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Climate Change and Energy Savings Policy

NSW Department of Planning, Industry and Environment

Submitted by email: **energysecurity@environment.nsw.gov.au**

**25 June 2020**

Dear Reetta,

**Energy Security Target and Safeguard Consultation Paper**

AGL Energy (**AGL**) welcomes the opportunity to make a submission in response to the Energy Security Target and Safeguard Consultation Paper (**Consultation Paper**).

AGL is committed to meeting the needs of its energy customers. AGL is one of Australia's largest integrated energy companies and the largest ASX listed owner, operator and developer of renewable generation. Our diverse power generation portfolio includes base, peaking and intermediate generation plants, spread across traditional thermal generation as well as renewable sources.

**Energy Security Target**

We welcome the focus by the NSW government on ensuring the security and reliability of the National Electricity Market (**NEM**). AGL also welcomes the consultative approach the NSW Government is taking to the issue of reliability assessment, and its transparency in outlining an approach to meeting perceived gaps.

We accept that the setting of an Energy Security Target (**EST**), as announced as a part of the broader NSW Energy Strategy framework in 2019, is beyond the remit of this consultation. Nevertheless, we do make some observations about certain aspects of the EST proposal, as they inform our approach to the issues under consultation and the conditions under which further policy action may be triggered. At the heart of this proposal is a very significant increase in the effective operational reliability standard for NSW.

We acknowledge that the trade-off between reliability and cost is a fundamental social choice, and one that governments are ultimately responsible for. However, the NEM is not currently set up in a way that encourages the market to meet the higher level of reliability embodied in the EST – as noted, price caps and other market settings are aligned to the broader NEM Reliability Standard that, while is still set to high levels of reliability, has the effect of being somewhat less stringent than the proposed EST. Since the publication of the EST, we note that COAG has supported the use of a higher reliability standard of 0.0006% unserved energy (**USE**) per annum to trigger certain additional policy responses, including some that may affect market responses. Nevertheless, this is unlikely to change the basic picture that market-driven electricity generation itself is unlikely to consistently meet the proposed higher standard specified in the EST.

In this light, if the NSW Government is seeking higher levels of reliability than may be delivered under NEM market settings, it is appropriate and arguably necessary that the government considers underwriting some

of the higher costs of meeting the EST, as a means of providing some protection to consumers. In addition, AGL encourages the NSW Government to implement the EST in such a way that it does not continually trigger these backstop measures unnecessarily, which would undermine market processes. Some constructive improvements as to how the EST could be structured to meet this outcome are included in Appendix A to this submission, including taking a broader approach to assessing demand forecasts, and consideration of the lowest-cost generation mix to resolve any breach of the standard, which may require a more accurate probabilistic assessment of reliability rather than a simpler view of firm capacity.

We also welcome the NSW Government taking a more flexible approach to assessing potential ways to meet the EST, including consideration of a wide set of responses. In line with the benefits of staying aligned with NEM standards, we also see value in ensuring the policy responses remain open to utilisation of market design proposals that may emerge from the post 2025 NEM market design process.

Open discussions between the NSW Government and energy market participants are critical to delivering on the Government's proposal. To ensure these channels remain open and constructive, we consider that information sought from participants could be provided in good faith rather than having penalty provisions applied for non-conformance. Steps taken to compulsorily elicit information from participants about work in progress or speculative projects could inhibit internal consideration of new project ideas. We therefore ask the government to consider further the need to impose new compliance penalties and whether this would provide value to administrators beyond the current framework and any additional good faith discussions. More detailed feedback on the rationale for this approach is included in Appendix A.

**Energy Security Safeguard**

AGL is supportive of the NSW Government seeking to build on the success of the NSW Energy Savings Scheme (**ESS**) by reconstituting it as the Energy Security Safeguard (**Safeguard**). AGL is keen to work with Government to ensure the success of both the expanded and extended ESS and the new scheme to support peak demand reduction.

**Expanded and extended ESS**

AGL supports the NSW Government's proposal to extend the ESS to 2050 and set a more ambitious energy savings target. However, we would encourage the NSW Government to provide as much certainty as possible early on to allow industry to confidently forecast their liabilities. To that end, we recommend that the ESS targets be enshrined in legislation to create a stable long-term target that all participants are aware of well in advance, rather than be tied to a trigger that is seeking to deliver broader long-term market reliability.

AGL sees some promising opportunities that could be pursued in the ESS space, including home insultation and smart home systems. We do not agree, however, with the view that commercial lighting is reaching market maturity. Rather, our view is that the commercial lighting market is unlikely to reach market maturity for a while, especially in the small business space.

With respect to the expansion of fuel switching, our preference is for Option 2 as it allows for behind the meter installations, more opportunities for the development of low emission technologies and processes that may not have been thought of yet and for geothermal heat pump systems to be installed at residential, commercial and industrial sites. Further information on these issues is included in Appendix B to this submission.

**New Peak Demand Reduction Scheme**

The Peak Demand Reduction Scheme (**PDRS**) focuses on availability of capacity, but must also be cognisant of other market design and approaches that may impact dispatch and the effectiveness of any contracts arising from this capacity.

Based on AGL's own insights, and the broad uncertainty on how to operationalise the PDRS, we encourage the NSW Government to commence a trial. A trial arrangement, as we have outlined below in Appendix B, would allow NSW Government and participants to understand the value that the scheme would unlock and any unforeseen challenges that may occur. We have outlined further options for a slow ramp up below in Appendix B. Based on our experience with the ARENA and NSW Government jointly funded Peak Rewards program, the PDRS should initially focus on large commercial and industrial user activity, batteries and behavioural demand response as these activities are the most likely to generate firmness of peak energy capacity.

