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Australian Energy Market Commission  
PO Box A2449  
Sydney South NSW 1235

Submission lodged online at: [www.aemc.gov.au](http://www.aemc.gov.au)

Project Number: ERC0165

Dear Mr Pierce

### **Generator ramp rates and dispatch inflexibility in bidding – Options Paper**

Snowy Hydro supports the AEMC's draft rule determination to reject the AER's rule change to require that ramp rates reflect the maximum technical capability of generating plant. We agreed with the principles espoused by the AEMC in deriving a more preferable draft rule in the Draft Determination. These principles were:

- Ramp rates are a commercial parameter and commercial incentives are the key driver for ramp rate capability which is necessary to provide energy to the market at times of highest value;
- Regulatory obligation on generators are set at a minimum required for AEMO to fulfil its system security obligations; and
- Competitive / technology neutrality – The burden of system ramp rate capability must be applied consistently and proportionately to all generator units regardless of generator size, plant configuration, technology type, or market configuration.

In response to submissions to the Draft Determination, Snowy Hydro highlighted the issue of disproportionate ramping obligations for aggregate generators and some thermal generators highlighted the alleged limited capability of some large units to ramp at 1%. In response to these two issues the AEMC has released an Options Paper which lists two (2) options for consideration.

Option 1 attempts to meet the competitive / technology neutrality principle with equal ramping obligations for Aggregate units compared to physical units.

Our submission highlights that Option 1 is workable even though it is a proxy for units on-line in an aggregate group generator. We suggest an improvement to how Option 1 could be implemented by having:

- Minimum ramping obligations for generation offers prior to dispatch based on Available Capacity offered as part of a generators bid. This would clearly allow the AER to monitor whether or not a generators bid prior to dispatch meets the Rules obligations.

- In the dispatch period (ex post) the minimum ramping requirement is assessed against actual units on line as per our suggested approach to the Draft Determination.

Option 2 is grossly inconsistent with AEMC's own stated principles and is not supported. If this option is ratified aggregate unit generators would have no choice but to seriously consider disaggregating their generator units. This would be a perverse and inefficient outcome as aggregation is recognised as an efficient mechanism to minimise the economic costs associated with dispatching generation plant.

We also espouse an alternative solution where ramping is based on 0.5% of maximum capacity applied uniformly for all generator unit sizes and configurations. For aggregate generators, Available Capacity is used to assess the validity of a bid prior to dispatch and actual units on-line is used to determine minimum ramping obligations in the dispatch (ex-post) period. This alternative option treats all generators equally and meets all the principles espoused by the AEMC in its Draft Determination.

Finally, we highlight that the draft rule will impact transmission access and hence the rule commencement date requires an adequate transition period. In line with recognised industry practice to forward hedge a significant amount of generation capacity at least three years forward we recommend an implementation date for the ramp rate Rule of at least three years.

Snowy Hydro appreciates the opportunity to respond to this consultation. Our submission is attached to this covering letter. Should you have any enquires to this submission contact Kevin Ly on [kevin.ly@snowyhydro.com.au](mailto:kevin.ly@snowyhydro.com.au) or on (02) 9278 1862.

Yours sincerely,



Roger Whitby  
Executive Officer, Trading

## **Generator ramp rates and dispatch inflexibility in bidding – Options Paper**

### **Competitive / technology neutrality principle**

A key principle underpinning the AEMC's Draft Determination was minimum ramping obligations must be applied in a competitive / technology neutral manner.

To uphold this principle means:

1. Minimum ramping of generator units only applies to that unit in actual service.
2. There is no additional ramping obligation placed on other generator units in the same Portfolio.
3. The same logic must apply to generators units in an aggregate group.

The principle is used to compare the validity of Option 1 and 2 in the Options Paper.

### **Option 1**

Option 1 attempts to address the capability of aggregated units to ramp up and down is function of how many physical units are on line at the time.

However 1% of aggregate available capacity is a proxy for units on line with potentially some unintended consequences.

AEMC appear to offer Option 1 because, "aggregated generators would be unable in practice to know their minimum ramp rate requirements at the time of submitting their offers"<sup>1</sup>

Snowy Hydro can see that Option 1 is workable even though it has been acknowledged by the AEMC as a proxy for physical units on-line. We suggest an improvement to how Option 1 could be implemented to put all generators on level footing. For aggregate generators minimum ramping obligations for generation offers prior to dispatch is based on Available Capacity offered as part of a generators bid. This would clearly allow the AER to monitor whether or not a generators bid prior to dispatch meets the Rules obligations. In the dispatch period (ex post) the minimum ramping requirement is assessed against actual units on line and the maximum capacity of each unit actually on line. As highlighted by the AEMC, AEMO has the required information to determine physical units which are on-line and the maximum capacity of each individual unit.

