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**Alex Oeser**
Project Leader
Australian Energy Market Commission
**Submitted online via: www.aemc.gov.au**

**23 July 2020**

Dear Alex

**Technical standards for distributed energy resources, Consultation Paper, June 2020**

AGL Energy (**AGL**) welcomes the opportunity to respond to the Australian Energy Market Commission's (**AEMC**) Consultation Paper on the rule change request submitted by the Australian Energy Market Operator (**AEMO**) on the creation of a subordinate instrument for a minimum technical standard for distributed energy resources (**DER**).

AGL is a market leader in trials and projects that draw upon customers' DER. Our current DER product and service offerings include our Virtual Power Plant[1], our retail offer for electric vehicle owners[2] and our Peak Energy Rewards Managed for You program.[3] AGL has been involved in the development of a range of technical standards applicable to DER and currently represents the Australian Energy Council (**AEC**) membership on a range of relevant Standards Australia Committees, including:

- EL-42 (Renewable Energy Power Supply Systems and Equipment);
- EL-54 (Remote demand management of electrical products); and
- EL-64 (Decentralised electrical energy and grid integration of renewable energy system).

We are also engaged in a range of industry forums that are focused on the development of appropriate technical standards and protocols to support DER integration, including the Distributed Energy Integration Program and API Technical Working Group. Our feedback on the Consultation Paper is based on our operational experience with DER products and services and ongoing involvement in technical standards development.

**Strategic direction**

AGL appreciates that with the increasing penetration of DER, the bi-directional nature of energy flows presents a new set of technical requirements that need to be considered in managing system security and reliability. We believe that promoting interoperability through technical standards will be a key enabler for the use and optimisation of DER across Australia's energy markets.

[1] For further information regarding AGL's Virtual Power Plant, currently available to customers in New South Wales, Queensland, South Australia and Victoria please refer to https://www.agl.com.au/solar-renewables/solar-energy/bring-your-own-battery?cide=semr&gclid=EAIaIQobChMIicjKmKuP5wIVyjUrCh2eXwvVEAAYASAAEgLZRPD_BwE&gclsrc=aw.ds.
[2] See further, AGL EV Plan, available at https://www.agl.com.au/electric-vehicles.
[3] See further, AGL Peak Energy Rewards Managed for You, available to existing AGL homeowners in New South Wales with a digital smart meter, available at https://www.agl.com.au/solar-renewables/projects/peak-energy-rewards-managed-for-you.

While we support AEMO's role in contributing towards the development of appropriate technical standards for DER with insights on system security and market operations, we do not support empowering AEMO to set minimum technical standards for DER as we do not consider that AEMO has the full suite of requisite capabilities with respect to safety, economic efficiency, innovation and customer impact to ensure a robust decision-making process. In particular, AEMO does not have sufficient technical knowledge of the distribution system from a system security and reliability perspective or consumer facing capabilities to assess customer costs and benefits associated with DER standards.

AGL supports improvements to the technical standards governance arrangements to ensure decisions remain technical, customer-focused and evidence-based. In this respect, we welcome the Energy Security Board's (**ESB**) current consultation that is aimed at improving governance arrangements for DER technical standards. We believe the AEMC's consideration of any regulatory changes to the technical standards framework should be deferred until the ESB has concluded its consultation to ensure a balanced governance framework that facilitates the full suite of requite capabilities to ensure a robust decision-making process.

**Assessment Framework**

AGL recommends the following should also be considered in the AEMC's assessment of AEMO's rule change request:

1. The impact that the rule change request would have on:
    - The customer benefits associated with DER investment;
    - The international commodity market for DER products;
    - Distribution networks' ongoing obligations to manage voltage levels on the network; and
    - The emergence of market-based solutions to support consumer trust and uptake in DER.
2. Maintaining Standards Australia's established role, as independent body that is best placed to develop and adopt technical standards reflecting international best practice through broad stakeholder engagement with the support of relevant industry expertise.
3. Shortcomings in the compliance regime associated with the proposed subordinate instrument, given the current incorporation of technical standards in state-based legislative and safety requirements.
4. Compliance costs associated with complying with the proposed subordinate instrument that could entail expedited compliance timeframes, as well as AEMO's limited expertise in considering the cost impact of proposed technical standards to customers.
5. The need to progress the ESB's broader consultation on the governance arrangements for DER technical standards prior to considering any regulatory reform to ensure the regulatory framework for technical standards development and compliance remains fit-for-purpose in supporting positive consumer outcomes in the emerging DER market.

**Design elements to mitigate impacts**

If the AEMC decides to make the rule change request, we consider the following elements should be incorporated as a second-best solution to mitigate some of the issues identified above:

- Any minimum standards be published in the National Electricity Rules (**NER**), as well as being reflected in connection contracts to improve transparency and accessibility for customers.