In particular, the PDRS can complement the current NSW Empowering Homes program by reducing the customer upfront costs associated with the purchase of a solar/battery package and therefore boost the uptake of residential batteries. This would be particularly effective when the Empowering Homes program moves from a pilot program targeted at consumers in the Hunter region and expanded to all NSW residents.

In undertaking a trial approach, we also encourage the NSW Government to ensure that consumer choice and protections are inherent in both the PDRS and including of those protections built elsewhere in the market. For example, technology standards underpinning the PDRS products and services should facilitate two-way communication to enable consumer choice and comfort. In matching these consumer needs, the PDRS must therefore also offer flexibility in operation (e.g. undertaking behavioural research to understand the number of consumers that will utilise or give effect to their consumer rights and protections).

Trials or a slow ramp up of the PDRS as described above would provide evidence to ensure we get the regulatory framework right. Once this is successfully implemented, the NSW government could consider the expansion into other areas through a five-year trigger review of the scheme. This is not dissimilar to the initial commencement of the Energy Savings Scheme in NSW and other jurisdictions.

Should you have any questions in relation to this submission, please contact Leilani Kuhn (Manager Policy & Strategy) on 03 8633 6934 or myself on 03 8633 6514.

Yours sincerely,

Barry Sterland

GM Policy & Strategy, AGL Energy

## APPENDIX A

## Part 1 - Energy Security Target

### Reform to ensure the ongoing reliability of the NEM

Taking steps to ensure the security and reliability of the NEM is critical in ensuring an orderly transition to a lower-cost and lower-emissions generation mix to replace thermal generation that is reaching the end of its operational life.

The challenges Australian Energy Market Operator (**AEMO**) is facing in continuing to operate the grid in a reliable and secure way are well documented and understood. With regard to reliability, substantial measures have been made to bolster the ability of the Reliability and Emergency Reserve Trader (**RERT**) scheme as well as steps to place an obligation on retailers to support NEM reliability through greater levels of firm contracting through the Retailer Reliability Obligation (**RRO**).

These recent reforms have been aimed at immediate reliability concerns with current NEM operation, rather with potential issues we may face in the future. At the same time, the Energy Security Board (**ESB**) has embarked on a program of reform to consider future market design to operate post 2025; a project that is currently progressing apace, with a view to releasing a public consultation later this year.

One of the principle issues that this project is seeking to address is maintaining NEM reliability over the medium and long-term, specifically by assessing the strength of investment signals to ensure an efficient market response to any reliability concerns. Being cognisant of the changing dynamics of the NEM, particularly with the increasing penetration of renewables, we are supportive of establishing market signals to drive the investment required to support the reliability of the NEM into the future, which is the focus of the ESB's post-2025 market design work program.

The ESB has also been recently tasked by Council of Australian Governments (**COAG**) to consider the suitability of the current NEM reliability standard, with the ESB commissioning papers from ACIL Allen and EY to consider the application of the current standard in detail.[1]

Based on the analysis presented in these papers, to ensure reliability ahead of 2025, the COAG Energy Council has agreed to an interim reliability measure that builds on the existing RERT scheme and will mean that unserved energy does not exceed 0.0006% in any region. COAG Energy Council has also agreed that this new standard would be applied to the RRO. The ESB has provided a draft rule that is currently undergoing consultation, to which AGL has provided a public submission.[2] COAG may yet make further changes based on their analysis of the current reliability standard.

The publication of the NSW Energy Strategy in 2019 predates much of the recent consultation and discussion at COAG and within the ESB regarding market settings that seek to deliver positive reliability outcomes to a higher standard. Nevertheless, it is important that the NSW Government's proposals for any localised reliability initiatives considers this previous analysis and ongoing work, and we would recommend that the NSW Government continues to consider the benefit that closer alignment between its proposals and broader NEM proposals provides the market.

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[1] See: Energy Security Board, Interim Reliability Measures – Reliability Reserve, May 2020 (available at: http://www.coagenergycouncil.gov.au/publications/consultation-draft-national-electricity-amendment-interim-reliability-measure-rule-2020)

[2] See AGL Submission to the ESB's Consultation on the RRO, June 2020 (available at: https://thehub.agl.com.au/articles/2018/12/submission-to-the-esbs-consultation-on-the-retailer-reliability-obligation-impact-analysis)

**NSW Energy Security Target and other reliability standards**

The continued utilisation of the NEM reliability standard to assess reliability outcomes has a long history with much consideration along the way. The Australian Energy Market Commission's (**AEMC**) Reliability Panel, an independent council of representatives from across the energy supply chain, including consumer representatives, have discussed the application of the standard at length over a number of years.[3]

The current level of the reliability standard of 0.002% USE was set in 1998 and has remained unchanged since then. The 0.002% level was set to roughly reflect the existing planning standard in each jurisdiction and represents the forecast amount of lost load (i.e. both the size and duration of outages).

Prior to the NEM, each of the jurisdictions established planning standards for reliability and applied these in decisions relating to the installation of new capacity. Long standing operational practice covering the use of installed capacity was generally directed to managing the number of times interruptions to supply were anticipated to occur; more recently, such a determination is referred to as loss of load probability (**LOLP**), which is a metric that AEMO also forecasts. This was generally achieved by arranging for reserve to accommodate the failure of the largest one, two or three generating units relatively quickly (the number varied between the jurisdictions and with time).

However, increasing interconnection and complexity in the operation of the NEM means that maintaining reliability is more complicated than the failure of large local units. While the performance of large units is nonetheless important, system planning and operation increasingly need to take in to account a broader range of complex inputs such as the risk of transmission constraints and forecasting of non-scheduled and semi-scheduled renewable generation.

