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**Mr John Pierce**

**Australian Energy Market Commission**

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**9 February 2018**

**Submission to Reliability Frameworks Review (EPR0060) Interim Report**

AGL Energy (AGL) welcomes the opportunity to comment on the Australian Energy Market Commission's (AEMC) Interim Report on the Reliability Frameworks Review (**Interim Report**).

AGL is one of Australia's leading 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. AGL is also a significant retailer of energy and provides energy solutions to over 3.5 million customers in New South Wales, Victoria, Queensland, Western Australia and South Australia.

**Energy market transformation**

Australia's electricity system is undergoing a significant transformation. At the transmission level, intermittent renewable generation is increasingly replacing older thermal generation plant. At the distribution level, penetration of small-scale generation is proliferating as households and businesses across the country take up distributed energy resources and become both consumers and producers of electricity. The once linear supply chain – where electricity generated by large power stations is transported across the high-voltage transmission network and through the low-voltage distribution network and into homes and businesses – is becoming increasingly decentralised and bi-directional. There are both opportunities and challenges associated with this inexorable transition.

Within this transition, we agree that policy-makers need to take a long-term approach to properly account for the National Electricity Objective (NEO), National Gas Objective (NGO) and National Energy Retail Objective (NERO) that seek to promote efficient investment in, and efficient operation and use of energy services for the long-term interests of customers, necessitating a comprehensive and forward-looking strategic view.

AGL has given considerable thought to the future of energy in Australia and believes that two fundamental imperatives will drive the future of energy in Australia: decarbonisation; and the centrality of customers' unique preferences and expectations. Primarily, the industry must operate in such a way as to deliver the outcomes, energy services and protections that consumers require, whether the consumers are residential, business, or large market customers purchasing energy from the wholesale energy market.

The energy sector is fundamentally concerned with delivering a service to consumers, and the primacy of this service is critical in developing effective policy and setting strategic objectives over the long-term. Within this context, however, the integration of energy and emissions reduction policies is also a fundamental



imperative, and the mechanisms to achieve emissions reductions in the electricity sector should be aligned and integrated with the design and operation of the energy market.

System security and reliability remain a critical aspect of effective energy delivery. Within the fundamental imperatives of prospering in a carbon constrained future and the centrality of customer's energy, maintaining system security and reliability to an acceptable standard while also addressing the cost of energy to end-users is a constraint within which energy markets must be operated and managed. Accordingly, system security, reliability, and resilience should be improved through reform that better supports and integrates renewable energy generation and delivers more reliable and affordable energy for customers. We therefore welcome the AEMC's very thorough review into the market and regulatory frameworks that underpin reliability in the NEM. We note that reliability and security in the NEM are complex issues, requiring detailed consideration of a number of factors with complex interrelationships.

Numerous market mechanisms, price signals, and operating paradigms all contribute to meet the objective of increased reliability in the NEM, and as such we encourage policy makers to investigate the role of each of these mechanisms as well as how they relate to each other to produce efficient outcomes. In this regard, we commend the AEMC's report, as it does consider the relationship between many competing factors that drive increased reliability in a changing NEM, and also concludes that ongoing scrutiny and appropriate reform of these existing market settings will provide better long-term outcomes for customers.

### **Traditional market design**

The NEM was framed on the basis of thermal capacity investments and in most cases, assumes that demand is relatively inelastic and that dispatchable thermal generation is able to meet demand. The optimal generation mix therefore is determined by the balance between the load duration curve and price duration curves. Generators bid into the market and are dispatched efficiently by a central engine at the least cost. To support efficient dispatch, a reliability standard and commensurate market price cap is set with reference to projections of future unserved energy, providing long-term price signals for investors to ensure sufficient generation is available to meet system requirements.

In recent times, however, technological substitutes to fossil fuels have become increasingly cost-effective replacements to traditional generation, and further subsidies for renewables arising from international commitments to reduce Australia's carbon emissions have led to significant amounts of new intermittent generation entering the market. This shift to renewable energy is showing the limitations of the NEM's thermal-centric design in that both the load duration and price duration curves are shifting, diminishing the economic viability of incumbent large-scale synchronous generation capacity.

This shift to increased renewables appears inevitable. In line with Australia's international commitments under the Paris Agreement to reduce its share of emissions, the energy sector's transition from traditional thermal generation to low-emission sources is likely to continue over a period of several decades and a long-term vision is required to support that transition. As such, it is critical that a nationally coordinated and consistent approach to NEM reliability is agreed upon to ensure the smooth decarbonisation and modernisation of the electricity sector does not adversely affect customers.

