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Con Carellas
Principal Advisor
Essential Services Commission
GPO Box 2605
ADELAIDE SA 5001

Submitted electronically to escosa@escosa.sa.gov.au

Dear Con,

RE: Inquiry into licensing arrangements for inverter-connected generators

AGL welcomes the opportunity to comment on the "Inquiry into licensing arrangements under the Electricity Act 1996 for inverter–connected generators" issued by the Essential Services Commission of South Australia (**Commission**) in December 2016 (**Issues Paper**).

AGL is a significant energy retailer in Australia with over 3.7 million electricity and gas customers. AGL has a diverse power generation portfolio of over 10,500MW including base, peaking and intermediate generation plants, spread across traditional thermal generation as well as renewable sources including hydro, wind, solar, landfill gas and biomass.

In South Australia (**SA**), AGL has a significant retail customer base with 408,000 of South Australia's 850,000 electricity customers (48%). To support this customer base, AGL owns and operates the following generation assets: Torrens Island Power Station (gas, 1,280MW capacity); Hallett wind farm group (wind, 351MW capacity); and Wattle Point wind farm (wind, 91MW capacity).

AGL welcomes the Commission's inquiry into the licensing arrangement on the performance standards of inverter-connected generators which recognises the changing market conditions and regulatory settings since the last review was completed in 2010.

The following are the key issues which AGL would like the Commission to consider in completing its inquiry:

1. **Harmonisation with national standards:** AGL considers that regulatory duplication is inefficient and would encourage the Australian Energy Market Operator (**AEMO**) and the Commission to align technical standards for connection to the National Electricity Market (**NEM**). Whilst AGL agrees with the Commission's view that a transitional state-based licensing regime was necessary to frame performance standards in the early years of integrating renewable energy capacity into the NEM, AGL considers that existing and future regulation of technical requirements of renewable energy capacity in SA must be harmonised with the national regulatory regime - for the following reasons:
    a. The NEM now operates as a fully interconnected electrical region. Any existing, as well as any future, technical performance requirements of the network and connected generation capacity should be assessed as an integrated national network;
    b. The National Electricity Rules (**NER**) have been effectively adopted by all other jurisdictions for the regulation and performance of these technical requirements under the administration of AEMO. Compliance with the

technical requirements of the NER is enforceable by the Australian Energy Regulator (**AER**);

c. As suggested in the Issues Paper, the changing mix of generation technologies in the NEM, including smaller distributed generators, could potentially change the operational risk associated with system security and reliability. AGL considers that the increased complexity in operating and regulating such a "hybrid" network would be more effectively managed through the national regime. The national regime has the capability, expertise and resources to control and oversee any future NEM-wide power system security issues and develop appropriate technical solutions that will consider all viable and economically effective options – including technical regulation and market-based energy services requirements.

d. There are increased compliance costs imposed on generators in South Australia as a result of being accountable to multiple jurisdictional regulators. In particular, AGL refers to the annual compliance reporting process detailed in the Commission's Guideline #4, which overlaps with matters also regulated by AEMO and the South Australian Office of the Technical Regulator. Harmonisation would reduce or entirely remove this overlap, lowering compliance costs and leading to NEM-wide regulatory consistency.

2. **No retrospectivity:** When assessing possible changes to current licensing arrangements, AGL's preference is for the Commission to consider investment certainty by limiting the application of retrospective performance standards on existing assets. Specifically, technical requirements materially determine the cost and risks that project financiers and operators of a generation project are prepared to accept for a particular projected return on investment. Each existing generation asset was financed on the basis that, amongst other things, approvals have been obtained from regulators to meet the prevailing technical requirements at the time of commissioning the asset.

3. **Co-ordination with other regulatory reviews**: AGL and other NEM participants have invested considerable resources and expertise working with regulators, network operators and AEMO over a number years, through consultations, submissions, forums and workshops, to continually assess and identify existing and possible future power system performance issues, and solutions, arising from changing technology and market conditions. These have resulted in a number of industry and AEMO reports and recommendations that have recently been completed or are being progressed, and which will require time for final determinations, rule changes and implementations to take effect. These include:

    a. AEMO's Future Power Security System review;
    b. AEMO's Integration of Renewable Energy in the NEM;
    c. Renewable Energy Integration in South Australia (joint AEMO and ElectraNet report);
    d. The Council of Australian Government's Independent Review of the National Electricity Market – the Finkel Review;
    e. AEMO's Wind Integration Studies and Wind Turbine Plant Capabilities reports; and
    f. The AEMO and AER investigations into the 28 September 2016 state-wide blackout in South Australia.