We suggest that, in general, it is therefore imperative for the government to take a less mechanistic approach to both assessing breaches of the EST and the triggering corrective measures. Key ways that this could be done include:

- Considering using a range of forecasts and taking an average or lower end forecast, particularly for periods beyond a few years.
- Allowing for a broader view of the definition of likely capacity, to include those where there is strong reason for believing development is likely (e.g. based on economic analysis).
- Ensuring that the assessment of EST breaches consider other measures being introduced, such as the interim reliability measures agreed at COAG, or new approaches that might emerge from the post-2025 market design process.

In our view, while deterministic standards such as the proposed EST may be useful for planning purposes, and instructive to consider the broad state of generation throughout the NEM more generally, they do not provide a strong basis from which to define the scope of a potential reliability problem.

The inability for a deterministic standard to provide insight about the volume and duration of outages also means that it is challenging to determine the appropriate steps to remedy any breach of the standard. For example, while adding firm generation to a system will likely improve reliability outcomes, modern firming technologies rely on a range of resources, including peaking, storage, demand response, and interconnection, each with different attributes. In a practical sense, an extended plant outage will not be adequately replaced by a large capacity battery, which may only operate for a few hours. Conversely, in aggregate, a diverse range of smaller resources (for example, renewables firmed with gas, storage, and

[3] Most recently, see: AEMC Reliability Panel, *The Reliability Standard: Current Considerations*, 12 March 2020 (available at: https://www.aemc.gov.au/sites/default/files/2020-03/Reliability%20Standard%20-%20Information%20Paper.pdf)

demand response) are likely to provide for a good solution to forecast future reliability concerns, depending on the volume and duration of the forecast outages.

To the extent that the standard is deterministic, we make no comment regarding the methodology proposed to look at the supposed 'gap' between available firm capacity and maximum peak demand, but once again reiterate that a probabilistic approach to unit outages and availability would provide a much more accurate representation of actual system conditions, and better highlight the most cost-effective way to remediate any reliability concerns.

In terms of the detail of the calculation of the EST itself, it is not clear why the EST methodology would seek to apply an availability factor to some units, and then consider unit outages on top of capacity that has already been derated because of forecast outage risk. In our view, the outage risk should be considered either in the process of derating capacity or in the reserve margin, not both. For the purposes of the EST as proposed, it would seem to make more sense to calculate available firm capacity based on summer firm rating and then consider outage risk through the unexpected loss of the two largest generating units.

**Maximum Demand Forecasts**

There are some challenges with linking the EST to AEMO's maximum demand forecasts. Simply looking at recent history in the Electricity Statement of Opportunities (**ESOO**), AEMO's demand forecasts for NSW have varied significantly over the last ten years. Even from year to year, these demand forecasts have varied substantially, due to revisions in forecasting techniques, changes in demand due to economic conditions, changing generation mix and technology uptake, outage factors, and a range of variables that AEMO considers in its forecasting algorithms.

We note that while useful for system planning purposes, reliance on AEMO maximum forecasts to trigger a range of other responses carries some risk of overestimating actual system requirements, especially if there is no mechanism to address future downwards revisions of subsequent forecasts. This points to some care in using the EST as a trigger for further policy interventions based on a single result.

**Reporting Obligations**

With respect to the information requirements proposal, AGL is concerned that as currently constructed this may introduce incentives that are counter to the NSW Government's objective of incentivising new investment and the consideration of new projects by market participants.

The current drafting suggests that any information about project ideas could be requested, which would compel the provision of information beyond that concerning committed projects, which is generally available to AEMO or under market transparency obligations. AGL also points to the recent AEMC's "Transparency of New Projects" rule[4], which addresses information gaps in public domain by obligating transmission system operators (including Transgrid) in the NEM to share key connection information with AEMO. This rule, effective from mid December 2019, delivers a level of information transparency outlined by the NSW Government, and may render the Government's information requirements unnecessary. We encourage the Government to review the operations of this AEMC rule and to reassess the need for its information requirements proposal.

There would be limited certainty about any other project proposals that would not already be captured by these existing mechanisms. While there may be early-stage or speculative information on other projects, it is unlikely that this information would be sufficiently definite to warrant reliance upon to meet a reliability target.

[4] See: https://www.aemc.gov.au/rule-changes/transparency-new-projects

Compliance may be made challenging by the interpretation of disclosure obligations that represent only very initial discussions of potential ideas within businesses.

Where further information is required, we therefore consider that the Government could continue to access information regarding prospective projects on good faith terms.

## APPENDIX B

## Part 2 – Introduction of Energy Security Safeguard

AGL is supportive of the NSW Government seeking to build on the success of the ESS by reconstituting it as the Safeguard. AGL is keen to work with NSW Government to ensure the success of both the expanded and extended ESS and the new scheme to support peak demand reduction.

### Part 2.1 – An expanded and extended ESS

AGL supports the NSW Government's proposal to extend the ESS to 2050 and set a more ambitious energy savings target. However, we encourage the NSW Government to provide industry with as much certainty as possible as soon as possible to ensure businesses can forecast their liability costs and certificate position accurately. We have provided further details below.

