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Mr Peter Adams
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Dear Mr. Adams

Semi scheduled generator rule change(s) – Issues Paper

Meridian Energy Australia Pty Ltd (MEA) and Powershop Australia Pty Ltd (Powershop) thanks the Australian Energy Regulator (AER) for the opportunity to provide comments on the Guidelines to make the Semi scheduled generator rule change(s) – Issues Paper (The Paper).

MEA Group agrees that the large-scale withdrawal of active power will continue have significant impacts on system security and reliability which are fundamental to the operation of our power system. We also feel the proposed rule change is likely to have significant consequences not only for existing semi-scheduled generators but also the more than 30GWs of renewable projects currently proposed across the National Electricity Market (NEM). Therefore, this rule change requires careful consideration and should not be undertaken within such a tight timeframe.

MEA Group would like any approach taken by the AER to be based on data analysis and with regard not to disrupt the underlying ethos and 'normal operation' behind the semi-scheduled generator classification – which seeks to maximise the availability and dispatch of intermittent renewable generation into the NEM.

MEA Group believes that of the options presented by the Paper, only Option 1 – Dispatch instruction to semi-scheduled generators to be a megawatt target for the end of the 5-minute dispatch interval and a ramp rate would introduce the risk that if every semi-scheduled generator were to effectively have their output capped then there would be a systematic under-predicting of power output from the Australian Energy Market Operator's (AEMO) Australian Wind Energy Forecasting System (AWEFS)/Australian Solar Energy Forecasting System and generator self-forecasting approaches. This would lead to an increase in raise-not-enabled-factor (RNEF) related FCAS charges for all semi-scheduled generators, as the entire market would be forced to behave the same way. For this reason, we do not support this option. This view is supported by the following paper (there is already a disproportionate amount of raises in the raise-to-lower relationship since 2017):

<https://mssanz.org.au/modsim2019/F1/huangJ2.pdf>¹

¹ Jing Huang and Sam West, improving solar power forecasting to reduce regulation Frequency Control Ancillary Services causer pay in the National Electricity Market,

MEA Group cautions against a dispatch and compliance regime which limits the ability for renewable fuel to be utilised where it is available and the appropriate market offers are in place (i.e. the dispatch regime for semi-scheduled generation should not take over the function of the semi-dispatch cap to impose a hard limit output where required).

We believe any approach that effectively capped the generation by a semi-scheduled generator would very likely result in a larger Mean Absolute Error (MAE) across each dispatch interval as opposed to allowing semi-scheduled generators to generate in accordance with their technical availability and subject resource availability.

By way of example we offer some data from our semi-scheduled wind farm in Victoria. The following data is for the non-semi-dispatch-capped AWEFS forecast for MERCERO1.

During this period, the mean absolute error (MAE) using the AWEFS forecast was 3.08 MW for the 01 January 2020 to 13 July 2020 timeframe. During this period only 56.96% of the AWEFS forecasts were an overestimate of actual power output. If AEMO were to try and reduce the percentage of time that the AWEFS forecast under estimated production at MERCERO1, then it could include a hard coded bias, to ensure the forecast minimised the percentage of time AWEFS under forecasted generation at the site. As a result, the MAE would increase to the levels shown below (as the corresponding percentage of time an under forecast was produced decreased):

- MAE (with 1.811 MW bias to only have 25.00% under-target forecasts) = 3.84 MW
- MAE (with 4.842 MW bias to only have 10.00% under-target forecasts) = 4.73 MW
- MAE (with 15.56 MW bias to only have 1.00% under-target forecasts) = 7.79 MW

As an alternative to the AER proposed solutions, MEA Group believe that an additional point under *Clause 4.9.4 Dispatch related limitations on Scheduled Generators and Semi-Scheduled Generators* of the National Electricity Rules (NER) is required, advising that semi-scheduled generators must not materially alter their active power output from their Unconstrained Intermittent Generation Forecast (UIGF) or self-forecast (whichever is accepted by AEMO). This would be subject to technical and resource availability during the current dispatch interval would be sufficient in dealing with the AER's concerns relating to this issue.

Putting semi-scheduled generators on notice that this behaviour is not within the spirit of the National Energy Objective and that it can materially impact system security and reliability, we expect would be sufficient to prevent this behaviour from continuing. This is MEA Group's preferred first step in resolving this issue.

MEA Group does not believe there is any long-term benefit to apply a 'sinking lid' to unconstrained intermittent renewable output if fuel availability rises more than that forecast (and dispatched). This is the 'overs' to the 'unders' addressed in the proposed rule 4.9.8 - General responsibilities of Registered Participants - "A *Semi-Scheduled Generator* does not fail to comply with a *dispatch instruction* for a *dispatch interval* because of a limitation in the availability of the resource".

