have extensive experience with the operation of the Scheme across a broad range of activities.

Our submission is set out at follows:

1. Executive Summary with key recommendations
2. Addressing specific questions under Part 1 and Part 2.
3. We provide detailed Appendices to expand and elaborate on key issues

We welcome the opportunity to meet with the government to further expand on our submission.

Regards

Ric Brazzale

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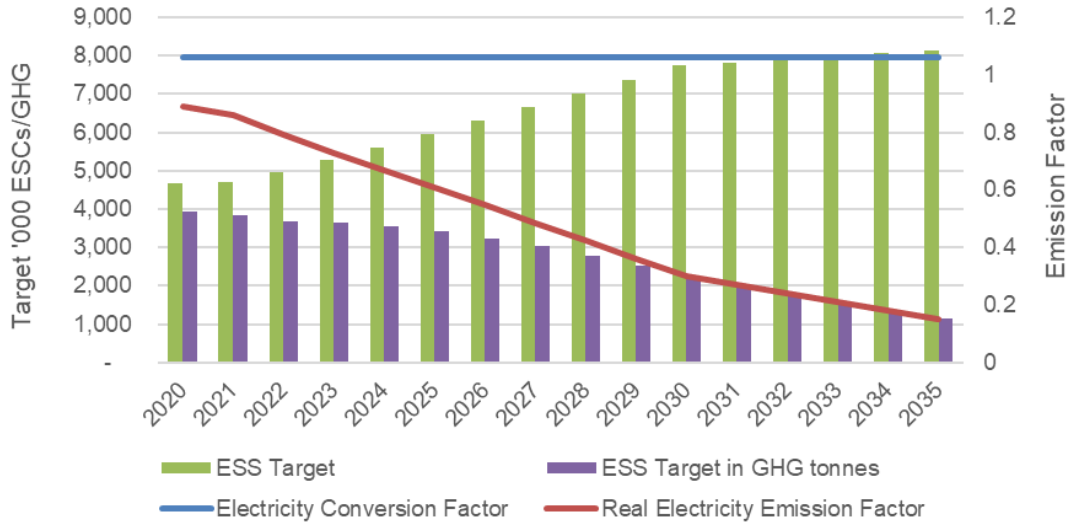
Green Energy Group

Executive Summary

We believe that both the ESS and PDRS schemes are working effectively and meeting their respective objectives. Barriers to the uptake of Consumer Energy Resources and energy efficiency remain and these schemes contribute significantly to address these.

We believe that the objectives of the ESS should be expanded to focus on emission reductions with secondary objectives to include equity, electrification and industry development.

Whilst the ESS Scheme design is broadly appropriate in meeting its objectives the current settings are not working as effectively as they could. The level of emission reductions that the ESS is expected to deliver is set to decline dramatically as the emission intensity of electricity generation reduces. The ESS is effectively an electricity reduction scheme as certificates are awarded to electricity savings based on an Electricity Certificate Conversion Factor (ECCF) of 1.06. This was the emission intensity of electricity generation at the time the scheme was first implemented. The Gas Certificate Conversion Factor (GCCF) then adjusts periodically as an attempt to maintain the emissions reduction relativity with electricity. This is shown diagrammatically below where the nominal ESS target is set to reach13% of liable electricity sales by 2030, equivalent to approximately 7.7 million certificates. However as the emissions intensity of electricity generation continues to fall, the actual emission reductions amounts to 2.2 million tonnes in 2030 and 1.2 million tonnes in 2035.



The Government has committed to 70% emission reductions by 2035. Achieving this will be extremely challenging without additional policy measures. Increasing renewables has lead to reductions in emissions from electricity generation, however this is now getting much more difficult with renewables investment and transmission

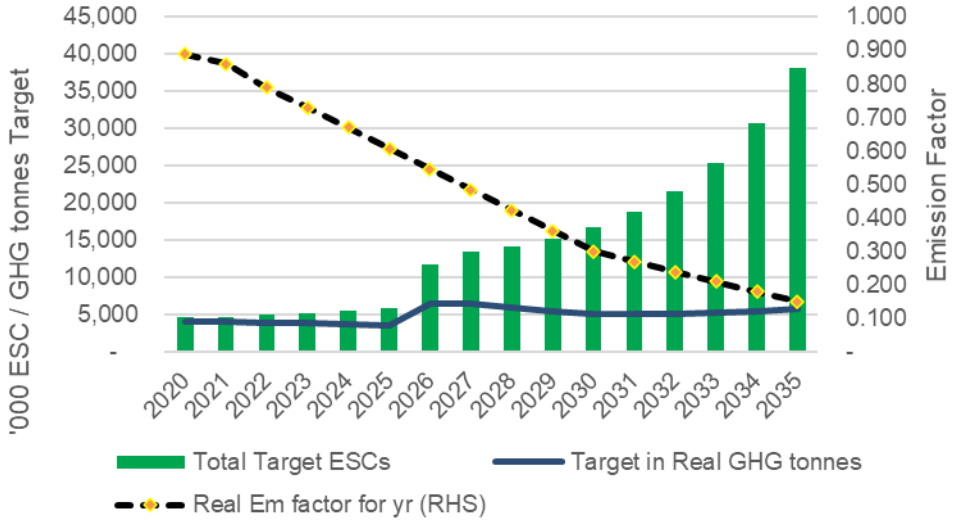
slowing. Gas emission reductions have not kept pace with the required target and transport emissions have in fact increased.

The ESS is extremely well placed to support further emissions reductions from electricity (making up for the delays in renewables rollout) and to drive lower gas emissions through electrification and gas savings more broadly.

We are calling on the Government to expand the ESS so that it delivers 5 million tonnes of emission reductions per annum by 2035. We do this in four discrete steps:

- Bring forward the 13% target to be reached by 2030 to 2026 in order to deal with the oversupply of certificates that has built up over the last two years and that are constraining industry activity and development;
- Expand the target to include Gas Retailers (and large gas users) as Liable Parties;
- Expand the target to include a Priority Household target equivalent to 40% of residential energy sales;
- Expand the target to include electrification activities (including solar PV and batteries) so that the ESS contributes a minimum of 5 mt/a of emission reductions by 2035; and
- We also believe that the Government should also consider further expanding the ESS to incorporate electric light vehicles. Light vehicles currently dominate transport sector emissions. We have not at this stage include this in our analysis.

This is shown diagrammatically as follows:



Whilst we acknowledge that the ECCF of 1.06 looks quite weird when the actual emission intensity is considerably lower and falling, we recommend not changing it at this time due to the significant oversupply of certificates. We instead recommend that the 1.06 remain for the next five years and that the government commit to changing it at a subsequent review.

The GCAF should be set in advance (at least for the subsequent 5 years). There is also a lack of transparency on how the GCCF is calculated, this should be clearly articulated to improve market confidence.

Other changes that would improve the operation of the ESS are as follows:

- IHEAB activities have been problematic raising competitive neutrality concerns where completely different approaches have been taken to determining baselines relative to other activities. Under IHEAB the approach to setting baselines for heat pump water heaters and refrigerated display cabinets in particular, has meant that these activities have received very generous levels of certificates. This has resulted in a collapse of the ESC price which has crowded out other activities, particularly residential activities that have had baselines determined by the underlying energy use at the site. This raises the issue of "technology" or "application" neutrality. Under IHEAB we believe that there should be quite strict evidentiary requirements to demonstrate that real energy savings have taken place and to demonstrate that there is an immediate and present need for the activity. Further there should be a requirement to demonstrate that energy savings are appropriate through reference to consumers energy usage on their Bills which should be required evidence;

- Streamlined Measurement and Verification – this provides a streamlined more predictable approach to relatively standard energy upgrades which is capped at 5000 ESCs or 50,000 PRCs per installation). Refer to attached ESIA discussion Paper (28 September 2021)
- Activity specific emissions factors to apply (to deal with the fact that different appliances use energy at different times of the day where emission intensity of generation is quite different). As an example under electrification activities where PV is installed then a lower emission factor is applied and where PV and batteries are in place the electricity emissions are deemed to be zero;
- Include electrification activities such as electric cooktops, gas water heating replacement, gas heating replacement, solar PV and batteries. For the ESS to properly support electrification however, activity specific gas certificate conversion factors need to be applied;
- Insulation to be reinstated; and
- We believe that the best way to deal with equity issues surrounding the implementation of activities in regional areas (which tend to be underrepresented relative to urban locations) is through amending the Regional Factor to also reflect that the equipment replacement cycle is typically a bit longer in regional areas

We believe that the PDRS is generally working effectively and we recommend that the Government consider the following changes:

- As Vintages for PDRS installations are no longer used we recommend changing the PDRS metric to 1 kW, rather than 0.1 kW at present; and
- Accelerate the introduction of measurement and verification methods include a more streamlined approach as we recommend for the ESS

Addressing Specific Questions

This response to the discussion paper broadly follows the series of questions that the Government is seeking to consult on.

Part 1 - Do objectives remain valid?

1. Do you support the proposed approach to determining whether scheme objectives remain valid? Please provide evidence to support your answer.

2. Are the ESS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.

We believe that the original objectives remain valid and the rationale for government intervention remains relevant.

Market barriers to energy efficiency and broader consumer energy resources (CER) remain, in particular, split incentives, access to capital and lack of information etc.

The ESS and PDRS remain important policy mechanisms in driving market transformation and driving new technology uptake and business model development. CER reduces the need for additional energy generation, reduces the need for Transmission and distribution infrastructure, reduces health costs and importantly reduces greenhouse emissions.

Whilst it may have been envisaged at the time the ESS was legislated, there is currently no national scheme for carbon pollution reduction and the prospects of one being developed in the future are negligible. The federally legislated Safeguard Mechanism covers the largest Scope 1 emitting sites in Australia (emitting more than 100,000 tonnes of emissions per annum). But for other sectors of the economy there is no carbon price to guide investment decisions.

In addition, the national renewable energy scheme, which had been supporting large- and small-scale renewable generation, is ending in 2030. For large scale renewables and storage, a capacity investment scheme is in place, however for small scale renewables including solar PV and solar hot water (including heat pump water heaters) there is no mechanism continuing post 2030.

As a result, the NSW ESS will be required to support the move to electrification and emissions reductions across the broader spectrum of energy use.

We believe that reducing greenhouse emission reduction should be the overriding objective given the government's commitment to reducing greenhouse emissions by 70% (from 2005 levels) by 2035 and to achieve net zero by 2050.

ESS to be expanded to deliver more significant emissions reductions

Important progress has been made in reducing emissions from electricity generation with 2022 emissions being 47% lower than 2005 levels. However, progress has not been as good for stationary emissions (e.g. gas consumption) with a reduction of only 16.9%. Importantly, transport emissions have in fact increased, being 8.7 percent higher than 2005 levels Figure 1. Over the 17 years to 2022 emissions have reduced by 34.75 million tonnes (just over 2 tonnes per annum). To achieve the 2035 target requires a reduction of 78.03 million tonnes, equivalent to 6 million tonnes per annum over 13 years.

Figure 1 – NSW Greenhouse Emissions

Greenhouse Emissions (Mt/a)	2005	2022	Reduction to 2022	% Change	2035 Target	Gap to Target
Agriculture	21.93	19.07	2.86	13.0%	6.58	12.49
Electricity Generation	58.08	43.04	15.05	25.9%	17.43	25.61
Fugitive Emissions	19.83	10.51	9.32	47.0%	5.95	4.56
Industrial Processes and Product Use	13.95	12.69	1.25	9.0%	4.18	8.51
Land Use, Land Use Change and Forestry	0.47	-4.12	4.59		0.14	-4.26
Stationary Energy (excluding Electricity Generation)	17.38	14.45	2.93	16.9%	5.21	9.23
Transport	23.92	26.00	-2.07	8.7%	7.18	18.82
Waste	5.55	4.74	0.81	14.7%	1.66	3.07
Total	**161.11**	**126.37**	**34.75**	**21.6%**	**48.33**	**78.03**

Whilst electricity emissions have been falling they are still not falling quickly enough due to well documented delays in renewables and transmission investments. Recent analysis by Green Energy Markets (GEM) included as Figure 2 indicates that NSW is well short of its Renewables target and this means that it will take longer to phase out coal fired generation. As a result it is much more difficult to reach its 2035 emissions reduction target.

The ESS is well placed to be able to be ramped up to deliver additional emissions reductions to help bridge this gap and we are advocating that the ESS be expanded in a manner that delivers at least a 5 million tonne pa reduction from electricity and stationary energy. In addition we recommend that the Government also consider further expanding the scheme to include an additional 5 mtpa reduction from light vehicle emission through accelerating the rollout of electric vehicles.

Figure 2 – Tracking to Renewables Targets (Source GEM)

Jurisdiction	2030 Target	Projected 2030 RE share	Gap to target (GWh)	Additional capacity required (MW)
National	82% Renewables	55%	76,196	27,445
VIC	65% Renewables	59%	3,252	1,171
SA	100% Renewables	68%	6,749	2,431
QLD	60% Renewables	60%	-231	0
NSW	Add 33.6TWh post 2019	44%	20,337	7,325
TAS	150% Renewables	76%	4,614	1,662
WA	Replace coal and cover demand growth	47%	6,478	2,333

Does the scheme design remain appropriate to secure scheme objectives?

3. Are the PDRS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.

4. Is the ESS design appropriate for securing its objectives? What evidence should the department consider to assess design appropriateness? Please provide evidence to support your answer.

5. Is the PDRS design appropriate for securing its objectives? What evidence should the department consider to assess design appropriateness? Please provide evidence to support your answer

The Scheme design broadly remains valid and appropriate in meeting its objectives.

While the ESS can be the workhorse of emission reduction and do most of the heavy lifting, it still needs to be complimented by other policy measures to ensure that the objectives are met on a least cost basis. We believe that some changes can be made through upgrading the scheme design such as:

- Increasing the target to deliver 5 mt/a of greenhouse emission redcutions by 2035;
- Including a "priority household" sub target to ensure access to the benefits of the scheme are available to all NSW residents (there are greater net benefits due to improved health benefits); we include more detailed analysis later in this paper;
- Broadening the scope of activities to include emission reductions from electrification activities including solar PV, batteries; and
- Expand the liability for the scheme to gas retailers and large gas consumers (not covered by the National Safeguard Mechanism).

Incorporating these changes will involve a number of changes to the scheme design which are covered separately under our response to Part 2.

Other complimentary measures to consider include:

- Using the Climate Change Fund to access emission reduction opportunities that are difficult to access due to barriers to uptake (e.g. Split incentive and regional skills);
- Mandatory disclosure of energy performance on sale or lease of residential and commercial buildings;
- Minimum energy performance standards for rental properties; and
- Recognition of network benefits of CER technologies, which to date have gone untapped due to the ineffective operation of the Demand Management Incentive Scheme.

We also believe that the concept of technology / activity neutrality needs to be introduced to ensure that abatement from all activities are determined consistently. We refer to this issue on more detail in the following section.

PART 2 – Reform Opportunities

Scheme Settings

6. What alternative or complementary objectives should the schemes focus on? Please provide evidence to support your recommendations, including reasons why the ESS and/or PDRS would be the best way to address the issue or opportunity you have identified.

(i) Reducing Greenhouse emissions should be the primary objective with energy equity and electrification as secondary objectives (refer to separate discussion on Priority Household Targets);
(ii) Technology and activity neutrality (refer to discussion below)

7. Are there opportunities to improve how scheme costs and benefits are shared? If so, please provide evidence of how any proposed changes would result in more equitable outcomes.

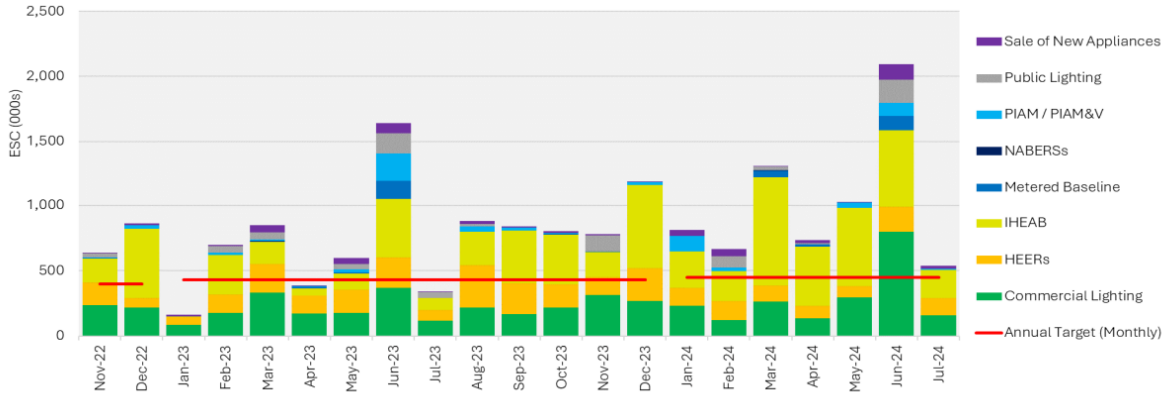
(I) Include gas retailers and major gas users as liable parties

8. What adjustments could the department make to scheme settings to improve performance against the legislated or proposed objectives? How would this provide a net benefit to NSW? Please provide evidence to support your answer, including any assumptions you have made.

Market Update and implications for 5 Year Review

(i) The market is significantly oversupplied with ESC creation over the last two years being significantly above target. IHEAB activities in particular have unexpectedly surged over this period

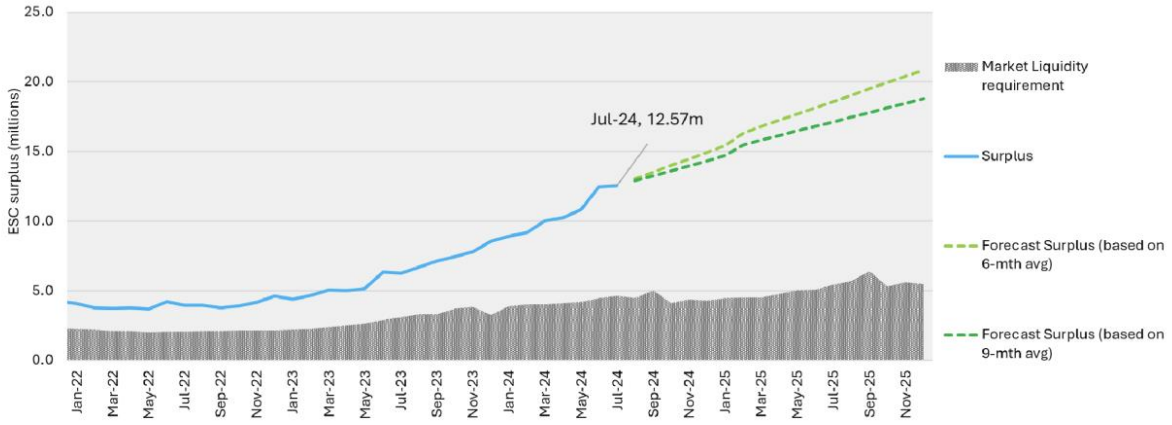
Figure 3 – Net ESC creation by activity, compared to Target



Source: Green Energy Markets

(ii) This has resulted in a massive oversupply of ESCs with a surplus of certificates amounting to 12.57 million (end July 2024) which is equivalent to nearly two and a half years of the target.

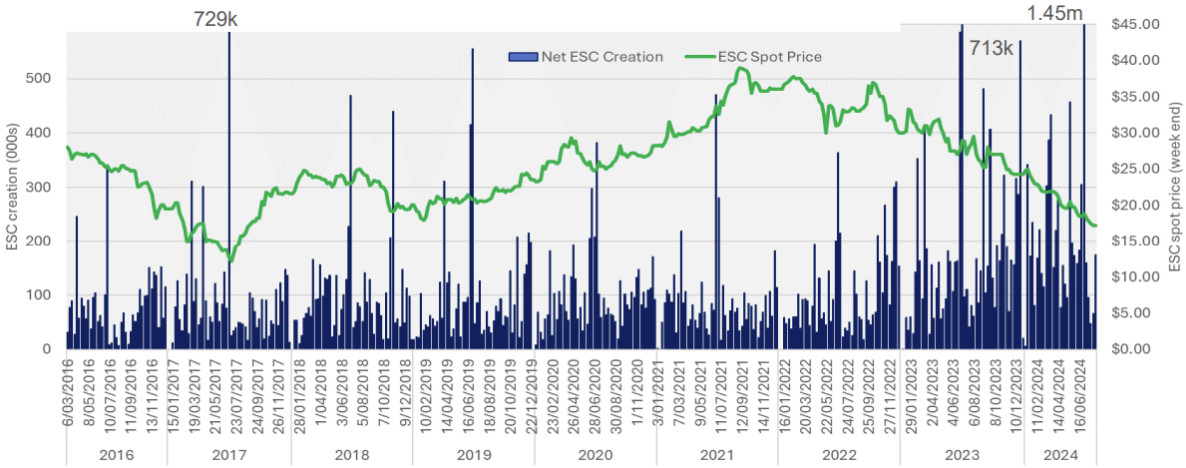
Figure 4 – ESC surplus



Source: Green Energy Markets

(iii) As a result of the growing oversupply of certificates the ESC price dropped to $17.20 at the end of July and continued to drop further reaching $14 on 26 August 2024. This is the lowest price since July 2017.

