AUSTRALIAN ENERGY COUNCIL

Mr Peter Adams
General Manager, Market Performance
Australian Energy Regulator
GPO Box 520
MELBOURNE VIC 3001

24th July 2020

Submitted via e-mail to: wholesaleperformance@aer.gov.au

Dear Mr Adams,

Semi-scheduled Generator Rule Change(s)
Reference: 11,148,023

The Australian Energy Council (the "**Energy Council**") welcomes the opportunity to make a submission in response to the Australian Energy Regulator's ("**AER**'s") *Semi-scheduled Generator Rule Change(s) Issues Paper*, and appreciates stakeholders being consulted prior to the AER lodging the rule change request.

The Energy Council is the industry body representing 22 electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. These businesses collectively generate the overwhelming majority of electricity in Australia, sell gas and electricity to over ten million homes and businesses, and are major investors in renewable energy generation.

Introduction

The semi-scheduled generator market participant registration category was established in 2008. The Energy Council supports the semi-scheduled registration category which has shown to be significantly superior to earlier experiences of registering variable renewable energy ("**VRE**") generators as either non-scheduled or scheduled. This design elegantly assimilated the physical characteristics of VRE generators into the dispatch engine, where it can be treated effectively like scheduled plant.

The design recognised that it was unreasonable for VRE plant to forecast its energy supply through a fixed availability bid, and therefore utilised the Australian Energy Market Operator's ("**AEMO's**") VRE forecasts as a substitute for availability. This occurs via the Australian Wind Energy Forecasting System ("**AWEFS**") for wind, and the Australian Solar Energy Forecasting System ("**ASEFS**") for solar.[1] In other respects, the design intentionally treats a semi-scheduled plant similarly to a scheduled plant. For example,

- a semi-scheduled generator can default bid at the market floor price, or provide a ten part price bid. In either case, the scheduling engine (NEMDE) will identify the economic, secure dispatch level of the plant up to its energy input, as determined by the forecast; and
- like scheduled plant, a semi-scheduled plant may bid other technical parameters, such as maximum rates of change.

Below the maximum energy input, VRE plant has considerable flexibility to respond to dispatch targets, superior to most conventional scheduled plant. Thus, semi-scheduled plants' operations within this range should be considered as conceptually equivalent to scheduled plant, and a valuable resource for power system balancing.

A key part of the scheduling process is the compliance regime. There is no immediately clear reason why arrangements for compliance with dispatch targets for semi-scheduled plant would differ from those of scheduled plant. It appears the designers also felt this when they applied similar compliance obligations to scheduled plant in respect of generating in excess of a constrained dispatch target. However at that time,

[1] The Energy Council notes some VRE generators are substituting their own availability forecast for the AWEFS and ASEFS forecasts in some timeframes. The Energy Council supports this optionality but considers it to be extraneous to the issue of dispatch compliance that the AER is dealing with here.

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incentives to generate below dispatch target were not anticipated. They have since emerged, and have become significant, so the AER's efforts to review and resolve the situation are supported.

In performing this review, the AER should also take into account other developments that may affect, and possibly mitigate, the behaviour that is causing the concern, such as:

- investigations into improvements in causer pays methodology being considered by the Australian Energy Market Commission ("**AEMC**");
- implementation of Mandatory Primary Frequency Response by AEMO, which is expected to:
  - reduce frequency sensitivity to dispatch non-compliance and
  - create new obligations for semi-scheduled plants to adjust output to support frequency even when inconsistent with energy price;
- implementation of Five Minute Settlement in 2021;
- installation of four large synchronous condensers in South Australia by the end of 2021, which should relieve the system strength constraint that is in turn creating an incentive for affected generators to bid at the market floor price.

Furthermore, the Energy Council suggests that there should be reconsideration of Engie and Snowy Hydro's *Non-scheduled Generation and Load in Central Dispatch* rule change requests.[2]

Discussion

Rule Change 1: Semi-scheduled Generators following Dispatch Targets

Dispatch compliance rules
The Energy Council considers that a solution developed under this theme is likely to be a superior to this issue than the other two options described under Rule Change 1.

It is a characteristic of all plants, scheduled and semi-scheduled, that they are subject to input energy and plant constraints, and the Energy Council believes that treatment of the two categories of generation's output should, whilst recognising practicalities, strive for symmetry between them. If scheduled plant exhibited similar behaviour to that exhibited by some semi-scheduled generators, they would be similarly individually profitable, but such behaviour would not be tolerated under their compliance regime. The current situation therefore appears discriminatory.

The Energy Council therefore supports broadly aligning the semi-scheduled generators' compliance obligations with those of scheduled generators, by requiring semi-scheduled generators to comply with a target for the end of the five-minute interval at a rate that accommodates both their dispatch instruction and the intermittency of their fuel resource. This should however be done in a way that does not lead to inefficient behaviour. For example, the requirement should not create such regulatory risk on renewable energy generators that they intentionally withhold some of their potential output in order to more confidently meet the next dispatch target.

Whilst the Energy Council supports the draft approach, it also recommends investigation of whether the behaviour that is causing concern could be addressed through less precise compliance obligations. One possible alternative would be to amend National Electricity Rule 4.9.4 "Dispatch related limitations on Scheduled Generators and Semi-Scheduled Generators" to oblige semi-scheduled generators not to materially alter their active power output from their Unconstrained Intermittent Generation Forecast or self-forecast (whichever is being accepted by AEMO).

