INTERIM PRIMARY FREQUENCY RESPONSE REQUIREMENTS CONSULTATION

FORUM NOTES

DATE: Wednesday, 29 April 2020

TIME: 11.00 am

VIDEOCONFERENCE: Webex

ATTENDEES:[1]

COMPANY	NAME
AEMC	Sebastien Henry
AEMO	Mark Stedwell, Andrew Groom, Evy Papadopoulos, Paul Johnson, Peter Thomas,
AGL	Liz Gharghori, Stephen O'Callaghan, Shevy Moss Feiglin
Alinta Energy	Chrys Chandaraj
APA Group	Naomi Donohue
CleanCo Queensland	Rimu Nelson
Enel Green Power	Constantyn Van Kemenade
Enel X	Zac Hardie, Elisabeth Ross
Impact Group	Venetia Roberts, Rosie Bennett
Innogy	Peter Veljkovic
Meridian Energy	Alan Love
NEOEN	Ronny Schnapp
Tesla Australia	Tom Neilson
Tilt Renewables	Barend van der Poll, Rhys Albanese, Philip Wong Too
Total-eren	Trevor Lim
Windlab	Yateen Bhuskute
X-Elio	Alejandro Navas

The forum was organised by AEMO as part of AEMO's consultation on the draft Interim Primary Frequency Response Requirements (IPFRR).

Mark Stedwell chaired the forum and conducted a page-turn of the document. The numbers refer to the questions from participants. The blue text is AEMO's response to the question above it.

1. Section 2 – If a battery has an energy dispatch target of zero and a Regulation FCAS target >0, is it expected to provide PFR?

[1] There was a total of 28 participants for most of the time. Not all participants' names appeared on the screen as they were dialling by mobile.

Yes. The battery must respond to the sum of the AGC signal for Regulation FCAS and the energy target.

2. Section 2 – Does this apply to interconnectors?

   No. They are Market Network Service Providers, not Generators.

3. What if my plant is <30MW in capacity, but it is still semi-scheduled?

   The plant must still respond. The new rule applies to Scheduled and Semi-Scheduled Generators, not capacity, per se.

4. Section 3.2 – Following the 27 Feb 20 workshop, I thought that it wasn't a good idea for all generating systems to have the same deadband. Has this changed?

   AEMO does not want a different end point and all Affected GS will need to get to ±0.015Hz unless there's a very good reason not to and a variation has been granted. In principle, this is a non-remunerated service and AEMO does not want to create a free rider problem.

   There will be a two-staged implementation for those Affected GS that need it, which AEMO expects to apply only to Tranche 1 but a lot will depend on the outcomes of the self-assessments.

   Internationally, the standard is to have one setting with very minor adjustments for outliers.

5. Section 3.2 – Could a battery have a different deadband on the plus-side to the minus-side?

   AEMO prefers the deadband be symmetric and will look at any reasons why this cannot be so. Adjustments to the droop setting within the allowable range could partially address the concern about minimising ongoing impacts for batteries.

6. Section 3.3 – The use of P_{max} as a reference point for renewables will be problematic. Doesn't this mean that renewables are taking a bigger hit than thermal generation?

   The proposed approach is consistent with existing approaches. The MW change in output for a given change in frequency (i.e. the droop) should be based on a fixed rated capacity, not capacity available at any point in time.

   If the rated capacity of the plant can change, for example, due to the online status of individual generating units in a multi-unit hydro plant, or availability of inverter or turbine strings in a VRE plant, the MW response to a given frequency change will also change. It is not expected that droop is continually adjusted based on current conditions.

   AEMO is open to the use of other parameters than P_{max}, if they are more appropriate and looks forward to suggestions from Consulted Persons on this issue but wants this to be a fixed value.

   Where it is a minimum or maximum operating level issue, this is addressed by way of standing variation.

   Renewables should not be taking a disproportionate share of the load in addressing small frequency variations because it is relative to the size of plant as a proportion of the total plant generating at any time. This is the key purpose of droop control of power in response

to frequency changes – to allocate response across all generation in proportion to plant size.

If there is any particular issue with this, it can be addressed by way of variation.

7. Section 3.3 – Some renewables have the frequency droop controls within the plant. Has AEMO spoken to any original equipment manufacturers (OEMs)?

   Yes. SMA, for instance, but AEMO still wants feedback if any Affected GS is based on potential power, rather than actual power. A consistent approach is strongly preferred.

8. Section 3.3 – Will Affected GS performance standards (GPS) need to be changed?

   AEMO believes that approximately a third of GPS might need to be amended so as not to contradict the IPFRR. This is expected to affect the GPS under clause S5.2.5.11 only, where it specifies settings that could conflict with those required for compliance with the PFRR.