AGL further anticipates that the needs of the wholesale energy market will increasingly be supplied through a proliferation of distributed energy resources (DER), and the extent of the uptake and utilisation of DER may affect the role of large scale assets within future markets. Accordingly, the wholesale market will increasingly need to accommodate a diverse portfolio of decentralised low-emissions generation assets, which may affect



both the development of industry scale investments as well as the accessibility of supportive ancillary services.

We anticipate that the role of traditional generation will increasingly be met by flexible DER and a range of low-emissions generation. However, the proliferation of DER within a broader generation mix will require a commensurate ability to co-ordinate those assets in order to maximise the benefit to the primary and ancillary wholesale markets.

AGL considers that future industry scale investments will increasingly need to conform to the following design principles to effectively complement decentralised low-emissions generation:

- be modular and adaptable, capable of combining with multiple medium and large-scale fuel sources;
- utilise conversion technologies to deliver high efficiency and low emissions outputs;
- be scalable or grid-scalable, making it applicable to the grid as well as the distribution market (with its capacity to facilitate energy back flows); and
- be adaptable to the increased penetration of DER behind the meter.

Maintaining system reliability will therefore require complementary measures that accommodate a NEM in transition. Accommodating greater levels of intermittent renewable generation in the NEM requires anticipation of the emergence of new generation technologies, increased demand-side participation, and alternatives to traditional centralised generation on the operation of energy markets. In AGL's view, key mechanisms for doing so include the introduction of incentives to ensure that intermittent generation sources are complemented by an appropriate level of firm and dispatchable generation, and reviewing the use of existing and new supplementary markets to improve security, reliability and system resilience.

In order for the energy market transition to effectively respond to these competing policy objectives, which it must deliver concurrently (reliable and secure electricity supply, delivered at an affordable price, with increased integration of renewable energy capacity), AGL believes actions in three key areas are critical:

### **1. Supporting investment certainty in a carbon constrained future**

- Orderly closure - An expanded renewable energy future must be complemented with regulation which drives the progressive (and well telegraphed ahead of time) closure of older, emissions-intensive power stations.
- An emissions reduction mechanism - The consideration of emissions intensity in wholesale market reform is critical to supporting new investment and a low-cost transmission to an emissions-constrained future.
- National Carbon Budget - A long term, national carbon budget for Australia that extends to 2050 is required to underpin climate policy. This would allow businesses some insight into the suitability of investments with long lifespans.

### **2. Supporting the integration of increasing levels of intermittent renewable generation**

- Making renewable energy dispatchable - To ensure additional renewable generation does not impact system security, policy makers may consider adding a requirement for dispatchability to new intermittent generation. A system whereby market participants need to consider, through direct or indirect means, sourcing complementary 'firm' capacity (such



as open-cycle gas turbines, pumped hydro or advanced batteries) has the potential to address such concerns.

- Gas fired generation mix - AGL considers that gas-fired generation has a key role to play as the sector transitions away from a supply mix dominated by baseload coal fired capacity. It is critical therefore to lift gas moratoria, address gas market settings and reform access to gas pipeline capacity.
- Ancillary services - Ancillary services markets must be redesigned and expanded to underpin system security and reliability where appropriate.

### 3. Protecting customers through the transition

- Promoting competition – Market design that utilises competitive markets and supports innovation and new technology development will drive efficient investment, and is key to delivering reliable energy markets at the lowest price.
- Removing barriers to participation – The price, product and service benefits that flow to customers from competitive markets are predicated on the ability of customers to participate effectively in those markets.
- Technology standards – Where possible, technology standards applied in Australia should be based on international standards to avoid unnecessary overheads, promote customer choice and competition, and encourage economies of scale.

#### Existing reliability framework

We agree with the Commission's general conclusions that existing price signals and markets for reliability have worked well in the NEM, and that a number of key components have all contributed to NEM reliability. The spot, contract, and ancillary services markets that value and reward dispatchability and flexibility have provided useful price signals for generation to be dispatched into the market at an efficient price. Forecasting information and the setting of the reliability standard, price cap and price floor, have all provided additional long-term price signals that have created new investment in generation where it has been needed. Finally, the operation of the underlying futures and over-the-counter contract markets has provided additional options for participants to hedge their exposure to the volatility of the spot market and enter into long-term agreements that reduce risk and help finance new projects.