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- Any DER asset that is being used for self-consumption only is not captured. Given that the NER is principally concerned with market interaction by way of grid connection we consider it more appropriate that the regulatory framework consider the nature of the services provided as the pathway towards DER market integration, rather than the DER devices themselves.
- Any new minimum technical standards should only apply to new and replacement devices.
- The initial standard be limited in scope and duration with a sunset clause. This would ensure that AEMO only exercises a function in standards development until such time as improvements to the broader standards development framework are implemented.
- Adequate implementation lead times are required to provided adequate notice for industry to meet the proposed specifications and to mitigate any impact to consumers who have already contracted for the installation of new DER.
- An obligation is established for AEMO to undertake technical standards assessment that requires open, transparent and fulsome review of both the industry and consumer benefit and cost implications.

We elaborate our feedback in the **Attachment.**

Should you have any questions in relation to this submission, please contact Kurt Winter, Regulatory Strategy Manager, on 03 8633 7204 or KWinter@agl.com.au.

Yours sincerely

Con Hristodoulidis

**Senior Manager, Regulatory Strategy**

**ATTACHMENT**

**Question 1. Assessment framework**

*Do you agree with the proposed assessment framework? Should the assessment framework include any additional considerations, and if so, what are they and why?*

In additional to the proposed criteria in the Consultation Paper, we consider that the assessment framework should consider the impact the rule change request would have on:

1. **The customer benefits associated with DER investment**

   DER will not always be interacting with the grid. While DER presents opportunities to provide energy, FCAS and other services with the assistance of an aggregator/ retailer, for the majority of the time, customers' DER is likely to be employed directly for meeting customers' consumption needs. In some instances, DER may also be engaged in bilateral agreements outside of the NEM to sell DER services outside of the market, including network support, services to AEMO and peer-to-peer energy trading.

   Accordingly, we consider that technical standards governing DER should empower consumers with choice to utilise and optimise DER assets for their own comfort and to participate in competitive market services which address broader energy system needs through innovative aggregator models such as virtual power plants.

2. **The international commodity market for DER products**

   As far as possible, Australian technical standards should align with international accepted standards. Alignment will enable as wide a range of innovative products and services as possible into the Australian market at least cost to consumers.

3. **Distribution networks' ongoing obligations to manage voltage levels on the network**

   While we appreciate that the bi-directional nature of energy flows presents new challenges for the management of the energy market system, due consideration should also be given to distribution network' obligations to manage voltage through a range of solutions.

   Through AGL's SA VPP, we have been able to draw upon operational data to develop a range of important insights into the interaction of DER with the low voltage distribution network, including on voltage management.[4]

   Among a range of insights, we have observed that voltage levels across the grid are generally high, regardless of whether customers are exporting solar. We note that the Energy Security Board's (**ESB**) and Australian Energy Regulator's (**AER**) commissioned UNSW report,[5] also found that high voltages are due to a range of factors, especially historic circumstances of distribution network operation, with implications for compliance and consumer losses. Accordingly, we support network businesses' approach to engaging with the overvoltage issue and seek to understand a range of potential solutions that support customer value.

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[4] For further information regarding AGL's ARENA SA VPP program, including the two milestone reports published to date, please refer to https://arena.gov.au/projects/agl-virtual-power-plant/.

[5] 2ESB cover note on UNSW voltage report: https://prodenergycouncil.energy.slicedtech.com.au/sites/prod.energycouncil/files/200502%20ESB%20cover%20note%20on%20UNSW%20Voltage%20 Report.pdf.

Given that DER is typically not the sole cause of the problem, we would support complementary reforms to deal with legacy network operating issues so that the burden of the transition is not borne by customers alone.[6]

**4. The emergence of market-based solutions to support continued consumer trust and uptake in DER**

We believe that control approaches to customer assets should only be applied in rare instances where services cannot be procured through a market framework or in an emergency. Rather, financial incentives should be established to manage curtailment of solar generation to support the ongoing security of the grid prior to any emergency scenario unfolding.

We do not consider that AEMO should be permitted to mandate minimum DER technical standards that cause future regrets on the design and development of the DER market. For example, we would not want AEMO to inadvertently set a standard in this interim period that may require/mandate network support services from DER assets, such as power quality response modes, which may inhibit the development of a market-based mechanism that rewards customers for allowing their DER assets to provide these services. As we recently observed in our response to the AEMC's 2020 Electricity network regulatory framework review[7] we believe that further reform is required to develop a market-based framework to allow customers to engage and share in DER value. Empowering AEMO to unilaterally establish minimum DER technical standards risks foreclosing the emergence of a more mature customer-centric market. Moreover, given that AEMO does not have the full suite of requisite capabilities with respect to safety, economic efficiency, innovation and customer impact to ensure a robust decision-making process, there is a risk AEMO may inadvertently make a regrettable decision.