**AGL's responses to consultation questions:**

| Topic | AGL response |
|---|---|
| Implementation timeframes | In AGL's view, a reasonable commencement date for the ESS is 2023/2024 or later.<br><br>We agree that the early accreditation of certificates ahead of surrendering requirements could be brought forward. Indeed, AGL's view is that certificates will need to have the ability to be created early, well in advance of the retailers' liability commencing, to provide some liquidity in the spot market.<br><br>In order to prepare for the introduction of the scheme, industry will require detailed and clear explanations of how the new activities and regulations will work, well ahead of introduction, so that we can be across compliance before the new scheme starts. This includes clear details of the scheme design, targets, retailer liability, surrender requirements, penalties for non-compliance, that will need to be confirmed well in advance so that contracts and a secondary market can be developed. |
| Targets | AGL considers the proposed yearly targets out to 2030 to be reasonable. From our perspective, the more certainty as early as possible the better to ensure we are able to forecast our liability costs and certificate position as accurately as possible.<br><br>AGL is also keen for the ESS targets to be legislated and not changed once set to create a stable long-term target that all participants are aware of well in advance. |
| Promising opportunities | **Commercial lighting**<br><br>AGL does not share the view that commercial lighting is reaching market maturity and considers that it is unlikely to reach market maturity for a while, especially in the small business space. If commercial lighting is taken it out of the ESS before the market really does meet saturation, then this may have the potential to create a market for existing inefficient lights – particularly for small businesses who are typically cash-poor.<br><br>Further, under the current certificate allocation to other ESS products (such as Heating Ventilation and Cooling (**HVAC**), no other technology is position well to take the place of commercial lighting (which typically provides around 70% of ESCs created per week). |

| Topic | AGL response |
|---|---|
| | **Home insulation**<br><br>There is a huge opportunity to benefit all homeowners without suitable levels of roof insulation. Although home insulation rollouts have been characterised by breaches of safety due to a lack of adequate regulation and oversight, with appropriate regulation and standards in place, improving housing fabric remains a substantial opportunity to reduce overall energy usage and reduce energy bills.<br><br>Insulation has never been removed from the SA Retailer Energy Efficiency Scheme (**REES**), and there are a number of complementary regulations in place, which ensure any work is carried out safely with appropriate accreditation and oversight:<br><br>• Insulation Standards Australia/NZ<br>• Manufacturers' installation standards<br>• Insulation industry insulation guidelines<br>• SA Office of the Technical Regulator insulation installations regulations and documentation<br>• SA REES insulation installations regulations and documentation<br><br>With the correct regulations in place, safety concerns caused by poor oversight of previous rollouts should not reoccur. |
| | **Next big thing?**<br><br>Extensive market research hasn't identified 'the next big thing' in energy efficiency. Rather, energy efficiency schemes overseas are incentivising deeper retrofits in homes and businesses by installing higher efficiency products (and also being rewarded for the higher efficiency). Unlike the USA or Europe, Australia is a small market by virtue of population and isolation, and expensive to service due to distance (both from other countries and within the country), so there needs to be an added incentive for local manufactures for it to be viable over time and/or for the wholesale import of increasingly high quality high efficiency products.<br><br>One way to incentivise market take up of higher efficiency products could be by allocating more ESCs than currently allocated by current CO2 abatement methodologies. This could be on a publicised sliding scale, for example over 5 years. This would incentivise manufacturers/importers towards more efficient units and Accredited Providers (**AP**) to install them, create more competition in the market, more supply and lower costs over time leading to price parity.<br><br>Another way to incentives the market is through a stimulus package for local manufacturers of energy efficient products compliant with ESS technical requirements. For instance, reverse cycle air conditioners/heat pumps, heaters, smart home controls.<br><br>AGL does not consider in home displays to be the 'next big things for energy efficiency schemes', as many energy retailers already provide customers with a digital Apps, |

| Topic | AGL response |
|---|---|
| | which captures this information at no cost to the customer. These are often complemented with energy savings tips.<br><br>However, smart home systems, rather than just smart lighting or in-home displays, could be a new activity for the ESS. This would include security systems, as well fire alarms, smart lighting systems and automatic control of heating & cooling systems as well as device activation / shutdown. Such systems would be more than what is currently available, as they would allow almost complete energy and usage optimisation in the home – both remotely as well as automatically. The central control of such an intricate system is not yet readily available in Australia and providing certificates for this complex system should incentivise large-scale take up (depending on the certificates awarded compared to the overall cost of the installed system). A smart home system would be particularly useful for vulnerable households, as it would allow them to easily reduce their energy use. However, these are the customers most unlikely to be able to afford a co-contribution, and many are renters. Therefore, to assist this cohort, a new area of reward (like geographical multiplier) to incentivise landlords (i.e. tax breaks as well as upgrading their property) would assist vulnerable households. |
| Factors that could affect uptake of new opportunities | The following factors could prevent the uptake of new opportunities:<br>• Small market, low potential uptake in the near term, low returns on low volume, no local importers or manufacturers<br>• Lack of information about product viable overseas which could be brought to Australia (technology transfer and manufacture, import)<br>• Cumbersome processes for registering new products in the scheme<br>• Restrictive government regulations<br>• Lack of knowledge about product/s and/or benefits once installed (lower bills, better thermal comfort when needed etc).<br>• Lack of a robust audit regime, allowing dodgy installations to occur. |
| Penalty Rates | AGL considers that the current penalty rate is set at an appropriate level to incentivise retailers to buy and surrender certificates because: no retailer wants to default, even if the penalty is not huge; and high penalties mean higher risk which then flows into the certificate price.<br><br>We also consider that small retailers should be exempt, to be in line with Victoria, SA and the ACT. Or at least be able to pay an annual penalty price based on MWh and GJ sales (ACT model). |
| Expanding fuel switching | AGL's preference for the expansion of fuel switching is Option 2, as it allows for:<br>• behind the meter installations, so biofuels or hydrogen could replace diesel.<br>• more opportunities for the development of low emission technologies / processes that may not have been thought about yet (especially as the scheme nominally runs to 2050).<br>• for geothermal heat pump systems to be installed at residential, commercial and industrial sites. This is a very effective fuel switching technology for heating and cooling. However, due it's small market penetration in Australia, it is still quite |