Figure 5 – Weekly ESC spot price and ESC creation



Source: Green Energy Markets

(iv) The unexpected level of creation for IHEAB activities over the last two and a half years has generally been the largest contributor to the oversupply

Figure 6 – IHEAB Activities by implementation year (as at 21 Aug 2024)

Activity Definition Description	2022	2023	2024 to Aug 21	Total
High efficiency air conditioner (install or replace)	72	2,643	1,048	3,763
Install a blowdown flash steam heat recovery system on a gas fired steam boiler		1,101		1,101
Install a new high efficiency liquid chilling package	41,078	3,457	791	45,326
Install a new high efficiency refrigerated cabinet	1,498,224	524,259	621,020	2,643,503
Install a new high efficiency refrigerated cabinet or replace an existing refrigerated display cabinet	183,194			183,194
Install a sensor based blowdown control on a gas fired steam boiler		1,068	163	1,231
Install an economiser on a gas fired steam boiler, hot water boiler or water heater	577	17,039	2,086	19,703
Install an oxygen trim system on a gas fired steam boiler, hot water boiler or water heater		1,983		1,983
Install one or more air source heat pump water heater systems		13,074	1,852	14,927
Replace a burner on a gas fired steam boiler, hot water boiler or water heater		687		687
Replace a gas fired hot water boiler or gas fired water heater with a new high efficiency gas fired hot water boiler or gas fired water heater	202			202
Replace a gas fired steam boiler with a new high efficiency gas fired steam boiler	675	2,170		2,846
Replace an existing refrigerated display cabinet	99,829	157,281	408,488	665,598
Replace one or more existing hot water boilers or water heaters with one or more air source heat pump water heater systems	24,453	3,286,776	1,268,869	4,580,098
Total	**1,848,305**	**4,011,541**	**2,304,317**	**8,164,162**

(v) The approach to setting baselines for IHEAB activities, particularly heat pump water heaters and refrigerated display cabinets has meant that these activities have received very generous levels of certificates. This has resulted in a collapse of the ESC price which has crowded out other activities,

particularly residential activities that have had baselines determined by the underlying energy use at the site. This raises the issue of "technology" or "application" neutrality. We discuss this issue in more detail later in this paper.

Scheme Delivery

9. How could the Department improve transparency around how it makes decisions and how it communicates changes to the schemes?

IHEAB activities have been especially problematic raising competitive neutrality concerns where completely different approaches have been taken to determining baselines relative to other activities.

(i) In setting energy savings for particular activities, it is imperative that the Government be mindful of potential for unintended consequences:

a. Where the activity does not require replacement, then quite strict evidentiary requirements (or conditions should be required) to demonstrate that real energy savings are taking place and to demonstrate that there is an immediate and present need for the activity;

b. Where the activity is free or potentially free (before co-payment) again quite strict evidentiary requirements to demonstrate that real energy savings have taken place and to demonstrate that there is an immediate and present need for the activity and demonstrate that the customer is consuming more electricity than is being claimed in energy savings;

c. Introduce concept of competitive neutrality to avoid surges in activities where the confidence in the level of energy savings is considerably lower than other activities . In the case of RDCs and commercial HPWH where the baseline abatement is not related to the amount hot water (or refrigeration) used by the site, but rather on the potential hot water or refrigeration that can be delivered by the system being installed. The impact of this has been to massively increase the level of certificates that have been generated;

d. For activities with 'uncapped' certificates, the baseline for the activity needs to be specifically related to the site energy use (on sectoral basis as used for commercial lighting space types). There should also be a requirement to demonstrate that energy savings are appropriate through reference to the energy consumers electricity usage on their Bills (this should be required evidence);
e. Remove the ambiguity between HEERs for small business and IHEAB, as these competing methodologies simultaneously offer ESCs under different activity definitions. For example, HWHP were able to be installed under the D17 methodology under the Home Energy Efficiency Retrofits (HEER) as well as F16 under the Installation of High Efficiency Appliances for Business (IHEAB) method. By not limiting participation under F16 to larger businesses, small sites were effectively over-abated compared to the more aligned HEERs D16 savings. For example, prior to the 19 June Rule Change, the energy savings generally awarded by these systems were 3.75MWh per annum for D17 compared to 15MWh per annum under the F16 method. Given the latest research from Canstar Blue (June 2023), the general NSW small business quarterly electricity spend is $1,086, or approximately 12MWh per annum after accounting for daily supply charges. As a result, the energy savings awarded under D17 fall into an expected 30%-33% of the total electricity bill, rather than the F16 method which is awarding 125% of the total bill consumption.

   As an example under IHEAB, the number of ESCs for typical HPWH models has been dramatically increasing over time:

   2022 – 3.6kW system – 210l tank giving 80 ESCs
   2023 - 3.6 kW system – 210l tank giving 128 ESCs
   2024 – 4.5kW system – 285l tank giving 180 ESCs

   The later example giving 180 ESCs is effectively assuming that 15 MWh of electricity is saved per annum from hot water use alone. This is equivalent to a site with consistent hot water use through the whole day. There would not be very many industry sectors that would meet this criteria.

f. Government needs to be prepared to move quickly where it becomes aware that unintended impacts are occurring

(ii) We also believe that it is problematic to rely on the GEMs register as a basis for qualifying products. A separate product register as implemented in

Victoria would be address some of concerns raised to date in particular regarding fridge cabinets/freezers.

Other changes that would improve the operation of the ESS include:

- Streamlined Measurement and Verification – this provides a streamlined more predictable approach to relatively standard energy upgrades which is capped at 5000 ESCs per installation) Refer to attached ESIA discussion Paper (28 September 2021)
- Activity specific emissions factors to apply (to deal with the fact that different appliance use energy at different times of the day where emission intensity of generation is quite different). Under electrification activities where PV is installed then a lower emission factor is applied and where PV and batteries are in place the electricity emissions are deemed to be zero
- Include electrification activities such as electric cooktops, gas water heating replacement, gas heating replacement, solar PV and batteries. For the ESS to properly support electrification however, activity specific gas certificate conversion factors need to be applied.
- Insulation to be reinstated

Equity considerations

There are three equity issues that should be considered:

- Priority Households (refer to APPENDIX 1)
- Renters more broadly
- Regional implementations

The first two are covered under Priority Household Target the third should be dealt with through changes to the Regional Network Factor.

Changing the Regional Factor to more accurately reflect abatement

We believe that the best way to deal with equity issues surrounding the implementation of activities in regional areas (which tend to be underrepresented relative to urban locations) is through amending the Regional Factor to reflect:

- Network losses (this is done at present); and
- The equipment replacement cycle is typically a bit longer in regional areas

Whilst there is very little public information on the average metro vs regional refurbishment cycles for equipment for anything except Commercial Lighting. The LMIE report findings as part of the 2017/18 ESS Rule Change did consider the issue. Based on Groups A through D (excluding E, public lighting), the average asset lifetime rate was 8.45 (Metro) or 10.425 (Regional), equating to a 23% difference. On the basis of this rationale, we recommend adopting a longer asset lifetime for regional methodologies, or simply include an uplift factor of 23% into the Reginal Network Factor.

Include Priority Household Target

Refer to APPENDIX 1 for a detailed discussion. We recommend a Priority Household Target equivalent to 40% of Liable Residential Electricity sales.

10. How could the Department improve the delivery of the schemes? Please provide examples of other jurisdictions and schemes where possible to support your recommendations.

11. How could the government improve the governance and administration of the schemes? Please provide examples to support your recommendations.

Currently Rules team separate from the policy team which could lead to potential misalignment and delays in addressing inappropriate runaway activities. We recommend that a single reporting line be introduced with the Rule team reporting through the Policy team.

Data and Evaluation

12. What additional scheme data should the department or IPART collect and for what purpose? How could the Department make better use of new and existing scheme data?

13. What additional reform opportunities should the Department consider for the ESS and/or PDRS? Please provide evidence to support your recommendations.

WE have argued for some time that the level of transparency and detail available through the register should be comparable to the RET and VEU. Whilst some positive streps have been undertaken with the implementation of TESSA there are still some important gaps. In particular we believe that data specific to each installation (as in RET) be made available. This enables the market to see what activities are being installed and may have sounded the alarm over RDCs and fridges/freezers much earlier than otherwise would have occurred

There should also be uncapped data download, this is currently limited to 20,000 lines

Attachment 1 – NSW Greenhouse Emissions by sector

(Million tonnes of Greenhouse Gas Emissions)

	2005	2022	Reduction
Agriculture	21.93	19.07	13.0%
Crop	1.31	1.94	-47.6%
Dairy	1.32	0.95	28.6%
Fertilisers	0.71	1.09	-54.0%
Grain Fed Beef	0.60	0.71	-18.5%
Grazing Beef	8.76	7.13	18.6%
Lime and Urea	0.42	0.75	-76.4%
Other Animals	0.22	0.26	-17.4%
Pigs	0.55	0.38	30.5%
Sheep	8.04	5.87	27.0%
Electricity Generation	58.08	43.04	25.9%
	58.08	43.04	25.9%
Fugitive Emissions	19.83	10.51	47.0%
Gas	0.68	0.48	28.9%
Oil	0.13	-	100.0%
Open Cut Mines	2.12	1.98	7.0%
Other Solid Fuel Mining	0.06	-	100.0%
Underground Coal Mines	16.84	8.05	52.2%
Industrial Processes and Product Use	13.95	12.69	9.0%
Data Not Available	13.95	12.69	9.0%
Land Use, Land Use Change and Forestry	0.47	- 4.12	970.9%
Data Not Available	0.47	- 4.12	970.9%
Stationary Energy (excluding Electricity Generation)	17.38	14.45	16.9%
	17.38	14.45	16.9%
Transport	23.92	26.00	-8.7%
Aviation (Domestic)	1.28	0.97	23.9%
Heavy Duty Vehicles	5.05	6.05	-19.9%
Light Vehicles	16.51	17.54	-6.2%
Navigation (Domestic)	0.51	0.55	-8.1%
Other	0.06	0.07	-24.9%
Railways	0.51	0.81	-57.0%
Waste	5.55	4.74	14.7%
Biological Treatment of Solid Waste	0.05	0.09	-93.3%
Incineration and Open Burning of Waste	0.00	0.01	-42.0%
Solid Waste	4.39	3.67	16.3%
Wastewater	1.11	0.97	13.1%
Grand Total	**161.11**	**126.37**	**21.6%**

Source: NSW Greenhouse Gas Emission Projections, 2022-2050

APPENDIX 1

Equity Issues - Priority Household Target for the NSW ESS

It is generally well understood that low income and vulnerable households have not been able to access the benefits of the ESS (and PDRS) largely due to well understood barriers including: (i) split incentives (where these households are renters), (ii) access to capital to cover what is typically a more expensive appliance and (iii) information barriers.

The case for intervention

Rental properties are considerably less energy efficient than owner occupied dwellings and as a result these customers will be paying considerably more for their energy.

The lack of energy-efficiency upgrades in rental homes exacerbates three major policy failures: reducing greenhouse emissions, social inequity and health and well-being.

State government (with Federal Government support) has sought to address some of these issues in social and public housing; as an example a $206 million package was announced for energy saving upgrades in social housing, aimed at 30,000 homes. This is equivalent to $6,866 per home, with NSW having approximately 125,000 social housing properties.

But private rental housing has been identified as amongst the poorest quality and performing housing and has yet to be targeted by the Government for much needed energy retrofits. This means that more than 30% of households face significant challenges to maintain affordable thermal comfort and are exposed to significant health and well-being impacts.

Houses built prior to 1991 are the least efficient and account for more than 50% of the housing stock, with an average star rating of 1.6.

Importantly there are significant health benefits in improving energy efficiency outcomes in these houses with the Victorian Healthy Homes Survey (refer to page [ ]) showing that the health benefits are 10 times the level of the energy savings.

Government Energy Rebates

The NSW Government spends more than $330 million each year providing energy relief to nearly one million low income and vulnerable households. There are 3.36 million households in NSW with an average household size of 2.57. This means that 30% of households received support, but around 1.3 million were eligible representing 39% of households. This assessment is based on data from NSW Energy Social Programs

Annual Report 2021-22 Financial Year, released October 2023, extracts from which are included in this APPENDIX).

In considering recipient data it is important to consider that Essential and Endeavour Energy having a broader regional footprint that Ausgrid.

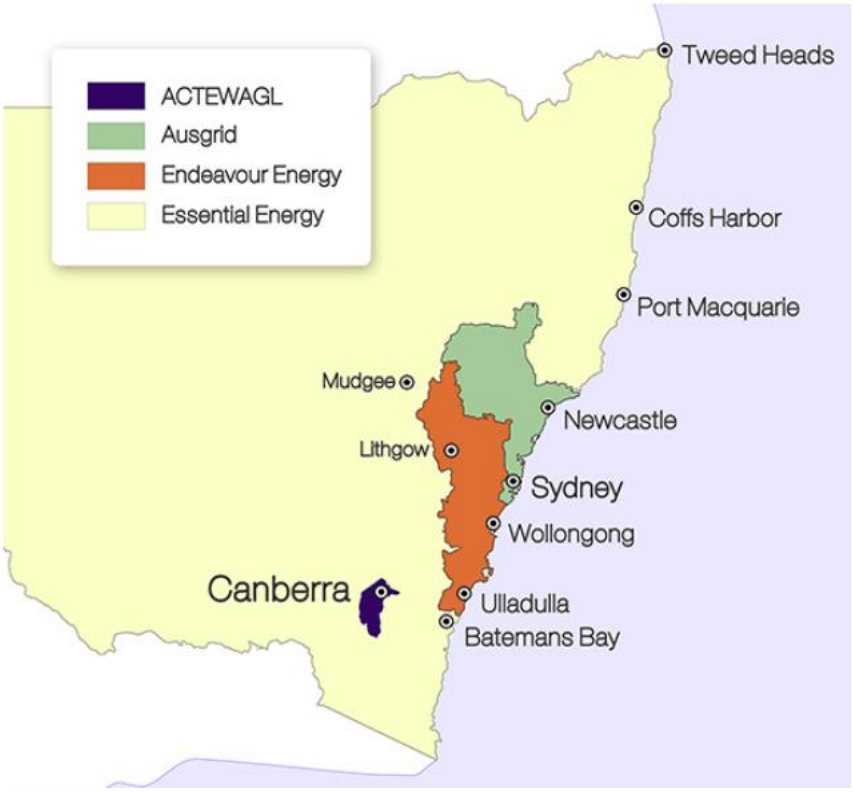


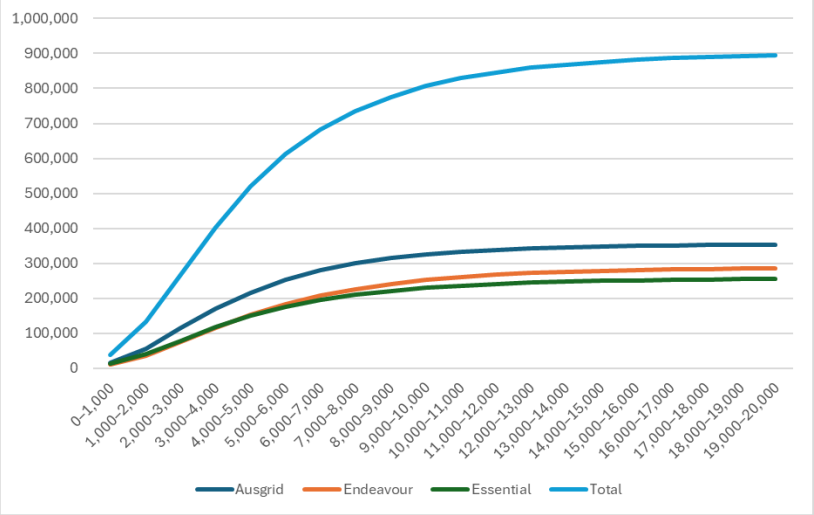
Table 6. Rebate and EAPA uptake in 2021–22 by electricity network

Electricity network	Number of ESP electricity customer accounts[21]	Number of residential customers[22]	ESP customer accounts relative to total residential customers (%)[21]
Ausgrid	364,900	1,580,300	23%
Endeavour Energy	299,500	950,700	32%
Essential Energy	281,600	833,000	34%
Total[23]	**945,500**	**3,364,000**	**28%**

As a result a Priority Household target will disproportionally benefit regional and rural households, a sector that already suffers disadvantage in access to the ESS.

Data on the distribution of the energy consumption of rebate recipients is also provided in the report. Whilst the average electricity consumption is 4,800 kWh per annum a significant proportion of customers had electricity consumption well above this level with 282,000 households consuming more than 6,000 kWh per annum and 88,000 customers consuming more than 10,000 kWh. Refer to Figure 1-1 for cumulative electricity distribution of recipients.

Figure 1-1 – Cumulative distribution of electricity use.



Household energy consumption is also a function of number of occupants and whilst we do not have access to this data for welfare energy support recipients the AER does publish data on household energy use that we can use.

The Frontier Economics report for the AER on benchmark energy use data (2021 Report) includes specific household data which shows the significant differences in energy consumption between the average. Those households that are doing well mask the fact that many are not doing that well on energy use. We expect that a significant proportion of these will be priority households.

Whilst we do not have specific data on the energy performance of rental and priority household customers in NSW, we do know that homes they live in are generally less efficient than owner occupied homes. We can therefore conclude that the priority household cohort is overrepresented in high energy consuming households.

Whilst there is a paucity of data available, Electricity Retailers have access to energy data and are well placed to be able to communicate to these customers. There is currently no requirement on retailers to assist their customers to reduce energy consumption.

Retailers are therefore in a unique position and are well placed to know which customers are priority households and which ones are consuming significantly more than the average and as a result can provide services and support to these.

How a Priority Target would work

South Australia and the ACT have implemented Priority Targets in their energy savings schemes which are direct obligation and not certificate based schemes. Therefore,

there is precedence and experience that can be drawn upon in the design of the requirement under the ESS. Key features would be as follows:

- Set an initial target of at least 40% of Liable party residential demand to come from priority households;
- Only Retailers that supply electricity or gas to residential customers will be required to meet the prescribed Priority Household Target (could be implemented by excluding those Retailers with less than say 2000 customers);
- Priority Households to be defined as those households that currently eligible for an energy concession under NSW Energy Social Programs;
- There will be another Field on ESC Batches to designate whether the ESCs are from a priority household or not (refer to example of Batch attached). The AP will be required to collect the relevant details which show that the Customer is eligible for an Energy rebate and this will be one of the factors that will be subject to review at audit stage;
- ESCs for priority households will likely sell at a premium to reflect the difficulty (and higher cost) of undertaking these upgrades;
- Penalty for not meeting this target should be 200% of the normal penalty. Retailers with Priority Household requirement to be provided with additional flexibility in meeting this target;
- This is likely to result in the stratification of the ESC price with Priority Household ESCs trading at a higher price. This is not unusual in Environmental Markets where particular attributes of the activity are valued higher. An example is the ACCU market where indigenous ACCUs (with co-benefits) sell at $45 compared to undifferentiated ACCUs of $35.
- An additional requirement is to ensure that Liable Retailers also undertake a certain number of Scorecard assessments (with ESCs being available for these - introduce methodology similar to Vic). The South Australian energy savings scheme initially had this requirement

