4 February 2021

Ms Anna Collyer
Chair
Australian Energy Market Commission

Dear Ms Collyer

Frequency control rule changes - Directions Paper (ERC0296/ERC0263)

Hydro Tasmania welcomes the opportunity to respond to the Australian Energy Market Commission's (AEMC) *Frequency Control Rule Changes Directions Paper*.

Power system frequency management is fundamental to the secure operation of the power system. As AEMO, the AEMC and the ESB have noted, maintaining a secure system has become more challenging in recent years due to the transformation of the National Electricity Market (NEM). This transformation is being driven by higher shares of non-synchronous variable renewable energy (VRE) sources and a rapidly ageing and retiring fleet of traditional synchronous generation sources.

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. As a continuation of this work, Hydro Tasmania welcomes the AEMC's assessment of Infigen's *Fast Frequency Response* (FFR) rule change, and the Australian Energy Market Operator's *Primary Frequency Response (PFR) Incentive Arrangements* rule change. In particular, **Hydro Tasmania supports the AEMC's intent to implement fast frequency response and PFR incentive arrangements**.

The specific details of these reforms, however, will need to be thoroughly tested to ensure the right outcomes are achieved and aligned with broader reform and NEM transformation processes. In developing the details, **Hydro Tasmania strongly supports the need to recognise the dynamic and interrelated nature of FFR and inertia**. Hydro Tasmania therefore considers it appropriate that these system services be considered simultaneously. More broadly, **Hydro Tasmania encourages the AEMC to investigate potential frameworks for the ongoing provision of inertia alongside proposals for fast frequency response, including our proposed *Synchronous Services Market* rule change**. A concurrent assessment of these system services is likely to support an efficient outcome, in which market frameworks are appropriately calibrated to deliver the optimal mix of inertia and FFR, in line with current and emerging system requirements.

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Attachment A to this submission contains Hydro Tasmania's high-level observations on the FFR proposals. **Attachment B** to this submission contains Hydro Tasmania's high-level observations on PFR incentive arrangements.

If you wish to discuss any aspect of this submission, please contact John Cooper ((03) 6240 2261 or john.cooper@hydro.com.au).

Yours sincerely

John Cooper
Regulatory Manager

Attachment A – FFR observations

Hydro Tasmania make the following observations on potential options for a FFR market in the NEM.

Interrelated nature of FFR and inertia – We consider it appropriate that the AEMC's assessment of potential FFR markets should also consider the role of system inertia, and the dynamic relationship between these services. Inertia plays a unique role in helping to manage system frequency following a contingency event by reducing the immediate Rate of Change of Frequency (RoCoF). While a proportion of traditional inertia can be offset by the use of FFR (including synthetic inertia), Hydro Tasmania notes there will most likely be an ongoing need for synchronous inertia in the NEM. On this basis, we consider it appropriate that the future need for both inertia and FFR be considered in parallel in order to identify the most appropriate market structures moving forward.

Inertia is an increasingly scarce and valuable system service – Hydro Tasmania considers that valuing FFR independently of inertia could send the wrong signal to the market about the future needs of the grid. This approach may result in adverse consequences in which inertia exits the market, exacerbating issues rather than resolving them, leading to suboptimal outcomes. Valuing inertia could be achieved alongside a FFR market, or via an alternate mechanism. Hydro Tasmania's proposed *Synchronous Services Market* rule change presents an additional option to ensure the value of inertia to the system is recognised and remunerated accordingly. This proposed approach could allow for inertia and FFR products to be co-optimised in close to real-time. We encourage the AEMC to consider this rule change proposal in conjunction with potential FFR arrangements.

Technology neutrality – Hydro Tasmania strongly supports the AEMC's decision to include technology neutrality as a key assessment principle in this consultation process. Frequency control frameworks should therefore not be designed with a particular technology in mind, but should be reflective of the needs of the power system. In the context of responding to a demand/supply imbalance, Hydro Tasmania recommends that all responses within the first 2 seconds following a contingency event should be recognised and incentivised for their contribution in managing system frequency. These responses include governor response, inertial energy release, battery energy release and demand side response.

Delivering a least-cost mix of system services – There are several pre-existing and proposed system services that can assist in managing the various aspects of power system frequency in the future. These services may include existing contingency FCAS services (i.e. R6/L6), as well as the proposed FFR services (R2/L2), and system inertia. Each of these services typically have different characteristics that can address unique stages of the system frequency management process. We consider that the overall approach should not favour any one service or stage of this process, but endeavour to deliver the most efficient, least-cost mix of all available system services to achieve desired frequency management outcomes. This approach can maximise possible contributions from all market participants to achieve required outcomes at least-cost for consumers.

FFR cost allocation – The AEMC's Directions Paper observes that*, '…a market participant that provides physical or synthetic inertia may be assessed as not causing the need for FFR and therefore allocated less of a share of costs for FFR.'*[1] Hydro Tasmania agrees with this statement, and considers it

[1] AEMC's Frequency Control Rule Changes Directions Paper (pg. 45)

appropriate that market participants producing inertia should be apportioned lower costs associated with the procurement and dispatch of FFR raise services.

Attachment B – PFR incentive arrangements

Hydro Tasmania make the following observations on potential PFR incentive arrangements in the NEM.

Potential PFR incentive pathways – Hydro Tasmania notes the AEMC have proposed 3 high-level 'pathways' for which to create incentives for the provision of PFR:

1. Maintain the existing mandatory PFR arrangement with improved incentives;
2. Revise the mandatory PFR arrangement by widening the primary frequency control band and develop new FCAS arrangements for the provision of PFR during normal operation ('primary regulating services'); or
3. Remove the mandatory PFR arrangement and replace it with alternative incentive arrangements for PFR.

We consider that pathways 1 or 2 are likely to present the most practical approach in which to maintain a continued improvement in the power system frequency, in line with requirements as set out in the Frequency Operating Standard.

Deadband settings – Hydro Tasmania notes several options presented for deadband settings for PFR provision. Hydro Tasmania's assets are able to deliver PFR with current deadband settings under existing mandatory obligations (i.e. ±0.015 Hz). As such, we are comfortable with deadband settings remaining unchanged, provided that the provision of PFR under these settings are remunerated appropriately and co-optimised with all other arrangements for managing power system frequency.

PFR procurement options – Hydro Tasmania encourages further assessment of the creation of a new market ancillary service for 'primary regulating services'. We consider that this new service could operate cohesively with regulation FCAS. Further, we consider this approach is likely to avoid unnecessary complications in amending existing regulation FCAS services to include PFR provision.

PFR pricing – Hydro Tasmania considers that a competitive market-based pricing approach for PFR will likely result in the optimal and least-cost solutions for consumers. On this basis, we encourage further assessment of this option. The AEMC have presented an option to use a pricing scalar for PFR products, recognising the speed of response. Hydro Tasmania cautions against the use of this methodology as this assessment can often be subjective in nature, and may result in technological bias and significant complexities in managing. We encourage a careful assessment of these potential risks arising from the use of a pricing scalar for PFR.

PFR cost recovery – The cost recovery allocation process should consider both primary and secondary services in a coordinated fashion. The AEMC's directions paper indicates that the existing 'causer pays' methodology could be amended to allow for the allocation of PFR costs. Hydro Tasmania therefore recommends the AEMC review the ongoing suitability of the causer pays methodology alongside potential frequency reforms.