An issue of debate for Option 1 is outlined in Table 3.1 of the Options Paper where the AEMC's analysis suggests Option 1 results in less aggregate ramp rate capability for the QLD, SA, and Tasmania regions. Snowy Hydro asserts that this should not be an impediment for adopting this option since:

- For Queensland, the aggregate ramp rate capability is relatively minor compared to the high overall level of existing ramp rate capability in that region.
- In Tasmania, Hydro Tasmania suggests that there would be no system security issues even with a lower minimum ramp rate requirement than that proposed under the more preferable draft rule.

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<sup>1</sup> AEMC Options Paper, page 17

- With respect to SA, Option 1 results in only a 5 MW/minute lower aggregate ramp rate capability compared to the current Rules. Similar to the QLD region this is a relatively minor reduction. Snowy Hydro notes that a joint Electranet and AEMO study have investigated the unique circumstances in the SA region which may cause system security concerns in the event of a double contingency on the Heywood interconnector and low levels of synchronous generation in SA. We assert the minimum aggregate level of ramping available for SA could also be investigated as part of this study. If necessary the SA region may be deemed a special case due to a number of factors that warrants a different minimum ramping approach to the rest of the NEM.
- Finally, generators should be incentivised to provide ramping when it is of most value to the market. Establishing a market for ramping would ensure appropriate incentives to provide ramping capability above a minimum regulatory requirement which is consistent with the principles espoused by the AEMC.

## Option 2

Option 2 is inconsistent with and violates AEMC's own stated principles.

For example Murray aggregate unit has up to 14 physical units:

If only 1 × 95MW unit was operating Option 2 would impose a ramping requirement of 15MW/minute for the Aggregate generator compared with only 1MW/minute if the unit was disaggregated.

In a simple analogy it is clear that when a physical is shut down or not on-line there is no ramping requirement placed on other generators in the Portfolio. The same should apply to units in an Aggregate group.

The AEMC's analysis shown on Table 3.1 of the Options Paper suggests that Options 2 would result in net increases in minimum aggregate ramping across each region. This net increase in minimum ramp capability available for the market is not a benefit without imposing costs. There is always a cost to ramping. Faster regulatory minimum ramping requirements means higher costs. Additionally AEMO has stated that the minimum ramping requirements in the current Rules are sufficient for them to meet system security obligations. This means there is no plausible technical reason for increasing the aggregate ramping across the NEM. Hence we conclude that mandating increased minimum requirements results in a cost/benefit trade-off which is ambiguous to determine.

Finally we highlight that if AEMO needs more than the minimum then let the market be incentivised to provide this service. AEMO's submission to the Draft Determination states that it is ready and willing to aid in developing a market for ramping.

## Option 2 would create perverse incentives for disaggregation

Aggregated generator units are an efficient mechanism to allocate generation to multiple generator units that share a common fuel resource.

AEMO has no issues with the use of aggregated units as highlighted by the fact that AGL, Aurora Energy, Energy Brix, EnergyAustralia, Hydro Tasmania, Origin Energy, GDF Suez,

QGC Sales QLD Pty Ltd, Synergen Power and Snowy Hydro are businesses which have aggregated units.

There are relevant aggregation guidelines under section 3.8.3 of the Rules and Market Participants can aggregate their relevant generating units provided they meet relevant criteria in these guidelines.

If ratified Option 2 would mean perverse incentives to disaggregate since the ramping requirement for an aggregate generator with less than the maximum number of physical units in the aggregate group on-line results in dis-proportionate risks and costs compared to operating in a disaggregated configuration. Should disaggregation occur for these reasons there would be an ensuing loss of efficiency as more resources would be required to dispatch generation plant.

### Favourable treatment of Large generator units

Both Option 1 and 2 caps minimum ramp rates to 3MW/minute. In effect larger generators over 300MW receive preferable treatment.

The arguments presented by larger generators on why they can't sustainably ramp at higher rates are weak.

Larger units tend to be more modern units which use better technology to operate more efficiently and minimise wear and tear. It's perverse to disproportionately burden smaller and older generators with relatively higher ramping obligations. This is both inequitable and not proportionate.

As shown in the figure 1 below in the 2013/14 year the majority of large generator units offered ramping exceeding the 3MW/minute cap.