Charts from Frontier Economics Report for the AER

Figure 31: New South Wales: seasonal gas consumption and benchmarks

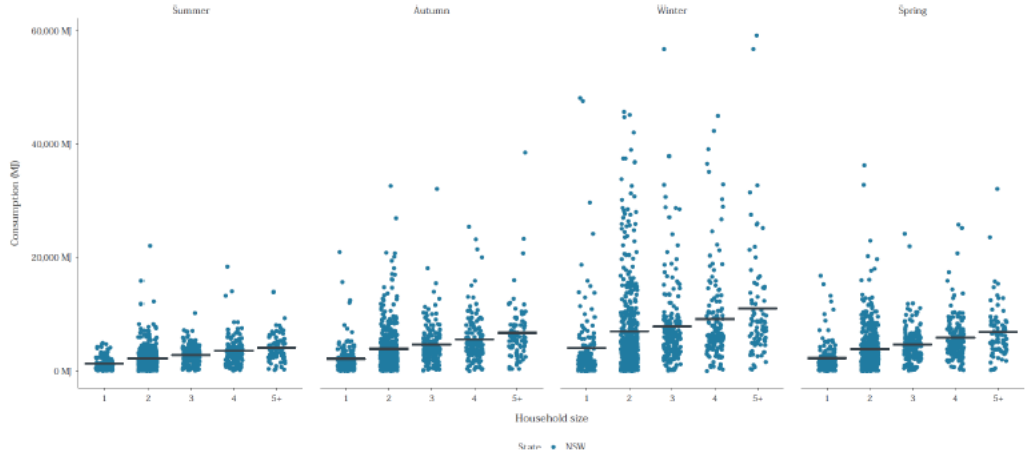


Figure 28: Climate Zone 6: seasonal consumption and benchmarks

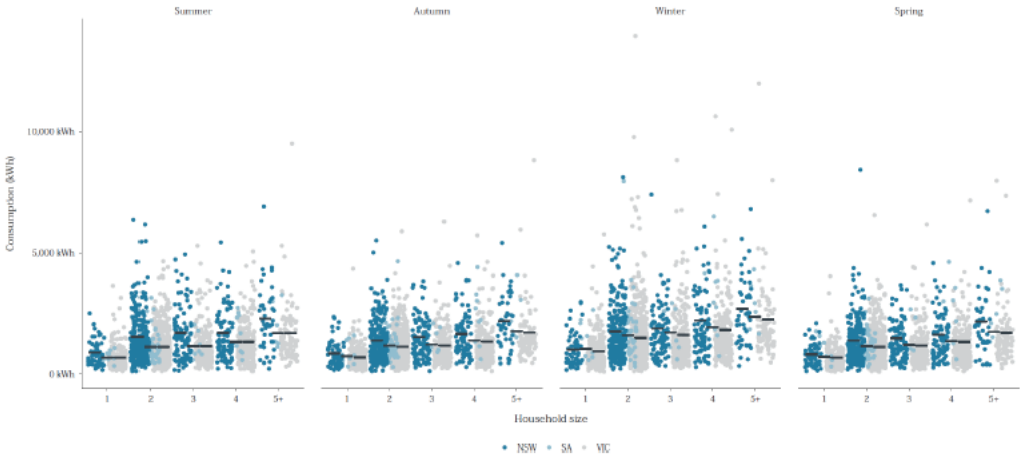
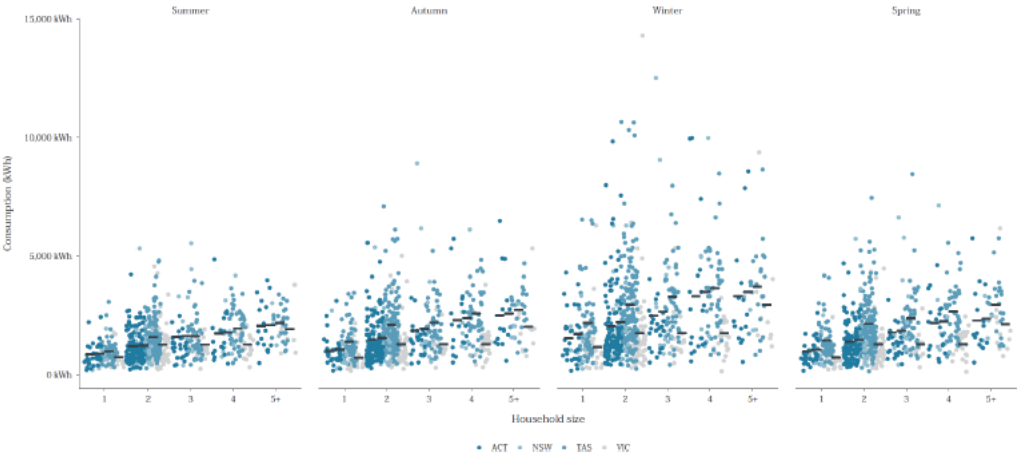
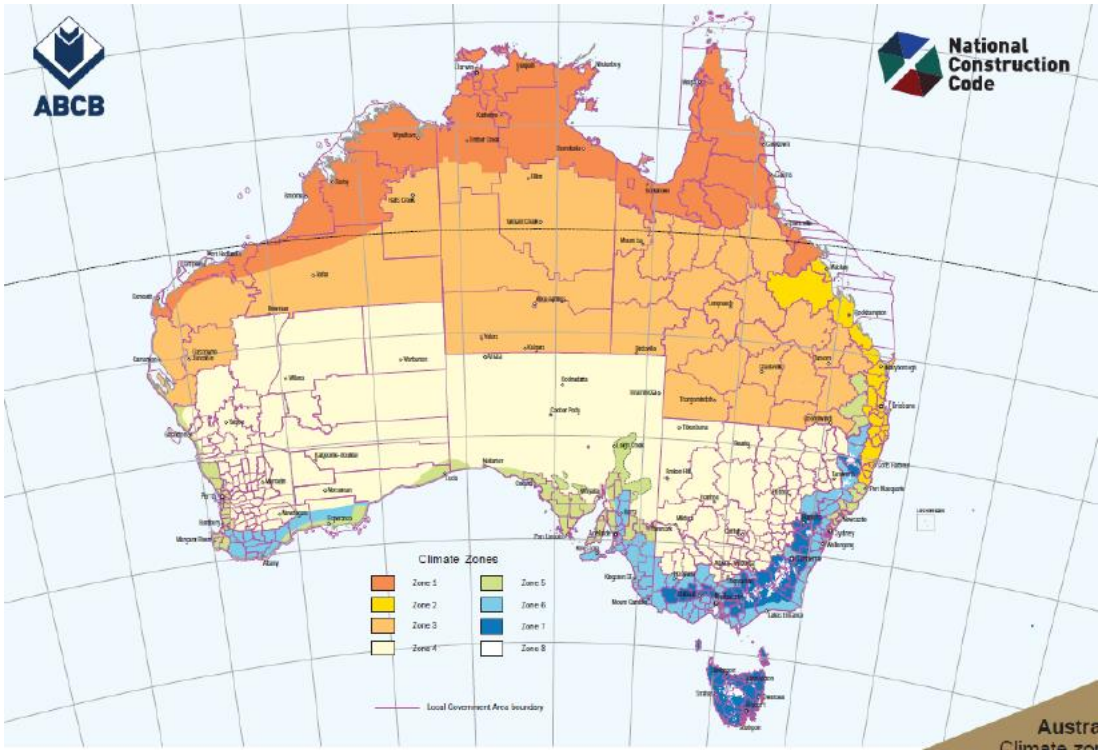


Figure 29: Climate Zone 7: seasonal consumption and benchmarks



Source: Frontier Economics


ABCB
National Construction Code
Climate Zones
Zone 1
Zone 2
Zone 3
Zone 4
Zone 5
Zone 6
Zone 7
Zone 8
Local Government Area boundary

The Victorian Healthy Homes Program Research findings

https://www.sustainability.vic.gov.au/research-data-and-insights/research/research-reports/the-victorian-healthy-homes-program-research-findings

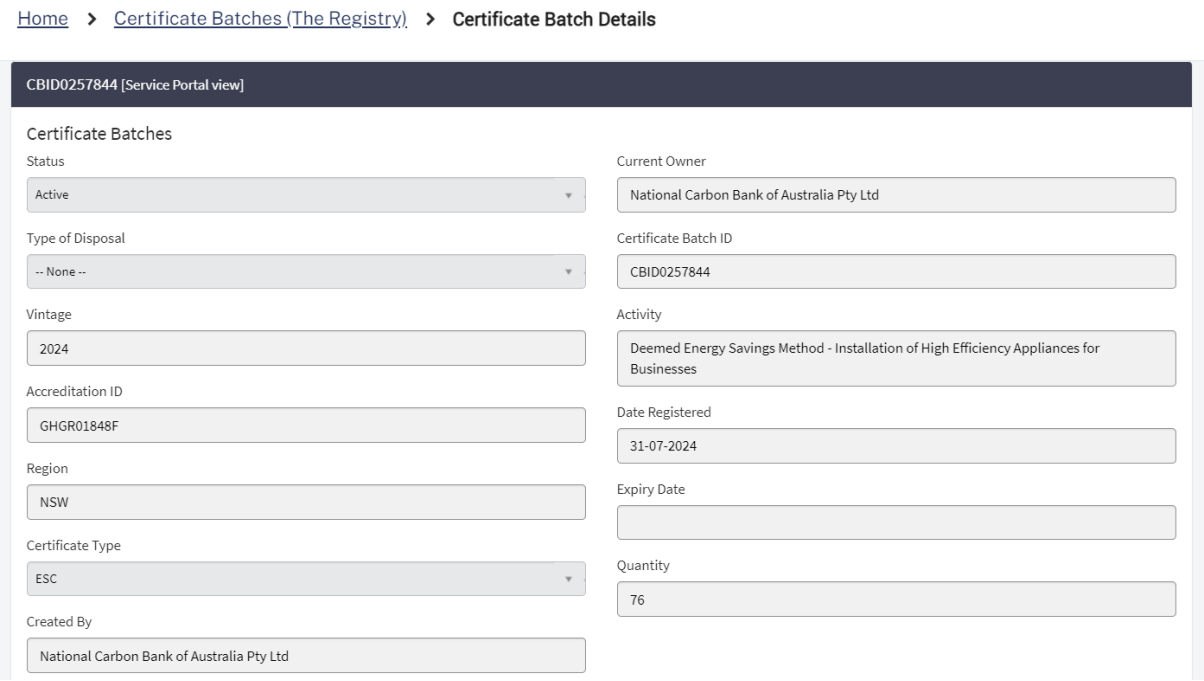
Abstract

The Victorian Healthy Homes Program was a randomised controlled trial designed to measure the impact of an energy efficiency and thermal comfort home upgrade on temperature, energy use, health and quality of life. Analysis indicated that a relatively minor upgrade (average $2,809) had wide-ranging benefits over the winter period.

Average indoor temperature was increased by 0.33 degrees Celsius, with increases particularly strong in the morning, when temperatures are lowest. Exposure to cold temperatures (less than 18 degrees Celsius) was reduced by 43 minutes per day. Subjective experience of warmth is important; it does not always match temperature measurements. Householders in the intervention group were more than twice as likely as controls to report that their home felt warmer over winter. These gains in thermal comfort were obtained despite a significant reduction in gas use in upgraded homes, and no change in electricity use. There was no evidence of a rebound effect, with intervention participants less likely than controls to use their main heater and less likely to resort to other options to stay warm. Householders in the intervention group reported less condensation over winter.

Importantly, the upgrade was associated with benefits in health, with reduced breathlessness and improved quality of life, particularly its mental health and social care aspects. Health benefits of the upgrade were reflected in cost savings, with $887 per person saved in the healthcare system over the winter period. Cost-benefit analysis indicated that the upgrade would be cost saving within 3 years – and would yield a net saving of $4,783 over 10 years – due to savings in both energy and health. Savings were heavily weighted towards healthcare: for every $1 saved in energy, more than $10 is saved in health.

Extract of an ESC Batch



Include separate Field in Record above that indicates whether it is a Priority Household or Not

Extract from SA REES Scheme

Energy efficiency activities

Greenhouse gas reduction activities are available for all South Australian households. Householders are be able to take up incentives offered by any obliged retailer for the installation of various pre-approved energy efficiency activities, such as the installation of Compact Fluorescent Lamps (CFLs), low-flow showerheads and ceiling insulation. The list of approved energy efficiency activities for REES Stage 2 is available in the REES Code.

The Minister must fix an overall annual greenhouse gas reduction target to be achieved by obliged retailers though the provision of energy efficiency activities to South Australian households. The annual greenhouse gas reduction targets (expressed in tonnes of carbon dioxide equivalent) for REES Stages 1 and 2 are:

Energy efficiency activities targets								
2009	2010	2011	2012	2013	2014	2015	2016	2017
155,000	235,000	255,000	255,000	335,000	410,000	1,200,000	1,700,000	2,300,000

The Minister has set a proportion (35%) of greenhouse gas reduction activities required to be undertaken in low-income households. The annual priority group greenhouse gas reduction targets (expressed in tonnes of carbon dioxide equivalent) for REES Stages 1 and 2 are:

Energy efficiency activities targets - priority group								
2009	2010	2011	2012	2013	2014	2015	2016	2017
54,250	82,250	89,250	89,250	117,250	143,500	230,769	326,923	442,308

The Commission must apportion the overall annual gas reduction targets for each obliged retailer in accordance with formulae provided in the Regulations.

Energy audits

Energy audits are available for low-income households, to help assess current energy use practices, compare them to energy efficient practices and identify practical ways to be more energy efficient at home. The annual energy audit targets (numbers of households) for REES Stages 1 and 2 are:

Energy audits								
2009	2010	2011	2012	2013	2014	2015	2016	2017
3,000	5,000	5,000	5,667	5,667	5,667	5,667	5,667	5,667

APPENDIX 2

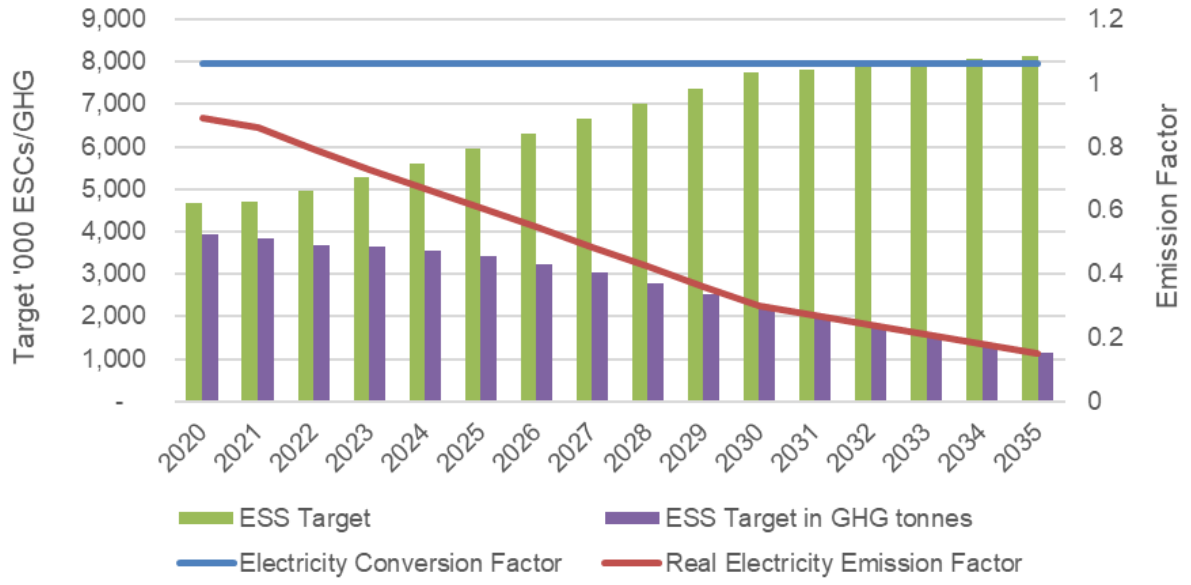
ESS Target and Emissions Factor

The ESS Metric is effectively MWh. Under Section 6 of the ESS Rule the Number of Certificates that can be produced from an activity is as follows:

- Electricity energy savings (in MWh) multiplied by Electricity Certificate Conversion factor (ECCF) of 1.06 *(this was the emission intensity of electricity back in 2009 when the ESS was introduced)*
- Gas energy saving (in MWh) multiplied by Gas Certificate Conversion Factor (GCCF) of 0.47 from 2021 *(this was 0.39 when gas was included at a time when the emission intensity of electricity was 0.86)*

The NSW ESS essentially fixed the target number of ESCs that need to be surrendered at an emission intensity of 1.06. This is even though the current emission intensity is 0.73 and is expected to continue reducing as the level of renewables increases. As an example, the Federal ALP government has a target to achieve 82% renewables in the NEM by 2030.

Figure 2-1 – ESS Target and Emissions Factor



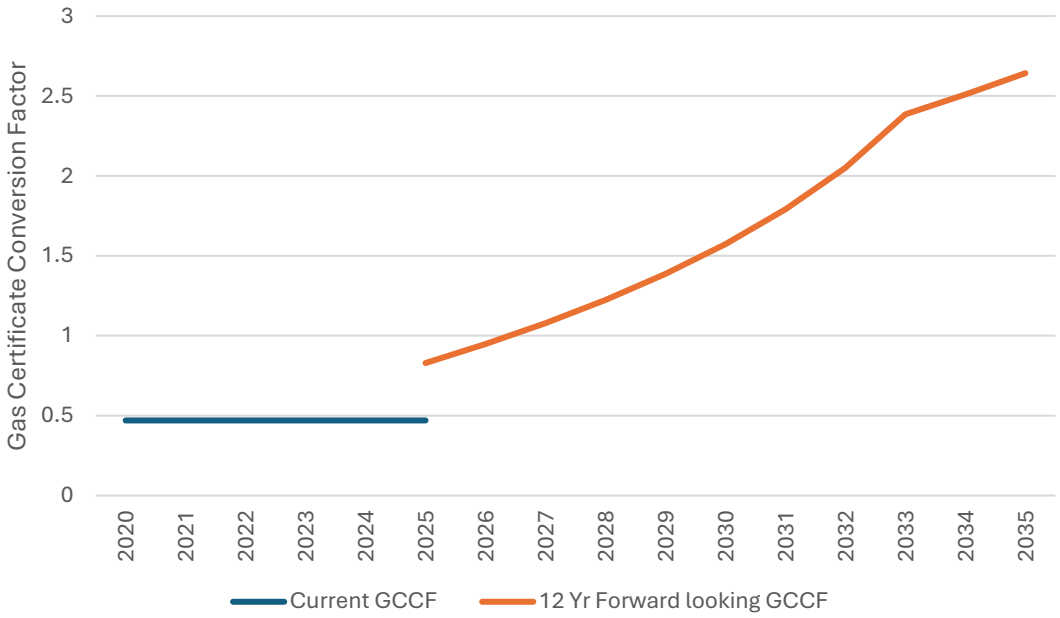
Note:

(i) We have assumed that the renewables share of electricity generation in 2030 is 70% which is considerably less than the Government target due to delays in large scale renewables and transmission investment (refer to GEM analysis in Figure 2). We then assume that renewables share of electricity generation continues to grow to achieve 85% market share by 2035 and 95% share by 2043.

(iii) We have used a 12 year forward emission factor to reflect the typical years deeming for most common activities (eg HPWH and AC)

To calibrate real emissions contribution (and avoid unintended consequences) the GCCF is expected to continue to increase as the emission intensity of electricity reduces. This can be shown graphically in Figure 2-2 below.

Figure 2.2 – Proposed Gas Certificate Conversion Factor



This leads to a number of challenges:

1. The Target as set and implemented will become less effective over time in actually reducing emissions at a time when emission reductions need to be accelerated (to meet 70% emission reductions by 2035). We recommend that the target (in MWh terms) be dramatically increased over time to drive serious emission reductions (refer to APPENDIX 3);
2. To drive gas use reduction and electrification in particular, the emissions relativity between gas and electricity emissions needs to be maintained to ensure integrity of the scheme. We recommend that the GCCF be set in advance for a rolling five year basis and should reflect the forward emission trajectory over a 12 year deeming period (refer to Figure 2-2); and
3. Activity specific emissions factors to apply to deal with the fact that different appliance use energy at different times of the day where emission intensity of generation is quite different) Under electrification activities where PV is installed then a lower emission factor is applied and where PV and batteries are in place the electricity emissions are deemed to be zero.

Recommendations:

- There is a lack of transparency on how the GCCF is calculated, this should be clearly articulated to improve market confidence;
- The GCAF should be set in advance (at least for the subsequent 5 years), Victoria does this for both the smoothed and actual emission factor (refer to

Figure 2-3 – Victorian Electricity Emissions Factor

Emissions factor (CO_2e/MWh)	Current	31 Jan 2023	31 Jan 2024	31 Jan 2025
Smoothed electricity emissions factors (EEF_s)	0.8142	0.6738	0.5334	0.393
Accurate electricity emissions factors (EEF_r)	0.516	0.473	0.433	0.393

APPENDIX 3

ESS Target to reflect climate ambition

We believe that the predominant objective in setting the level of ambition is to reduce greenhouse gas emissions as rapidly as possible. In this regard we have limited our focus to 2035 to meet the 70% emission reduction target for that year.

As a subset of this objective is the move to electrification and the requirement to include a broader range of activities that reduce fossil fuel use.

It is generally understood that most cost-effective emission reductions come from the following hierarchy which broadly reflects the emission intensity and cost of fuels. This also reflects the NSW Government success in reducing emissions to date.

(i) Coal – is highest emissions and lowest cost fuel
(ii) Gas – is high emissions with moderately priced fuel
(iii) Transport fuels – high emissions and highly priced fuels

Electricity generation emissions have reduced considerably to date with renewables (including rooftop solar) displacing coal fired generation. Reduction in gas use has occurred but not at the rate required to meet the Government's target. And transport emissions have increased – not decreased.

From the latest Greenhouse data published by the NSW Government (Greenhouse Portal) to achieve 70% emission reductions from 2022 levels requires annual emission reductions of 78 Mt/a by 2035. (refer to Figure 1)

In particular:

Electricity generation – reduce by 25.6 mt/a

Other Stationary Energy – reduce by 9.2 mt/a

Transport Fuels – reduce by 18.8mt/a (with light vehicles representing 12.6mt/a)

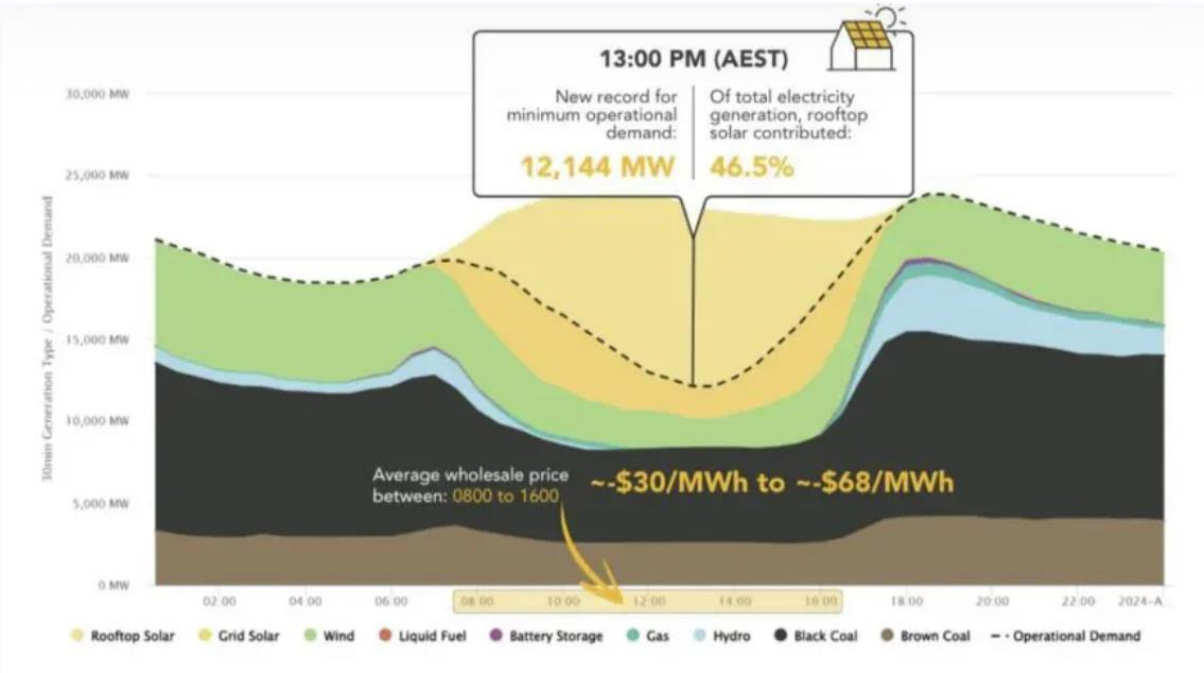
If we focus on the specific emission sources that the ESS could effectively address then we need to consider:

- Electricity emissions including PV only and with battery storage as well electricity saving activities currently included in ESS; and
- Gas emissions in residential sector (predominantly gas hot water replacement and gas heating replacement)

- Gas emissions in the commercial and small industrial sector which is predominantly for heating and hot water
- Transport fuel emissions in the light vehicle sector that could be addressed by electric vehicles

Electrification features heavily in the above and is becoming increasingly important given the continued rollout of large scale renewables that are increasingly being constrained during the middle of the day (refer to recent experience in the NEM when a record minimum demand was reached with large levels of constraints for large scale solar and wind and sustained negative prices). https://reneweconomy.com.au/rooftop-pv-sends-grid-demand-to-new-winter-low-as-big-wind-and-solar-hit-by-record-curtailment/

Figure 3-1 – Renewables constrained during middle of the day



Our proposal is for the ESS to contribute to emission reductions of at least 5 million tonnes by 2035 from the electricity and gas sectors. We structure this in the following increments:

1. Accelerate to 13% of electricity sales under current target approach to account for some of the oversupply that has occurred to date;
2. Include gas retailers and large gas users (excluding Safeguard entities) as liable parties increasing to 13% of liable gas sales by 2030;

3. Include Priority Household Target of 40% of liable Residential Electricity Sales; and
4. Include an electrification component to support solar PV and batteries to achieve 5 million tonnes of emission savings

We are proposing that the ECCF remain at 1.06 for the next five years and that Target be increased to deliver at least 5 million tonnes of greenhouse emission savings per annum (refer to Figures 3-2 and 3-3). We recommend that the Government delay considering changes to the ECCF until the next review.

