

16 February 2015

Mr Paul Smith  
Chief Executive Officer  
Australian Energy Market Commission

Online lodgement at [www.aemc.gov.au](http://www.aemc.gov.au)

Dear Mr Smith

**RE: Generator Ramp Rates and Dispatch Inflexibility in Bidding Options Paper (Ref ERC0165)**

GDF Suez Australian Energy (GDFSAE) appreciates the opportunity to comment on the Australian Energy Market Commission's (AEMC) 'Generator Ramp Rates and Dispatch Inflexibility in Bidding' Options Paper (the Options Paper).

The GDFSAE submission to the AEMC's Draft Determination on this topic expressed the view that the AEMC's more preferable draft rule would provide a reasonable compromise between ensuring sufficient ramping capability in the National Electricity Market (NEM), without imposing onerous minimum obligations on generators. The submission also noted the concern that the AEMC's proposed option of one per cent, rounded up to the nearest whole number could potentially impose relatively high ramping obligations on the largest generating units in the NEM.

Further, the GDFSAE submission noted how the minimum ramp rate would be calculated for aggregate units under the more preferable draft rule, and that if the minimum ramp rate is simply one per cent of the registered maximum capacity of the aggregate unit, then the resulting ramping obligation may not be achievable unless sufficient physical units are on-line.

To overcome this problem, GDFSAE suggested that the minimum ramp rate obligation be made equal to one per cent of the maximum capacity of the physical units that are on-line at any point in time, noting that AEMO have real time data available to confirm the on-line status of all physical generating units.

In its consideration of this matter GDFSAE has strived to strike a pragmatic balance between the following positions:

- a reasonable ramp rate capability should be required from all scheduled generating units to ensure continued system security, and
- the provision of ramp rate service impose costs on a generator and has commercial value to the market, and therefore should not be subject to mandatory obligations beyond a minimum required to facilitate dispatch and maintain system security.

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GDFSAE is mindful of the fact that generators have an incentive to ramp up and down in response to energy price signals, and that these incentives are integral to the energy only design of the NEM. GDFSAE also recognises that situations can arise such as network congestion, where the energy price incentive for the constrained generator to provide sufficient ramp rate capability is undermined, giving rise to the need to impose a minimum ramp rate capability.

The tension between these positions and the impact of ramp rates on dispatch results in varying levels of distortion that derives from physical and technical limits and commercial decisions. Given the application of technically defined ramp rates by plant contrasts with the AEMC's desire for a standard ramping capability, it is evident that any final determination will be imprecise and arbitrary.

In recognition of the above, GDFSAE would be interested in investigating options for valuing additional ramping capability that benefits the market where there are no commercial incentives for generators to offer this service or where system conditions, such as the amount of inflexible generation on-line, and expected changes in demand in the short term, suggest additional services should be acquired. GDFSAE has not examined this issue in detail and would need to give further thought to how such a service could be integrated into the NEM without compromising the energy only market design.

