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Australian Energy Market Commission

Submitted electronically

Dear Clare,

**Rule change: Efficient provision of inertia**

The Public Interest Advocacy Centre (PIAC) welcomes the opportunity to respond to the rule change request on the efficient provision of inertia.

PIAC recognises that it may be appropriate to develop an ancillary service market for inertia as the synchronous generators that provide inertia 'for free' exit the market and electronic (inverter-based) generators that don't provide it, along with asynchronous generators that increase demand for it, enter the market. We support the AEMC and AEMO's efforts to this end.

PIAC agrees that it is prudent that work on this task begins now to ensure that arrangements are in place before the requirement becomes urgent.

PIAC notes that under the proposed design for the forecasting, dispatch, and settlement of an inertia market:

- Market participants would be able to place energy only, energy and inertia, or inertia only bids which would then be co-optimised through the NEM Dispatch Engine (NEMDE).
- The market would allow for the procurement of inertia from both synchronous and non-synchronous resources to the extent they are capable of meeting AEMO's technical definition of inertia.
- Participation in the Inertia Ancillary Service market would be voluntary.
- Under the proposed arrangements AEMO would procure inertia to meet the secure operation requirements at a minimum.
- Total procurement volumes would be co-optimised with the procurement of energy and other market ancillary services.
- Market participants would face a common clearing price which would likely apply to the mainland, with a separate clearing price set for Tasmania.
- The market would have a price floor of zero and a price cap could be set by the Reliability Panel.

### **Inertia market design and minimum inertia requirements**

An inertia ancillary service market fits best with existing arrangements as a centralised contestable market service, and AEMO is best positioned to operate this market, given its existing role in maintaining power system security.

In PIAC's view, when an inertia market is established minimum inertia requirements should be managed and procured by AEMO rather than transmission businesses. Minimum inertia requirements are more closely linked to AEMO's role managing the frequency- and energy-related markets than the monopoly services transmission businesses are well placed to provide. It would be more efficient to procure the minimum inertia requirements contestably and, unlike transmission businesses which have a conflict of interest, AEMO is able to provide a level playing field for competitively procured minimum inertia requirements.

In developing cost recovery on a beneficiary-pays basis for inertia, the nature of benefits and to whom they accrue should be considered. We note that cost allocation and recovery in an inertia market needs to reflect that:

- the need for inertia may not increase indefinitely and could conceivably be lower again when there are fewer large mechanical generating units in the energy system
- the distribution of benefits of inertia services may substantially change over time.

At present the beneficiaries of inertia services include:

- Individual synchronous thermal generators with units of sufficient size to impact system frequency when they cut out unexpectedly (these are also the generators that have traditionally provided inertia under normal operating conditions).
- Groups of asynchronous generators such as wind turbines (particularly older model wind turbines).
- Some electronic generators that are particularly sensitive to the rate or magnitude of changes in frequency (these generators may also provide limited inertia or artificial inertia).
- Individual large energy users that have:
  - Loads, particularly motors of sufficient size to affect system frequency when they are turned on, turned off or cut out
  - Equipment that is particularly sensitive to the rate or magnitude of changes in frequency.
- Mass-market energy users.

As such, PIAC considers levying energy market pool fees on all market participants to be the most benefit-reflective means to recover costs associated with the provision of inertia initially.

We note that the main beneficiaries of inertia are likely to change in the future as smarter electronics on both the supply and mass-market demand side, and a higher level of distributed energy resources, are integrated into the grid. Accordingly, the primary beneficiaries of inertia services—that is, the participants whose presence imposes a need for inertia to be provided in the market—may become:

- The remaining synchronous thermal generators that are of sufficient size to impact system frequency when they cut out unexpectedly. These may also be providing inertia under normal operating conditions.

- Individual commercial and industrial energy users that have:
  - Loads, particularly motors, of sufficient size to effect system frequency when they are turned on, turned off or cut out
  - Equipment that is particularly sensitive to the rate or magnitude of changes in frequency.

In this future scenario, recovering costs from benefitting generators and large users with 'causer pays' payments would be more efficient and fairer than socialising the cost of an inertia market across all consumers.

PIAC welcomes the opportunity to discuss these matters further with the Commission and other stakeholders.

Yours sincerely

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