Whilst we have not modelled it as part of this response, we believe that the ESS Target should be further augmented to cover the electrification of light vehicles as a way to make further inroads into the growing emissions from transport.

Figure 3-2 – Components of an ESS Target

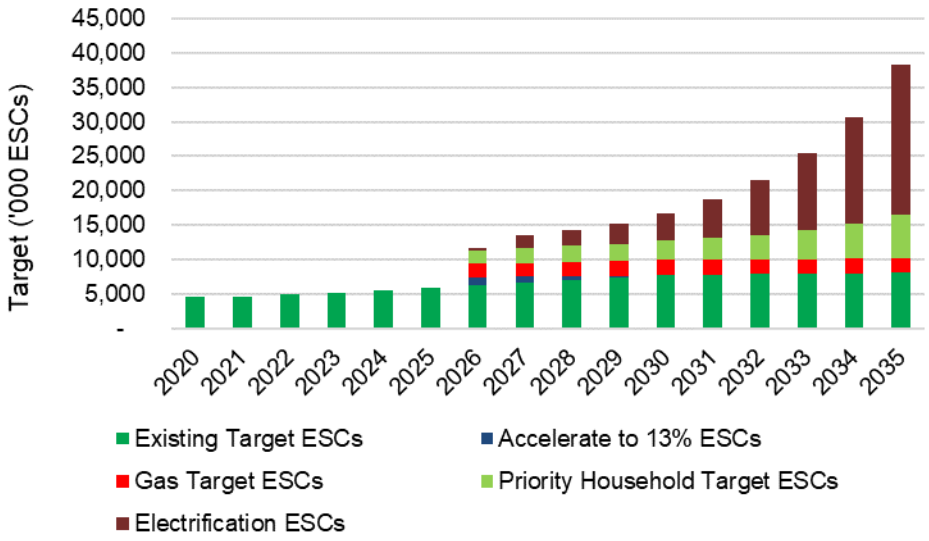
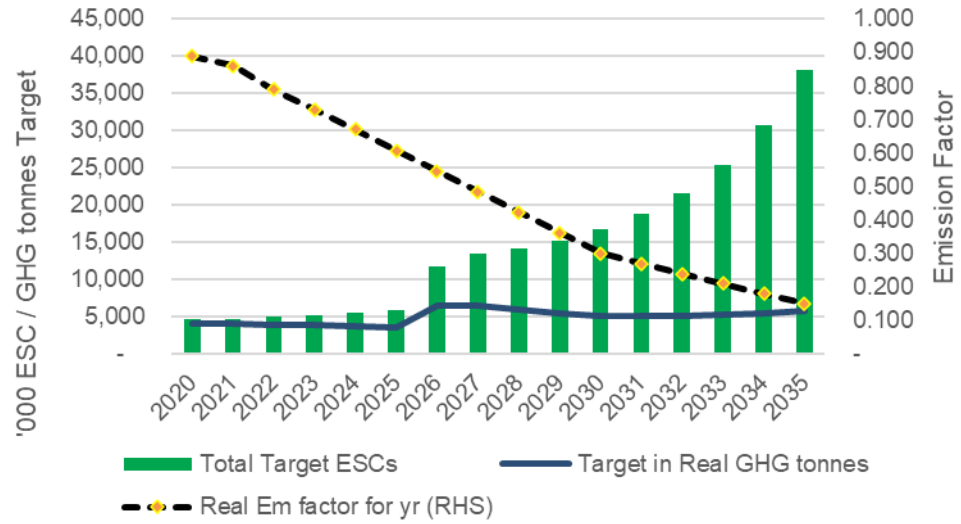


Figure 3-3 – Emissions reductions from an expanded ESS



IPART Energy Sustainability Schemes

Our reference: D24/21034

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11 September 2024

Department of Climate Change, Energy, the Environment and Water

energysecurity@environment.nsw.gov.au

via email

Submission to the *Energy Savings Scheme and Peak Demand Reduction Scheme statutory reviews 2025*

As the Scheme Administrator and Scheme Regulator for the Energy Security Safeguard (Safeguard), IPART welcomes the opportunity to provide input into the statutory reviews of the Energy Savings Scheme (ESS) and the Peak Demand Reduction Scheme (PDRS). We consider this review is timely given the rapidly changing nature of the energy market and the significant expansions to the ESS and PDRS over the last few years.

Overall IPART believes the schemes remain fit for purpose

IPART notes that the schemes have grown significantly since the last statutory review of the ESS in 2020, delivering 325,412 implementations across the state in 2022 alone. These implementations have resulted in significant energy savings, which improve the security and sustainability of the electricity grid and contribute to the state's goal of net-zero by delivering reductions of 3.22 million tonnes of CO2-equivalent greenhouse gas emissions.

Given this success, IPART believes the schemes should remain a central plank of the NSW Government's energy transition strategy.

IPART actively regulates and coordinates with co-regulators

IPART's functions in the schemes relate to the regulation of businesses that either create certificates by delivering incentivised activities or have liabilities that must be discharged by the surrender of certificates. We also maintain an Audit Services Panel to assist in ensuring ongoing compliance with Safeguard requirements.

IPART uses a risk-based regulatory approach to our administration and compliance activities, with a focus on maintaining the integrity of the schemes and ensuring scheme outcomes are achieved. We deliver intelligence-led, evidence- and risk-based regulation of the Safeguard in a way that fosters responsible and sustainable industries and meets community expectations.

This includes regular engagement with, and outreach to, our regulated entities to educate them about the Safeguard and their obligations. Since the last statutory review of the ESS, we have worked steadily to improve our stakeholder engagement approach, make it easier to engage with us and support compliant and responsible behaviour.

We publish annual Compliance Priorities which set out where IPART will focus its compliance resources for the year. Being transparent about our Compliance Priorities can assist businesses to understand where compliance attention will be focussed and to take steps to address identified risks.

We work closely with other NSW regulators such as the NSW Building Commission to target inspection activity and NSW Fair Trading to deliver better outcomes for consumers. We also collaborate with regulators of similar schemes in other jurisdictions to share our learnings and resources to maximise the benefit of our combined experience and expertise.

During 2022 we launched a new online platform to streamline and consolidate processes, reduce administrative burden and improve user experience for Safeguard participants.

IPART is committed to improving the regulation and operation of the schemes to support positive sustainability outcomes for the people of NSW.

More focus is required on the changing nature of the electricity market in the proposed approach

The approach proposed in the discussion paper is focused on whether the schemes are meeting the objectives and on considering whether these objectives are still valid.

While the Tribunal considers the objectives remain valid, IPART also notes that continued achievement of the objectives would benefit from consideration of the significant changes to the broader electricity market that have occurred since the last review. For example, the shift away from coal-powered generation and the growth of small-scale energy technologies have prompted the development of energy market rules away from a linear flow from generator to consumer, towards a two-way electricity market. Households and businesses are increasingly taking up consumer energy resources to become 'prosumers' (both consumers and producers), and in doing so are engaging with the electricity market through more avenues within the energy market rules, and by using an increasing range of technologies available to them.

The review provides a good opportunity to consider the impact of these changes in the electricity market on the operation of the ESS and PDRS and whether the legislative framework supporting the schemes remains fit for purpose.

A focus on consumer protection and safety should be included as Safeguard objectives

IPART also suggests the review considers how priorities around consumer protections and safety could be encompassed within the Safeguard, either as sub-objectives or through changes to scheme design.

The schemes have significantly expanded recently into new types of activities that involve the installation of new types of technologies such as heat pumps and batteries. These types of activities can present a higher level of safety risk when products are not properly installed by qualified professionals or consistent with relevant safety standards and IPART has received representations from stakeholders about strengthening consumer protection through regulation. While we have taken action within our authority, there may be other reforms that could be considered in this review.

An opportunity to develop a more targeted scheme design

As market-based certificate schemes, the existing ESS and PDRS may not deliver sufficient access for regional populations, disadvantaged households and tenants. Under current scheme design, access to the scheme is limited to those areas and markets that providers choose to operate in. This means that incentivised activities are not always accessible throughout NSW or consistently available to those who need them the most.

IPART receives feedback regularly from householders in regional areas who are unable to find a provider or installer that operates in their area. IPART supports exploring ways of improving equity of access to the benefits of the ESS and PDRS.

We look forward to working with the Department on the statutory review

IPART welcomes the consideration of reform opportunities for the scheme, including a review of the administration and regulation of the ESS and PDRS. We value the collaborative working relationship we have with the Department and look forward to further engagement on the statutory review and any proposed reforms.

This submission may be made public.

IPART's contact officer for this matter is Kristin Morris, Director Regulation and Compliance, contactable at .

Yours sincerely

11/09/2024

X

Andrew Nicholls PSM
Chief Executive Officer
Signed by: andrew.nicholls@ipart.nsw.gov.au

Justice and Equity Centre

ESS and PDRS statutory reviews 2025

9 September, 2023

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About the Justice and Equity Centre

The Justice and Equity Centre is a leading, independent law and policy centre. Established in 1982 as the Public Interest Advocacy Centre (PIAC), we work with people and communities who are marginalised and facing disadvantage.

The Centre tackles injustice and inequality through:

- legal advice and representation, specialising in test cases and strategic casework;
- research, analysis and policy development; and
- advocacy for systems change to deliver social justice.

Energy and Water Justice

Our Energy and Water Justice work improves regulation and policy so all people can access the sustainable, dependable and affordable energy and water they need. We ensure consumer protections improve equity and limit disadvantage and support communities to play a meaningful role in decision-making. We help to accelerate a transition away from fossil fuels that also improves outcomes for people. We work collaboratively with community and consumer groups across the country, and our work receives input from a community-based reference group whose members include:

- Affiliated Residential Park Residents Association NSW;
- Anglicare;
- Combined Pensioners and Superannuants Association of NSW;
- Energy and Water Ombudsman NSW;
- Ethnic Communities Council NSW;
- Financial Counsellors Association of NSW;
- NSW Council of Social Service;
- Physical Disability Council of NSW;
- St Vincent de Paul Society of NSW;
- Salvation Army;
- Tenants Union NSW; and
- The Sydney Alliance.

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The Justice and Equity Centre office is located on the land of the Gadigal of the Eora Nation.

Contents

1. Summary and introduction

The Justice and Equity Centre (JEC – formerly PIAC) welcome this opportunity to respond to the Department of Climate Change Energy, the Environment and Water's (DCCEEW) Discussion Paper: Energy Savings Scheme and Peak Demand Reduction Schemes statutory reviews 2025 (the Review).

The JEC support the broad approach being taken to this review, in considering the Energy Savings Scheme (ESS) and Peak Demand Reduction Scheme (PDRS) concurrently, and in expanding the scope beyond what is statutorily required. We encourage the Department to be ambitious, and ensure this Review is as comprehensive as possible.

The timing of this review is fortuitous, aligning with the ongoing development process for the NSW Consumer Energy Strategy, and being able to draw on the recommendations of the National Energy Performance Strategy and the National Consumer Energy Resources Roadmap. We recommend the Review closely consider these processes and seek to align with their objectives and principles and draw on their recommendations to the greatest degree possible. Reform decisions should also be made in light of expected future requirements, to ensure the updated schemes are compatible with predicted Government priorities and requirements, as well as those existing.

The JEC has engaged deeply with these and other relevant processes and highlights our submissions for the Departments' consideration as part of this review. In particularly we note:

- JEC submission to DCCEEW process developing the NSW Consumer Energy Strategy https://jec.org.au/wp-content/uploads/2024/03/24-03-01-Submission-to-NSW-Consumer-Energy-Strategy-for-households-consultation.pdf

- JEC submission to the 2020 statutory review of the ESS https://jec.org.au/wp-content/uploads/2020/05/20.05.13-PIAC-submission-to-the-Draft-NSW-Energy-Savings-Scheme-Review-Report-FINAL.pdf

- JEC submission to the November 2023 consultation reviewing aspects of the PDRS https://jec.org.au/wp-content/uploads/2023/11/23-11-20-Sub-to-OECC-PDRS.pdf

Assessing the ESS and PDRS concurrently enables the crucial opportunity to align their objectives and principles and ensure they are optimally coordinated with each other and the range of other programs and policies impacting climate, energy, industry, building and social policy outcomes in NSW. This opportunity must not be squandered.

It is increasingly apparent that the significant investments required to enable the energy system transition will have a material impact on energy costs to consumers. The ESS and PDRS are crucial tools in mitigating these impacts, improving equity and promoting the affordability and sustainability of energy services in NSW.

2. Objectives and principles

The JEC supports a comprehensive update of the objectives of the ESS and PDRS to ensure they make an optimum contribution to the transition to a more equitable, efficient and affordable zero-emissions energy system. We also recommends adding a suite of robust principles to both schemes in order to ensure optimum coordination, and alignment with (and contribution to) other NSW Government policies and priorities. While objectives frame the intent and purpose of the schemes and should give an indication of the range of outcomes they should deliver, principles are required in order to provide direction as to how design elements should be structured in order to optimise the delivery of all intended outcomes.

Objectives

The existing primary objectives of both the ESS and PDRS demonstrate a number of flaws which should be addressed as part of this review. For both schemes the focus is on 'method' and process rather than outcome, aiming to create 'a financial incentive to reduce consumption/peak demand…'. It is possible for the schemes to achieve these objective (ie. to successfully create a financial incentive) without most effectively achieving the end purpose for that incentive. The JEC recommend review of the objectives focus on the end outcome intended from the schemes with this outcome linked to overarching purpose, for instance:

'Reduced energy consumption and reduced peak electricity demand supporting efficient, affordable, reliable, low/zero emissions energy services for NSW.'

This example objective highlights the potential for both schemes to be coordinated and aligned through the adoption of a single primary objective focussed on the intended outcomes the schemes should support and promote. We contend it is crucial for the overarching purpose of reduced energy consumption/peak demand to be explicitly included in the objective to effectively guide optimal scheme design and delivery.

We recommend this review consider unifying any other objectives for both schemes, noting that there are many aspects of both schemes which could contribute to the effectiveness of the other if well-coordinated at delivery. For instance, expansion of the peak demand reduction aspect of scheme objectives to the ESS would ensure that appliances provided through the ESS would be required to have standards and operational capability to enable the flexibility and control required to reduce peak demand.

Any other objectives for both schemes should, to the greatest degree possible, be expressed as shared objectives to optimise alignment and the contribution both schemes make to the objective of more efficient, affordable, reliable, zero-emissions energy services in NSW. We recommend the Review consider adding the following additional objectives which expand on aspects of the primary objective, and apply them to both schemes:

- Support the electrification in NSW, with a priority for the electrification of NSW households.

- Contribute to improved NSW household health and wellbeing through improved energy performance[1].

- Accelerate the energy transition and promote emissions reduction in line with Government 2030 and 20235 commitments and what is required to maintain temperature increases of less than 2C.

- Promote optimal efficiency and flexibility of energy usage in NSW, with priority for the efficiency and flexibility of electricity usage of NSW households.

- Promote improved equity in energy performance and energy service outcomes for NSW households.

- Support more affordable energy services in NSW through optimised efficiency and flexibility.

Principles

Where objectives are clear statements of the end purpose of the schemes, and explicitly outline the outcomes the schemes should contribute to, principles are required to provide robust guidance on how that purpose is to be fulfilled, and how those outcomes should be delivered. The JEC recommend this Review develop a set of robust principles to guide further assessment and of the schemes and a comprehensive review of their purpose, structure and delivery.

- Schemes should align with and contribute to NSW Government priorities in climate and environment, energy, building and infrastructure, industry and social policy and programs – in particular, the Consumer Energy Roadmap.

- Scheme activities should prioritise impact on significant, rapid, long-term emissions reduction, through improved energy efficiency, reduced energy usage and reduced energy peak demand.

- Standards of service and product quality should be best practice and promote consistent good outcomes through quality and interoperability, supported by robust compliance and enforcement.

- Outcomes for NSW households and communities experiencing disadvantage or vulnerability should be prioritised, including energy rebate recipients, EAPA recipients, households in energy hardship, remote and regional community residents, low-income households and social housing households

- Schemes should promote equity and be accessible by minimising barriers (including financial and geographical) to participation.

- Schemes should be available throughout NSW and be able to support activities in regions where impact best promotes the objectives.

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[1] Where energy performance refers to the thermal performance of the building shell, the energy efficiency of fixtures and appliances, and the flexibility of fixtures and appliances.

- Schemes should be consistent or compatible with other jurisdictions where possible (and where this does not involve compromise on outcomes in NSW) to maximise the opportunity for efficient activity development.

- Scheme delivery should align activities with other NSW government support programs and policies – such as EAPA, energy rebates, No Interest Loans Schemes, Social Housing Energy Upgrades, and the introduction of mandatory minimum energy efficiency standards in rental properties.

- Household interventions should be intended to improve household health and wellbeing, through improved energy efficiency and affordability.

- Impact of interventions should be material, ongoing and monitorable.

- Delivery architecture, standards, data collection, and scheme registration should support the development of a coordinated delivery platform for energy efficiency upgrades and electrification throughout NSW.

- Scheme costs should be recovered from all NSW energy users benefitting from the more efficient, lower emissions, lower cost energy they enable.

3. Scheme design and delivery

The JEC support a comprehensive reform of the scheme architecture, design and delivery for the ESS and PDRS, informed by updated objectives and robust principles as outlined.

We recommend this process consider broad reforms to both schemes, aimed at enhancing their impact, improving the equity of their delivery, focussing them on the long-term objective of electrification and upgraded energy efficiency, and aligning them with current government programs. The scope of reforms should:

- Strengthen the focus of the schemes on enabling the energy system transition and contributing to accelerated and long-lasting emissions reduction. The basis of the scheme objectives and calculations should remain reduction of energy usage/peak demand, with this being the most accurate, consistent and durable foundation for the schemes, while allowing a dynamic calculation of the emissions reduction contributions made by the schemes.

- Reforming the activities covered by the schemes, expanding them to focus on promoting and enabling electrification and improved energy efficiency. This should include assessing opportunities for ‘bundled’ activities to be encouraged. Activity reforms should include:

    - Adding household gas disconnection, EV charging, insulation improvements for dwellings below 2 stars, gas heating conversion, meter board upgrades associated with electrification, conversion of shared gas hot water, conversion from gas to remote controllable electric resistance hot water (in circumstances where heat pumps are not

feasible), conversion of cooktops (in conjunction with gas disconnection)

    - Removing residential lighting upgrades (unless part bundled with other activities),

- Removing any exemptions from scheme liability to improve scheme equity. All energy users in NSW benefit from more efficient, lower cost and lower emissions energy services, and if costs are recovered from energy bills all users should contribute to the costs of the scheme.

- Improving scheme equity and impact through reforms to target (or restrict) household activities to high-priority cohorts, building types and locations, including:

    - Rebate recipients with gas connections, gas hot water heaters, gas heating, or building performance below 2 stars.
    - Multi-unit apartment buildings with gas connections, shared gas hot water, or gas heating.
    - Social housing.
    - First nations community housing.
    - Rental properties of less than 2 stars (identified through implementation of energy efficiency disclosure at point of sale and lease)
    - Locations with identified electricity network constraint, or areas of identified excess local solar generation capacity, where reduced/shifted or increased load would be beneficial.

- Improving scheme equity by removing co-payment requirement for household activities. Co-payments should be removed altogether in conjunction with reforms to target all household activities in promotion of an 'equity' objective. In any case, activities targeted to cohorts on an equity basis should not be subject to co-payments.

- Introducing consumer protection regulations to schemes, including:
    - Banning door-to-door sales associated with residential activities
    - Banning other 'high-pressure' sales practices associated with residential activities
    - Ensuring robust and transparent 'registration' processes for residential activity providers, with ongoing monitoring of activity delivery.
    - Introducing robust and consistent 'impact assessment' criteria for household activities, capable of determining where activities are relevant and beneficial to consumers/scheme objectives.
    - Ensuring oversight from independent dispute resolution, potentially through the NSW Energy and Water Ombudsman.

- Implementing robust, best-practice standards for products and services provided through activities, including improvements to:
    - Ensure only high-quality products are able to be provided through activities supported by the scheme
    - Ensuring products provided through schemes are demand response enabled and compatible
    - Ensure products provided through the schemes are openly interoperable to optimise flexibility and capability to deliver ongoing benefit

    - Ensure activity providers employ qualified installers and technicians.
    - Ensure installations associated with activities are undertaken according to all required standards of safety and quality.
    - Ensure robust frameworks for monitoring of activity delivery and access to independent dispute resolution for scheme activities for households.