    AGL is pleased to note in the Issues Paper that the Commission has indicated that it will take in account these initiatives and recommendations in its deliberations.

4. **Allow the market to work**: A number of technical and market solutions can, in AGL's view, more appropriately and cost effectively address underlying power system performance - when compared to imposing a greater regulatory burden on wind farms and other emerging technologies. AGL suggests that the Commission

delay prescribing additional technical requirements until the industry, regulators and AEMO are able to satisfactorily define and resolve the underlying issues associated with changing nature of the power system. AGL considers that this approach would allow the industry, AER, AEMO and COAG to finalise current, as well as proposed investigations, to ensure any solutions will address core issues, and to consider appropriate mechanisms aimed at providing an efficient and sustainable outcome, not only in South Australia, but also the NEM.

AGL provides a detailed response to the specific questions raised in the Commission's Issues Paper in the Attachment to this letter.

Please contact Kate Stoeckel on 03 8633 7816 or kstoeckel@agl.com.au if you require any further information.

Yours sincerely,

Simon Camroux

Manager Wholesale Market Regulation

Attachment

Q1 Should the Commission continue to require the existing special conditions?

Should licence conditions for fault ride through and reactive power capabilities continue to be applied?

If so, to which classes of entities? For example, all inverter-connected generation plant? If not, please provide justification.

AGL considers that, in order to minimise regulatory burden and administrative complexity, a consistent national approach is most prudent in regulating technical requirements. As such, AGL's preference would be for the current SA licensing arrangements to be transitioned to the national regulatory arrangements.

It is AGL's view that network operators, plant proponents/operators and AEMO are best placed and resourced to determine the specific technical requirements to meet power system needs in the NEM. AGL considers further that the existing regulatory enforcement by the AER of these requirements is effective in ensuring that the plant operators and network service providers comply with requirements regarding fault ride through and reactive power capabilities. AGL also notes that these capabilities are subject to AER audits.

In addition, it is inefficient for a regulator to prescribe particular technical requirements for selected generation technologies in circumstances where there is already a mature national process for connection and registration of new or modified plants. Regulatory decisions on connection and registration are currently based on prevailing technical capabilities and the costs of implementing the required level of technical and system performance. In AGL's view, the prescription of additional technical requirements are likely to harm innovation and economic efficiency in the provision of energy services, in part by creating a barrier of entry for new entrants to meet a higher regulatory hurdle than was historically the case.

For example, reactive power and frequency control capability would be more effectively delivered where required within the network if sourced competitively by network service providers or AEMO as ancillary services (including by battery storage proponents). Furthermore, AGL considers that a market-based approach to reactive power and frequency control requirements will provide the right incentives for wind, or solar, farm proponents to consider providing these two services as part of their connection – if it is in their commercial interests to do so.

Further, in prescribing these services for connecting generators, there is an implicit assumption that such a requirement will resolve system stability and security issues that are arising as a result of the mothballing of synchronous generation capacity coupled with the increased integration of renewable energy capacity. However, AGL considers that without a system-wide review and assessment, there is no discernible evidence that additional regulatory obligations will actually address system security issues that could be caused by, or solved by, other technical means.

AGL would encourage the Commission to carry out a cost benefit analysis to determine if any proposed technical obligations on existing or new generators can be justified before making any changes to existing licensing arrangements.

Q2 Should those licence conditions be varied?

Should those licence conditions for fault ride through and reactive power capabilities be varied or should other, new, conditions be required?

If so, how and why? If not, please provide justification.

AGL does not consider that the relevant licence conditions should be varied. Specifically, licence conditions should be permitted to be negotiated at the time of registration and connection - provided they are above the minimum levels required to achieve and maintain system security.

In the event that any licence conditions are proposed for variation by the Commission, AGL considers that such changes should be subjected to a thorough cost benefit analysis and broad consultation with stakeholders.