| Topic | AGL response |
|---|---|
| | expensive to install, especially compared to reverse cycle air conditioners for example (~$20,000+ for an average sized home). But once installed, the benefit of a geothermal heat pump heating & cooling system that it costs very little to run (none if there is a solar-battery system on site), keeps the house at a constant temperature year round, and can also provide hot water through the heat pump.<br><br>There will be barriers to take up, primarily around cost profiles for new technologies / processes entering the market. As suggested above, a flexible certificate allocation mechanism could be established to cater for new technologies, perhaps based on their emissions abatement and fossil fuel offsets.<br><br>Option 2 should also align with the Victorian Energy Upgrades (**VEU**) program. |
| Which cleaner fuel activities? | AGL considers the following cleaner fuel activities should be incentivised under the ESS:<br>• Bioenergy – electricity, gas, fuel (transport, aviation)<br>• Geothermal heat pumps for HVAC: all sectors, with no discrimination against the fluid used in the geothermal earth pipes. |
| Technologies being wound down under SRES | As Australia is a comparatively small market for water heater replacement, unless solar water heaters and heat pumps have continued financial support, it is likely that cheaper, less efficiency and thus higher emission water heaters will increasingly be installed. As such, AGL supports solar water heaters and heat pumps being covered by the scheme.<br><br>This support could be in the form of a multiplier that is consistent in increasing as the SRES decreases. Under the SA REES, solar hot water systems are eligible for Small-scale Technology Certificates (**STC**) as well as REES gigajoule credits. This makes it possible to offer efficient solar hot water systems at about half the normal retail price. Through the SA REES, and since 2015, AGL contractors have installed over 3,000 solar water heaters in South Australia. In addition, AGL contractors have installed over 3,500 heat pumps. In 2020 alone, these systems have displaced over 19,000 MWh of energy. This is compared to around 7,500 MWh displaced due to replacement gas hot water systems for the same time period.<br><br>In terms of actual CO2 saved reporting, like any other multipliers, the additional non-CO2 saving certificates could be uploaded into a separate line in the spreadsheet for upload into the ESS Portal.<br><br>AGL does not support the inclusion of small-scale Solar PV installations as they are almost at market parity and affordability. Small-scale Solar PV installations are at record highs and, in AGL's opinion, do not need any extra incentives. |

**Part 2.2 - New Peak Demand Reduction Scheme**

Our understanding is that the PDRS represents an opportunity for the NSW Government to encourage the market to reduce or shift demand at times when electricity spot prices are high or there is a supply-demand

imbalance. Specifically, the intent here is to make available the capacity to reduce demand, rather than demonstrating that capacity has been reduced or shifted at peak periods. Our feedback is based on this important distinction when reviewing the overall benefits and outcomes that the PDRS can deliver.

In designing the PDRS, we believe consumer choices and comfort must be paramount. There will inevitably be some customers that are unable or not interested in Distributed Energy Resource (**DER**) participation or responding to price signals, similarly there will be some customers that participated but will want/need the ability to opt-out of demand response when it suits them. This makes it important that the technology standards underpinning the PDRS products and services facilitates two-way communication and therefore enables consumer choice. We acknowledge this is likely to reduce the value of firm capacity, but consumer choice and comfort are important principles in the design of the PDRS.

Some aspect of the PDRS are currently unclear, and we offer the following considerations for the ongoing design:

- How the current penetration of smart meters in NSW will affect the success of this scheme (currently sitting at about 20% of residential customers).
- Networks curtailing the assets for network reliability will affect liabilities – this will likely devalue the firmness of capacity of the device.
- The standards that are used will affect both the scheme and the ability of contracting parties to dispatch against the needs of the grid (e.g. the proposed Demand Response Enabling Device (**DRED**) standard does not currently support two-way communication and we have provide more detail on this point below).
- Wholesale and retail designs will impact the effectiveness of such schemes, for example - expectations of contractual arrangements and sharing of risk in a capacity market. This will include understanding issues such as identification of change of ownership (e.g. contracting parties move residence) and how this is addressed under the scheme as well as other market designs.

Given this is a new scheme and many issues and potential outcomes are unknown, we believe that the steps outlined by the NSW government consultation paper should be considered potential elaborations rather than an inevitable path. For example, the NSW Government could seek to commence a trial or sandbox arrangement for PDRS, to more fully understand the demand response capacity, the value that the scheme would unlock and any unforeseen challenges that may occur. A slow ramp up of the PDRS could be done in one of three ways:

1. Slow ramp up of the program, starting with large C&I customer activities, which we have experience with similar arrangements (e.g. RERT) and behind the meter (**BTM**) batteries as it is likely to more easily determine firmness and therefore the true value of available capacity. Behavioural demand response is another opportunity under a slow ramp up (see our AGL ARENA trial). As we describe below, we believe the program will benefit should it seek to expand into batteries given the inherent benefits and predictability of these devices.
2. Setting the initial year target at 0 and running a desktop trial – this would allow industry and NSW government to put all the mechanisms in place and allow industry to both familiarise with the scheme and to set the appropriate contracts with parties.
3. By commencing a trial / sandbox arrangement that focused on a small target or particular time of the day (e.g. trailing a specific aspect of the scheme with a smaller set of consumers).

We would encourage any of these options being pursued following the start date for five-minute settlement (**5MS**), recognising that any sooner may risk implementation of a program that does not deliver the intended results.