- Schemes should be integrated with other relevant NSW Government policies and programs supporting electrification, energy efficiency, emissions reduction, and energy affordability and social equity, through measures including:
    - Co-ordinating with energy rebate programs to ensure rebate recipients (particularly recipients of the Low-Income Household Energy Rebate) are prioritised for household activities supported through the scheme, including electrification, heating and hot water conversion and insulation upgrades (for properties below 2 stars)
    - Co-ordinating with energy rebate programs to target gas rebate recipients with electrification, and heating and hot water conversion activities.
    - Co-ordinating with EAPA and debt-relief programs to target identified EAPA recipients with electrification, heating and hot water, and insulation upgrades (for properties below 2 stars)
    - Co-ordination with rebate-swap-for solar programs to target recipients with electrification, heating and hot-water conversion, insulation upgrades (for properties below 2 stars) and battery subsidy (with demand response participation).
    - Co-ordination with the NSW Government policy program to address issues in embedded networks, with activities to support electrification of shared hot water systems, heating and hot water heating conversion, electric vehicle charging and smart load management.
    - Co-ordination with NSW Government social housing upgrades program with activities supporting insulation upgrades (for properties below 2 stars), electrification, heating and hot water conversion, participation in smart demand management.
    - Leverage implementation of energy efficiency disclosure at point of sale and lease to target electrification, hot water conversion and insulation activities (for rental properties below 2 stars)

- Improving the data matching, collection and utilisation capacity of schemes, to complement and support other government priorities and aid monitoring of impact, including:
    - Collecting key data on residential interventions by National Meter Identifier and making available to government in a standard format.
    - Ensuring data collection includes collecting information on actual or plausibly modelled impact, rather than relying on deemed impact.
    - Informing reform of energy rebate data collection to enable more effective identification of areas for scheme impact
    - Drawing on more accessible energy network data as a basis for identifying areas of local network constraint, high solar penetration, gas connections or gas embedded networks, to enable activity targeting.

- Improve effectiveness of both schemes to deliver actual demand response, through:
    - Advocate for expansion of the wholesale demand response mechanism to include households through third-party aggregators.

- Ensure demand response capability is required in products installed through scheme activities.
- Reform schemes to prioritised delivered impact (ie delivered demand response) as well as capacity potentially through multipliers for delivered demand flexibility.

ESS

The JEC supports the ESS being reformed and utilised as a tool to enable a more equitable energy transition in NSW, through refocussing on the electrification and energy performance upgrade of households.

Equity should be further prioritised through targeting measures which focus on cohorts experiencing disadvantage, as well as building types, and geographical areas and locations of optimal potential impact on overarching objectives. Regardless of whether the scheme is partly or wholly reframed to improve equity, reform should focus on radically improving the focus on delivering improved outcomes against the objectives.

Reframing the objective of the ESS, to align with and contribute to relevant Government policies (particularly the Consumer Energy Strategy) should inform substantive reforms to the structure and delivery of the scheme, including areas outlined above. Where this process is being conducted in advance of future policies and initiatives, this process should also explicitly consider opportunities for the ESS to support and enable future measures, as well as existing Government policies and priorities, including:

- Implementation of mandatory residential disclosure of energy efficiency performance at point of sale and lease.
- Implementation of mandatory minimum energy performance standards for rental residences.
- NSW rebate reform projects.
- Climate adaptation and community resilience measures.
- Implementation of Distribution Renewable Energy Zones and the utilisation of regional community micro-grids and Stand-alone Power systems.
- Utilisation of Virtual Power Plants.
- Social Housing upgrade programs.
- Implementation of jurisdictional ‘one-stop-shop’ electrification and energy upgrade delivery frameworks.

PDRS

This process should consider opportunities to better align the PDRS with the ESS (and other NSW Government schemes and policies) including through adopting more robust shared objectives and principles. Regardless, we recommend reform to ensure the scheme is better focussed on the intended outcome - improved energy flexibility, efficiency and reduced peak demand. As it stands, the schemes focus is ineffectively focus on the creation of the incentive to contribute to the capacity to reduce peak demand, a goal which the scheme could achieve without any material impact on peak demand itself.

While the scheme should be structured to focus on impact (and prioritise short to medium term impact on peak demand), we recommend considering expansion of the scheme to enable more meaningful engagement with households. For instance, while electrification of multi-unit dwellings

hot water and heating loads may increase electricity demand in the short term, ensuing these substantial loads are flexible at the point of conversion, would enable a significant contribution to emissions reduction, while minimising the potential impact on energy costs through improved utilisation. This review should consider expansion to a range of residential activities, including:

- Activities associated with the electrification of large, flexible household loads such as heating, hot-water heating, electric vehicle charging and batteries.
- Activities associated with the electrification of large multi-unit residential developments, particularly those with shared hot water and heating systems.

A major limitation on the potential impact of the current scheme is the scope and effectiveness of the Wholesale Demand Response Mechanism (WDRM) the scheme is designed to complement. While this review cannot directly address all of the existing issues with the effectiveness of the WDRM (and the impact of that ineffectiveness on the PDRS) we recommend this review consider all opportunities to make the required short and medium long-term changes, including:

- Ensuring both the PDRS and ESS schemes implement standards and requirements (in all products and installations) which support on going demand response capability.
- Supporting community and stakeholder-sponsored reforms of the existing WDRM mechanism, and actively advocating for the expansion of the WDRM to household loads through further reviews and rule changes.
- Considering other direct measures to improve utilisation of demand response capacity created through the scheme, including through partnering with industry providers to actively facilitate demand response in NSW, or build a wider NSW-based capacity to enable demand response.

We have made further detailed recommendations regarding opportunities for immediate reform of the PDRS in previous submissions referred to earlier in this submission. We encourage the Department to consider these as part of more substantive reforms.

4. Response to questions

1. *Do you support the proposed approach to determining whether the scheme objectives remain valid? Please provide evidence for your answer.*

Refer to section 2.

2. *Are the ESS objectives still valid, and what evidence should the Department consumers to assess their validity? Please provide evidence to support your answer.*

Refer to section 2. The ESS objectives should be reformed, consolidated or aligned with the objectives of the PDRS, and strengthened to focus more effectively on the intended purpose and outcomes of both schemes as part of a coordinated NSW policy architecture.

3. *Are the PDRS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.*

Refer to section 2. The ESS objectives should be reformed, consolidated or aligned with the objectives of the PDRS, and strengthened to focus more effectively on the intended purpose and outcomes of both schemes as part of a coordinated NSW policy architecture.

4. *Is the ESS design appropriate for securing its objectives? What evidence should the department consider to assess design appropriateness? Please provide evidence to support your answer.*

Refer to section 3.

5. *Is the PDRS design appropriate for securing its objectives? What evidence should the department consider to assess design appropriateness? Please provide evidence to support your answer.*

Refer to section 3.

6. *What alternative or complementary objectives should the schemes focus on? Please provide evidence to support your recommendation, including reasons why the ESS and/or PDRS would be the best way to address the issue or opportunity you have identified.*

Refer to section 2. The ESS objectives should be reformed, consolidated or aligned with the objectives of the PDRS, and strengthened to focus more effectively on the intended purpose and outcomes of both schemes as part of a coordinated NSW policy architecture.

7. *Are there opportunities to improve how scheme costs and benefits are shared? If so Please provide evidence of how any proposed charges would result in more equitable outcomes.*

Refer to section 3.

8. *What adjustments could the department make to scheme settings to improve performance against the legislated and proposed objectives. How would this provide a net benefit to NSW? Please provide evidence to support your answer, including any assumptions you have made.*

Refer to section 3

9. *How could the Department improve transparency around how it makes decisions and how it communicates changes to the schemes?*

Refer to section 2 and 3.

10. *How could the Department improve the delivery of the schemes? Please provide examples of other jurisdictions and schemes where possible to support your recommendations.*

Refer to section 3.

11. *How could the Government improve the governance and administration of the schemes? Please provide examples to support your recommendations.*

Refer to section 3

12. *What additional scheme data should the department or IPART collect ad for what purpose? How could the Department make better use of new and existing scheme data?*

Refer to section 3.

13. *What additional reform opportunities should the department consider for the ESS and /or PDRS? Please provide evidence to support your recommendations.*

Please refer to sections 2 and 3 of this submission.

5. Continued engagement

We understand this review will involve an extended process, and potentially involve scope for immediate changes while more fundamental, long-term reforms are considered. The JEC support this approach and encourage the Department to engage with us and other key stakeholders, on an ongoing basis in order to continue to consider and shape this process. We welcome the opportunity to meet with the Department and other stakeholders to discuss these issues in more depth. Please contact Douglas McCloskey at dmccloskey@jec.org.au regarding any further follow up.

Appendix of additional resources

In this section we provide links to a number of previous JEC submissions and external resources which have relevance to topics raised this process

CER regulation, deployment and incentives

The following resources provide further detail on necessary and desired regulatory reform for a fast and fair household energy transition:

- JEC submission to DCCEEW process developing the NSW Consumer Energy Strategy https://jec.org.au/wp-content/uploads/2024/03/24-03-01-Submission-to-NSW-Consumer-Energy-Strategy-for-households-consultation.pdf

- JEC submission to the 2020 statutory review of the ESS https://jec.org.au/wp-content/uploads/2020/05/20.05.13-PIAC-submission-to-the-Draft-NSW-Energy-Savings-Scheme-Review-Report-FINAL.pdf

- JEC submission to the November 2023 consultation reviewing aspects of the PDRS https://jec.org.au/wp-content/uploads/2023/11/23-11-20-Sub-to-OECC-PDRS.pdf

- 2022 PIAC submission to 'Promoting innovation for NSW Energy consumers' https://piac.asn.au/wp-content/uploads/2022/03/22-03-04-PIAC-sub-to-Promoting-innovation-for-NSW-energy-customers-Final3847.pdf

- 2022 PIAC submission to 'Review into consumer energy resource technical standards' https://piac.asn.au/wp-content/uploads/2022/11/22-11-10-Sub-to-AEMC-Review-into-consumer-energy-resources-technical-standards.pdf

Standards

- 2022 PIAC submission to 'Sustainability in residential buildings: Proposed BASIX changes' https://piac.asn.au/wp-content/uploads/2022/06/22-02-23-PIAC-sub-to-DPE-on-review-of-BASIX-and-sustainability-measures-final40.pdf

Electrification and Decarbonisation

The following resources provide further detail on how efficient electrification of Australian homes can contribute to our energy affordability, emissions reduction efforts and our climate commitments.

- 2023 Climateworks Centre 'Climate-ready homes: Building the case for a renovation wave in Australia' https://www.climateworkscentre.org/resource/climate-ready-homes-building-the-case-for-a-renovation-wave-in-australia/

- Energy Efficiency Council 2023 'Clean Energy, Clean Demand: Enabling a zero emissions energy system with energy management, renewables and electrification https://www.eec.org.au/policy-advocacy/publications/Clean-Energy-Clean-Demand-April-2023

- 2023 PIAC 'Submission to the Senate Economic Reference Committee Inquiry into Residential Electrification' https://piac.asn.au/2023/09/29/submission-to-the-senate-economic-reference-committee-inquiry-into-residential-electrification/

Funding & finance for efficient electrification

These resources provide further detail into potential avenues for funding and financing efficient electrification of Australian homes. Some of these resources provide specific policy advice on supporting low-come households.

- 2024 ACOSS report 'Funding and financing energy performance and climate-resilient retrofits for low-income housing'. https://www.acoss.org.au/wp-content/uploads/2024/02/ACOSS-Report-Funding-and-Financing-Low-income-retrofits-January-2024-.pdf

- Australian Sustainable Finance Institute 2023 'Industry Workshop: Finance for Home Retrofits' https://www.asfi.org.au/publications/industry-workshop-finance-home-retrofits-report

Equity in the household energy transition

These resources provide further detail on specific cohorts of NSW residents who will require targeted supports, policies and resourcing to effectively implement a Household Energy Strategy.

- 2024 First Nations Clean Energy Network submission to the DCCEEW First Nations Clean Energy Strategy. https://assets.nationbuilder.com/fncen/pages/505/attachments/original/1708899108/First_Nations_Clean_Energy_Network_-_Submission_in_response_to_the_First_Nations_Clean_Energy_Strategy_Consultation_Paper.pdf?1708899108

- 2023 Voices for Power 2023 '*Our roadmap to clean and affordable energy'* https://www.sydneyalliance.org.au/our-roadmap

- 2023 Sydney Community Forum '*Submission to Residential Electrification Senate Inquiry*' https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Economics/ResElectrification/Submissions

- Brotherhood of St Lawrence 2023, 'Enabling electrification: addressing the barriers to moving off gas faced by lower-income households https://www.bsl.org.au/research/publications/enabling-electrification/

- ACT Council of Social Services 2023 'Supporting a fair, fast and inclusive energy transition in the ACT' https://actcoss.org.au/publication/supporting-a-fair-fast-and-inclusive-energy-transition-in-the-act-act-small-energy-consumers-understanding-planning-and-support-needs/

- 2023 Community Sector Blueprint: National Framework for Minimum Energy Efficiency Rental Requirements https://static1.squarespace.com/static/602f0d14c4c0a77efc25e152/t/64b095418e792e5f538088fb/1689294161675/Final+Community+Sector+Blueprint+-+Mandatory+Minimum+Rental+Standards+++%28July+2023%29.pdf

Energy Efficiency

The following resources provide further evidence demonstrating why energy efficiency and electrification must be progressed together by detailing the affordability, health and emissions reductions benefits that are gained through energy efficiency.

- Energy Efficiency Council and ANZ 2023 'Putting Energy Efficiency to Work: The Forgotten Fuel Series" https://www.eec.org.au/policy-advocacy/publications/forgotten-fuel-series

- Climate Council 2022 'Tents to Castles: Building Energy Efficient, Cost-Saving Aussie Homes'
- https://www.climatecouncil.org.au/resources/tents-castles-building-energy-efficient-cost-saving-aussie-homes/

- Energy Consumers Australia and Renew 2022 ' Energy Efficient Housing Research' https://renew.org.au/wp-content/uploads/2022/11/NGR2111008-Energy-Efficient-Housing-PUBLIC-Report_final.pdf>

- International Energy Agency 2023 'Energy efficiency and behaviour' in *Net Zero Roadmap: A Global Pathway to Keep 1.5 in Reach* https://www.iea.org/reports/net-zero-roadmap-a-global-pathway-to-keep-the-15-0c-goal-in-reach

Gas is costing Australian households

The following resources include modelling and costings demonstrating how much more dual-fuel households pay for their energy compared to efficient, electric homes.

- Environment Victoria 2023 ‘It’s a Gas: How ditching gas this winter can cut heating bills by 75%’
- https://environmentvictoria.org.au/2023/07/19/its-a-gas-how-ditching-gas-this-winter-can-cut-heating-bills-by-75/

- Climate Council 2022 ‘Switch and Save: How Gas is Costing Households’ https://www.climatecouncil.org.au/resources/switch-and-save-how-gas-is-costing-households/

- Renew 2021, ‘Households Better Off: Lowering energy bills with the 2022 National Construction Code’ https://renew.org.au/wp-content/uploads/2021/10/Households-Better-Off-full-report.pdf

- Renew 2022, ‘Limiting energy bills by getting off gas’ https://renew.org.au/wp-content/uploads/2022/11/Report-Limiting-energy-bills-by-getting-off-gas.pdf

Health impacts of gas

The following resources detail some of the health risks from the use of gas in homes

- Asthma Australia 2022 ‘Homes, Health and Asthma in Australia’ https://asthma.org.au/wp-content/uploads/2022/11/AA2022_Housing-Survey-Report_full_v4.pdf

- Climate Council 2021, ‘Kicking the Gas Habit: How Gas is Harming our Health’ https://www.climatecouncil.org.au/wp-content/uploads/2021/05/Kicking-the-Gas-Habit-How-Gas-is-Harming-our-Health.pdf

- Doctors for the Environment 2020 ‘Home Gas Appliances and Your Health: Fact Sheet’ https://dea.org.au/home-gas-appliances-and-your-health-fact-sheet/

Gas network transition – necessity, risks & myth-busting

The following resources provide greater detail into why a retreat of the gas network is necessary and policy requirements for advancing efficient renewable electrification. Some of these resources address stranded assets, risk management and cost recovery.

- Grattan Institute 2023 ‘Getting off gas: why, how, and who should pay?’ https://grattan.edu.au/report/getting-off-gas/

- Energy Consumers Australia 2023 ‘Stepping Up: A smoother pathway to decarbonising homes’ https://energyconsumersaustralia.com.au/wp-content/uploads/Stepping-Up-Report-Final.pdf

- Energy Consumers Australia 2023 ‘Risks to gas consumers of declining demand’ https://energyconsumersaustralia.com.au/publications/risks-to-gas-consumers-of-declining-demand

- Institute for Energy Economics and Financial Analysis 2023 ‘’Renewable gas’ campaigns leave Victorian gas distribution networks and consumers at risk’ https://ieefa.org/resources/renewable-gas-campaigns-leave-victorian-gas-distribution-networks-and-consumers-risk

- Friends of the Earth, Melbourne 2023 ‘Community Gas Retirement Roadmap: How and why to get off gas in Victoria” https://www.melbournefoe.org.au/community_gas_retirement_roadmap

To

NSW Department of Climate Change, Energy
the Environment and Water

http://crudeoilpeak.info
Crude Oil Peak

6 Sep 2024

Re: Energy Savings Scheme and Peak Demand Reduction Scheme statutory reviews 2025

Discussion paper

https://www.energy.nsw.gov.au/sites/default/files/2024-08/NSW-ESS-PDRS-statutory-reviews-2025-discussion-paper.pdf

Introduction

I am the author of the website crudeoilpeak.info, mainly analyzing oil statistics and turning large data tables into quickly-to-understand graphs. Because EVs are thought to replace petrol/diesel cars I also research into power supplies. I wrote more than 20 articles on this topic. The latest are:

7 Aug 2024
More power price spikes on Australia's east coast on 5 Aug 2024 lasting more than 2 hours
https://crudeoilpeak.info/more-power-price-spikes-on-australias-east-coast-on-5-aug-2024-lasting-more-than-2-hours

31 July 2024
Chilly winter evenings and tight power supplies cause simultaneous price spikes in all Australian east coast States
https://crudeoilpeak.info/chilly-winter-evenings-and-tight-power-supplies-cause-simultaneous-price-spikes-in-all-australian-east-coast-states

16 May 2024
NSW power price spikes and administrative price caps in May 2024
https://crudeoilpeak.info/nsw-power-price-spikes-and-administered-price-caps-in-may-2024

8 Mar 2024
Last hot summer day: ALL 12 coal powered units running at combined 90% of capacity
http://crudeoilpeak.info/last-hot-summer-day-in-nsw-all-12-coal-powered-units-running-at-combined-90-of-capacity

At present, power prices are low due to many windy days along the east coast, longer hours of sunshine and warmer temperatures. The return of Callide C4 in Queensland has also helped (NSW is living beyond its means and regularly relies on power imports from the neighbouring states, thereby importing any problems there). What's more, power prices have been negative lately. That of course puts the financial viability of many power plants into question. The 5 minute bidding process needs to be reviewed but this topic does not seem to be within the TOR of this scheme.

Focus of this submission

11. How could the government improve the governance and administration of the schemes? Please provide examples to support your recommendations.

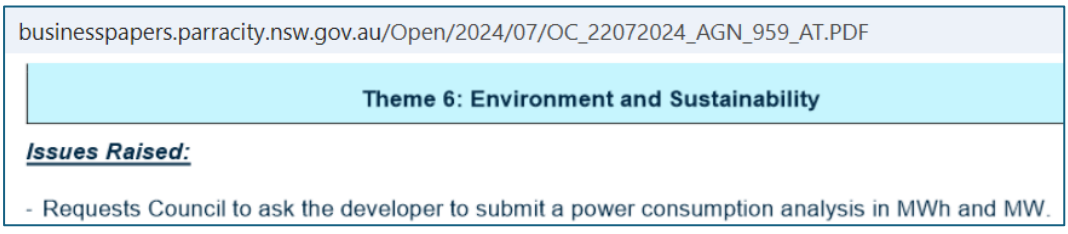
Answer 1: BASIX must be immediately revised. As an example, black roof tiles (high solar absorption) are still allowed. Not only do they increase the need for air conditioning, but they also radiate heat into solar panels which then become less efficient

Answer 2: Peak power demand management must be implemented in a much broader strategic government setting than is the case now. This means the scheme objectives must be accepted by all departments and pro-actively pursued. The BASIX energy efficiency requirements are a necessary but not sufficient condition to reduce the risk of power shortages. At present, all efforts of the scheme are cancelled out by new energy hungry projects like apartment towers, the 2nd Sydney airport etc.

