27 March 2014

Mr John Pierce
Commissioner
Australian Energy Market Commission
PO Box A2449

Dear Mr Pierce

ERC0165 – Generator ramp rates and dispatch inflexibility in bidding

Origin Energy (Origin) appreciates the opportunity to provide comments to the Australian Energy Market Commission's (AEMC) Consultation Paper on generator ramp rates and dispatch inflexibility in bidding.

We understand that this consultation process has been initiated by the Australian Energy Regulator (AER) due to its concern that the use of generator ramp rates and dispatch inflexibility profiles have contributed to inefficient market outcomes. These include increased spot price volatility, counter price flows, and productive inefficiency in dispatch. The AER is now seeking to impose a requirement that generators submit ramp rates and inflexibility profiles that reflect the maximum of their technical capability at all times.

In examining the examples provided by the AER, and the nature of the proposed Rule, Origin has formed the view that:

- The materiality of the problem the Rule change is intended to solve has not been established. Both the incidence and impact of the aforementioned market outcomes are not of a sufficient magnitude to warrant the introduction of the proposed rule;
- In any event, the extent to which generator ramp rates and dispatch inflexibility profiles contribute to the outcomes described by the AER, have also not been proven to be material;
- Imposing a requirement on generators to submit ramp rates reflecting their maximum technical capacity at all times would impose additional risk and increase operating and maintenance costs. This is a disproportionate response to the perceived problem; and
- Given the above, the proposed Rule is unlikely to advance the National Electricity Objective – and should therefore not be adopted.

The attached submission examines these issues in greater detail. Please contact Ashley Kemp on (02) 9503 5061 or at ashley.kemp@originenergy.com.au if you wish to discuss any aspect of this submission further.

Yours sincerely,

Steve Reid
Manager – Wholesale Regulatory Policy

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1. Materiality of the problem the AER is seeking to solve

The AER has expressed concern around generator behaviour at times of network congestion - in particular the rebidding of ramp rates and non-cost reflective bids through the dispatch process. This in the AER's view has resulted in adverse market outcomes, including: the occurrence of counter-price interconnector flows (and accumulation of negative residues); spot market volatility; a loss of productive efficiency in dispatch; increased network investment; and the potential undermining of network security.

Origin considers that the above outcomes (when they do occur) are a feature of the National Electricity Market's (NEM) energy only design, the technical limitations needed to maintain power system security, and the occurrence of network outages. Note that we consider that the concerns around network security to be unfounded.

We are also of the view that the impacts of network congestion tend to be transitory in nature. The Regulatory Investment Test for Transmission (RIT-T) has been developed to assess the benefits to market participants (and consumers) for undertaking network investment - to allow for the timely building out of constraints. The AER has also developed the Service Target Performance incentive Scheme (STPIS) to incentivise circuit availability, minimise the market impact of network outages, and enhance the capacity of the transmission network.

The current regulatory arrangements for generator ramp rates were put in place in 2009 where the AEMC determined that generators must specify a ramp rate of 3MW/minute (or higher) during a dispatch interval. In justifying the need for the proposed rule, the AER has pointed to an increase in non-cost reflective bidding since 2009. It should be noted that the AEMC's 2009 Determination found that:

> *Analytical work by the AER and the AEMC suggested that productive inefficiencies from dis-orderly bidding have been relatively minor to date. In addition, empirical research from NEMMCO showed that congestion has tended to be transitory and influenced significantly by network outages….*[1]

Given the above statement it is worth examining what has changed since 2009 that could warrant imposing a restriction on generator operation in the NEM. This is discussed further below in the context of the perceived adverse market outcomes identified by the AER.

Counter price flows and negative settlement residues

In assessing the magnitude of negative inter-regional settlement residues (IRSRs) attributable to non-cost reflective bidding, the AER has pointed to a number of events - which we would consider to be isolated in nature.

The AEMC Final Report on the management of negative IRSRs in February 2014 made note of a significant market event in April 2010 where almost $19 million in negative IRSR accrued.[2] The AER has referred to this in Appendix B of its rule change request as an example of high cost counter price flows.[3] However, Origin queries the applicability of this event given that it occurred under multiple concurrent outages, which resulted in

[1] AEMC 2009: Ramp Rates, Market Ancillary Service Offers, and Dispatch Inflexibility, Rule Determination, 15 January 2009, Sydney. pg. 14.
[2] AEMC 2014: Management of negative inter-regional settlement residues, Final Report, 20 February 2014, Sydney. pg. 8.
[3] AER 2013, Request for Rule Change – Requirement for ramp rates and dispatch inflexibility profiles to reflect technical capabilities, 21 August 2013, Adelaide. pg. 22.

the isolation of Victoria from adjoining NEM regions.[4] Concurrent outages have not occurred since that time and Origin considers it unlikely that they would be approved in the future given the emphasis of the market impact component of the STPIS. It therefore means that of the approximately $26 million in counter price flows into NSW from Victoria identified by the AER, almost 75 percent of these costs can be attributed to this single isolated event - which has a low probability of reoccurrence.

