

REF: ERC0192

9 February 2017

Ms Claire Richards
Australian Energy Market Commission
Via email: Cclaire.richards@aemc.gov.au

Dear Ms Richards,

RE: Transmission connections and planning rule change – additional consultation on transitional arrangements

As an energy infrastructure and related services company active in Australia, ATCO Australia has a keen interest in the evolution of energy policy to address the dynamic and challenging issues in the market today.

Through this letter we are recommending additional industry consultation on transitional options to stabilize the energy market framework and address the immediate concerns about electricity energy reliability and cost in the NEM.

For your background, ATCO Australia is part of the ATCO Group of Companies, a diversified international corporation engaged in structures & logistics, utilities, and energy. ATCO Australia is headquartered in Perth and we develop, build, own and operate energy and infrastructure assets across the country. Major assets include; the reticulated gas pipeline network in Western Australia, power plant in Western Australia, and power generation in South Australia.

Context and proposed rule changes in the NEM

Within the NEM, ATCO co-owns and operates the Osborne combined cycle gas generation facility located close to Adelaide in South Australia. ATCO has been directly affected by the dramatic changes in the South Australian power market that have taken place over the last few years. To date, the NEM has failed to keep pace with the rapid rate of technological change, particularly with the policy induced rise in small and large scale renewable generation. This has resulted in some very costly events including periods of very high prices in SA, and a black start event, neither of which would appear to be consistent with the long term interest of customers (LTIC).

ATCO has been directly affected by these events. As an interested party, we consider that further changes to transmission and related rules within the NEM would reduce the likelihood of such adverse outcomes in the future. Had appropriate rules been in place over the last five years, they would likely have prevented recent adverse events.

The AEMC's proposed National Electricity Amendment (Transmission Connection and Planning Arrangements) Rule 2016 includes some valuable changes, but these will not be sufficient to ensure that the NEM as a whole reliably meets the LTIC.

Meeting the long term interests of customers

The basic framework adopted by the NEM to meet LTIC is for competition in contestable market segments (such as generation and retail supply) to safeguard customer interests, and for regulation to serve that purpose for the non-contestable segments (transmission, distribution and market operations).

One of the difficulties with this approach is the existence of externalities. The decisions of generators and customers affect the use of transmission and distribution services, and affect how others use those services. It is not possible to gauge whether the system as a whole meets LTIC unless those interactions are carefully considered. At present, these interactions are investigated by what amounts to scenario studies of possible future outcomes in the NEM, and long term transmission planning is informed by those studies. Almost by definition, long term planning is unlikely to be well suited to very rapid technological change such as the dramatic rise in renewables and the consequential closure of thermal plant over recent years. The NEM therefore includes rules for more rapid changes, including the RIT-T process for urgent transmission changes, to address inadequacies that may arise under the long term planning schema.

In ATCO's view, the proposed transmission connection and planning rule change does not materially address the shortcomings inherent in the NEM's approach to transmission and distribution planning.

Recent SA experience

The reasons behind the recent black start event in SA have been extensively explored, but the immediate cause was a lack of appropriate resources within SA to maintain a secure system after the failure of the interconnection to Victoria. In particular, the change in generation mix from conventional thermal to renewables left SA with insufficient inertia and fast response generation/demand side management to prevent a catastrophic collapse in system frequency. Historically, SA had greater levels of thermal generation in operation sufficient to meet that need.

As a direct response, the Government of SA introduced a requirement that SA operate so as not to exceed a 3 Hz/second rate of change of frequency (RoCoF) limit¹. AEMO chose to implement this requirement by reducing the level of power flows across the Heywood Interconnect to 650MW and by requiring two gas fired generators within SA to remain synchronised at all times. ElectraNet has issued an RIT-T to secure network and non-network solutions as a corrective, setting out a preferred operating standard of 1 Hz/s with 750MW flows across Heywood that would provide a greater level of security than the current standard in the event of further Heywood failures.

While the RIT-T is in progress and the results not yet known, ElectraNet has put forward four new interconnection options for consideration. Each option includes costly 'greenfield' investment in transmission infrastructure that will add to growing consumer concerns regarding the continuing increases to already high electricity costs. Further, the relatively low-cost option of augmenting the existing Heywood Interconnector appears to have been excluded from the initial assessment.

Evaluation of these options is being made using the same "scenario" approach previously referenced in determining whether each option delivers a net benefit and which option delivers the largest positive benefit. Unfortunately this methodology is flawed, given that the starting assumption is that the solution to South Australia's system security issues is another interconnector. This approach does not adequately consider the following:

¹ That is, in the event of an interconnector failure, the maximum rate of change in system frequency should not exceed 3 Hz/s as a RoCoF in excess of this would result in an unacceptably high risk of system collapse.