Answer 3: Local Councils must be included in the target group of the scheme. City Councils plan and approve the physical environment in which the scheme is to work. An example is the Parramatta City Council where I live. In the last months I had to find that Council staff and also Councillors are not interested in energy. Examples:

(a) During a very well organised workshop of Participate Parramatta I saw power price spikes of $400/MWh on my mobile https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/data-nem/data-dashboard-nem
I showed this to the moderator who responded: "I am not interested"

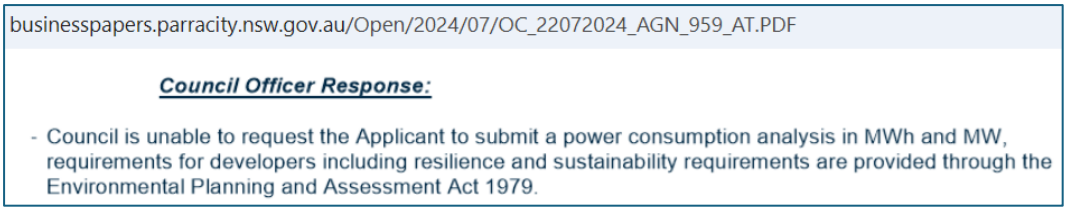
(b) On 24 April 2024 I wrote a submission on an apartment tower complex proposed for Carlingford complaining that the developer had not submitted any energy calculations in Appendix 9 (Ecologically Sustainable Development Report). I wrote: "Appendix 9 has not done any calculations on the proposal's power consumption in MWh and the peak load in MW depending on the season and considering global warming trends"
The community engagement report mentions it on page 481 and responds to it on page 482:


businesspapers.parracity.nsw.gov.au/Open/2024/07/OC_22072024_AGN_959_AT.PDF

Theme 6: Environment and Sustainability

Issues Raised:

- Requests Council to ask the developer to submit a power consumption analysis in MWh and MW.


businesspapers.parracity.nsw.gov.au/Open/2024/07/OC_22072024_AGN_959_AT.PDF

Council Officer Response:

- Council is unable to request the Applicant to submit a power consumption analysis in MWh and MW, requirements for developers including resilience and sustainability requirements are provided through the Environmental Planning and Assessment Act 1979.

My submission was basically set aside.
https://businesspapers.parracity.nsw.gov.au/Open/2024/07/OC_22072024_AGN_959_AT.PDF

(c) On the same project, I did a written submission and an address in person to the Parramatta Local Planning Panel on 23 May 2024 giving reasons why we are going to have power supply shortages. The Chair did not even flip through my submission paper and wanted to return it to me at the end of the meeting. The minutes did not mention what I said
https://businesspapers.parracity.nsw.gov.au/Open/2024/07/OC_22072024_AGN_959_AT_files/OC_22072024_AGN_959_AT_Attachment_12229_5.PDF

(d) The document "Parramatta 2050"
https://participate.cityofparramatta.nsw.gov.au/2050 does not even mention the word "energy". I wrote a submission to which Council responded:

businesspapers.parracity.nsw.gov.au/Open/2024/08/OC_12082024_AGN_960_AT_files/OC_12082024_AGN_960_AT_Attachment_12224_2.PDF

Table 1: Summary of community submissions and Council officer response

Community submissions		
Submission	**Key points**	**Council response**
Community submission #3	Did not support draft Parramatta 2050 as the document reads as a promotional brochure without clear figures and research presented. The participant believes that that it is not feasible given the following challenges: • Instability of power supply. • Increasing need for power with development.	Comment noted, no change proposed. Draft *Parramatta 2050* is a high-level, aspirational vision document. This level of detail can be considered in future prospectuses and/or Council's other strategic documents and action plans.
	Provided a range of links to newspaper articles, websites, images and other data sources that relate to the challenges above.	Comments noted, no change proposed.

Note what the engagement report says: Power supply is a level of detail for future consideration!

I addressed a full Council meeting on this issue on 12th August 2024:

Dear Lord Mayor and Councillors
I am speaking on item 13.9, the paper Parramatta 2050. This paper mentions several game changers. But the most important game changer, namely the evolving energy crisis is not mentioned and no calculations have been made whether future power and energy supplies are sufficient to implement the proposals in this paper.
The Council's summary of submissions attachment to item 13.9 responded to my submission on this problem by saying that this is high-level, aspirational vision document and that details can be considered later.
Well, energy is NOT a detail and it is of strategic importance. In fact the availability of energy is a PRE-CONDITION for anything the Council proposes and approves.
Energy is the economy and the economy is energy. Any document ignoring this is of very limited value.
Since the Council meeting on 22/7/24 in which a massive apartment tower complex in Carlingford was approved there were 2 power price spike events. The event on 5 Aug lasted for more than 2 hours with up to $17,500/ MWh. In both cases NSW coal powered plants were maxed out. The details are on my website crudeoilpeak.info
Tony Wood, an energy consultant recently said on ABC TV in relation to growing power demand from data centres that if this additional demand is not met with increasing supplies then prices go up. The same can be said for all projects with additional power demand.
So what has to be done?
Council (and in fact ALL Councils) should establish and maintain a data base of energy consuming projects (tagged by their stages "proposed", "planned", "under approval", "under construction") with at least 3 metrics:

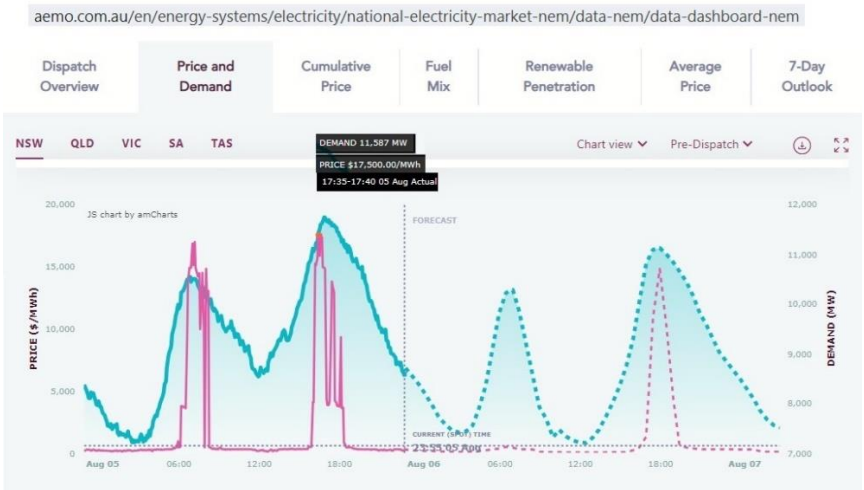
- *Peak power demand in winter in MW*
- *Peak power demand in summer in MW*
- *Annual consumption in MWh*

The database should be a real time dashboard managed jointly by the NSW Departments of Energy and Planning, accessible by the public so that everyone knows where we are. The total demand would then have to be compared to the future power supplies. If demand is higher than supplies no more projects can be approved.

Future power supplies will of course depend on future gas supplies for the gas peaking plants which are absolutely necessary to keep the lights on after sunset in winter and on hot days during summer. Conventional gas production in Victoria has already peaked in 2017 and AEMO warns of steep declines in the next years. It is not clear where the gas will come from given that massive amounts of gas are exported in Gladstone and even if such exports were reduced the pipeline capacity for gas flows to the South are limited.

How desperate the situation is can be seen from the NSW government decision to underwrite Eraring. Please note that this applies to only 6 TWh pa while Eraring's output in the last 12 months was 15 TWh. This means that only 38% are underwritten. Who will reduce power demand for the other 62%?
The NSW government will do anything to keep the coal plants going. But these aging plants (so many times mentioned in the news but never really understood) will run out of spare parts for turbines, generators and cooling systems. Retooling will be expensive if not economically unviable and would take 3-4 years. So coal plant capacity will go down accordingly.
On the 3rd energy front, our economy utterly depends on petrol, diesel and jet fuel. Diesel is the most important fuel to keep the economy going. Australian diesel consumption increased by 3.5 % pa since 2010. How will that continue in future? Parramatta 2050 has not calculated what the diesel demand will be in the Parramatta LGA, given all the massive excavation and construction projects underway and proposed (metros, skyscrapers etc.)

As you have to submit your address in writing before the Council meeting I had attached 2 graphs:



Generation coal fired power plants in NSW 29 Feb 2024						
		Reg. capacity	Max output in previous 7 days	Generation 5 pm	Percent of registered capacity	Generation 7 pm
		MW	MW	MW	%	MW
Bayswater	BW01	660	657	666	101%	655
	BW02	660	685	684	104%	685
	BW03	660	685	683	103%	685
	BW04	660	685	665	101%	671
Eraring	ER01	720	698	548	76%	567
	ER02	720	699	556	77%	613
	ER03	720	698	593	82%	646
	ER04	720	618	618	86%	578
Mt Piper	MP01	700	728	592	85%	560
	MP02	700	690	596	85%	557
Vales Point	VP01	660	659	652	99%	660
	VP02	660	630	643	97%	573
	Sum	8,240	8,132	7,496		7,450
	% of registered capacity			91%		90%
	% of max in previous 7 days			92%		92%

These graphs were “forgotten” and only later included after I complained: https://businesspapers.parracity.nsw.gov.au/Open/2024/08/OC_12082024_AGN_960_AT_SUP.PDF

The Lord Mayor interrupted me and the Councillors did not debate the energy issues I mentioned. The CEO was proud of this energy ignorant 2050 paper and informed the Councillors that 80 staff had worked on it! Not a single planner had the idea to look into energy, not to mention peak electricity demand.
I struggle to find a proper term for this mindset: energy blindness, ignorance, complacency or illiteracy. Maybe a combination of it all.
A huge education task is ahead. Councillors approved the document and would also need training.

Summary a) to d): every possible method was used to suppress power supply facts. In this way you cannot manage a 5 million city.

All the while the sustainability department of the Parramatta Council had done a study already in 2015 on the peak demand in the CBD:

PARRAMATTA CBD PLANNING REVIEW

SUSTAINABILITY AND INFRASTRUCTURE STUDY

9 NOVEMBER 2015

parramatta.nsw.gov.au/__data/assets/pdf_file/0004/179878/Appendix_13_Sustainability_and_Infrastructure_Study.pdf

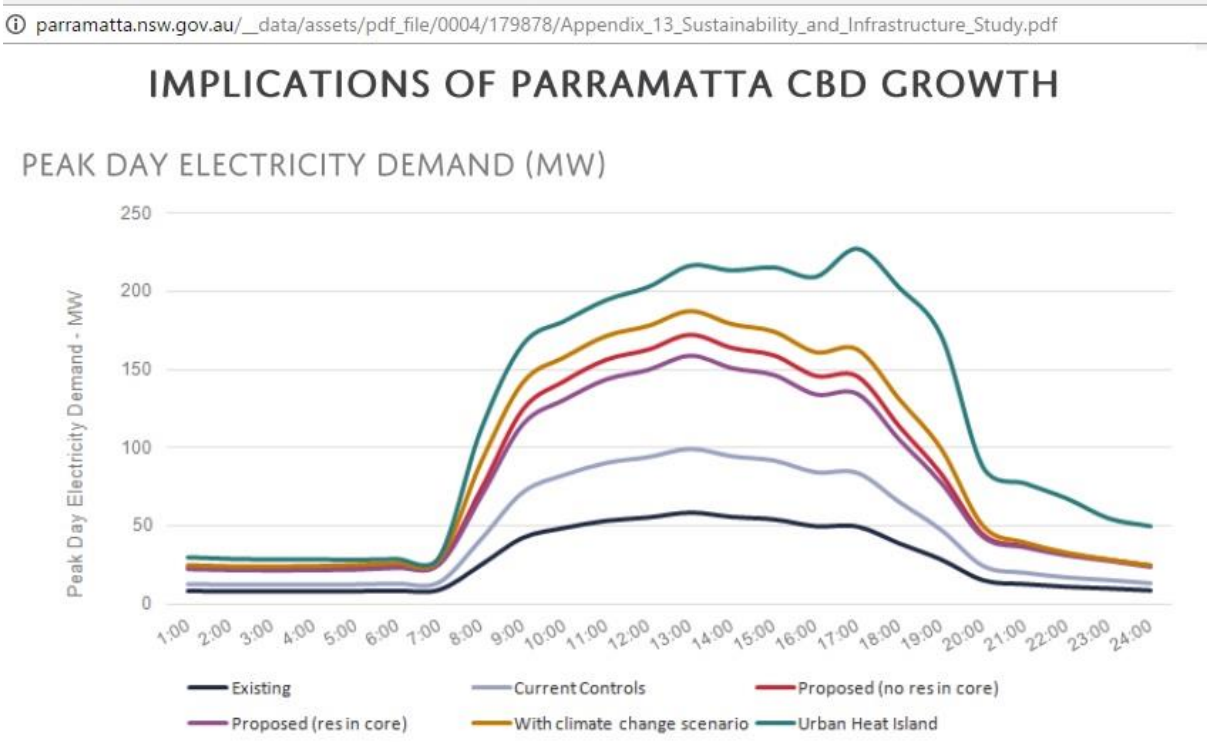


Figure 20: Expected peak day electricity demand profile under each planning scenario as well as under various climate change scenarios.

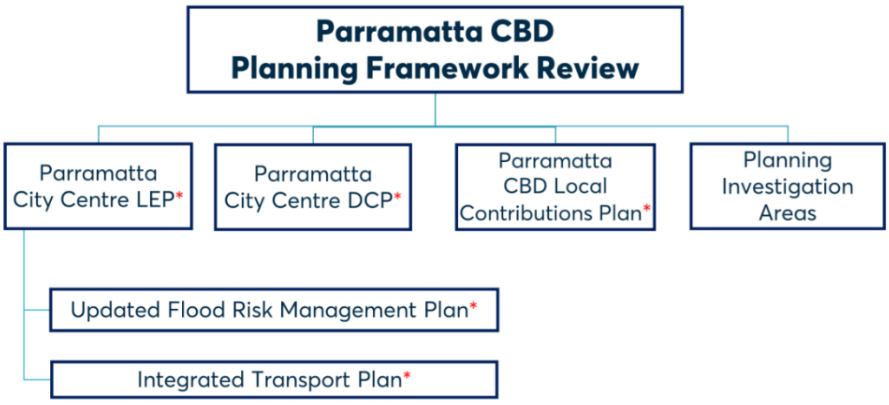
I just checked where this report is and found it here:

https://www.cityofparramatta.nsw.gov.au/sites/council/files/2019-11/16.pdf

This link seems to be the 2019 version with a different Figure 20 on page 15.

The current CBD Planning Framework .....

cityofparramatta.nsw.gov.au/vision/precinct-planning/parramatta-cbd



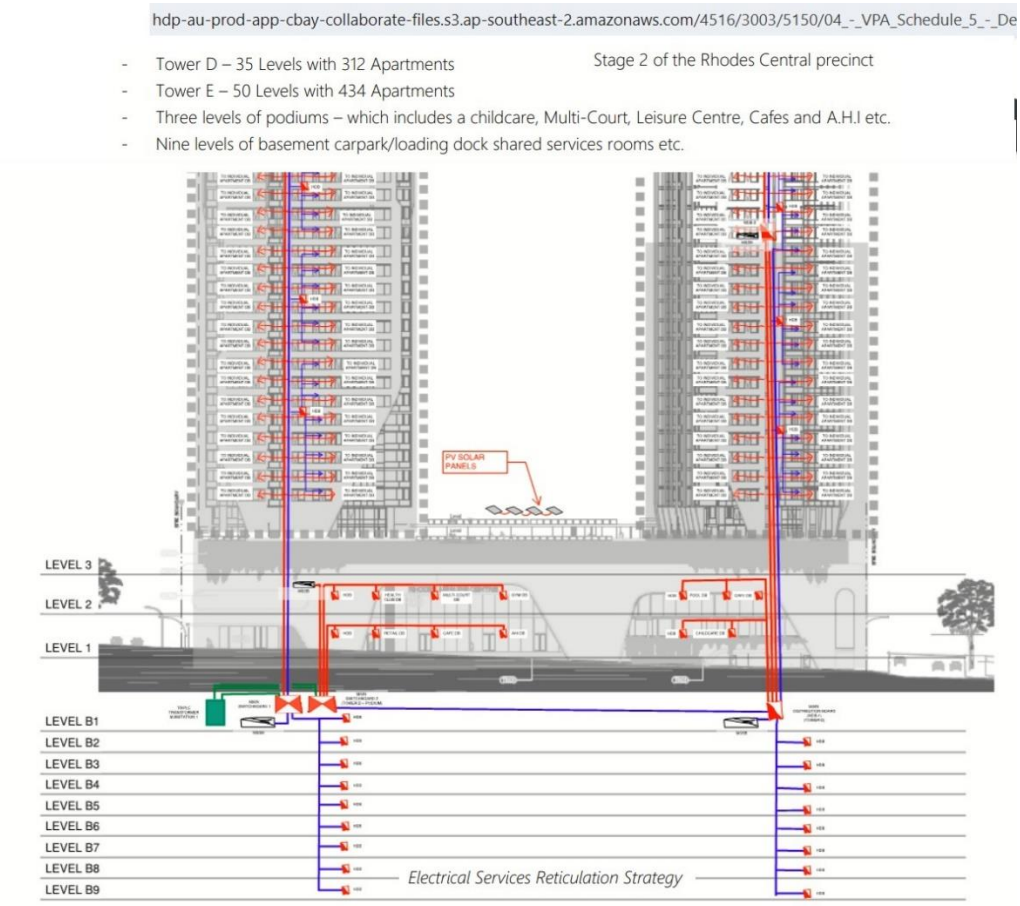
https://www.cityofparramatta.nsw.gov.au/vision/precinct-planning/parramatta-cbd

....has no general targets to monitor, let alone manage power demand. The above CBD peak demand study was not updated. Even the 2019 version did not enter any of the Parramatta Council approvals or documents I had seen including the 2050 paper.

Peak demand from apartment towers

From a design brief report on a Bilbergia project

RHODES CENTRAL – STAGE 2 34 WALKER STREET, RHODES JHA Services under the Canada Bay Council:



Current Stage 2 Maximum Demand – Excludes Level 3 Commercial / other-use tenancy and applies non-conditioned ventilation to Council Multi-Court				
Description	Electrical Load			
Basement Levels	1238.11	A/phase	857.79	
Electric Car Chargers - allowing 2 per level at 75% Diversity	144.00	A/Phase	99.77	kVA
Podium – Council MDB – Current Allowance	862.64	A/Phase	595.22	kVA
Podium – Billbergia spaces – Current Allowance	273.78	A/Phase	188.91	kVA
Communal Open Spaces - Level 4	10.89	A/Phase	7.55	kVA
Lifts (Tower D and Tower E)	240.56	A/Phase	166.67	kVA
Apartments (Tower D and Tower E)	4389.64	A/Phase	3041.23	kVA
Common areas (residential floors Tower D and Tower E)	333.84	A/Phase	231.29	kVA
Total Maximum Demand - Option 1 – AS/NZS 3000	7493.46	A/Phase	5191.62	kVA
	0.8	Additional Diversity		
Total Diversified Maximum Demand – Current	**5994.77**	**A/Phase**	**4153.30**	**kVA**

https://hdp-au-prod-app-cbay-collaborate-files.s3.ap-southeast-2.amazonaws.com/4516/3003/5150/04_-_VPA_Schedule_5_-_Design_Brief_Report_-_Electrical_Services.pdf

312+434=746 apartments: peak load 5.2 MW or 5,200 kW/746=6.97 kW per apartment incl. demand from all common facilities.

Note that the Parramatta Council was arguing it cannot tell the developer to calculate peak demand. So why can the Canada Bay Council do it?

NSW Housing target of 377k

With the above Bilbergia data it is possible to estimate the peak load of 377K dwelling units.

https://content.corelogic.com.au/l/994732/2024-08-07/21m1sv/994732/1723026908koqEMAAn/202408_monthly_chart_pack__2_.pdf

We see the ratio units/houses has varied considerably over the last decade from 50/50 in 2015-18 to 40/60 since 2018. These are national data. The ratios for Sydney will be higher. Given that the NSW government has to put more units into transit oriented developments (TOD) in order to fill the expensive metros, we can assume that the unit ratio will go up again to 50%, maybe even more.

Let's assume 55% will be in apartment towers and 45% in detached housing where peak demand is easier to be handled with solar PV and batteries in garages.

So that makes 0.55 x 377,000 x 6.97 = 1,445 MW peak by 2029

More detailed calculations are necessary, precinct by precinct, especially the TOD plans.

1 Eraring unit is around 700 MW. That tells you what the magnitude of the problem is. ER03 is now under maintenance until the end of the year, hopefully read for the next summer. https://opennem.org.au/facility/au/NEM/ERARING/?range=3d&interval=30m

Remember that the NSW government has only underwritten 6 TWh while Eraring's generation output in the last 12 months was 15.7 TWh. That's just 38%.

Conclusion:

The range and scope of the scheme must be widened to all departments, especially the planning department. Councils must also be included and educated on energy matters. Otherwise the scheme will fail its objective to reduce the risk of power shortages.

Prepared by

Matt Mushalik (MEng) 6/9/2024

Addendum:

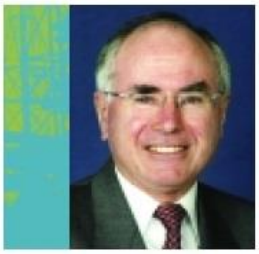
As I was writing this submission, news came out that the Port Kembla LNG import terminal will be in operation by the end of 2026
“While Western Australia, the Northern Territory and Queensland have well-established LNG export facilities, Mr Wheals says Squadron is looking to buy gas from overseas.

Among the most likely areas are the US, Canada, Qatar, Papua New Guinea, and even Asia, where the vast majority of Australia's LNG shipments are delivered.”
https://www.abc.net.au/news/2024-09-05/gas-giant-australia-prepares-to-import-gas-as-shortage-looms/104303824?sf274508091=1

The root cause of this deplorable gas supply gap can be found in Howard’s Energy White paper of June 2004 (yes, 20 years ago):

"Australia's gas reserves are sufficient for more than 100 years at current production levels or more than 200 years for current domestic consumption"

This space left blank to show extract from EWP 2004 in full size on next page



[John Howard]

Australian Government

SECURING **AUSTRALIA'S** ENERGY FUTURE

LONG-TERM SECURITY OF GAS SUPPLIES

Australia's gas reserves are sufficient for more than 100 years at current production levels, or more than 200 years of current domestic consumption. Furthermore, prospects for finding and proving up more gas are good, subject to finding markets. However, the location of Australia's major gas reserves—to the north and north-west—compared with major demand locations—to the south-east—is sometimes raised as an issue (see Figure 6 and 3 in Chapter 2—Developing Australia's Energy Resources).