Trials or a slow ramp up of the PDRS as described above will provide evidence in ensuring we get the regulatory framework right. Once this is successfully implemented, NSW government can consider expansion into other areas through a five-year trigger review of the scheme. This is not dissimilar to the initial commencement of the Energy Savings Scheme in NSW and other jurisdictions.

**Lessons learned**

Below is some information that support our above proposal to have a slow start and to provide context for our comments in the specific consultation responses below.

**AGL ARENA trial – NSW Demand Response -** AGL has been trialling a program similar to the PDRS with a limited group of our customers who have volunteered to participate. While there have been some positive results, and positive consumer feedback, there are inherent limitations of the program that must be considered. Below we provide further information on these limitations.

*Standard impacting consumers*

It is imperative that the standard chosen for demand response devices matches the forward trajectory of data and communication in the Australian market. The DRED standard, AS4755, is not conducive to a positive consumer experience and will not assist in establishing firm data on how the capacity translates into dispatch. Some issues we identified in relation to air-conditioners through our trial include:

- Bespoke, complex and high cost installations for existing air conditioners
- Inconsistent response of different makes and models of air conditioners to the control commands
- No local override capability if the customer wants to opt out of an event after it has started
- The lack of a feedback mechanism from the air conditioner to confirm that it has successfully executed the command.
- No factoring of room temperature into the control methodology; the algorithm only aims to cut power consumption, which it will do irrespective of consumer comfort.

Another important factor is how AS4755 will impact consumer choice and comfort levels, as there is no local override capability. While our findings suggest that the trial group generally did not have any concerns with how their air conditioner was being managed, it will be important to understand this on a much broader range of consumers and identifying how those who were dissatisfied can have their experience improved. For example, could a vulnerable or at-risk individual have their air conditioner controlled during a heat wave and have negative impacts on their health? How can this consumer opt out if communication is only one way? This is an important consideration as PDRS might assign a value to the available capacity which may not materialise in practice. Further, a consumer may make a purchase choice on a product with DRED enablement due to the value of the subsidy and not fully understand the consequences on their comfort or health until after installation.

We therefore encourage the NSW Government to consider the fact-based information and observations we have gathered from this market trial to ensure that the implementation is appropriate and will deliver clearly defined outcomes.

**NSW Smart Energy for Homes and Businesses Program -** We refer the NSW Government to the information we provided in December 2018 on the *Smart Energy for Homes and Business Program* where we raised questions and concerns regarding:

- Communication protocols and how these will impact the program
- Technology integration and the evolution of work in this space
- Hardware and software performance issues and how these would be addressed/managed
- Compliance obligation alignment with Australian Consumer Laws

- That an upfront participation payment risks locking customers into retail contracts and therefore limit a customer's ability to seek a better offer in a competitive market.
- Risk of gaming with some customers, who after receiving the payment may disable the communication of their device – thereby limiting the ability to orchestrate,
- Risks of when customers move residences and therefore the contracts are no longer in place.

**Dr Martin Gill – Demand Management Incentive Scheme –** written in 2017, Dr Martin Gill's submission to the Australian Energy Regulator on the scheme offers useful insights into demand response, including:

- network estimates of benefits from schemes intended to reduce network peak demand are overstated, revealing the costs of their schemes is significantly higher than presented.
- the Australian demand response standard DNSPs developed cannot be used to validate the demand reduction.
- the Australian demand response standard is unable to detect when dissatisfied consumers unplug the system. DNSPs choose this solution because even when unplugged they are entitled to recover the cost of the system through higher electricity costs for all consumers.

**Other**

- Be mindful of outdated technology being codified under the scheme. This can restrict businesses but also produce perverse outcomes. For example, there are ways around technology that will not produce the overall intended benefits of the scheme (e.g. consumer forums on how to disconnect air conditioners and still receive incentive).[5]
- We also refer the NSW Government to the Regulatory Impact Statement review by the Office of Best Practice on smart demand response capabilities in appliances for more analysis.[6]

Given the above insights, and the broad uncertainty on how to operationalise the PDRS, we encourage the NSW Government to commence a slow, small trial based on our recommendations above.

**AGL's responses to consultation questions:**

| Topic | AGL response |
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| **Issuing certificates** | We encourage the NSW Government to provide more detail on how the scheme will deliver benefits where the focus is on capacity and not dispatch.<br><br>As we have highlighted above, the current DRED standard means that there is no way to confirm that dispatch has occurred, and there are known ways to disconnect devices from responding.[7] It will therefore to be difficult to track the schemes progress and determine if / where adjustments may need to be made.<br><br>In relation to the specific calculations, we would encourage the NSW Government to consider adding in a flexibility factor to allow for adjustments based on behavioural responses and load shifts which may occur with technology (for example, an air |

[5] https://forums.whirlpool.net.au/archive/2337306

[6] https://ris.pmc.gov.au/2019/11/26/smart-demand-response-capabilities-selected-appliances.