**Question 2. Setting the initial standard and definition of DER**

*Should the initial DER technical standard be set by AEMO?*

AGL supports AEMO's role in contributing towards the development of appropriate technical standards for DER with insights on system security and market operation. However, we do not support empowering AEMO to set all minimum technical standards for DER, in the absence of a broader governance framework to ensure standards development contemplates other crucial matters, including safety, economic efficiency, innovation and customer impact.

AGL believes Standards Australia as an independent body skilled in standards setting, is best placed to develop and adopt technical standards that reflect international best practice through broad stakeholder engagement and with the support of relevant industry expertise. We also support improvements to the technical standards governance arrangements to ensure decisions remain technical, customer-focused and evidence-based. In this respect, we welcome the ESB's current consultation that is aimed at improving governance arrangements for DER technical standards.

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[6] See further AGL submission in response to the AER on assessing distribution energy integration expenditure (20 January 2020), Available at https://thehub.agl.com.au/articles/2020/01/submission-to-aer-on-assessing-distributed-energy-integration-expenditure.

[7] See further AGL submission to the 2020 Electricity network regulatory framework review, (6 July 2020), Available at https://thehub.agl.com.au/articles/2020/07/submission-in-response-to-the-2020-electricity-network-framework-review; AGL submission to AEMO's Renewable Integration Study (8 July 2020), Available at https://thehub.agl.com.au/articles/2020/07/agls-submission-toaemos-renewable-integration-study.

*Should the minimum standards be inserted into the minimum content requirements of connection contracts, negotiation frameworks and model standing offers or terms?*

AGL would recommend that any minimum standards be published in the NER, as well as being reflected in connection contracts. Given the extent to which grid connection rules are often opaque and vary between distribution network business, this would improve transparency and accessibility for customers.

*What should the standard apply to and is a DER definition needed in the NER?*

AGL appreciates AEMO's near term interest in addressing inverter performance and grid responsiveness, interoperability and communication interfaces, and cyber security measures through the proposed DER minimum technical standard. AGL has been actively engaged in contributing towards the development of appropriate technical standards and industry protocols to address these concerns, including through our AEC representation in the EL-42 Standards Australia Committee that is considering the amendment to AS4777 and our involvement in the DEIP and API Technical Working Group.

Nevertheless, we do not support shifting these capabilities from Standards Australia and relevant industry groups that are already assessing these matters to AEMO in the immediate term. In our view, this would risk undermining appropriate due process in the development of technical standards and protocols which currently entails broad stakeholder engagement with the support of relevant industry expertise.

We also do not consider it appropriate to determine technical standards by reference to a definition of DER in the NER. Any DER asset that is being used for self-consumption only should not be captured. Given that the NER is principally concerned with market interaction by way of grid connection we consider it more appropriate that the regulatory framework consider the nature of the services provided as the pathway towards DER market integration, rather than the DER devices themselves.

*Do stakeholders agree that the standard should only apply to new and replacement devices? Will this meet the objectives of the desired policy outcome of this rule change request?*

AGL agrees that any new minimum technical standards should only apply to new and replacement devices. In additional, implementation lead times will be required to provide adequate notice for industry to meet the proposed specifications and to mitigate any impact to consumers who have already contracted for the installation of new DER. In our experience with the development of technical standards, manufacturers may require between 15 to 24 months to achieve compliance through appropriate testing.

**Question 3. Content and duration of the initial minimum technical standard**

*Should the scope of the initial technical standard be limited by the NER? If so, should there be arrangements to allow for a review of the scope at a future date? Should the role of AEMO in setting DER minimum technical standards (the subordinate instrument) be limited in time, with the ESB's governance review outcomes to be introduced into the framework at a later date?*

As noted above, AGL believes it would be preferable to defer the decision regarding the setting of the initial standard until the ESB determines an appropriate governance framework for DER technical standards. This would ensure the regulatory framework for technical standards development and compliance remains fit-for-purpose in supporting positive consumer outcomes in the emerging DER market.

If the AEMC decides to make the rule for AEMO to set the initial DER technical standard prior to the ESB concluding its review of governance for DER technical standards, we would recommend that the initial standards be limited in scope and duration with a sunset clause. This would ensure that AEMO only exercises a function in standards development until such time as improvements to the broader standards development framework are implemented. We would also recommend a formal review of the scope at a future date, having regard to the outcomes of the ESB review and any developments in technical standards in the intervening period. This review must be completed within 12 months of the new governance arrangements being put in place.

