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Friday, 16 September 2016

Frank Montiel
Australian Energy Market Operator
Via email: stakeholderrelations@aemo.com.au

Dear Frank,

RE: Submission to the Future Power System Security (FPSS) Program Progress Report

The Clean Energy Council (CEC) is the peak body for the clean energy industry in Australia. We represent and work with hundreds of leading businesses with interests in solar, wind, energy efficiency, hydro, bioenergy, energy storage, geothermal and marine along with more than 4000 solar installers. We are committed to accelerating the transformation of Australia's energy system to one that is smarter and cleaner.

The gradual transition of the electricity sector to include more non-synchronous generation and less synchronous generation has been occurring for some time. It has been driven by consumer preferences for a low-carbon electricity sector and choices with regards to the way they consume, generate and (moving forwards) store energy. It is now clear that these preferences and choices will shape the future electricity market and that market frameworks must act to enable them.

The CEC is a key stakeholder in the FPSS Program and is therefore only highlighting matters that we believe have not been considered in the report to date.

Available Frequency Control Ancillary Services

It is increasingly evident that the FCAS market has been premised on the basis that the services would remain plentiful at a low cost indefinitely, leading to design principles that clearly weigh implementation costs well above efficient market outcomes. Low prices are clearly no longer the case and the recent changes to AEMO's power system operating procedures[1] have revealed significant inefficiencies in the design of the FCAS regime.

The first issue was made evident in the middle of 2014 when the wind industry raised with AEMO the issue of an error in the Australian Wind Energy Forecasting System. The CEC understands that because this error has a direct impact on the calculation of the FCAS causer pays factor it may have increased the total need for regulation frequency services,

[1] Namely, by invoking the 35 MW local regulation FCAS constraint in South Australia for some conditions.

and subsequently increased the perception of power system security risks. It also penalised wind farms for failing to operate according to the oscillatory nature that AWEFS had erroneously synthesised. AEMO reported on this error in February 2016[2], resolving to have it rectified by the middle of 2016. The error ran for over four years, two of which were subsequent to the industry reporting its existence. The error was also present during the period in which AEMO determined the need for 35 MW of regulation FCAS in South Australia that it has applied since October 2015.

The second issue here is that the 'causer pays' regime which calculates the charges for FCAS services based on a generator's past production. This approach means that periods of high FCAS prices are inescapable (turning off would still not avoid the costs, despite clearly making no contribution to FCAS requirements at that point in time). The resulting poor investment and operational decisions are inconsistent with the economic efficiency principles expected by the National Electricity Objective.

The third issue is AEMO's reliance on the Market Management System for central dispatch. This system relies on the national telephony system for communication of dispatch instructions. In order for a semi-scheduled generator to take part in regulation FCAS it must be able to provide data about the actual capability of the wind farm to respond in the coming 5 minutes. This information can only be provided reliably to AEMO in the appropriate timescales if the SCADA system is used to provide it. The CEC understands that AEMO does not currently permit SCADA to be used for this purpose, creating an arbitrary barrier to entry by potential FCAS providers. This restriction is inconsistent with AEMO's current expectation that new Regulation FCAS providers enter the South Australian market[3].

In summary, the FCAS regime has much room for improvement. Given the interplay between FCAS and power system security this current review can only make a judgement on the future needs for FCAS if the current flaws and inefficiencies are resolved.

Over-frequency Generator Shedding Scheme

AEMO has always had the capacity to set over-frequency trip parameters when negotiating generator performance standards. The CEC understands that these settings are rudimentarily set above or at the maximum contingency frequency band. While there is scope to consider a more sophisticated approach going forward, the development of a retrospective OFGS scheme needs to consider the potential risks to existing wind farms from a rapid shut down as this solution will likely lead to plant damage.

Given the ability of wind farms quickly ramp down, or shut down in a staged manner, it would be more appropriate to consider how they can provide a smoothed response to over-frequency rather than tripping the entire wind farm. In addition, setting the OFGS scheme to

[2] https://www.aemo.com.au/-/media/Files/PDF/AWEFS-UIGF-Scheduling-error_2012-to-2016_FINAL.ashx

[3] As demonstrated by invoking a local FCAS constraint when the Heywood Interconnector, or Victoria's transmission backbone are operated with one line out of service.

reduce generation at frequencies within the contingency ranges defined as a Contingency Regulation Service by the market frameworks. Participants expect to be compensated accordingly for providing this service. A precedent already exists here in the scheme established for Portland's Alcoa smelter.

In the report AEMO has identified that UFLS is 'only activated during non-credible contingency events'[4]. However, in the case of South Australia UFLS is enabled to provide contingency frequency raise at all times. AEMO should clarify whether the proposed OFGS scheme would be treated in the same way in that jurisdiction.

Visibility of Distributed Energy Resources (DER)

The CEC appreciates AEMO's desire to obtain accurate information on DER. However, as with any other aspect of the NEM the benefits of data collection must be traded off against the costs of providing it. Some of the data expectations set out in the report appear to go beyond reasonable expectations and potentially create privacy issues. For example the prospect of gaining real time information on the operation of energy storage equipment, or energy management systems does not appear to be realistic.

Customers would deploy such equipment to optimise their costs but do not necessarily install monitoring systems to capture, record and communicate real time data. An imposition for this capability from AEMO would add costs to these systems that would be difficult to justify.

AEMO's focus here should be on creating the right signals to encourage DER to participate in the energy and ancillary services markets. This would be the most effective means to capture information, operating characteristics and the interaction of these devices with the market.

The CEC looks forward to continued engagement on this important topic. In the meantime please contact the undersigned for queries regarding this submission.

Sincerely,

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