[7] See for example - how to disconnect the DRED and how you still get the rebate regardless: https://forums.whirlpool.net.au/archive/2337306

| Topic | AGL response |
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| | conditioner could remain off, but a consumer would need to charge their electric vehicle at some point to use the product). |
| **Capacity** | We encourage the NSW Government to consider how different firmness of capacity can be treated in the scheme. As we have recommended above, a trial would allow for the gradual ramp up against different firmness – starting with the firmest capacity and tracking the success of these. Over time, less firm capacity can be added into the scheme and can be adjusted by participants based on contractual arrangements.<br><br>The scheme will also need to consider devaluing capacity due to practical limitations of the kit (e.g. air conditioners can only be controlled if they are turned on in the first place). We recommend the scheme consider some sort of scaling or devaluing of capacity on different kit based on their likely effectiveness/availability during peak events. |
| **Financial risks** | We suggest that who should bear the financial risk should be determined through the final certificate calculation rather than a priority of methodology based on trying to assign greater risk to one party. We consider that this matter is best addressed through the contract and contracting parties. |
| **Other comments** | As a minor comment, we note that during the stakeholder forums hosted by the NSW Government on 19 May 2020, a diagram depicting the NSW approach for a unit of peak demand reduction allocated different blocks certain numbers. This diagram does not describe whether something in one block/category could only respond at its allocated time. If this is how the NSW Government expects the program to operate, we would note that such an approach would not support market shifts that are currently occurring / being considered (for example, NEM2025). |
| **Eligible peak demand reduction activities** | **Peak demand savings, peak demand response, peak demand shifting**<br><br>We are generally supportive of the proposed eligible peak demand reduction activities but encourage greater review into the effectiveness and operation of each of these activities. For example:<br><br>• Demand Response has limitations due to the high costs which prevent real time data and response.<br>• Demand shifting could potentially benefit if the NSW Government considered what opportunities there were to provide benefits/recognition for where customers have a digital meter installed and are placed on a Time of Use (TOU) tariff. We consider that a TOU tariff would give the type of incentive that this scheme is attempting to achieve and will also facilitate greater uptake of digital meters (improving overall data and responsiveness of kit). |

| Topic | AGL response |
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| | **Other possible activities**<br>• **Batteries –** we encourage the NSW Government to consider how batteries could be contracted under the PDRS. Batteries offer some certainty to participants, as the capacity is known for these devices, and it can work within the potential parameters of the scheme (e.g. that they can be activated at the necessary times). We also note that firmness of capacity is better known through batteries then DRED devices. Inclusion in the scheme could also help make batteries more affordable, improving uptake by consumers earlier.<br>• **Behavioural demand response –** we note that the NSW Government is employing a customer-centric design and found through research that the overall proposals can help encourage increased participation and drive behaviour change. We believe that including behavioural response programs will benefit the scheme by being available to both residential and business customers. As we found in our ARENA program, large customers can achieve firm demand response without needed devices on the customer side. For residential customers, the scheme will incentivise participants to offer both the capacity (kit) via the scheme, and the associated dispatch – which can include financial incentives / benefits for the customer. |
| **Ensuring compatibility with other programs** | The consultation paper provides a high-level summary of several other programs currently addressing peak demand and outlines the principle that the scheme is intended to create / pay for capacity, and that the other programs will focus on dispatch.<br>However, the paper does not provide much detail on to how possible conflicts or overlaps will be dealt with at the customer level.<br>At the distribution level, network businesses are seeking greater control for constraining/curtailing devices through connection agreements. It is unclear how this type of activity would be addressed or rewarded under the PDRS (e.g. if the network is directly managing this device and curtail it during high price wholesale events in the designated hours of the scheme). This is likely to create significant risks for contracting parties in attempting to meet their obligation on the proposed PDRS. This is likely to create significant risks for contracting parties in attempting to meet their obligation on the proposed PDRS. |
| **Regional savings** | We support the inclusion of regional multipliers as occurs under the EES. Regional areas are more difficult to access and services, and the multiplier helps balance the costs associated to servicing these areas and therefore may see greater regional uptake. |
| **Scheme liabilities** | Our preference is that the schemes are aligned along calendar years consistent with the other environment schemes. The proposed financial year will increase administrative costs and burden on liable entities. Although a Financial year covers the entire summer period by far the most likely highest demand periods should be during Q1. The calculation of the liability could occur from December in the previous |

| Topic | AGL response |
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| | year to November (or even just cover summer) and the surrender done at the end of the year.<br><br>Option 2 for calculating the liability is our preference. |
| **Certificates** | **What qualifications should certificate providers have?**<br><br>It is appropriate to align these qualifications to installation requirements. These requirements would be device specific, so would depend on the type of device being installed.<br><br>As a minor point, we would also encourage the NSW Government to consider where accountability/liability sits for an underperforming device (e.g. a device that is incapable of performing at the expected level when calculations were initially made). |
| | **Certificate expiration**<br><br>We support option 2 where certificates will not expire. Carry over is an important function of the ESS and results in lower transaction costs. It will also mean that businesses are not penalised should they encourage greater uptake at an earlier phase (rather than seeking to stagger roll outs to meet certificate needs).<br><br>We also encourage the NSW Government to seek to make the scheme operational across jurisdictions (for example the South Australian government review for REES), as the expected benefits would be for all Australians. |
| **Cost benefit analysis** | Given the limitations on understanding the full breadth/scope of the PDRS it is difficult to assess whether the cost-benefit analysis is appropriate. In particular, there does not appear to be a robust assessment on the device control build, or costs for participants to enable the program to operate. Further, the PDRS will require significant IT spend from all participants – both those with liabilities under the scheme, and those expected to enact the contractual arrangements for realising the benefit of the capacity. As we have noted above, the trial that we have run did not pay for itself and this type of evidence needs to be considered by NSW Government and further built on through a slow, controlled trial of the PDRS.<br><br>We would encourage NSW Government to undertake a cost-benefit analysis once further detail is understood on the scheme (e.g. projected scope, year 1 focus, potential expansion (such as batteries). |
| **Consumer protections** | **Principles**<br><br>We would encourage the NSW Government to consider a principle that places consumers at the centre of the scheme to ensure that the consumer is guaranteed to be no worse off as a result of the PDRS or any resulting contractual arrangement. This would help protect consumers in instances of demand shifting – e.g. a third party turns the load off at a certain time of day for the customer which shifts the customers load to a more expensive time of the day – increasing their electricity bills. It will be important for the scheme to consider these types of principles. |

