9 December 2019

Attention: Matthew Holmes
Australian Energy Market Operator

Submitted by EMAIL

AEMO Consultation Paper – MASS – treatment of PFC within the NOFB

CS Energy welcomes the opportunity to provide a submission to the Australian Energy Market Operator (**AEMO**) on its Consultation Paper on changes to the way frequency response, specifically primary frequency control (**PFC**) is measured under the Market Ancillary Services Specification (**MASS**).

About CS Energy

CS Energy is a Queensland energy company that generates and sells electricity in the National Electricity Market (**NEM**). CS Energy owns and operates the Kogan Creek and Callide coal-fired power stations. CS Energy sells electricity into the NEM from these power stations, as well as electricity generated by other power stations that CS Energy holds the trading rights to.

CS Energy also operates a retail business, offering retail contracts to large commercial and industrial users in Queensland, and, is part of the South-East Queensland retail market through our joint venture with Alinta Energy.

CS Energy is 100 percent owned by the Queensland government.

Questions

1. Why do you support/not support the general concept of recognising PFR within the NOFB as Contingency FCAS?

AEMO proposes to amend the MASS to ensure that all an enabled Contingency FCAS generating unit's PFR is recognised as Contingency FCAS where this is appropriate. This is sensible for the reasons provided by AEMO.

2. Should the recognition of Contingency FCAS provided inside the NOFB apply to all Contingency FCAS (i.e. Fast, Slow and Delayed), or only to some services? Why?

It should apply to all contingency FCAS 6/60 that is provided in proportion to system frequency. Likewise, it should not apply to Delayed, given the requirement of the provision of delayed FCAS to not be in proportion to frequency.

3. What kind of measurement approach do you believe should be applied to assessing the total volume of Contingency FCAS delivered?

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Because the event is defined as when the frequency exists the NOFB, it is difficult to measure values preceding that because the period is ill-defined. The problem for Method 3 is recording the initial load with potentially long delays between frequency moving outside the governor dead band and the NOFB, with the extreme case being a hydraulic governor with no dead band not catered for.

It may be possible to calculate 'delta P' as the difference between the rate limited target load and the actual measured load at the time frequency crosses the NOFB. This will ensure all timings remain bounded by the same starting time as currently.

The approach would require:

1. Drawing a linear trajectory between dispatch targets;
2. Noting the ramp-rate limited "cone" of potential positions the unit may be for FCAS Regulation services;
3. Identifying an expected "AGC position" given the linear trajectory and accounting for FCAS Regulation signals (respecting the unit's ramp rate) at the time frequency exits the NOFB – this is the "rate limited target load";
4. Calculating 'delta P' as the difference between the rate limited target load and the measured value.

A benefit of this approach is that it keeps all the measurements to a defined time (when frequency leaves the NOFB). A drawback maybe that any AGC errors will be included: although given verification under the MASS is to identify whether a unit provided the required response, this is unlikely to be a problem.

4. Is an increased pre-event recording window easily achieved? Are there thresholds above which this would become problematic?

No, see answer to question 3.

5. Is the approach of recognising PFR within the NOFB only for verification of response, rather than for dispatch purposes, appropriate?

Yes. There are other Rule changes and Reviews which are investigating measurement, dispatch and payment for frequency services. Best dealt with in these processes.

Yours sincerely

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