



Mr Peter Adams, General Manager, Market Performance
Australian Energy Regulator
By email: wholesaleperformance@aer.gov.au

24 July 2020

Dear Mr Adams,

Semi-Scheduled Generator Rule Change: Consultation Response

The Australian Energy Regulator (**AER**) is developing potential National Electricity Rule (**Rule**) change requests and has outlined options in its publication *Issues Paper – Semi Scheduled Generator Rule Change(s) June 2020 (Issues Paper)*. The Clean Energy Investor Group (**CEIG**) represents a substantial group of renewable energy developers and investors, with a major focus on institutional investors. CEIG strongly advocates for an efficient transition to a clean energy system from the perspective of the stakeholders who will provide the capital to achieve it. The CEIG welcomes the opportunity to provide comments on the AER's Issues Paper from an institutional investor's perspective as to whether this reform is warranted and the most appropriate approach to implement this reform. When viewed in the context of the requirement for 44GW of new utility-scale renewable energy and storage capacity in the National Electricity Market (**NEM**) by 2040¹, it is likely that a sizeable portion of the new generation capacity to enable this transition will be developed and funded by the members of the CEIG.

We support the AER's initiative to amend the Rules regarding semi-scheduled generators (**SSGs**) but propose that the immediate focus is a narrow amendment addressing the behaviour of most concern. Our submission focuses on the AER's first proposed Rule change – as stated by the AER, the second proposed Rule change is likely to rely on the outcome of the first proposed Rule change.

Necessity of reform

We agree with the AER that generator compliance with dispatch expectations is critical for system security. In other words, intentional divergence of SSGs from their dispatch commitments results in reduced supply security and ultimately a more expensive system for all users, which is contrary to the National Energy Objective. It is prudent to treat this as a challenge that will grow over time given the material planned growth of utility scale wind and solar generation within the NEM.

Focussing on the content of the reform, the AER Issues Paper outlines two key aspects of identified SSG behaviour; while both are important, we feel they warrant different solutions:

1. Deviation from dispatch commitments due to genuinely unexpected variation in weather conditions. We refer to this as '**weather intermittency**'.

¹ AEMO Draft 2020 Integrated System Plan - Central Scenario

2. Deviation from dispatch commitments due to market conditions arising post-dispatch that the generator was not anticipating, such as a negative clearing price. We refer to this as ‘**economic deviation**’.

Weather intermittency can be considerably reduced through improved forecasting. Our observation is that Frequency Control Ancillary Services (**FCAS**) causer pays charges already provide a meaningful incentive for SSGs to optimise their forecasting, illustrated by the many SSG owners actively investing in self-forecasting systems. Beyond this it may be appropriate to arm the Australian Energy Markets Operator (**AEMO**) with better technology and live generator data so that it can operate improved forecasts itself. We do not believe that imposing strict dispatch caps and floors is necessary or appropriate to address weather intermittency.

Economic deviation should be prevented through a Rule change, as suggested in the Issues Paper. When a generator knowingly chooses to renege on the generation offered into dispatch simply on the basis that the prevailing price is less than it anticipated (but higher than its offer), the system must call on ancillary services replacement. The resulting cost (and security risk) this imposes on the overall system is substantial and unreasonably imposed on other market participants.

Scheduled generators are already prohibited from engaging in economic deviation. Given the significant increase in both the number and generation capacity of SSGs in recent years, we believe the same Rules should apply to SSGs. The SSG classification should be retained to allow for weather intermittency but should not allow economic deviation. We understand from our own observations that some market participants have adopted, or are seeking to adopt, operational protocols that use economic deviation as a deliberate tool to mitigate the risk of suffering negative prices. The Rules should be clarified, or amended, to prevent this.

The issue of economic deviation may be partially reduced through other reforms. One is the proposed 5 minute settlement (**5MS**), however it will remain possible that SSGs offer to generate at a price below that which they would genuinely like to be dispatched at, and upon such a price materialising, wish to deviate. Another one is local marginal pricing. However, it is uncertain whether this will proceed before a number of years or even whether this will bring any benefit at all to the market. It is not apparent to us that an SSG Rule change to specifically prohibit economic deviation would adversely impact on other proposed reforms.

Rule change to prevent economic deviation

The Issues Paper sets out four broad Rules-based options to preventing or reducing economic deviation, and after assessing each, the Issues Paper identifies a change to the dispatch compliance obligations of SSGs as the most appropriate. Broadly we agree with this conclusion but suggest that SSGs retain the allowance for weather intermittency in both the *upward and downward* directions.

We believe the three alternative approaches discussed in the Issues Paper are less appropriate:

- The AER is correct in assessing that FCAS causer pays charges are not, and cannot be, a sufficient disincentive to economic deviation. To create sufficient incentive to avoid reducing generation in a period where prices were negative (potentially as negative as the minus

\$1,000/MWh floor), the FCAS causer pays charges would need to be so high as to be a wholly inappropriate penalty for genuinely unavoidable deviations.

- It appears infeasible to us to prevent generators having the physical capability to engage in economic deviation. Network operations and safety risk management require some ability to reduce a generator's output over a very short time frame, and it will always be possible technically to establish a system that engages this ability for economic reasons (even an entirely manual system).
- Removing the semi scheduled category, but amending the scheduled generator obligations to allow for weather intermittency, appears to address economic deviation in the same way as tightening the semi scheduled Rules themselves, but may create the unnecessary complexity of re-assessing a number of other system Rules and processes.