| Topic | AGL response |
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| | We refer the NSW Government to our submission to the AEMC on a principles-based approach for consumer protections in the National Energy Customer Framework (**NECF**).[8] |
| | **Two-way communication**<br><br>We have outlined a number of consumer protection concerns above under the standards section. Two-way communication is important for this type of scheme to ensure that consumers have ultimate control and use of their devices. The PDRS will therefore need to consider what ability the consumer has to override or opt-out of a contractual arrangement for control of their device where they may need it (e.g. vulnerable circumstances during a heat wave where the consumer wants or needs cooling). |
| | **Dispute resolution**<br><br>We would also encourage the NSW Government to consider what third party dispute resolution mechanisms will be in place. The consultation paper acknowledges the broader Consumer Protections Review work being undertaken by the AEMC and we encourage alignment with broader NECF approaches. It may be appropriate for IPART to be the third-party resolution body if the AEMC does not recommend a NECF based solution. |
| **Other comments** | **Device visibility**<br><br>The PDRS will need to consider the overall visibility of devices. The AEMO are responsible for the Distributed Energy Resource Register (DERR) that provides visibility of certain DER installation, connection and devices at a residence. However, the DERR will not capture all devices that are installed as a result of the PDRS. This may be a missed opportunity for being able to track and map devices for networks which may help reduce their overall investment costs. In considering this, the NSW Government must be mindful of potential increased costs for installers and whether such a program would be appropriate in the early stages of the PDRS. |

### 2.3 – Scheme administration and regulation

AGL welcomes the NSW Government's commitment to continuous improvement of regulations to ensure their continued effectiveness and efficiency and its focus on putting the customer at the centre of everything it does. As we have highlighted above, customer choice and comfort are important principles in the design, ongoing administration and regulation of both the ESS and the new PDRS.

**AGL's responses to consultation questions:**

[8] https://thehub.agl.com.au/articles/2020/02/agl-encourage-outcomes-focused-regulation-for-consumer-protections

| Topic | AGL response |
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| **Development, implementation and review of rules** | AGL considers three years is a good period between reviews, as it allows participant and affected businesses to develop and implement acquisition strategies. The benefit of rolling the PDRS as a trial as we have recommended is that there can be ongoing consultation and review to ensure it remains fit-for-purpose. We recommend an inbuilt review period (e.g. each year for the first three years) to better enable the scheme to achieve positive outcomes for participants and consumers.<br><br>With the current scheme, there have been times when changes to, for example, technical standards, have required a low-risk rule change to avoid unintended negative consequences. |
| **Making the Safeguard more customer-centric** | AGL agrees that many of the options listed in the Consultation Paper would assist in making the Safeguard more customer centric. In particular, AGL is supportive of:<br><br>• digitising and automating processes as this leads to less chance of incorrect data being entered (can cross check in the background) and lower handling times, especially for complex activities such as Measurement and Verification (M&V), auditing etc.<br>• the integration of both portals. From our experience, it is currently really difficult to find scheme information on the ESS Portal (especially for those not familiar with the scheme). Updating information from the registry to the portal (e.g. new products, certificates created etc) would be much more efficient than with the current practices.<br>• a digitised 'Rules as Code', as our understanding is that this would enable companies to develop / use compatible software programs, which could then be uploaded into the Registry as well as being easily updated when rule changes occur. This would also mean that outdated paper forms would not be used in error and would generally result in a much more seamless process.<br>• implementing a more transparent and collaborative rule change process as described in the Consultation Paper. AGL has always found the ESS to be very consultative, and the processes around this consultation to be very good, though there is always room for improvement. This is especially true given the wide variety of stakeholders involved in the ESS.<br>• anything that simplifies the M&V methodologies of energy savings.<br>• Ensuring that any standards or requirements enable customer centric approaches (e.g. two-way device communication).<br><br>There are two areas where the ESS hasn't perhaps been as successful as it could have been since 2009 include:<br><br>• Barriers to entering the scheme – the allocation of certificates and audit regime are very time consuming and cumbersome and needs to be simplified.<br>• Driving behaviour change in recipients – Internal research undertaken by AGL has shown that telephone energy audits can be very useful in assisting customers reduce their energy consumption. The Home Energy Efficiency |

| Topic | AGL response |
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| | Retrofit (**HEER**) method includes an energy assessment, which is to be completed before any upgrade work is undertaken, but unless a review is undertaken of these homes to see if it advances behaviour change, it could be a false requirement in terms of behaviour change. AGL suggested that a free (i.e. subsidised by ESCs generated) telephone audit after the upgrades have been undertaken to walk the customer through energy saving behaviours might be a more efficient way to drive change. |
| **Development of capabilities of service providers** | In AGL's view, the best way to develop the capabilities of service providers is through:<br>• in-house workshops;<br>• webinars;<br>• online learning toolkits; and<br>• refresher training when there are scheme changes. |
| **Continuous improvement of the ESS** | Some ways that the NSW Government could continuously improve the ESS is through:<br>• regular upskilling of staff on industry practices globally, other energy efficiency measures and their outcomes globally; and<br>• placements/secondments for NSW Government employees in industry, particularly if they have not previously worked in the industry. For instance, working for an AP for a week out on site, then a week in the office, will assist NSW Government employees in gaining a better understanding of the scheme requirements for industry. This will assist in policy making in the future. |