In AGL's view, a robust process that engages relevant regulatory and technical expertise is necessary to ensure transparency given the complex nature of power system security and the potential economic impact on the NEM and its participants.

Q3 Should licence conditions be made to apply both to prospective and existing licensees?

Should any changes to licence conditions arising from this Inquiry apply only to those seeking a new electricity generation licence or should existing generation licensees also be compelled to meet new or changed standards?

In either case, why?

The retrospective application of new obligations on existing licensees of generation assets is not supported by AGL. Retrospective application of new licensing requirements to existing plant could potentially put at risk the financial viability of existing assets - due to the potential cost of asset retrofitting. Furthermore, in some cases, it may not be possible to upgrade older assets due to the incompatibility of hardware and equipment between old and new technologies.

AGL is of the view that the series of NEM reliability and security investigations that are currently underway, and set to commence, should be completed before any decision is taken to amend licence conditions. This will ensure that there is no ongoing regulatory change, which could create investor uncertainty, and that regulatory compliance costs are minimised.

Furthermore, AGL considers that new technologies, including battery storage, are available at scale – and are sufficiently cost effective – for the provision of services such as voltage and frequency control. These services could be procured competitively – negating the need for licence changes – either by AEMO or network service providers for power system performance purposes similar to the current market or non-market ancillary services in the NEM.

Q4 Should generation licence holders be required to upgrade or refurbish plant and equipment to meet the licence conditions of the day?

Should existing (or future) licensees be required to upgrade or refurbish plant and equipment to meet the licence conditions prevailing at the time at either the end of the plant's notional economic or engineering design life or the period over which the project was originally financed?

As noted in our response to Question 3, the retrospective application of new obligations on existing licensees of generation assets is not supported by AGL. Retrospective application of new licensing requirements to existing plant could potentially put at risk the financial viability of existing assets due to the potentially significant cost of asset retrofitting.

However, the owner and operator of the licensed facility may reasonably consider upgrades or refurbishment of assets if there is sufficient justification to do so.

Q5 Do you have any comments or views on AEMO's preliminary report?

AEMO's preliminary advice notes that in addition to possibly making amendments to the existing licence conditions for fault ride though and reactive power capability there may be value in including additional requirements in relation to: frequency control, the rate of change of frequency, and system strength. It also notes that there may be a case for extending licence conditions to other technologies.

Do you have any comment on those matters?

AGL's responses to Questions One through Four, provided above, in relation to reactive power capability and fault ride through, apply equally to AEMO's proposed new technical requirements.

Specifically, AGL considers it premature to conclude that these proposed new technical requirements would be the most appropriate and cost effective means by which to improve power system security. In AGL's view, the AEMO Future Power System Security review, which the preliminary advice to the Commission is partly based on, will need to be expanded and tested with the industry before any firm conclusions can be drawn on the recommendations.

For instance, it is unclear to AGL whether wind farm technical standards or further improvements will address the fundamental issues facing a more "hybrid" network. AGL considers that a comprehensive technical assessment is actually required to identify the root causes of increased risk of diminished power system security performance. Additionally, AGL recommends there be a review undertaken that considers the proposed options for technical and operational changes – as well as a detailed scenario analysis to evaluate impacts on power system performance.

In AGL's view, these comprehensive technical assessments are required, in consultation with the industry, in order to inform the Commission, AEMO and industry participants of the most appropriate remedies to improve the current and ongoing challenges presented by the changing nature of both supply and load in the NEM.

Q6 Are there any other matters relevant to the Inquiry that the Commission should consider?

Notwithstanding the technical focus of this Inquiry and the matters noted above, are there related, or associated, matters that the Commission ought to consider in this Inquiry?

As the experiences of 28 September 2016 in South Australia have shown, circumstances can arise that have unpredictable, and unexpected, effects.

AGL considers that no regulatory scheme will ever be able to predict all scenarios. As such, the underlying principles and settings of any regulatory scheme need to allow for the best possible outcomes in the event of what can reasonably be termed "known unknowns". The best way to deal with uncertainty is to have a balanced regulatory approach that avoids prescribing detailed approaches and enforcing solutions – which may actually prove to be unwarranted or unnecessary – to which the market must respond.