Predictions are made that supplies of gas to major urban markets will run short in the next decade, as production in the Cooper Basin and Bass Strait declines. This has resulted in calls for financial support towards the building of major pipelines from either the Northern Territory (to access gas from Sunrise and other Timor Sea fields), Papua New Guinea or north-west Australia (to access gas from either Carnarvon or Browse Basins). While reserves of gas in existing fields close to south-east markets are declining, this does not represent an energy security concern. Exploration is occurring in the south-east and is resulting in new discoveries and development, such as in the Otway Basin. The development of coal seam methane is also increasing supplies of gas in the region.

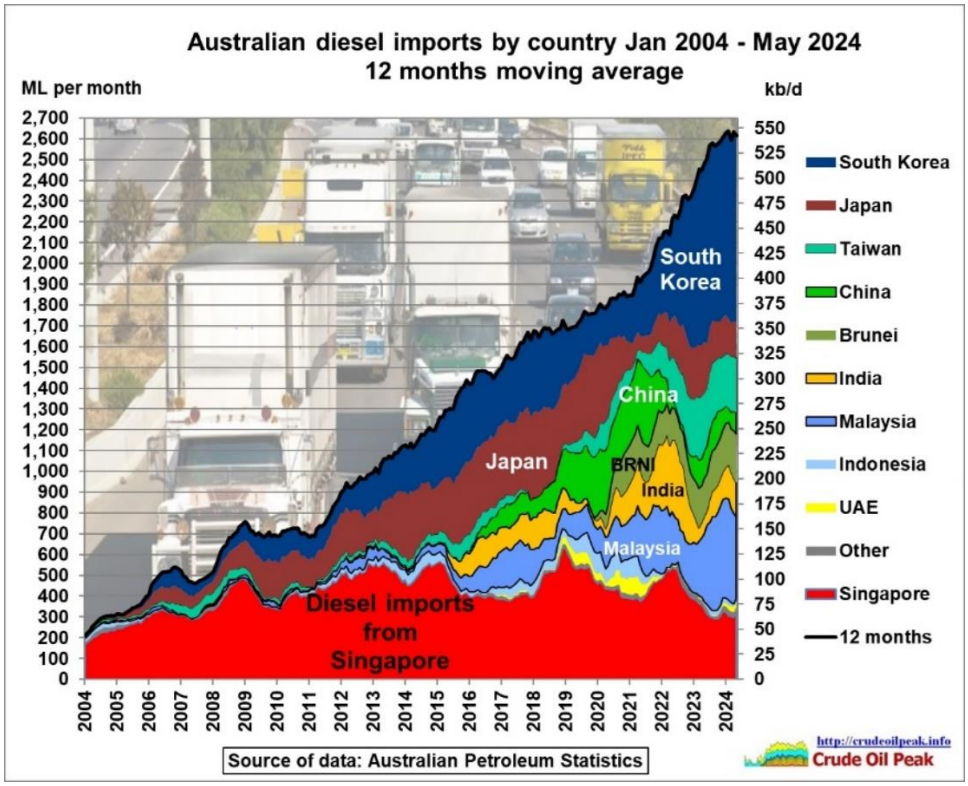
In addition, holders of the large remotely located gas reserves are actively seeking markets to monetise these reserves. These efforts include actively investigating pipeline projects for bringing supplies of gas from north and north-west sources, as well as seeking LNG export sales in Asian markets. The number and activity of these competing proposals provide a degree of confidence that these supplies will become available once economic, noting that this will in all likelihood occur at higher price levels than those currently enjoyed in some south-eastern markets.

Given the size and placement of gas reserves relative to current and future gas demand, gas supply is not likely to become an issue for the short to medium term. Pre-empting market outcomes in these circumstances is unlikely to add significantly to energy security, but could inflict significant costs by precluding less costly options (such as further development of the Gippsland and Otway basins or coal seam methane).

Rudd was not better. He carbon copied Howard's west coast LNG exports to Gladstone. But CSG is more expensive because i.a. it does not contain LPG or condensate for additional revenue which can be used for cross-subsidies.

Of course it is not energy efficient to export LNG from Gladstone and then import LNG from the above mentioned countries. Moreover, it will add to the existing fuel import vulnerabilities as mentioned in many of my posts, the latest on diesel:

9 Aug 2024
Australia's diesel import vulnerabilities update May 2024



https://crudeoilpeak.info/australias-diesel-import-vulnerabilities-update-may-2024

End of submission

6 September 2024

New South Wales Department of Climate Change, Energy, the Environment and Water

Submitted via email - energysecurity@environment.nsw.gov.au

Energy Savings Scheme and Peak Demand Reduction Scheme statutory reviews 2025

Nexa Advisory welcomes the opportunity to provide a submission on NSW Department of Climate Change, Energy, the Environment and Water's discussion paper on the statutory review of the Energy Saving Scheme (ESS) and Peak Demand Reduction Scheme (PDRS).

Nexa is a 'for purpose' advisory firm. Our unwavering focus is accelerating the clean energy transition in a way that provides secure, reliable, and affordable power for consumers of all types. Nexa Advisory is a team of experienced specialists in the energy market, policy and regulation design, stakeholder engagement, and advocacy. We work with public and private clients including renewable energy developers, investors and climate impact philanthropists to help them get Australia's clean energy transition done.

Our submission will focus on the PDRS (specifically relating to consultation questions 1,3, 5, 6, 7 and 13) given its significant – currently untapped - potential to support demand-side participation (DSP). DSP is an 'energy resource' that could not only provide additional "insurance" over the coming years to allow the timely closure of the coal power stations such as Eraring and Vales Point but also deliver lower costs and higher reliability to consumers.

New South Wales has fallen behind on its energy transition and is failing to meet these objectives. This has resulted in the extension of Eraring coal power station closure date, increasing wholesale electricity prices – with a year-on-year increase of $36/MWh (26%) to $173/MWh in Q2 2024, driven by increased volatility[1]. Consumer energy resources (CER) and DSP – particularly for commercial and industrial (C&I) consumers – remains a significant untapped resource which, if leveraged, can get the state's transition back on track.

In the recently released 2024 Electricity Statement of Opportunities, the PDRS is the only demand-side participation scheme considered by the Australian Energy Market Operator (AEMO) to be 'committed', resulting in New South Wales being the only state which experiences an increase in DSP. Outside of the energy efficiency and battery storage initiatives which form 25% of the PDRS target (and is accounted for separately by AEMO), the scheme target will grow to nearly 6% of the forecast peak demand by 2031/32, representing almost 900 MW of reliability response[2]. There is significant potential to further increase this response capacity through reform of the PDRS.

We have previously discussed the potential for New South Wales to accelerate DSP for C&I consumers, noting the focus on the residential sector which leaves C&I participation to rely on the Wholesale Demand Response Mechanism (WDRM) – which has failed to deliver as a result

[1] AEMO, Quarterly Energy Dynamics Q2 2024, July 2024
[2] AEMO, 2024 Forecasting Assumptions Update, August 2024

of its design and methodology[3]. Given the recent delay of reviewing the WDRM by the Australian Energy Market Commission (AEMC), New South Wales should leverage the opportunity to lead DSP initiatives across the National Electricity Market (NEM) jurisdictions.

While the recent PDRS Rule amendment[4] showed some understanding of the role for C&I (through the Wholesale Annual Response Mechanism (WARM)), it is disappointing to see this has not yet been further progressed. While there has been significant DSP from large industrial consumers - as they are large and savvy enough to have their own market and network arrangements - there is a significant number of medium and 'large' sized New South Wales business consumers who cannot access the benefits of DSP. This is largely due to a lack of policy, sophisticated incentives and knowledge for this cohort.

We consider that better enabling DSP within the C&I segment would therefore improve the equity of outcomes delivered by the PDRS.

There is a clear need to broaden the policy objectives of the PDRS to support DSP in the C&I sector. We have previously recommended[5] that this can be achieved by:

- Broadening eligibility of the PDRS (e.g., this can be achieved through C&I-focused PDRS activities);
- Enhancing price signals (e.g., around 'critical peak' times); and
- Improving data visibility and access.

We note DCCEEW's acknowledgement[6] of the role of data visibility to ensure additionality over C&I DSP resources (in the context of developing the WARM). We also note this is a major theme of national reform – such as in the AEMC's recent CER-focused pricing review[7] - and urge the New South Wales to more actively and transparently progress work to overcome this challenge.

Urgently progressing the inclusion of C&I in the PDRS – whether through the WARM or other mechanisms – is a key opportunity for reform in the 2025 Review. The PDRS Review should consider whether the legislated objectives should be expanded to more explicitly reflect the potential net benefits of improved inclusion of the C&I sector. This could include an economic analysis to determine the additional net benefits of expanding the scheme to take advantage of these untapped opportunities (whether through the WARM or via other activities). However, the Review should be conducted with expediency, leveraging the existing work which highlights there is a clear case for reform.

The New South Wales Government must urgently get the transition back on track. The PDRS presents a great opportunity that can be leveraged not only to provide additional insurance to ensure reliability as coal power stations close over the coming years, but also to reduce the impact of high electricity prices during peak periods for electricity consumers across the state.

[3] Nexa Advisory, Accelerating Commercial & Industrial Demand Side Participation in NSW, February 2024
[4] NSW DCCEEW, Peak Demand Reduction Scheme Rule Change 2, May 2024
[5] The recommendations of our Accelerating Commercial & Industrial Demand Side Participation in NSW report were developed with demand response aggregators and retailers
[6] Ibid. p.25
[7] AEMC, Electricity pricing for a consumer-driven future, accessed 5 September 2024

Thank you for the opportunity to provide input on the Review. We welcome the opportunity to further discuss any aspect of our submission - please contact either myself or Jordan Ferrari, Director - Policy and Analysis, jordanferrari@nexaadvisory.com.au.

Yours Sincerely,

Stephanie Bashir
CEO and Principal
Nexa Advisory

Northmore Gordon
Suite 1, Level 4, 607 Bourke Street,
Melbourne VIC 3000 Australia
northmoregordon.com

6 September 2024

Response to NSW ESS & PDRS Statutory Review Consultation Paper

Energy Savings Scheme and Peak Demand Reduction Scheme Statutory Review 2025

Department of Climate Change, Energy the Environment and Water
Via email to: energysecurity@environment.nsw.gov.au

Dear DCCEEW,

Thank you for the opportunity to provide feedback under the five year statutory review for the ESS and PDRS.

Sincerely,

Hamish McGovern

Northmore Gordon

Introduction

Until the last 2-3 years the program had been performing reasonably well. When compared with VIC targets it's clear the ESS could have achieved much more energy savings. Generally the NSW ESS has achied high quality abatement and driving both energy savings and carbon abatement.

For the past two years the ESS has been substantially over awarding the energy savings & demand reductions under commercial hot water heat pumps and this has large negative impact on all other activities. The the ESC price at the lowest it has been in 12 years (and all time under CPI adjusted prices), and the more than two years of oversupply in this market is driving ACPs and participants out of the sector. It will leave NSW with a failing program and lack of industry knowledge and capability when the demand/supply does return to some equilibrium.

Do objectives remain valid?

1. Do you support the proposed approach to determining whether scheme objectives remain valid? Please provide evidence to support your answer.

NG agrees it is important to determine the objectives are valid. The Energy Savings Scheme was at the time was a much more politically palatable program than a Greenhouse Gas abatement program. There is no doubt that reducing greenhouse gas emissions has grown in importance and is now even more urgent a problem do address.

2. Are the ESS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.

The objectives of energy savings may well be better view in the lens of GHG emissions reductions, to this end the Energy Saving Scheme doesn't equally award different forms of abatement (gas vs electricity) and needs to do more to cater for reducing emissions for switching from other fuels (to electricity).

3. Are the PDRS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.

The Peak Demand Reduction Scheme objectives are very good. The current implementation is very narrow and is still now awarding measured demand response activities under Measurement & Verification methods. The commercial industrial demand response opportunities are massive and not being provided access to the program.

Does the scheme design remain appropriate to secure scheme objectives?

4. Is the ESS design appropriate for securing its objectives? What evidence should the department consider to assess design appropriateness? Please provide evidence to support your answer.

Mostly. A market-based program is a good way to incentivise the lowest cost of energy savings, provided the calculations of energy savings are consistent and this is often not the case.

The other big issue is that the lag between participants scaling up and delivering activities against high ESC prices (when supply is low) has always resulted in boom-bust cycles in the ESS and the VEU. This makes it quite unsustainable for business operations and longevity. Consider the RET SRES target setting mechanism as a way of better avoiding the boom – bust cycles that have plagued the ESS.

5. Is the PDRS design appropriate for securing its objectives? What evidence should the department consider to assess design appropriateness? Please provide evidence to support your answer

Scheme Settings

6. What alternative or complementary objectives should the schemes focus on? Please provide evidence to support your recommendations, including reasons why the ESS and/or PDRS would be the best way to address the issue or opportunity you have identified.

We support the GET and NCBA submission

7. Are there opportunities to improve how scheme costs and benefits are shared? If so, please provide evidence of how any proposed changes would result in more equitable outcomes.

We support the GET and NCBA submission

8. What adjustments could the department make to scheme settings to improve performance against the legislated or proposed objectives? How would this provide a net benefit to NSW? Please provide evidence to support your answer, including any assumptions you have made.

We support the GET and NCBA submission

Scheme Delivery

No further answers.

Electrification and Energy Systems Network
DECARB HUB

Responses to the NSW DCCEEW Discussion Paper 6 Sept 2024

The following responses have been captured from academics from across the Electrification & Energy Systems Network (EESN) of the NSW Decarbonisation Innovation Hub. EESN comprises four universities (University Technology Sydney, University of New South Wales, University of Newcastle, University of Wollongong) and NSW Dept of Primary Industry and Regional Development.

EESN's mission is to accelerate the decarbonisation of energy systems, driven by innovation.

Contributors to this Submission

Name	Institution
Dr Chris Briggs	Institute of Sustainable Futures, UTS
Prof Scott Donne	School of Environmental and Life Sciences, University of Newcastle
Prof John Fletcher	School of Electrical and Telecom Engineering, UNSW
Dr Branislav Hredzak	School of Electrical and Telecom Engineering, UNSW
Dr Georgios Konstantinou	School of Electrical and Telecom Engineering, UNSW
Mark Lewis	Electrification & Energy Systems Network, NSW Decarb Hub
David Roche	Institute of Sustainable Futures, UTS

Part 1: statutory reviews

Consultation questions

1. Do you support the proposed approach to determining whether scheme objectives remain valid? Please provide evidence to support your answer.

2. Are the ESS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.

3. Are the PDRS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.

Responses

Broadly, the scheme objectives remain valid. Electrification and Energy Systems Network (EESN) recommends that the Department consider the following updates to ensure that the schemes continue to improve their performance and remain relevant as the energy system changes. Specifically:

1.1. Add an objective to the secondary objectives of the ESS to enable a diversity of energy savings activities and facilitate the market development of new energy savings activities.
Certificate creation in the ESS is dominated by only three activities: commercial

lighting, installation of high efficiency appliances for businesses, and home energy efficiency retrofits. Together these make up about 85% of all ESCs.[1] Arguably, activities such as commercial lighting no longer require the same level of support and the ESS incentives should be adjusted to encourage the development of other energy savings activities. An objective to encourage diversity and new energy savings activities could underline and support reorientation of the scheme.

1.2. Consider adding an objective into the secondary objectives of the PDRS to enable shifting of demand to address minimum demand.[2] Since the introduction of the PDRS, it has become clear that shifting load to increase demand in the middle of the day is a major opportunity to reduce emissions and bills, and required to address system risks from excessively low demand. Load shifting into the middle of the day may occur as a consequence of peak demand reduction, but load shifting into other periods outside defined peak periods is equally rewarded. We recognise the scheme is still in its infancy and this may add complexity at a time when scaling up the scheme is the priority. There may also be alternative ways to address this issue. Nonetheless, scheme design should consider how incentives to optimise load shifting into the middle of the day and address minimum demand would be prudent. While other states have experienced lower minimum demand than NSW, the continued growth of rooftop solar means it will become an issue for NSW as well in coming years.

1.3. Consider adding a secondary objective to both schemes that design and implementation of the ESS and PDRS consider alignment and complementary uptake of energy efficiency and flexible demand. We have observed that, in some cases, energy efficiency certificate schemes can create unintended consequences for uptake of flexible demand or miss opportunities to enable flexible demand (e.g. not requiring installation of equipment to enable load flexing). Incorporating an objective for alignment would ensure that future changes are assessed for their implications on each other.

Consultation questions

5. Is the PDRS design appropriate for securing its objectives? What evidence should the department consider to assess design appropriateness? Please provide evidence to support your answer.

[1] https://tessa.energysustainabilityschemes.nsw.gov.au/ipart?id=certificate_batches

[2] https://aemo.com.au/-/media/files/learn/fact-sheets/2024/minimum-operational-demand-fact-sheet.pdf

Responses

Is a certificate scheme an effective policy instrument to deliver these objectives?

A recent Institute for Sustainable Futures review for ARENA concluded the PDRS was the only scheme in Australia with a pathway for scaling flexible demand, stating: "The Peak Demand Reduction Scheme (PDRS) is the only certificate-based scheme for Flexible Demand in Australia."[3]

Are key design features still appropriate?

In short, yes, noting the recommended enhancements suggested under Part 1.

Part 2: reform opportunities

Consultation questions

6. What alternative or complementary objectives should the schemes focus on? Please provide evidence to support your recommendations, including reasons why the ESS and/or PDRS would be the best way to address the issue or opportunity you have identified.

Responses

To assist with the challenges of comparing to a baseline, we propose that the scheme test alternative baseline measurement methodologies. Under the WDRM, the methodology used essentially requires flat loads to participate, which excludes 80–95% of C&I loads[4,5] and is therefore a major barrier to scaling. The PDRS requires eligibility for WDRM in one of its streams. A bit like the metered baseline approach in the ESS, the PDRS could recognise alternative methodologies that are recognised in international jurisdictions. Impacts could be reviewed after 2–3 years. If alternative baseline measurements could be demonstrated, this could open up a lot of other sites to participate.

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[3] Briggs, C., Roche, D., Ibrahim, I. (2024). Flexible Demand – the Current State of Play in Australia. Institute for Sustainable Futures, UTS. Report prepared for ARENA. p. 15. https://arena.gov.au/assets/2024/06/UTS-Flexible-Demand-State-of-Play-in-Aust-Report.pdf

[4] Briggs, C., Hasan, K., Dwyer, S., Bashir, U. Niklas, S., Alexander, D., Chatterjee, A. (2022). *ARENA Knowledge Sharing Demand Flexibility Portfolio Retrospective Analysis Report*. Institute for Sustainable Futures, UTS. Report prepared for ARENA. p. 47.

[5] Oakley Greenwood (2021). Phase 2 – Baseline Methodology and Participant Testing: Wholesale Demand Response Mechanism – Baseline Methodology Testing and Metrics. Report prepared for AEMO. p. 12

Other reform opportunities

The Department welcomes suggestions from stakeholders on additional reform opportunities that do not fall into the 3 areas identified in this paper.

Consultation question

13. What additional reform opportunities should the Department consider for the ESS and/or PDRS? Please provide evidence to support your recommendations.

Responses

In order to deliver additional energy supply during periods of peak demand the energy storage unit should be actively controlled in a concerted and consistent way. The anecdotal evidence is that system installation is not consistent, each inverter make and model will likely have multiple user settings or parameters that have an enormous impact on the response of the individual systems.[6,7,8,9]

Our work on inverter responses with AEMO, first through ARENA funding[10] and now through CSIRO's Global Power Systems Transformation, has identified many challenges, some of which have been resolved through Standards, and some of which remain barriers. The electrical network is not a plug'n'play system: we must preserve safety of the people who operate and maintain the system; have adequate systems of protection of equipment; and keep the general public out of harm's way - particularly when incentivising some forms of energy storage. Our work on hybrid PV and storage inverters is demonstrating similar challenges.

There needs to be a focus on the technical specification not just of the battery type and make but also the inverter make and model. This should include firmware testing and retesting when altered, clear guidance on mandatory parameter settings for each battery, and battery system manufacturer to supply warrants on battery failures including cell production type, date etc.

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6 Ahmad, A., Tafti, H.D., Konstantinou, G., Hredzak, B., Fletcher, J.E. (2021). Analysis on the behaviour of grid-connected single-phase photovoltaic inverters under voltage phase-Angle jumps. Proceedings of the Energy Conversion Congress and Exposition - Asia, , art. no. 9479264: 291–296.

7 Ahmad, A., Tafti, H.D., Konstantinou, G., Hredzak, B., Fletcher, J.E. (2022). Distributed photovoltaic inverters' response to voltage phase-angle jump. IEEE Journal of Photovoltaics, 12(1):429-436.

8 Ahmad, A., Tafti, H.D., Konstantinou, G., Hredzak, B., Fletcher, J. (2022). Sensitivity analysis of grid-connected single-phase photovoltaic inverters to fast voltage sag disturbance. Proceedings of the 2022 International Conference on Emerging Trends in Electrical, Control, and Telecommunication Engineering, ETECTE 2022.

9 Ahmad, A., Tafti, H.D., Konstantinou, G., Hredzak, B., Fletcher, J.E. (2023). Point-on-wave voltage phase-angle jump sensitivity analysis of grid-connected single-phase inverters/ IEEE Transactions on Industry Applications, 59(3): 3764–3772.

10 http://pvinverters.ee.unsw.edu.au/

Battery performance history is useful, but data on battery failures and failure modes may actually be of more value to the community.

The need for peak reduction is more relevant to Essential Energy and Endeavour Energy than to Ausgrid. Impacts of large-scale adoption of storage in the DNO, specifically on the transmission network, should also be considered as this is critical to the stability of the power system.[11] More variance in the uncertainty of supply and demand is NOT a good thing. Power system imbalance between supply and demand at the shortest timescales (sub-cycle to 2–3 cycles) is the first and most pressing challenge to overcome in a system dominated by inverter-based resources. Any resource that cannot react in these timescales will only contribute further to the challenge.