Making dispatch of intermittent renewables a one-sided obligation risks introducing instability to the power system and is a likely unintended consequence of some of the proposed rule change options. It would be expected that a balancing effect of short-term fuel availability in aggregate across many sites should see a greater overall adherence to dispatch (reduced MAE). Unnecessary spill of renewable fuel is a cost to the system and should be avoided where possible.

Stakeholder AER questions

1. Is a rule change required to address the issues described in the paper?

MEA Group believes a rule change is necessary however the AER should seek to use as minimal intervention as possible, at least as a first step to resolve this behaviour. MEA Group has proposed what it believes to be a suitable compromise above. Currently, for a small number of semi-scheduled generators, economic incentives are overriding technical controls. Flexibility inherent in the rules to enable the integration of intermittent renewables with increasingly forecastable fuel supply should be retained. However, it should be made explicit that semi-scheduled generators should not be withdrawing generation from central dispatch during the current 5 minute dispatch interval.

2. Are there other impacts on the market that are not presented in the paper?

The introduction of 5 Minute Settlement (5MS) and self-forecasting are expected to change current participant behaviour. MEA Group also believes the AER also need to properly assess if the change will impact non-scheduled generators and advise of those impacts to the industry and those affected participants.

3. Are there other impacts not considered from the difference in the requirements for scheduled and semi scheduled generators to follow dispatch instructions?

MEA Group would like to reiterate the original intention of the semi-dispatch category – to enable generation with uncertain fuel to integrate into the NEM. This should not be lost in the focus of this paper on changes in output that are unrelated to fluctuations in wind and solar resource – allowing the focus on power system security and reliability to result in the constraining of renewable energy to address a behavioural issue amongst a subset of semi-scheduled generators.

4. Has the semi scheduled category done its job?

We believe the classification has enabled a significant quantity of generation into the power system that otherwise may not have been developed or commissioned over the past decade. This has been a significant achievement and has provided a material contribution toward Australia's Paris Climate Commitment emission reduction targets.

5. Are the four options presented in the paper the most efficient way to achieve the desired outcomes?

MEA Group believes that managing the withdrawal of generation within the current dispatch period is most effectively managed by increasing compliance and reporting for semi scheduled generators that do not follow their dispatch target other than for a reason of technical or resource availability.

6. Are there other options that haven't been considered?

MEA Group has outlined above an alternative to the AER proposed solutions that would result in an additional point under *Clause 4.9.4 Dispatch related limitations on Scheduled Generators and Semi-Scheduled Generators* of the NER, advising that semi-scheduled generators must not materially alter their active power output from their UIGF or self-forecast (whichever is accepted by AEMO). This would be subject to technical and resource availability during the current dispatch interval would be sufficient in dealing with the AER's concerns relating to this issue.

8. Do stakeholders have views on the potential costs and benefits of each of the options presented in this paper?

MEA Group has identified that changes to the control of wind farm output would be required to meet the AER's preferred option – particularly as it relates to linear ramping across a dispatch interval. MEA Group would be more concerned where ongoing curtailment of renewable output was a result of the implementation of the dispatch obligation. MEA Group considers the cost of removing the semi-dispatch category would be significantly greater than the preferred option (both in system change requirements, trading practices, and opportunity cost of lost renewable generation potential).

MEA Group considers the use of causer pays changes to address the issue to carry a high risk of unintended consequences and adverse behaviour and notes the AER does not consider this a practicable solution. Similarly, the remaining option to address automated systems which respond to price outside of dispatch is noted to be impractical. MEA Group would suggest that a large proportion of current behaviour is being driven by automated systems, and continued behaviour in a manual format by participants would be a clear breach of good faith, should this option be adopted.

10. How can the flow of data and information to AEMO be improved?

MEA Group believes that AEMO should accept all participant self-forecasts to develop forecasting systems that take into consideration price amongst other inputs and submit a forecast that participants are more likely (and capable) of meeting. In the event this forecast is not accurate there remains the AWEFS and ASEFS forecasts as a fall back.

Clear case studies from AEMO which address common areas of concern for AEMO would also help participants to better understand the desire for information – particularly as it relates to means of provision, the level of certainty or accuracy required, and a general guide for level of importance of provision.

If you have any queries or would like to discuss any aspect of this submission, please do not hesitate to contact me.

Yours sincerely

A handwritten signature in blue ink, appearing to read "Angus Holcombe".

Angus Holcombe
Head of Asset Development
Powershop Australia Pty Ltd
Meridian Energy Australia