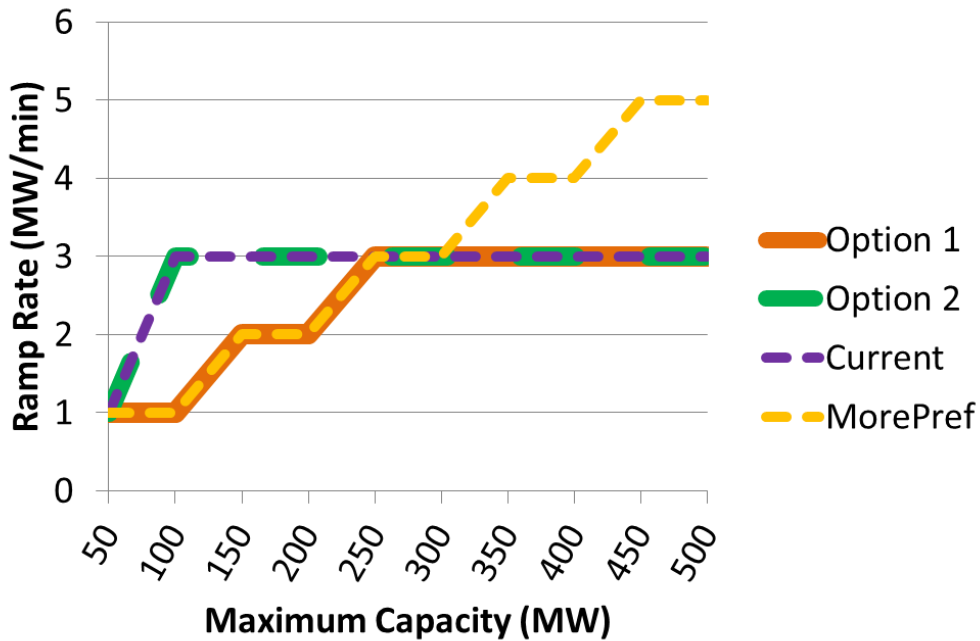
GDFSAE encourages further work with industry on this matter and suggests that the Australian Energy Market Operator, working with participants, may be a suitable body to facilitate early consideration of such a service in future years.

In consideration of the submissions to its draft determination, the AEMC have identified two options for further consideration:

- **Option 1** would require minimum ramp rates to be equal to the lower of one per cent of maximum capacity or three MW per minute. For aggregated units, the requirement would be the lower of three MW per minute applied to individual physical units or one per cent of aggregate available capacity.
- **Option 2** would retain the current arrangements of minimum ramp rates equal to the lower of three per cent of maximum capacity or three MW per minute. For aggregated units, the requirement would apply to each individual physical unit.

In seeking to understand the implications of these two options, GDFSAE has attempted to represent the minimum ramp rates for the current situation, the more preferable draft rule and the two options in a graphical format. Figure 1 below represents the four options under consideration for non-aggregated generating units.

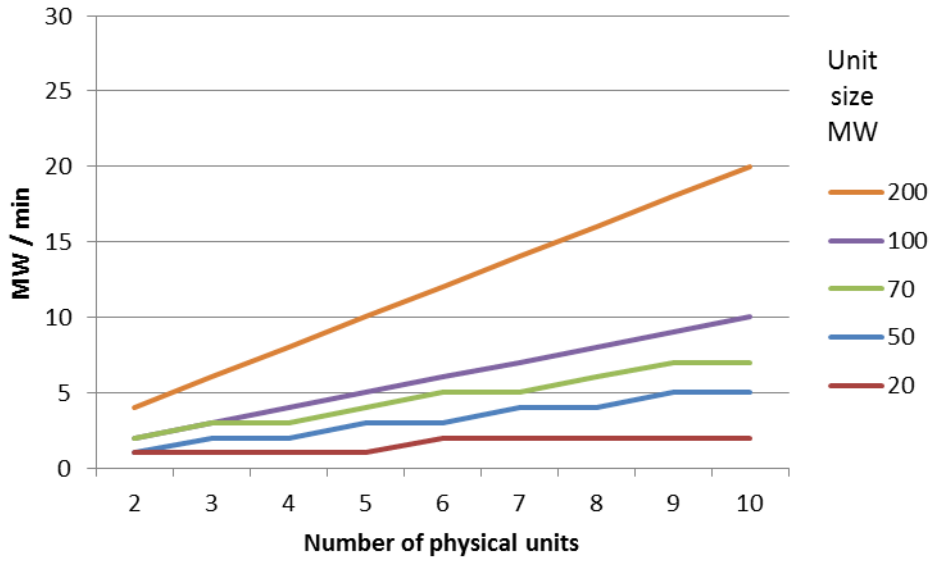
**Figure 1: Minimum ramp rates for non-aggregated plant:**