It is our view that these existing markets are generally fit for purpose, and that large changes to wholesale market processes are not warranted despite the challenges faced by the energy market transformation. Before policy-makers consider any policy changes to increase contracting liquidity or generation investment, it should first investigate whether the existing reliability settings are contributing to those issues. The reliability standard, price cap and price floor are designed to drive efficient levels of investment. If this is not occurring, the AEMC could investigate whether the Reliability Panel's methodology is setting these at the correct levels.

Along with other recent market reforms that may impact reliability (for example: five-minute settlement rule change; inertia rule change; and the frequency control frameworks review) a number of concurrent reviews are addressing similar market concerns regarding reliability and security. The Energy Security Board (**ESB**) is currently in the process of developing a detailed design for a reliability guarantee that will form part of a proposed National Energy Guarantee (**NEG**). AEMO is actively designing a replacement mechanism for the



Reliability and Emergency Reserve Trader (**RERT**). To add to these, the AEMC has considered in its Interim Report a strategic reserve, wholesale demand response, and day-ahead markets.

With this in mind, we encourage the AEMC to consider the status of other initiatives that may interact with the reliability framework and to take care in making conclusions or recommendations in the final report that do not consider the potential operation of AEMO's proposed RERT replacement or the development of the reliability component of the NEG.

### **Guiding policy principles**

AGL believes that further consultation and review of the reliability framework should be guided by a coordinated approach between market bodies and directed by the following principles to ensure the energy sector's smooth transition and ongoing delivery of secure, affordable and sustainable energy into the future:

- where feasible, using existing **competitive markets** to deliver and value energy services to provide reliability through flexible and dispatchable generation;
- establishing policy, regulatory and market frameworks that are **technology neutral**;
- utilising **price signals** to encourage efficient investment and operational decisions;
- **allocating risks** to parties that are best able to manage them;
- introducing **regulation only where necessary** to address a market failure, including to ensure system safety, security and reliability.
- ensuring an **equal playing field** where different providers of competitive products and services, in markets, must compete openly on their merits.

Keeping these principles as a guidepost improves the predictability of modifications to existing regulatory and market frameworks when it becomes evident they are required. Open competitive markets provide participants the impetus and latitude to pursue technology and service delivery innovations that meet system needs at efficient cost.

Introducing regulation only where necessary ensures that market participants can make long-term decisions based on forward price signals that reduce investment risk and leads to greater efficiencies in markets and better outcomes for customers.

Further responses on the specific topics raised in the Interim Report is provided at **Attachment A**.

If you have any queries about the submission, please contact Meng Goh on (02) 9921 2221 or [mgoh@agl.com.au](mailto:mgoh@agl.com.au).

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Elizabeth Molyneux', enclosed in a thin black rectangular border.

Elizabeth Molyneux

Head of Energy Market Regulation



## **Attachment A**

### **Specific comments on the Interim Report**

#### **Forecasting and information provision**

As identified in the Interim Report, the reliability framework includes the provision of market information and forecasts that provide signals for the efficient investment in new capacity, and to ensure that there is adequate supply to meet demand in the NEM. This includes longer term forecasts such as the Electricity Statement of Opportunities and Projected Assessment of System Adequacy, shorter term forecasts in Level of Reserve notifications, and the dispatch process. As noted by the AEMC, participants provide information to AEMO to help inform these processes.

AGL considers there are opportunities to improve the accuracy of this supply and demand information, which may help to improve reliability outcomes. While AGL supports the provision of more information in principle, the costs and benefits of any additional reporting requirements should be assessed carefully.

- There could be more transparent information about the distributed energy resources and demand response capability in each region. Improved transparency will enable both AEMO and participants to better anticipate responses from distributed energy resources and demand response under different market conditions, and will assist AEMO with providing more accurate forecasts for supply and demand. AGL supports the increased use of DER and customer participation in wholesale markets, and while further information about demand-side participation would be useful, it should not act as a barrier to innovation and increased customer participation. We note that AEMO is currently undertaking a data needs analysis to catalogue specifically what data is required about DER to meet those needs, including an assessment of implications if relevant data is not in the NEM. In addition, the visibility of distributed energy resources will be investigated in an upcoming AEMC rule change. AGL supports the following principles for the provision of DER data:
  - Data needs must be clearly justified and balanced against the costs of data creation and provision which includes any new regulatory obligation to collect or provide data be cast too wide or made too onerous.
  - Leverage the trials being pursued in the market to develop, over time, a considered view of essential data requirements and the most efficient means of eliciting this data.
  - Where possible market mechanisms to elicit data provision should be preferred over capture through regulatory obligation.
  - AEMO should where possible leverage existing data sources, rather than creating duplicative data obligations.
  - AEMO should provide a clear view on the interaction between its various data-focussed projects and, where possible, streamline these. This will promote a consistent and coherent approach to data capture issues.