[11] Kala, S., Fletcher, J., Peiris, J. and Ahmadyar, A. (2019). System frequency performance of the Australian National Electricity Market with energy transformation. 2019 IEEE Innovative Smart Grid Technologies - Asia (ISGT Asia). Chengdu

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RE: Energy Savings Scheme and Peak Demand Reduction Scheme statutory reviews 2025

PowerPlus Energy welcomes and appreciates the opportunity to provide feedback for the Energy Savings Scheme and Peak Demand Reduction Scheme statutory reviews 2025.

About PowerPlus Energy

As an Australian renewable energy storage company established in 2017, PowerPlus prides ourselves on promoting Australian manufacturing. Having now grown to a diverse company of over 80 staff - together, we design, engineer, and manufacture our energy storage solutions right here in the heart of business district in Scoresby VIC, ensuring the highest possible quality for our customers.

Our range of products including Lithium Ferro-Phosphate (LFP) battery modules, storage cabinets and Battery Energy Storage Systems (BESS), they are designed easy to use, scalable, and built to last, making them the ideal choice for your next renewable energy project here in Australia.

Power Plus's unique batteries are constructed with quality (cobalt-free) lithium ferro-phosphate cylindrical cells, equipped with an in-built BMS. They seamlessly integrate universally to provide reliable, long-term outcomes, while scaling easily to suit your changing needs.
Our pre-wired cabinets minimise the time required to install batteries and power conversion equipment on-site. Ranging from small battery enclosures to large cabinets, our cabinets, include gear trays that you can prebuild with your choice of preferred PCE, and test in the workshop to simplify your on-site installation.

Our Mission
Provide reliable energy solutions for domestic, commercial, industrial, utility and telecommunication use.

Our Vision
Design and build easy to use, easy to install, reliable and robust energy storage.

For more information, please visit PowerPlus Energy website.

Statutory Reviews

1. Do you support the proposed approach to determining whether scheme objectives remain valid? Please provide evidence to support your answer.

Yes, PowerPlus Energy supports majority of the approaches and encourage the department to continuously consult general public on the scheme objectives.

2. Are the ESS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.

No comment as PowerPlus is not active in relevant market.

3. Are the PDRS objectives still valid, and what evidence should the Department consider to assess their validity? Please provide evidence to support your answer.

PowerPlus agrees the objectives of PDRS are valid.
We suggest that the department assess peak demand reduction over targeted periods and review its performance regularly. This will help determine whether current activities are contributing to a positive outcome. Additionally, measurement of economic data (including pricing, activities, competition, and consumer reaction ect.) for relevance to the market should also be considered.

4. Is the ESS design appropriate for securing its objectives? What evidence should the department consider to assess design appropriateness? Please provide evidence to support your answer

No comment as PowerPlus is not active in relevant market.

5. Is the PDRS design appropriate for securing its objectives? What evidence should the department consider to assess design appropriateness? Please provide evidence to support your answer

PowerPlus Energy agrees that majority of the rules are appropriate.

However, considering the current economic challenges, PowerPlus believes consumers/households are less likely to benefit directly from latest PDRS activities published; therefore the rules are doubtfully designed to accelerate the process to ensure that the objectives are met in time.

As an example, since the latest BESS activities were introduced, our discussions with various stakeholders in the market showed roughly 30% increase in battery enquiries, however numbers of systems being installed have dropped as consumers reacted before details of these activities are released. In some areas, accredited service providers were forced to reduce profit margin or source cheaper alternatives.

Reform Opportunities

6. What alternative or complementary objectives should the schemes focus on? Please provide evidence to support your recommendations, including reasons why the ESS and/or PDRS would be the best way to address the issue or opportunity you have identified.

PowerPlus suggests the department consider industries with different energy demands, for example: agricultural, medical and telecommunication, to provide scheme objectives that will impact their daily demand. Typical agricultural businesses are in regional areas with high energy demand but sensitive network infrastructure, whereas medical organisations need uninterrupted energy supply with critical back up support; these businesses play a vital role in current energy market and our daily lives. We believe that onsite solar or wind together with battery storage systems could potentially relieve pressures for these businesses from both an energy and economic perspective*.

Furthermore, onsite battery storage option may also help businesses that runs long hours or non-stop operation requirement during energy dense period.

7. Are there opportunities to improve how scheme costs and benefits are shared? If so, please provide evidence of how any proposed changes would result in more equitable outcomes.

No comments.

8. What adjustments could the department make to scheme settings to improve performance against the legislated or proposed objectives? How would this provide a net benefit to NSW? Please provide evidence to support your answer, including any assumptions you have made.

We believe that consultations with industry representatives should be carried out more regularly (e.g. minimum annually), potential adjustment to scheme activities should also be considered accordingly to reflect rapid market and technology changes.

Secondly, considering the unique challenges in NSW both geographically and economically, we suggest the department review scheme activities to reflect energy demands from households with basic daily needs, at the same time helping with scheme objectives. For instance, incentivise energy consumption from battery storage during peak energy hours.

9. How could the Department improve transparency around how it makes decisions and how it communicates changes to the schemes?

PowerPlus Energy strongly recommend the department share the decision making processes, and allow consultation periods before any change to scheme rules or activities. The consultation process should also consider involving industry representatives to ensure that the activities are in line with product specifications on market, and within an affordable technology scope. An example in the BESS activities mentioned was that lithium batteries are required to operate at more than 70 degrees or below -20 degrees, this goes beyond the realistic expectations from the product.

*PowerPlus Energy case study, Australian Renewable Power Robotic Dairy Farm -https://www.youtube.com/watch?v=Jf8XDP6fi9s

10. How could the Department improve the delivery of the schemes? Please provide examples of other jurisdictions and schemes where possible to support your recommendations.

PowerPlus Energy suggest that the department provide a clear scheme roadmap to the public, with progress updated regularly. This will not only provide the industry operators with clearer directions, but also confidence for energy consumers. In the past PDSR rules review, an estimated time line with a minimum amount of details were published, which we believe has caused unnecessary market impact for both businesses and consumers.

11. How could the government improve the governance and administration of the schemes? Please provide examples to support your recommendations.

No comment.

12. What additional scheme data should the department or IPART collect and for what purpose? How could the Department make better use of new and existing scheme data?

No comment.

13. What additional reform opportunities should the Department consider for the ESS and/or PDRS? Please provide evidence to support your recommendations.

While not directly mentioned within this consultation questions, PowerPlus suggests the below potential approaches specifically in solar and battery storage market:

- Encourage Australian manufacturing.

PowerPlus Energy urges the NSW government and relevant regulators to prioritise Australian Made products where possible, to sustain manufacturing and supply chain locally, and to make Australian made renewable products more affordable for Australian energy consumers.

- Fringe of network support

We strongly suggest that the NSW government and DNSPs review the current fringe of network energy performance, and utilise proven battery storage technology to improve business and domestic energy stability in those area, and help reducing ongoing service cost.

- Collaboration between states and federal government

PowerPlus Energy suggests the NSW government collaborate with other state government and/or the federal government to intergrate energy efficiency schemes and objectives to accelerate/meet our emission targets, also reducing the pressure for Australian businesses and energy consumers.

Yours sincerely,

Shane Pollard
General Manager
PowerPlus Energy Pty Ltd

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NSW Energy Saving Scheme & Peak Demand Reduction Scheme statutory review 2025

Overview

Rewiring Australia welcomes the review of the schemes' ongoing potential and performance and the opportunity to provide a submission. We advocate for Australia to rapidly "electrify everything". We must replace all fossil-fuel-powered machines—from the large ones in power stations to the small ones in homes—with efficient, flexible, electric alternatives. This will reduce carbon emissions and buy the time we need to completely decarbonise our economy. It will also save households and the Australian economy billions of dollars.

Rewiring Australia supports the ongoing operation of the Energy Saving Scheme (ESS) and Peak Demand Reduction Scheme (PDRS). We congratulate the NSW government on its achievements in unlocking the benefits of electrification and consumer energy resources (CER). Our submission focuses on the growing need for new household electric machines to offer load flexibility to the grid.

Rewiring Australia recommends that the schemes' objectives should explicitly and actively prioritise flexible energy usage and electrification of replacement appliances. Placing greater value on flexibility will improve government value for money, futureproof the transition, and enhance the complementarity of the ESS with broader energy system electrification, as well as government energy and climate policy and commitments.

About Rewiring Australia

Rewiring Australia is a non-profit research and advocacy organisation dedicated to representing the people, households and communities in the energy system. We deliver practical climate progress by working with government, industry, and communities to electrify everything. Co-founded in 2021 by Dr Saul Griffith and Dan Cass, Rewiring Australia highlights the positive climate and economic outcomes possible for Australia, and the world, with electrification of fossil fuel machines. www.rewiringaustralia.org

In addition to co-founding Rewiring Australia, Saul Griffith is also the co-founder and Chief Scientist of Rewiring America. Rewiring America and Saul worked closely with the Biden Administration in the drafting of the Inflation Reduction Act to drive investment in clean, electric machines and in supporting households and the larger U.S. economy to electrify.

Context

As Australia's energy transition accelerates and our energy system becomes dominated by variable renewables, we must build demand flexibility into the electricity system. Reforms to the PDRS and ESS are needed to improve levels of flexibility.

The ESS' focus on efficiency improvements contributes to the reduction of energy related emissions. However, this narrow focus is a missed opportunity to build greater demand flexibility within homes. The PDRS is the only scheme with a pathway for scaling that includes a target, support mechanism, and process for increasing the volume and types of activities over time[1]. The PDRS is critical for incentivising flexibility in NSW's future electricity system, but a key opportunity exists for the two schemes to work towards common objectives of increased flexibility and reducing emissions in our electricity system.

The ESS and PDRS aim to complement government policy's broader carbon reduction objectives. However, the Government agenda and energy system have changed since 2020 (when the last review was conducted and the PDRS was introduced) with respect to rapid electrification and impending gas shortfalls.

Specifically, the:

- Energy and Climate Ministers' endorsed National Consumer Energy Resources Roadmap underlined the need for enhanced flexibility to achieve the full potential of the rapid shift to a new energy system.
- In the Gas Statement of Opportunities, AEMO signalled that gas supply shortfalls threaten New South Wales and the East Coast as soon as 2025.

In the context of the above, the ESS and PDRS could better complement the government priorities of enhancing electricity system flexibility and gas replacement.

[1] Briggs, Roche & Ibrahim (2024, July). Shape, shift, and shimmy: EVs and hot water can boost flexible demand, but need policy pathway. [Online]. https://reneweconomy.com.au/shape-shift-and-shimmy-evs-and-hot-water-can-boost-flexible-demand-but-need-policy-pathway/

The ESS and PDRS incentivise upgrading a range of appliances, from lights and A/C to pool pumps. Hot water offers enormous consumer demand flexibility opportunities and, therefore, deserves greater recognition and eligibility under the PDRS in particular[2]. The University of Technology of Sydney and the Institute of Energy Economics and Financial Analysis have produced two compelling reports on the value of hot water that Rewiring Australia recommends the Review consider[3].

The findings of the UTS team's recent research into domestic hot water and flexibility found that[4]:

- A Business as usual scenario would represent a major missed opportunity to use domestic water heaters as a significant source of flexible demand equal to 15–31 GWh/day.
- The phasing out of gas water heaters in homes would provide Australian consumers with combined annual savings of $4.7–6.7 billion by 2040.
- More aggressive electrification of water heating could reduce emissions three to five times more than remaining on the current trajectory.
- Many barriers remain to the uptake of electric water heating in homes and activating their flexible demand capacity, including a need for easier solutions and a compelling customer proposition.
- Electrifying water heating achieves both increased energy efficiency and flexibility - but only with the right policy mix.

The ESS needs to be expanded to fully capture the potential benefits of DERs and facilitate their integration into the electricity grid in a way that supports power system reliability and security.

Not only does the ESS need to be prescriptive regarding technology capability, but it also needs to model where and when these DER services are available. Such modelling would be valuable in understanding changes in demand, demand flexibility capacity and potential for non-network services.

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[2] Briggs, Roche & Ibrahim (2024, July). Shape, shift, and shimmy: EVs and hot water can boost flexible demand, but need policy pathway. [Online]. https://reneweconomy.com.au/shape-shift-and-shimmy-evs-and-hot-water-can-boost-flexible-demand-but-need-policy-pathway/

[3] Roche, D., Dwyer, S., Rispler, J., Chatterjee, A., Fane, S. & White, S. (2023). Domestic Hot Water and Flexibility. Report prepared for ARENA by UTS Institute for Sustainable Futures. Available from: https://www.uts.edu.au/isf/explore-research/projects/domestic-hot-water-and-flexibility; Kuiper, K., (2024). Australia needs more efficient, smarter home hot water systems. [Online] https://ieefa.org/resources/australia-needs-more-efficient-smarter-home-hot-water-systems

[4] ibid.

Recommendations

Scheme Objectives

1. A primary objective of the NSW ESS and PDRS should be to enhance the flexible use of energy.
2. The electrification of appliances should be an objective of the scheme. Fossil fuel-powered machines are not compatible with net zero future energy systems.

Scheme Eligibility and Activities

3. All new subsidised electric water heaters (and other relevant appliances) should be required to have a timer, controls and, once standards allow, dynamic management controls for demand response. This can be delivered via an eligible products list, a notice to market and compliance audits.
4. Subsidies should apply to configuring or retrofitting existing electric water heaters to be flexible (i.e. the addition and configuration of timers or controls). This could be achieved through creating certificates for retrofitting or adding to a load control service.
5. As well as mandating flexible controls, support for removing gas hot water and replacement with a flexible heat pump system should be increased. This could be achieved through the creation of certificates under the PDRS for new heat pump installations which meet demand shifting requirements (e.g. VPP participation or smart controls) or outside the PDRS through a grant subsidy. This will better reflect the high cost of retrofitting these systems, the value of efficient, flexible electrification, and the high future cost of gas supply.
6. The review should consider broadening the PDRS Shifting and Demand Response activities to include flexible hot water and EV chargers.

Scheme Operation and Communication

7. The government should promote the ESS and PDRS more strongly and visibly; distinctive branding and online presence could increase public trust.
8. In addition, proactive marketing of the scheme and the discounts available would increase consumer awareness. Government advertising should advise consumers to seek appliance quotes that include the scheme rebates. This is important to help ensure that consumers replacing broken appliances in a hurry get quotes for replacements that reflect the rebates and incentives of the scheme. We note, by way of example, that Solar Victoria has conducted effective and popular campaigns for its programs.
9. Reforms and installer-focused communications should be increased to ensure that more installers are registered to offer the scheme.

10. The transparency of the certificate scheme value to consumers should be improved through requirements of Accredited Certificate Providers within the schemes to highlight this in advertising, sales and invoicing.
11. The Government should explore options to fund and partner with trusted community and advocacy organisations to promote the scheme.

Conclusion

The strengthened and expanded ESS and PDRS are essential in delivering an affordable, rapid transformation. The opportunity is to unlock the benefits of electrifying our homes in the short term and at scale. Benefits include reducing energy consumption, consumer bills, carbon emissions, and electricity system costs. Complementary measures and incentives to support and promote the ESS are needed. Within our domestic infrastructure, hot water generation stands out as a critical element which the ESS and PDRS should seek to rapidly electrify with flexibility capabilities. Priority enhancements are required to deliver low-cost appliances that offer a range of demand flexibility services, such as hot water systems.

From: [redacted]
Sent: Thursday, 5 September 2024 10:26 PM
To: OEH PD Energysecurity Mailbox
Subject: My submission

The current scheme is focused on reducing energy consumption. To help people save money and modernise the grid, we think the scheme should prioritise the **flexibility** as well as the efficiency of appliances to help people use solar power and prepare for a smart energy future. It should require timers and smart controls on new systems, increase the subsidies for removing gas systems, and advertise the scheme more to the public.

Regards

[redacted]

6 September 2024

New South Wales Government
Department of Climate Change, Energy, the Environment and Water

Sent via email to: **energysecurity@environment.nsw.gov.au**

RE: Energy Savings Scheme and Peak Demand Reduction Scheme Statutory Reviews 2025

About Shell Energy in Australia

Shell Energy is Shell's renewables and energy solutions business in Australia, helping its customers to decarbonise and reduce their environmental footprint.

Shell Energy delivers business energy solutions and innovation across a portfolio of electricity, gas, environmental products and energy productivity for commercial and industrial customers, while our residential energy retailing business Powershop, acquired in 2022, serves households and small business customers in Australia.

As the second largest electricity provider to commercial and industrial businesses in Australia[1], Shell Energy offers integrated solutions and market-leading[2] customer satisfaction, built on industry expertise and personalised relationships. The company's generation assets include 662 megawatts of gas-fired peaking power stations in Western Australia and Queensland, supporting the transition to renewables, and the 120-megawatt Gangarri solar energy development in Queensland. Shell Energy also operates the 60MW Riverina Storage System 1 in NSW.

Shell Energy Australia Pty Ltd and its subsidiaries trade as Shell Energy, while Powershop Australia Pty Ltd trades as Powershop. Further information about Shell Energy and our operations can be found on our website here.

General Feedback

Shell Energy welcomes the opportunity to provide feedback to the New South Wales Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW) discussion paper on the Energy Savings Scheme and Peak Demand Reduction Scheme statutory reviews 2025 (the Discussion Paper).

In general, Shell Energy supports the intent of both the Energy Savings Scheme (ESS) and Peak Demand Reduction Scheme (PDRS) to encourage efficient reductions in electricity consumption. Indeed, this aligns with many of the products and services which Shell Energy offers to assist in curbing peak demand, shifting demand and utilising electricity generation when it most benefits the market and consumers.

Part One: Statutory Reviews

We consider that at large, the objectives remain relevant as consumer preference and behaviour shifts towards a greater uptake of electric appliances, devices, and vehicles. This means that there is greater pressure on

[1]By load, based on Shell Energy analysis of publicly available data.
[2] Utility Market Intelligence (UMI) survey of large commercial and industrial electricity customers of major electricity retailers, including ERM Power (now known as Shell Energy) by independent research company NTF Group in 2011-2021.

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electricity generation to keep up with the growing needs of both small and large customers. We consider that the objectives will continue to service a need within the electricity system by incentivising technologies and behaviours to ensure a smooth transition.

Shell Energy supports the continued use of a certificate scheme as we consider this is an effective mechanism for retailers and large users to meet their energy savings targets. We consider that the design of the schemes could be expanded to include further technologies, and therefore offer greater avenues of achieving these targets through eligible activities. This again aligns with the scheme objectives and will ensure the design features remain appropriate into the future as there is greater uptake of activities which the schemes do not currently account for such as battery energy storage solutions (BESS).

Part Two: Reform Opportunities

Regarding reform opportunities for the PDRS scheme, Shell Energy's general view is that the current scope is too narrow and there are many technologies which would assist in achieving the scheme objectives that are currently excluded, such as behind-the-meter BESS, and novel commercial and industrial (C&I) demand response technologies. In particular, we propose that the restrictions on BESS methods 1 and 2 that limit their application to small scale systems on residential and small business sites be lifted. By opening these methods to large businesses and supporting behind-the-meter BESS and load curtailment/ load shifting a material reduction in peak demand can be achieved.

Shell Energy considers that the purpose of the scheme needs to be framed carefully. There is a suite of nascent technologies that could be applied to these schemes but are not eligible as they have not been adopted at scale in the same way that, for example, solar panels have on both a residential and industrial scale. For instance, regarding ARENA's commercial readiness index, it is understood that schemes such as the ESS and PDRS likely only take on technologies which are rated 5 or 6 on the index, being technologies of a bankable asset class or those considered to be driving widespread development and market competition. However, the ability to access schemes like this can take technology from level 3 or 4 to level 5 or 6. Without schemes like this supporting novel technologies, it is limiting the ability for a broader range of assets to enter the market at scale and delaying the achievement of energy savings and peak demand reduction targets.

Because of those reasons outlined above, Shell Energy considers that currently, innovation can only be achieved on a small scale through the ESS and PDRS where there are limits on the uptake of eligible technologies. We would support the design being expanded to include BESS, as well as any measurable load curtailment. We are happy to further engage with the Department to discuss what this might look like. In particular, we consider that the inclusion of such technologies would inevitably increase the net benefit to NSW and further contribute to NSW's legislated emissions reductions targets.

Further, Shell Energy has previously raised concerns relating to the liability created for battery charging under these schemes. Both the ESS and PDRS require certificates to be surrendered for the volume of energy used to charge grid connected BESS. We consider that this creates a material burden on the economics of battery projects in NSW compared to other jurisdictions and disincentivises investment in these assets.

The AEMC has recently argued in their retailer reliability obligation (RRO) exemption for scheduled bi-directional units draft determination that "exempting storage assets from the RRO would remove the trade-off these assets bear between providing security services and incurring RRO penalties".[3] We consider that these same arguments are relevant to the ESS and PDRS in removing the liability from charging BESS assets so they are not penalised for meeting energy demand, providing system security and enabling NSW in reaching its renewable

[3] Draft rule determination – National Electricity Amendment (Retailer reliability obligation exemption for scheduled bi-directional units) Rule 2024 AEMC [August 2024].

targets. Alternatively, it may be appropriate to place battery liability on ancillary load only which is aligned with current practice under the Renewable Energy Target.[4]

Shell Energy again thanks the NSW DCCEEW for the opportunity to provide a response to the discussion paper. If you have any questions relating to the content of this submission, please reach out to shelby.macfarlanehill@shellenergy.com.au.

Thanks,

Libby Hawker

General Manager – Regulatory Affairs and Compliance

[4] See https://cer.gov.au/schemes/renewable-energy-target/renewable-energy-target-liability-and-exemptions/relevant-acquisitions