The AER has also cited high cost counter-price flows into Victoria of around $9 million. However, again, of the approximate $9 million in cost, over $5 million is attributable to a single market event in February 2010. Some of the constraints that bound causing the market event have eased and have not bound for any material frequency or time duration. This is due to the commissioning of the 500kV conversion of the 300kV network west of Sydney, and an increase in the thermal limit line of a 300kV line west of Sydney. This therefore means that congestion on this part of the transmission network has proven to be transitory.

In the case of Queensland in 2012-13, congestion around Gladstone lead to around $14.5 million in accumulated negative IRSRs. It is important to bear in mind, however, that the network limitation causing that market event has been 'built-out' through the commissioning of the double circuit Calvale-Stanwell 275kV lines in December 2013. The constraint used to manage congestion around Gladstone has not bound since this time.

The above examples reinforces that the views expressed in the AEMC's 2009 Determination are still valid in that network congestion tends to be transitory and influenced by network outages. Origin is supportive of incentive based regulation such as the STPIS developed by the AER. Minimising the market impact of network outages through incentive regulation is likely to be more effective in mitigating the concerns identified by the AER, rather than rules to restrict the operation of generation in the NEM.

Cost to customers from counter price flows

The AER suggests that the higher accumulation of negative settlement residues will lead to an increase in costs to energy consumers. The AEMC Final Report on the management of negative inter-regional settlements residues noted, however, that "*negative IRSRs are a relatively minor component of the overall price of electricity paid by consumers*."[5] It should also be noted that the principle whereby customers in the importing region fund shortfalls brought on by negative residues, was based on the assumption that these customers would benefit from the lower wholesale spot prices from the counter interconnector flows.

The value of settlement residue auctions (SRA)

The AER also highlights the reduction in the proceeds from SRA auctions and that this may be indicative of reduced market valuation of SRAs as a hedging instrument. In considering this, it is important to bear in mind that declining demand and the oversupply of generation in the NEM has lead to low, flat wholesale prices with minimal regional price differentials. It therefore means that under current market conditions SRAs are likely to be low yielding which could help to explain any discount in their value as a hedging instrument.

[4] Concurrent outages on the Georgetown-Sheffield 220kV line in Tasmania, the Heywood-Moorabool 500kV line in western Victoria and the Dederang-South Morang 330kV line in northern Victoria were approved reducing limits on BassLink, Heywood and the Vic NSW interconnectors.

[5] AEMC 2014: Management of negative inter-regional settlement residues, Final Report, 20 February 2014, Sydney. Pg i

Network security concerns

The AER states that the ability of generators to rebid ramp rates and make changes to dispatch inflexibility profiles undermines AEMO's ability to manage network security and stability. This is because that in managing congestion, the dispatch engine gives higher priority to ramp rates and dispatch inflexibility profiles than to other constraints such as network limits. In considering this issue, the AEMC should bear the following in mind:

- As part of the 2009 ramp rate rule change consultation process, NEMMCO, now AEMO "advised the AER that a ramp rate of 3 MW/minute is sufficient to allow NEMMCO to manage system security incidents."[6]
- AEMO's powers to override generator bids by issuing directions to market participant is an additional tool that can be used to manage power system stability and security.[7]
- Our understanding is that AEMO takes a conservative approach to constraint formulation which should further help to safeguard the secure operation of the power system.

Wholesale spot price volatility

An important feature of the NEM's current energy only design is that in order to ensure adequate generation investment there must be opportunities for generators to recover long run costs at times of high market prices. This is reinforced by the market price cap being well above short run marginal costs. It therefore means that volatility in energy only markets should not be automatically views as a sign of inefficiency.

The AER is of the view that non-cost reflective bidding can compound market volatility. While generation volume priced around the Market Price Cap can increase spot prices, price volatility can also be seen through constraints binding irrespective of bidding. While bidding at the Market Price Floor following a constraint binding can lead to instances of negative prices, this would send a price signal to generators to rebid price and volume to stabilise the balance between supply and demand and, consequently, wholesale spot prices.

2. Increased cost to generators

Imposing a requirement to bid a maximum technical capacity at all times would impose additional risk on generators and increase operating and maintenance costs. Generator manufacturers specify optimal generator ramp rates and operating philosophies which have a bearing on operating and maintenance costs, the scheduling of major outages and essentially the life cycle of the plant. Generators are best equipped to balance these considerations in ascertaining how to most efficiently operate. The imposition of the AER's proposed rule would deviate from this principle and would ultimately lead to suboptimal outcomes.

[6] AEMC 2009: Ramp Rates, Market Ancillary Service Offers, and Dispatch Inflexibility, Rule Determination, 15 January 2009, Sydney. pg 1.

[7] AEMO has the power to issue directions under NER clause 4.8.9.

3. Effectiveness of the proposed rule

The AER has raised concerns that generator rebidding under network congestion can lead to a number of inefficient outcomes. The NEM, as an underlying physical market, has inherent thermal limitations for transmission equipment and other technical voltage and transient stability limitations for maintaining system security. Under congestion conditions or when constraints bind, many of the issues identified by the AER are likely to still occur even if the proposed rule was in place. It is therefore worth considering the likely effectiveness of the AER's proposed changes when considering the adoption or a rule that will limit the operations of NEM participants.