28 October 2021

Ms Anna Collyer
Australian Energy Market Commission
GPO BOX 2603
SYDNEY NSW 2001

Dear Ms Collyer

RE: Primary frequency response incentive arrangements – Draft Determination (ERC0263)

Hydro Tasmania welcomes the opportunity to make a submission in response to the Draft Determination on Primary Frequency Response (PFR) Incentive Arrangements. The National Electricity Market (NEM) is rapidly changing and as a result frequency control has become a significant priority to ensure the energy system remains secure and can recover following frequency events.

Hydro Tasmania has actively contributed to recent processes related to power system frequency reforms, including the AEMC's frequency control frameworks review and AEMO's frequency control trials. In May 2018 Hydro Tasmania voluntarily collaborated with AEMO to participate in the PFR Trials[1] which helped to demonstrate that reducing or removing the frequency dead band on selected generators improved system frequency performance. **As a continuation of this work, Hydro Tasmania welcomes the AEMC's assessment of the Australian Energy Market Operator's *Primary Frequency Response (PFR) Incentive Arrangements* rule change.**

System frequency performance has improved significantly since the implementation of mandatory PFR which has involved the tightening governor of dead bands on generators. Consequently, generating units contributing to continuous PFR will inevitably have increased movement of governors due to frequency regulation response, increasing wear and tear and inefficient operation. This contribution to system security should be recognised appropriately in the PFR incentives arrangements.

[1] https://aemo.com.au/-/media/files/electricity/nem/security_and_reliability/frequency-control/trials/tasmanian-frequency-control-tests-summary-report.pdf?la=en&hash=279039F6987B54E90AE97A8484D345B7

Hydro Tasmania is broadly supportive of the AEMC's proposed approach outlined in the Draft Determination. In summary:

- Maintaining the existing mandatory PFR arrangements with improved incentives is likely to be the most practical approach in which to maintain a continued improvement in the power system frequency.
- Hydro Tasmania supports the implementation of payments to be made to generators who positively contribute to frequency performance.
- Given the technical nature of the proposed changes, **Hydro Tasmania considers that more time is required to understand and refine the intricate details of how these payments will be scaled and contribution factors calculated**.
- This will be necessary to ensure generators are compensated for the increased wear and tear involved with PFR response and are incentivised to provide it.

Hydro Tasmania however, does not agree with the AEMC on some of the proposed changes contained in the Draft Determination. These changes relate to the proposed inclusion of the Basslink Frequency Controller into the Causer Pays process and the treatment of asynchronous regions. These proposed changes will not improve frequency performance and are not reflective of the physical nature of frequency management in Tasmania and the NEM. Attachment A provides specific comments on these elements of the draft determination.

Hydro Tasmania has appreciated the opportunity to discuss these issues with the AEMC and AEMO and we look forward to continued engagement with the market bodies. Please contact Prajit Parameswar should you have any questions (prajit.parameswar@hydro.com.au)

Yours sincerely

John Cooper
Manager Market Regulation

Attachment A: Comment on the Draft Determination

4.2.4 Other Reforms to the Causer Pays process

I. The inclusion of Basslink Frequency Controller in the Causer Pays Process:

KEY POINT:
It is important to note that PFR provision is necessary to **correct** frequency to 50Hz. The Basslink frequency controller (BLFC) objective function does not use 50 Hz in its frequency corrective reference and does not have the ability to correct frequency to 50 Hz[2] . Basslink should therefore not be given contribution factors.

From the draft determination:

- *"The separation of the Tasmanian region for the purposes of the Causer pays process, would allow for the performance of Basslink to be measured in both Tasmania and the Mainland and for it to be included in the performance-based payment and cost allocation process."*

From an engineering principles perspective, the BLFC should not be considered as part of PFR provision and should therefore be excluded from the PFR incentives arrangement.

Only generating units, either on the mainland or Tasmania provide PFR. According to the Primary Frequency Response Requirements (PFRR), unless limited by physical reasons and agreed/approved by AEMO, all the scheduled generators are required to implement PFR parameters which include:

1. Governor dead band: less than or equal to ±0.015Hz.
2. Governor droop settings: less than or equal to 5%.

Note that both configurations refer to the rated system frequency 50Hz.

The BLFC's response, by design is to align system frequencies of the mainland and Tasmania.

This is different from the PFR or Secondary Frequency Response (SFR) as the BLFC does not correct the system frequency towards to 50Hz, but effectively minimises the frequency deviation difference between the two systems.

In the report commissioned by AEMO for the Tasmanian frequency control trials it was noted by F & M Ringrose Pty. Ltd that[2]:

- *"The Basslink inter-connector has a frequency control function which **aims to limit the difference** between the Tasmanian and NEM mainland system frequencies.*
- *When Basslink is in operation the frequencies of the two systems are therefore strongly related."*

[2] https://www.aemc.gov.au/sites/default/files/content/7f89ef46-6171-4275-a521-48f1af619972/Basslink.pdf

The BLFC does not use 50Hz as its frequency correcting reference, nor does it issue regulation instructions to generating units or loads, therefore despite its name it should not be considered as a true type of frequency control mechanism.

The BLFC however, can transfer additional power from one system to another and allow the regulation and contingency FCAS responses from the generating units to be transferred globally.

II. The treatment of islanded (asynchronous) regions:

KEY POINT: Tasmania, as per status quo, should continue to receive global contribution factors when FCAS requirements are global and only receive local contribution factors when FCAS requirements are localised.

From the draft determination:

- *"...the treatment of the Tasmanian region, which is effectively an asynchronous island that operates separately from a frequency control and regulation perspective"*
- *"it has been proposed that separate contribution factors be calculated for any asynchronous island that forms and for the recovery of costs for local regulation FCAS to be based on the new factors related to the islanded region.*
- *This would mean that the contribution factors would be determined separately for Market participants in any region that is operated asynchronously from the rest of the NEM"*
- *"Currently, Tasmanian factors are combined with mainland factors, weighted by the total energy of each over the sample period, to derive a set of global factors."*

Consistent with the points above on how the BLFC works to minimize frequency deviations between Tasmania and the mainland, and enables transfer of frequency globally from generators on either side of the interconnector, Tasmania should not be treated as "asynchronous island" as it operates synchronously with mainland NEM from a frequency control and regulation perspective, unless Basslink is near or at its limits.

As per current arrangements, Tasmania should therefore continue to receive global contribution factors when FCAS requirements are global and only receive local contribution factors when FCAS requirements are localised.

Section 4.4 Implementation and transitional arrangements

Hydro Tasmania is supportive of an extension of the draft determination to ensure the rules are set up appropriately. The following consultation of AEMO's Frequency Contribution Factors Procedure will be significant in understanding how these changes outlined in the draft determination will work in practice and whether it will truly incentivise helpful frequency response. We look forward to continue to work with AEMC and AEMO to progress this matter.