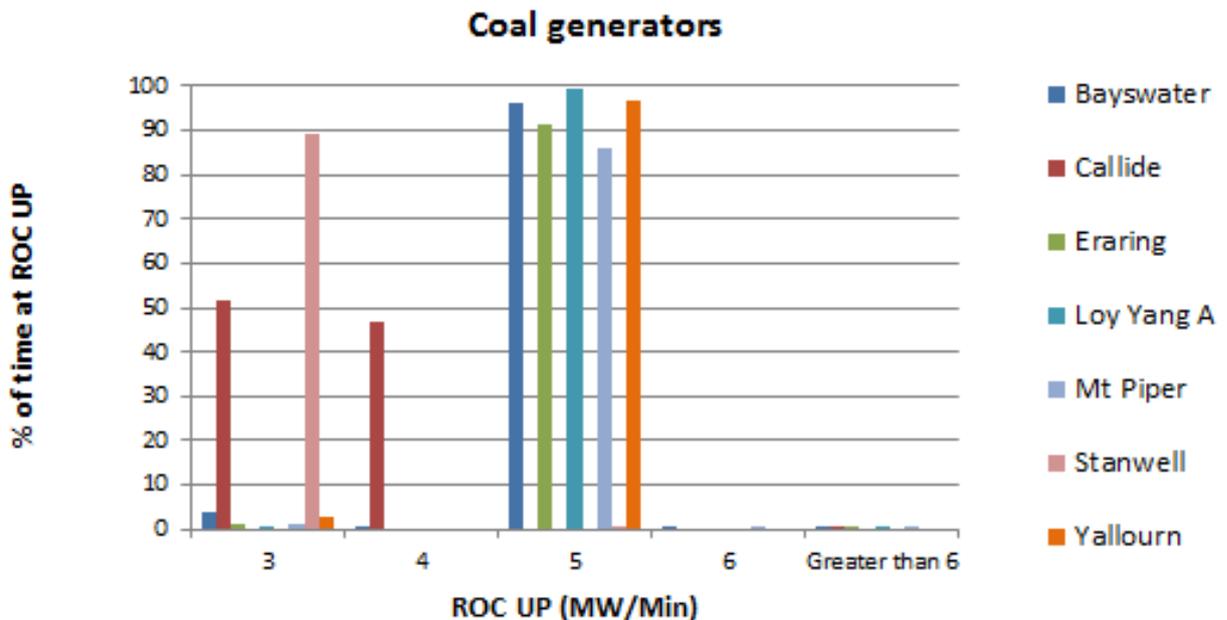


Figure 1.

## **Minimum ramping capability should be no more than 0.5%**

Snowy Hydro agrees with the Commission that “commercial incentives are, and should be, the key driver for generators investing in, and maintaining, ramping capability<sup>2</sup>”.

Our proposed solution that meets all of the AEMC’s principles and removes the need to place arbitrary caps for large generation ramping obligations is for minimum ramp obligations of 0.5% based on physical units on-line for all generators.

With the current over supply of generation and transmission which is sufficient to meet reliability standards for at least another 10 years we argue that the current regulatory ramping requirement exceeds AEMO’s quantity to allow it to maintain system security.

In line with the AEMC stated principles of ramping being a commercial parameter, the regulatory amount being the minimum requirement, and competitive / technology neutrality we advocate 0.5% applies the same ramp rates for all Participants and would distribute the burden of system ramp rate capability uniformly regardless of generator size or configuration. Anything above 0.5% hinders commercial incentives to have flexible plant.

Any regions which are deficient in ramping capability should be incentivised to provide this capability through market based incentives.

## **Rule commencement date**

The Rule change materially affects market transmission Access in the market. For instance Murray aggregate unit was required to ramp at 3MW/minute under the current Rules and this may be substantially increased to 15MW/minute if either Option 1 or 2 are ratified. In a half hour trading interval the reduction in access could be as high as 360MW. This would be a significant reduction in market transmission access thereby significantly reducing the capability of this plant to hedge sold forward contracts. Therefore the draft Rule if implemented must impact on the risk of sold forward contracts.

To provide cashflow certainty to meet fixed costs a large proportion of a generators hedge contracts are sold at least out to 3 years.

The Rule Commencement Date must reflect and recognise this increase hedge contract risk and therefore have an appropriate transitional notice period.

Snowy Hydro suggests a Commencement Date no earlier than 1 January 2018 (i.e. 3 years notice) to allow Market Participants to manage their risks.

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<sup>2</sup> AEMC Draft Determination, page i

## **In summary**

Snowy Hydro commends the AEMC for rejecting the AER's rule change proposal. The Commission has correctly identified that the rule change is un-proportional to the issues identified, would be difficult to implement, and would create disincentives to invest in peaking and flexible generation plant.

While we support the AEMC's principles underpinning its more preferable draft rule we have highlighted that the principle of competitive/technology neutrality is violated in Option 2 for Aggregated units when compared with physical generator units.

While Option 1 is workable for aggregate units, it is also recognised by the AEMC as a proxy for units on-line. We propose a simple and equitable solution for Aggregated units based on Available capacity for generator bids prior to actual dispatch and in the dispatch period the minimum ramping obligation is based on physical units on-line and the registered capacity of these physical units. AEMO technical staff has confirmed that market information is available to implement this preferred solution.

Snowy Hydro has highlighted through an illustrative example that our proposed solution would place equal obligations on both Aggregated and Physical generator units.

Consistent with the low growth environment, decrease in overall market volatility, and recognition that ramping capability is a commercial parameter we question whether overall ramping levels in the Current Rules are required. We therefore advocate that the minimum ramping requirement should be no more than 0.5%. Any amount above this requirement should be incentivised from a market mechanism.

Finally we highlight the fact that regulatory ramping requirements impacts on market transmission access and hence this impacts on the ability of Participants to manage the risk of sold forward contracts. In recognition of this risk an appropriate transition period is required for Market Participants to re-adjust their portfolios and risk profiles. We therefore advocate the Commencement date for the Rule should be no earlier than 1 January 2018.