**Question 4. Application and monitoring**

*How can the proposed solution be applied in Western Australia, Victoria and the Northern Territory?*

We appreciate the challenges associated with implementing the proposed solution in jurisdictions that are not part of the NEM. This issue reflects the broader compliance challenge associated with the proposed subordinate instrument, as we elaborate further below in relation to compliance monitoring and enforcement.

In our view, improving to the established framework for standards development through Standards Australia and leveraging the existing compliance framework, including state-based legislative technical and safety requirements, would have a better prospect of delivering improved compliance outcomes than establishing a subordinate instrument through AEMO.

*Is it sufficient to specify a commencement date for the DER minimum technical standard only and have the implementation dates for the individual standard components set out in the standard itself?*

Setting implementation dates for individual standards components will provide greater flexibility in the sequencing of implementation for components that are finalised while other components may still be in development.

As noted above, we would also recommend the AEMC consider how best to provide adequate implementation lead times to provide adequate notice for industry to meet the proposed specifications and to mitigate any impact to consumers who have already contracted for the installation of new DER. In our experience with the development of technical standards, manufacturers may require between 15 to 24 months to achieve compliance through appropriate testing.

*What level of compliance monitoring is needed? Who should monitor compliance with the technical standards? How can compliance be enforced?*

We consider that AEMO's proposal for the AER to develop a light-touch monitoring and compliance framework presents substantial shortcomings, given the policy intent to improve compliance with technical standards to better support system security and market operations.

While the proposal's intention is to mirror the ring-fencing compliance regime, we note that the ring-fencing framework relies upon proactive reporting of breaches by covered entities. In our view, this presents a substantial risk that non-compliance will be inadequately reported upon. Given that proposed interim standard is intended to apply to matters touching upon customer safety (in inverter performance and grid responsiveness) and the security of the energy market system (in interoperability and cyber security), we do not consider that a light touch compliance regime will be sufficient to ensure compliance.

We also envisage that the proposed compliance framework will create additional complexity for industry by duplicating the current compliance framework for technical standards that is largely enforced through state-based legislative technical and safety requirements.

Accordingly, we would recommend leveraging the existing compliance framework, including state-based legislative technical and safety requirements to deliver improved compliance.

**Question 5. Cost of the initial standard**

*Considering AEMO's proposed initial standard in section 5.2, Box 1, what are the expected costs and benefits of implementing the initial standard for consumers, other affected parties and DNSPs?*

We note that the rule change proponents have not provided information on the expected costs of the initial DER minimum technical standard and how consumers would be affected, which makes it difficult for industry to engage comprehensively on this question.

In principle, we believe the technical standards framework should be informed by a harmonised national approach to the development of technical standards with sufficient implementation lead time in order to reduce cost and complexity for businesses operating across Australia's energy markets and maximise the potential for all manufacturers/installers to comply.

By establishing an additional subordinate instrument for a minimum technical standard that could entail expedited compliance timeframes, we envisage substantial costs associated with industry complying with any device level standards or integrating into new communication protocols and systems.

We also note that AEMO, which generally facilitates market interactions between businesses, has limited expertise in considering the cost impact of proposed technical standards to customers. This is consistent with AEMO's core function of providing the B2B to allow for the effective functions of the energy markets.

We have observed that AEMO's technical standard proposals do not provide robust cost benefit analysis beyond B2B arrangements. This could limit AEMO's ability to develop technical standard that fully consider the implications beyond energy market participants' B2B arrangements.

By way of example, we note that AEMO's proposal to Standards Australia to amend  the AS4777 inverter standard which is currently open for public consultation did not include analysis of customer impacts associated with proposed power quality response modes or assess its potential impact in light of current grid voltage conditions. Our own analysis has revealed that there is also substantial equity risk in the way uniform power quality response modes impact customers, with some customers experiencing material value losses due to network locational characteristics, particularly in locations where grid voltage level are high. Accordingly, we have continued to advocate for a comprehensive cost benefit analysis of power quality response modes as a solution to overvoltages, ensuring that the impact of solutions to DER customers is appropriately valued.

We consider that the ESB's review of governance for DER technical standards should consider ways in which to enable appropriate independent technical modelling and cost benefit analysis to assess the appropriateness of proposed technical standard solutions. In our view, this would greatly improve the technical standards development process.

If AEMC makes the Rule, we would encourage the AEMC to establish in the final Rule an obligation for AEMO to undertake technical standards assessment that require open, transparent and fulsome review of both the industry and consumer benefit and cost implications.  Ideally, this assessment should be reviewed and approved by an appropriate independent modelling expert.