We believe the most appropriate approach is to simply amend the obligations of SSGs. Potentially there are two different ways in which to implement the amendment:

- An explicit obligation on SSGs to meet a dispatch instruction, except to the extent the fuel resource changes².
- A prohibition on actions that cause deviation in generation from the dispatch commitment for economic reasons.

Removal of current dispatch cap limitations

Given the impact of weather conditions on renewable generation capacity, we encourage the AER to reconsider its suggested requirement that SSGs operate with a dispatch cap at all times.

Instead, the SSG classification should be allowed to tolerate weather intermittency in both *upward* and *downward* directions. Our rationale for this change is as follows:

- Our internal member modelling (based on actual renewable energy plant performance over the last months of FY20), estimated the potential impact of a cap to be a curtailment of circa 2.9% of wind farm generation and up to 5% for some solar plants because of the impact of intermittent clouds on short term forecasting and generation. More importantly, a cap ignores the natural balancing of wind/solar resources across the NEM. Furthermore, there is a correlation between the number of curtailment events and low capacity factors. In other words, exceedance of the cap is more likely to occur when renewable energy generation is low. This means energy would be curtailed often when the lost energy is most needed by the market. If a cap alone is applied we estimate up to 800 GWh per year (and growing) of curtailment would occur if applied to the entire SSG wind and solar fleet in the NEM.
- This curtailment of **zero marginal cost renewable generation** would have to be replaced by an equivalent amount of higher marginal cost scheduled generation, ultimately leading to higher prices for consumers.

² Or where compliance with the dispatch instruction would cause a hazard to public safety or materially risk damaging equipment, or due to providing other system services, for which there is already precedent for in the Rules.

- Instead of having some of the NEM wind and solar fleet generating above target and some below at any given moment (with much of the dispatch errors cancelling across the fleet), a cap will result in aggregate generation always generating below target. This will require additional regulated FCAS raise services at greater cost.
- A cap appears designed to reduce weather intermittency, rather than economic deviation, given that economic deviation is in most cases an intentional withdrawal of generation.
- The Issues Paper accepts that weather-driven underperformance of SSGs should be tolerated. In our view the system is able to manage weather-driven overperformance equally as well as underperformance.

Notwithstanding our position that weather intermittency should be tolerated in both *upward and downward* directions, we reiterate support for coordinated efforts to improve the forecasting available to the dispatch process so as to reduce the impacts of weather intermittency.

Additional feedback

We add the following additional feedback on implementation considerations raised in the Issues Paper:

- The Issues Paper notes a concern about generators deviating briefly within a dispatch interval, then in sections 6.3.1 and 6.3.2 explores the alternatives of interval-end power targets and interval-total energy targets. To address this, we propose that the reform prohibits SSGs taking action that represents economic deviation at any time and whether for the full duration of a dispatch interval or a shorter window within one.
- The Issues Paper considers how to appropriately treat hybrid SSGs, meaning wind or solar generators with embedded storage. The change that we support accommodates hybrid systems quite naturally. A hybrid generator's output should be allowed to vary from dispatch expectations due to weather effects on the wind or solar component, but not due to change in operation of any component for economic reasons.
- The reform will only be effective if compliance monitoring is feasible. We anticipate that a generator's physical capacity to generate can be quite precisely identified on an ex-post basis, using weather and other SCADA data from a generator in combination with the Australian Wind Energy Forecasting System (**AWEFS**) and Australian Wind Energy Forecasting System (**ASEFS**), so that reductions in output for economic reasons can be readily identified. In parallel the AER could monitor correlation between sharp changes in generator output and unexpected market prices to identify potential deliberate economic deviation.

Timing of reform

Amending the obligations of SSG's to remove economic deviation yet allowing for both upward and downward weather intermittency is a narrow reform which can be swiftly implemented and ensure improved overall system security. Other options explored by the AER would cause significant economic impact on SSGs as well as the overall system and would require more time in both consultation and implementation.



Conclusion

Whilst we would prefer to delay any SSG reform until the impacts of SMS and Primary Frequency Response can be assessed, the Rule change we could support is deliberately at the simple end of the spectrum of options identified in the Issues Paper, focusing specifically on economic deviation. The AER is rightly considering other issues, including weather intermittency, and more far-reaching reform options. In response to the Issues Paper many market participants have raised concerns about costly and disruptive changes to operational systems. We feel that a small clarification of the SSG obligations which continues the status quo of tolerating weather intermittency in both upward and downward directions (that is, no cap) closes an important gap in the Rules to avoid economic deviation becoming a major system challenge, and in a way that imposes little new cost or burden on SSGs and other market participants.

Thank you for instigating this important initiative and providing industry an opportunity to participate. The CEIG looks forward to working with the AER throughout the following consultation and Rule change processes. Please contact us at secretariat@ceig.org.au if you would like to discuss any elements of this submission.

Yours sincerely,

A handwritten signature in black ink that reads "Katie Barnett".

Katie Barnett
Clean Energy Investor Group