

14 May 2020

Audrey Zibelman  
Chief Executive Officer and Managing Director  
Australian Energy Market Operator

Submitted via email at [pfr@aemo.com.au](mailto:pfr@aemo.com.au)

Dear Ms Zibelman

### **Interim Primary Frequency Response Requirements Document Consultation**

Hydro Tasmania appreciates the opportunity to respond to the Australian Energy Market Operator's (AEMO) consultation on the Interim Primary Frequency Response Requirements (PFRR) document.

Hydro Tasmania recognises the importance and value of primary frequency response (PFR) in the National Electricity Market (NEM) to enhance overall system frequency performance, and consider that this service will be particularly important as we move to an increasingly variable energy generation mix. We are generally supportive of the proposed methodology outlined in AEMO's Interim PFRR document, including the  $\pm 0.015\text{Hz}$  governor deadband proposal, the permanent droop requirement, and the PFR exemption principles.

Since 2015, Hydro Tasmania has been active in the technical analysis of the power system frequency in both mainland Australia and Tasmanian systems, triggered by the concern of increasing frequency excursions outside the Normal Frequency Operating Band (NOFB). The challenge of system frequency control has been increasing with the rapid growth of intermittent generation and the reduction in PFR.

In the last few years, Hydro Tasmania has been working collaboratively with AEMO and TasNetworks on several frequency control trials involving a number of targeted testing regimes. These trials have been very successful, and have demonstrated that the system frequency can be significantly improved by reducing the governor deadband settings on a number of our large hydro generating units in the Tasmanian system.

In light of our experiences in frequency management, we endorse the intention to implement primary frequency response requirements for generation within the NEM. However, Hydro Tasmania would like to make a number of additional comments regarding the draft PFRR document published by AEMO, which are listed in Attachment A to this submission. In particular, Hydro Tasmania requests that AEMO gives further consideration to alternate verification methods and/or ways that testing can be carried out in the most efficient manner.

We look forward to ongoing engagement with AEMO on the management of PFR in the NEM. In particular, we would welcome the opportunity to discuss aspects of the draft PFRR document with AEMO to clarify the intent of some provisions. If you wish to discuss any aspect of this submission, please do not hesitate to contact Mathew Creese at 0439 995 285 or [Mathew.Creese@hydro.com.au](mailto:Mathew.Creese@hydro.com.au).

Yours sincerely



John Cooper  
Regulatory Manager

## **Attachment A – Hydro Tasmania’s Comments on AEMO’s Draft PFRR Document**

### **1. Verification of machine response performance**

Hydro Tasmania agrees with AEMO that there is a need to verify the machine response performance after tightening governor deadbands (as described in Section 3.4 of the PFRR document). **However, implementing the proposed systematic approach across Hydro Tasmania’s generation fleet would potentially be logistically very difficult, time consuming and expensive.** This is due to the large number of generation assets within our portfolio, and the geographic and technological diversity of our generation fleet. These challenges will be exacerbated by the ongoing COVID-19 pandemic, and associated limitations and constraints on Hydro Tasmania’s resourcing.

**Hydro Tasmania therefore requests that AEMO gives further consideration to alternate verification methods and/or ways that testing can be carried out in the most efficient manner.** As an example of an alternative approach, the data captured during the frequency control trials undertaken in Tasmania in collaboration with AEMO and TasNetworks could be used to form the basis for verification of machine response performance. The results of these trials, including the machine response captured by the high speed governor data logging, detailed monitoring of guide vane movements and the overall system frequency improvements in Tasmania have already been provided to AEMO. Additionally, Hydro Tasmania is currently undertaking an extensive and ongoing program to upgrade our governor control systems. In the event that these assets are scheduled for an upgrade in the next two years, Hydro Tasmania would like to request a deferral of the PFR performance verification obligations until the new governor control system is commissioned.

Noting the actions already taken by Hydro Tasmania, any potential delay in verification of some generating units in Tasmania is unlikely to materially impact on the management of power system frequency. Hydro Tasmania would welcome the opportunity to discuss verification requirements further with AEMO to ensure verification requirements are met in the most practical and efficient way possible.

### **2. Due dates for Affected Generator self-assessments**

Hydro Tasmania is seeking AEMO’s confirmation that the time frame specified in Table 2 is based on individual machine nameplate ratings rather than the DUID rating (e.g. individual Gordon units (144MW) will be considered in the second tranche).

### **3. Response Time implication (Section 3.4)**

Hydro Tasmania considers that the response performance stated in S3.4 should only represent the machine response performance under the given operating conditions at that point in time. Therefore, the data from these trials, for the purpose of PFR verification, should not be used as, or considered to be, a reference for potential future compliance assessments, which may be under very different operating conditions.

### **4. Response active power definition (Section 3.4)**

Hydro Tasmania seeks to confirm that the ‘5% change of Pmax’ in section 3.4 refers to primary electrical power injection only and that the inertial response is excluded.

Hydro Tasmania would also request confirmation that the Pmax definition refers to the rated power of the individual machine, so that an individual unit is not assessed against the aggregated output of the dispatchable unit (DUID) of which the individual machine is a part of.

### **5. Stability Tests (Section 8)**

Where testing is undertaken, Hydro Tasmania seeks AEMO's confirmation that the machine stability demonstration, after revising the governor deadband to  $\pm 0.015\text{Hz}$ , can be integrated with the Response Time test specified in S 3.4. This means that the recording interval in S 3.4 would be extended to at least 10 seconds pre-triggered recording and at least 60 seconds recording after the unit has settled at its steady-state value.

### **6. PFR response verification for identical machines**

For machines sharing the same waterway, identical primary rating and governor settings, Hydro Tasmania seeks AEMO's agreement for single machine performance results to be used to represent all the like units. Based on experience, Hydro Tasmania would expect the performance difference to be negligible.

### **7. PFR verification based on simulation**

Given the diversity of the generating portfolio, as a supplementary approach, Hydro Tasmania requests consideration be given to the possibility of using simulated test results for PFR verification wherever is possible.