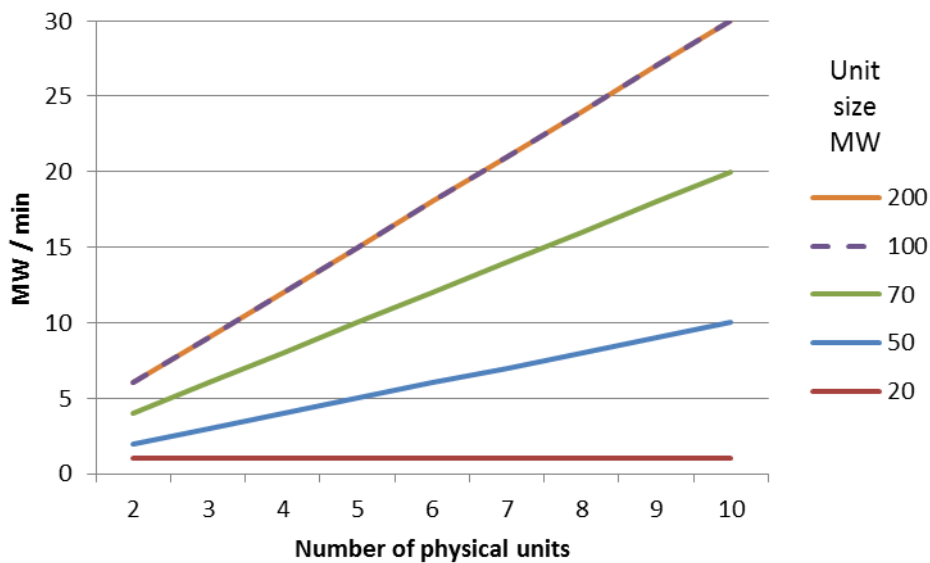
From examination of figure 1 it is apparent that for non-aggregated plant, option 2 and the current rule both yield identical outcomes. In its previous submission, GDFSAE indicated that the current rule places a disproportionately high ramp rate obligation on smaller generating units. Since option 1 imposes a lower ramp rate obligation on units that are smaller than 250 MW it would lead to a more proportional obligation for smaller generating units.

In considering the impact on aggregated generating units, the proposed options 1 and 2 are a function of the total number of physical generating units that form the aggregated unit, and the MW capacity of each physical unit. To assist in understanding the implications of these two options, the following two diagrams attempt to provide a summary of a range of aggregated unit combinations.

**Figure 2: Minimum ramp rates for aggregated generators – Option 1:**



**Figure 3: Minimum ramp rates for aggregated generators – Option 2:**



In comparing the above two options for aggregated generators, GDFSAE notes that both options 1 and 2 place ramp rate obligation on aggregated generating units that are in proportion to the number of physical units within the aggregated unit. This highlights that aggregated units that contain a large number of physical units will have a more onerous ramp rate obligation.

Neither options 1 nor 2 take account of the number of physical units that are actually on-line in calculating the ramp rate obligation. GDFSAE believes that these ramp rate obligations will be difficult to meet when there are relatively few physical units on-line.

For example, if an aggregated unit is comprised of ten physical generating units of 100 MW each, it will have a minimum ramp rate obligation of 20 MW/min under option 1, or 30 MW/min under option 2. These obligations will be unlikely to be achievable whenever the aggregated unit is operating with only one or two physical units on-line.

GDFSAE notes that the AEMC have chosen not to recommend that the minimum ramp rate obligation be a function of the number of physical units that are on-line. An alternative approach that could overcome the imposition of unrealistic ramp rate obligations under certain operating circumstances would be to cap the minimum ramp rate to a defined value.

GDFSAE trusts that the comments provided in this response are of assistance to the AEMC in its deliberations. Should you wish to discuss any aspects of this submission, please do not hesitate to contact me on, telephone, 03 9617 8331.

Yours sincerely,



**Chris Deague**

Wholesale Regulations Manager