Either approach also has the attraction of encouraging semi-scheduled generators to indicate their true point of indifference in their bidding bands at times when there is a risk of severe negative prices,[3] which will:

- assist predispatch forecasting accuracy; and

[2] https://www.aemc.gov.au/rule-changes/non-scheduled-generation-in-central-dispatch
[3] Risks of extreme negative prices occur at times when South Australian export constraints are close to binding which is typically not at times when system strength constraints cause renewable generators to bid at market floor price.

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- reduce the instances of actual extreme negative prices, as the semi-scheduled plant themselves will set less extreme prices at these bidding bands.

These two improvements could lead to superior market outcomes. Paradoxically, this should improve the commercial outcomes for the plants that are subject to the new obligation.

The distinction in generators' operating characteristics will always be marked, but as batteries are now being installed in conjunction with new renewable energy generation, the increased output controllability means that there may be increased opportunities for renewable energy generators to perform similarly to conventional generation, should they choose to do so. Batteries' participation will continue to develop, and at present the AEMC is considering a rule change to facilitate batteries' participation in the market.[4] This is a further reason why, apart from the constraint of fuel availability, scheduled and semi-scheduled generation arrangements should be aligned, to the extent possible.

In addition, it is worth noting that renewable plant operating in conjunction with battery energy storage systems will diverge from AWEFS and ASEFS outputs, thereby increasing AEMO's difficulties in operating the power system, and providing further impetus for the changes proposed.

Causer Pays changes
The paper discusses whether amending the existing frequency control ancillary services causer pays arrangements would be sufficient to dissuade semi-scheduled generators from quickly reducing output when faced with negative spot prices.[5] The Energy Council agrees that this is quite a complex reform compared to changing compliance rules. Assessing whether it would be effective is complex, and the Energy Council notes that market participants' behaviours may alter once Five Minute Settlement is implemented. The paper observes that necessary causer pays adjustments to deter the identified behaviour may be addressed by the work emanating from the series of primary frequency response requirements rule changes proposed by AEMO,[6] and the Energy Council draws the AER's attention to the work which has been conducted by Intelligent Energy Systems at the request of one of the Energy Council's members, CS Energy, to investigate the concept of double-sided causer pays.[7]

Removing the Semi-Scheduled Category
This is an extreme option that the Energy Council does not support. As discussed above, the semi-scheduled category broadly works well and certainly better than prior attempts to force VRE generators to be scheduled. At that time, VRE plant was simply automatically rebidding their fixed availability every five minutes based on persistence, thereby invalidating all forecasting information.

This option would also have all the burdens of compliance of the "amending the rules for the operation of semi-scheduled generation" option plus additional burdens in providing availability information. There are currently 95 semi-scheduled generators registered with AEMO,[8] so the total costs would be substantial. In addition, there may be issues with generators complying with dispatch targets due to unanticipated changes in resource availability, e.g. clouds moving across the sun, which the semi-scheduled category handles well. The paper suggests that market participants' responsibilities in this regard would be assessed by the AER exercising its discretion.[9] The Energy Council submits that since renewable energy generators' fuel resource is significantly variable, the proposed rule would need to prescribe how the AER should assess and treat such variations.

The Energy Council therefore supports the introduction of the proposed rule applying the "amending the rules for the operation of semi-scheduled generation" option, subject to market participants being granted sufficient notice to arrange control system upgrades and adequate staffing. (The Energy Council notes that this may be hampered by the current COVID-19 pandemic, which is restricting travel and the availability of technical expertise, particularly that which is located overseas.)

Furthermore, the Energy Council believes that, to minimise system and regulatory differences, dispatch instructions should align with those for scheduled generation, i.e. they should be expressed as a megawatt

[4] https://www.aemc.gov.au/rule-changes/integrating-energy-storage-systems-nem
[5] p.29
[6] For example, https://www.aemc.gov.au/rule-changes/removal-disincentives-primary-frequency-response
[7] Available at https://www.iesys.com/Projects/dscp
[8] as at 30th June 2020
[9] p.32

target for the five minute dispatch interval. However to make such targets achievable, it may be necessary for AEMO to improve its AWEFS & ASEFS models.

Rule Change 2: Better Information Provision

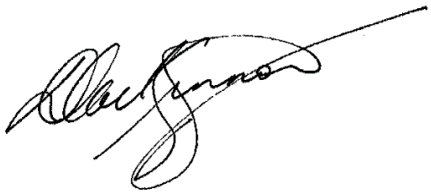
The Energy Council supports AEMO receiving additional information, when the provision of such information is not unduly onerous, and it will materially assist in AEMO carrying out its power system operations. To this end, the Energy Council suggests that AEMO consults with industry, once the detail of the AER's proposed rule has become clearer.

Conclusion

In conclusion, the Energy Council supports the rules for the operation of semi-scheduled generation being amended to align more closely with those for scheduled generation, and generators' targets being expressed as a megawatt target for the five minute dispatch interval.

Any questions about this submission should be addressed to the writer, by e-mail to Duncan.MacKinnon@energycouncil.com.au or by telephone on (03) 9205 3103.

Yours sincerely,



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