- The probable market impact and response of existing baseload generators in SA and neighbouring states to further load erosion and demand unpredictability if more interconnectors are built;
- The impact on system stability and cost of NEM with ever increasing levels of renewables (to meet aggressive renewable targets in most member states) and reducing levels of baseload synchronous generation, including the loss of lower emissions gas generation;
- The importance of Frequency Control Auxillary Services, Network Control Services and inertia to system security and reliability and the value of locating these services near the source of demand; and
- The potential to optimize utilisation of existing transmission assets and lower emission synchronous gas generation to support renewable energy by creating an appropriate policy framework.

Ideal outcome

The rapid transformation of the energy sector in Australia is placing increasing pressure on installed network infrastructure. At the same time, policy uncertainty at both the State and National level discourage new investment in long term assets.

It is ATCO's view that there are significant opportunities to enhance the market-based mechanisms that will continue to drive both efficient investment and long term customer value.

Events in South Australia provide an important lesson in the risks of policy-driven rapid renewable penetration without a policy framework that also addresses cost and security of supply. In hindsight, a more comprehensive plan which addressed the optimisation of existing infrastructure in concert with renewable growth would have produced a much more robust and cost effective solution, while still significantly reducing carbon emissions.

One such approach would be to use transmission pricing mechanisms to balance renewable and synchronous generation on the grid. As and when new wind or solar generators (spurred by subsidies aimed at increasing renewables) contemplated connection to the network, they could have faced a price for the use of transmission services that reflected the costs of transmission augmentation necessary to ensure the continued security and reliability of the system. At the same time, existing generators (or DSM resources) closure of which might similarly have given rise for the need for additional transmission in order to secure the system, could also have faced a price for the use of transmission services. But because their maintained operation would lower the need for new transmission, that price should have been negative. Pricing paradigms of this type for transmission use of system (TUOS) are well understood and operate in several overseas markets.

It is difficult to predict exactly what would have happened under such a model, but several outcomes would be expected all of which would facilitate meeting LTIC:

- The pace of renewable penetration for a given level of subsidy would have slowed, which might have allowed the system to adapt in a timely manner without catastrophic outcomes²;
- Renewables might have preferred different locations and/or different technological choices (such as inverter settings that allowed them to provide more and faster 'synthetic

² ATCO recognises the imperative of shifting to lower emission technologies within the NEM and the importance that subsidies can play in engineering that transition. However, it is not sensible policy to engineer the transition by means of an inadequate subsidy that is, in effect, masked by a deterioration in system security that necessitates excessive new transmission build.

inertia') so as to reduce their TUOS charges and the need for transmission augmentation³;

- Transmission network service providers (TNSPs), ElectraNet in this case, would have observed a powerful price indicator showing whether it would be efficient (in the sense of meeting LTIC) to build additional transmission, from the willingness of renewables to pay the specified TUOS charges;
- Existing thermal generators in strong locations would have additional revenue (from negative TUOS charges) that would reduce the likelihood of closure or mothballing for a given level of renewable penetration; and
- There would be a natural bias in favour of new renewable generation seeking to make use of existing transmission assets under-used as a result of demand changes or thermal generator closures, maximising the use of assets that are otherwise sunk.

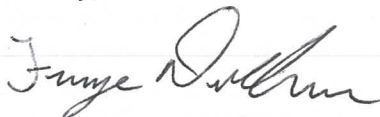
ATCO Feedback on Rule Change

There are always likely to be benefits from greater coordination of planning between AEMO and different transmission providers contributing to a shared network. Similarly, measures that increase competition for connection services, reduce connection time and increase certainty for parties seeking connection are also likely to be beneficial.

However the NEM will continue to be challenged in its ability to adapt to changing demand and circumstance for as long as transmission and distribution network users do not face the costs that they specifically impose on those networks to ensure that the system continues to operate securely. Further, the AEMC will continue to have to consider administrative but ultimately ineffective rule changes to correct the dysfunction.

While the AEMC's proposed National Electricity Amendment (Transmission Connection and Planning Arrangements) Rule 2016 rule changes are supported by ATCO, broader consultation is required to ensure that regulatory investment tests and transmission pricing structures are updated to reflect the rapidly changing energy market, and ultimately deliver long term value and security for our customers. In this regard, ATCO would welcome the opportunity to meet with the AEMC to discuss the scope of any future rule changes that could address the opportunities for reform outlined in this submission.

Sincerely,



Frayne Donaldson
General Manager
ATCO Power Australia

³ By way of example greater wind generation build in Victoria and less in SA would most likely have resulted in being able to meet a market-wide renewables target at lower overall cost to customers. This might be at the expense of failing to meet a specific local renewables target in SA, but from an LTIC perspective, such local renewables targets are distinctly inferior to targets set more broadly across the NEM.