- The accuracy of forecasts of wind farm and solar plant output greatly impacts on the forecast of reliability in the NEM across both operational and longer-term investment horizons. AGL considers that innovation in wind- and solar-forecasting technology should be embraced by AEMO, and participants permitted to provide alternative forecasts to AWEFS and ASEFS.

### **The contract market**

AGL supports the resumption of the Australian Financial Markets Association (AFMA) survey on OTC contracting levels, which will provide the market with more complete information on contract trading volumes.

However, regardless of the outcomes of the survey on contract trading volumes, AGL notes that the number of retailers in the NEM has continued to increase in recent years. From 2014 to 2017, the number of retailers in Victoria has increased from 16 to 22. Even in South Australia, where the contracting levels have been lower than elsewhere in the NEM, the number of active retailers has increased from 13 to 16 over the same period. This suggests that entering the market is viable, and that these newer retailers have been able to acquire hedge cover appropriate to their business needs.

### **Wholesale demand response**

AGL considers that wholesale demand response and changes in consumer demand side behaviour can help to maintain a reliable system, and may be a more cost-effective option than investing in new peaking generation. Demand response can be called upon to address capacity shortfalls where there is not adequate supply, and also has the effect of reducing the market price to avoid extreme price volatility for the benefit of other customers. More generally, customer load-shifting can also help to avoid peak demand periods, and reduce the requirements for market operator intervention or the use of expensive out-of-market reserves.

The ability for demand response to respond to quickly changing market conditions will depend on how the customer or the fleet of customers can be mobilised:

- If there is control technology at each connection point, the demand response can participate in and respond to a 5-minute dispatch market. However, the installation of control technology can involve very high upfront costs, particularly for fleets of small customers.
- If customers are individually contacted to organise voluntary demand response, it may take several hours to mobilise the fleet. Some industrial customers may require longer (up to a day) to prepare the facility for demand response. These types of demand response may be less able to assist with unexpected reliability issues.

Many customers are currently sensitive about a third party controlling their load. Residential customers may be more responsive to certain loads (like air conditioning) being controlled under certain circumstances, for example if the air conditioner is cycled such that the customer does not notice that it is being externally controlled. AGL expects that technological advances and reducing technology costs will make it easier to provide tailored services for the customer.



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### **Strategic reserves**

AGL considers that any reserve mechanism, whether that is the RERT or a new strategic reserve, should only be used as a last resort mechanism, and must be carefully designed and limited to ensure the mechanism does not create distortions or unintended consequences in the energy market. To the extent possible, signals for investment in new generation or demand response projects should be preserved.

Any amendments to the RERT or the development of any replacement emergency reserve mechanism should occur through further detailed industry consultation.

However, we consider the following principles would be important in the development of any reserve mechanism:

- **No distortion to the energy market:** The operation of any reserve mechanism should be separate from and not distort the energy market. If a generator or load is participating in the energy market, there are incentives to increase generation or decrease load in response to extreme market prices. Allowing those projects to also participate in a reserve mechanism may distort incentives to respond efficiently to pricing signals.
- **Technology neutral:** A reserve mechanism should not include any limitations on the types of technologies that can achieve the desired outcome to provide the lowest cost reserves for consumers. Advances in technology will provide new and forms of Demand Response products, and DER product development may also provide incentives for customers to participate in demand response programs to realise the benefits of their investments.
- **Competitive tender process:** The mechanism should be open to all market participants able to meet the requirements of the market operator, to drive a least cost outcome for customers.

AGL also notes the possibility that consumers may now place a higher value on avoiding lost load. As noted in the Interim Report, in 2014 AEMO valued customer reliability at \$33,460 per MWh, which is significantly higher than the market price cap of \$14,200 per MWh. AGL understands that AEMO will revisit this assessment in 2019, and considers that any concerns about reliability and investment may be best addressed through the existing Reliability Panel processes (revisiting the reliability settings to provide the right investment signals).

### **Day ahead markets**

The introduction of a day ahead market would involve fundamental changes to the NEM. Such proposals must clearly define the issue the change is attempting to address, and must include thorough assessment and consultation to avoid unintended consequences which result in higher costs.

In AGL's view, the introduction of a day-ahead market seems to be premature. Improvements to the existing framework and other key reforms underway are likely to make this change unnecessary.