9. Section 3.3 – If the droop expressed in the GPS is based on maximum capacity and a collector group is out, doesn't this result in a non-compliance?

   No. Outage of a collector string, or outage (or off-status) of a generating unit within a multi-unit hydro plant would both be recognised as normal operational conditions.

   AEMO is adopting a compliance-light approach with PFR.

10. Section 3.3 – Affected Generators would appreciate some warning if this is the case (alterations to GPS).

    AEMO intends to be proactive in contacting those Affected Generators to point out the extent of any required amendment, which AEMO expects to occur by agreement because the plant's capability has already been assessed.

11. Section 3.3 – Is the droop requirement overall, or for each generating unit?

    A consistent setting would typically be applied for each generating unit, where several units are combined to form a generating system.

    Other approaches could be required, however, depending on where frequency response is implemented in a VRE plant (inverter level vs PPC).

    As noted earlier, the expectation is that droop response to frequency is based on the rated power of the generating system, rather than the instantaneous available power.

12. Section 3.3 – This appears to reprioritise being frequency-responsive over meeting market dispatch target. Is that correct?

    Yes. Being frequency responsive is more important. This is one aspect of the new rule that AEMO was especially keen to make clear.

    There will issues over control system hierarchies but, where possible, AEMO expects frequency responsiveness to be higher than meeting dispatch targets. Another way of looking at it is to assume that dispatch targets are issued by NEMDE on the assumption that frequency is 50Hz. If, in fact, power system frequency is not 50Hz, dispatch targets are to be adjusted at the Affected GS level to achieve the outcome AEMO requires via PFR.

13. Section 3.4 – If collector groups are out, shouldn't there be a smaller response?

    Yes, if collector groups are out, the absolute size of the generating system is smaller, so the response will be smaller for a given droop setting.

    Again, compare to the example of a multi-unit hydro station with individual units out of service.

14. Section 3.4 – With wind farms, changes need to be made through PPC. Isn't compliance more difficult?

    The speed of response requirement is relatively slow, so AEMO does not expect any recently constructed Affected GS not to be able to meet it.

    Where the design or arrangement of existing controls for frequency response will make compliance with the requirements impossible, this should be flagged in an Affected Generator's self-assessment and an application for variation made

15. Section 7.5.1 – Have there been any other suggestions for exempt plant?

    No.

    There are some types of hydro plant that might not be frequency responsive by design, however, these will be addressed on an ad hoc basis.

16. Section 8 – Will this require re-opening GPS?

    This will not require a re-assessment of plant capability to meet its GPS. There is no intention to consider any other aspects of GPS other than response to frequency. AEMO's intention is eliminate any potential inconsistency between the IPFRR and GPS.

17. Section 8 – How will I know that I need to look at my GPS?

    AEMO will need to be proactive in contacting those Affected Generators to indicate the inconsistency and how it might be addressed.

18. Section 8 – How do the R2 requirements interact with the IPFRR?

    A small number of Affected Generators might be undergoing commissioning right now, and they will be treated like any other Affected Generator because they need to be registered before commissioning. They are subject to the IPFRR by reference to their capacity and where they fit in with the 3 tranches referred to in section 5.1.

19. Section 8 – If my GPS are agreed and I am not registered, what do I need to do.

    Section 5.2 covers this. You need to prepare your self-assessment and submit it to AEMO before commissioning. You also need to look at which version of the National Electricity Rules your GPS were assessed under to see how you might otherwise be affected.

    AEMO recognises that it needs to work with the NSPs and AEMO's Connections Team to ensure a consistent approach across the NEM.

20. Section 9 – Will PFR need to be included in my compliance program?

    Yes, although assessing compliance will be difficult in the absence of high-speed monitoring.

21. Section 9 – If Generators need to operate inflexibly, is it acceptable to disable its frequency responsiveness?

    AEMO is adopting a compliance-light approach and does not want Affected Generators to be contacting AEMO for minor operational outages but wants to hear from Affected Generators on any further reasons why frequency responsiveness might need to be disabled.

    If AEMO experiences a material rate of such incidents, it might need to revisit compliance monitoring because it does not want to create a free rider problem.

22. Section 9 – When can an Affected Generator stop following frequency?

    When frequency is within with deadband, namely 49.985 to 50.015Hz.

23. Appendix A – Do these requirements apply to a generating unit or generating system?

    The requirements are based on generating system, namely each DUID is a separate 'unit' for the purposes of these requirements and the testing regime.

Extension of deadline for submissions

AEMO advised that the deadline for submissions to the consultation will be extended to 8 May 2020 and that there is a dedicated webpage for PFR on its website at https://aemo.com.au/initiatives/major-programs/primary-frequency-response.