6 August 2025

Australian Energy Market Commission
Level 15, 60 Castlereagh Street
Sydney NSW 2000

Submitted online via www.aemc.gov.au

Reference: ERC0339

Dear Australian Energy Market Commission

Re: Stanwell response to the Efficient provision of inertia Draft Rule Determination

Stanwell Corporation Limited (Stanwell) welcomes the opportunity to respond to the Australian Energy Market's (AEMC) Directions Paper on the Efficient provision of Inertia. Stanwell appreciates the work of the AEMC consulting with stakeholders on this important issue.

Stanwell is Queensland's leading provider of electricity and energy solutions to the National Electricity Market, and large energy users along the eastern seaboard of Australia. With over 40 years of continuous operations, Stanwell's experience in working with communities to build, operate and maintain reliable energy generation assets is also being applied to the rollout of renewable energy.

Stanwell is developing a pipeline of renewable energy and storage projects throughout Queensland, whilst maintaining a reliable supply of baseload power from two of the most efficient and reliable coal-fired power stations in Australia – the Tarong power stations near Kingaroy and Stanwell Power Station near Rockhampton.

This response contains the views of Stanwell only and should not be construed as being indicative or representative of the views or policy of the Queensland Government.

Background

The energy industry across the NEM is nearing a decade of consultation and subsequent inaction on the introduction of Essential System Services markets, including inertia. At this rate, an enduring framework is likely to be pushed further down the road, taking multiple years to design and implement.

- In 2016 AGL requested the creation of an inertia ancillary services market, which was declined by the AEMC in 2018.

- In 2019 the Australian Energy Market Operator (AEMO) (and others) requested mandatory primary frequency response be introduced in the absence of market signals for an inertia service. Primary Frequency Response (PFR) (and Frequency Control Ancillary Services (FCAS) markets) are the "second half" of the system response to an event – inertia acts to slow the frequency change and PFR/FCAS acts to restore frequency to 50 Hz. The "emergency" imposition of a mandatory, unpaid provision of a service because a market could not be set up in time, should be a stark warning for the AEMC in relation to inertia.

- While the AEMC set Rules in 2020 for universal mandatory provision of PFR, to this day, with only some resources providing PFR, the market has confirmed industry's view that procurement through a market would be more efficient than mandatory provision.

- In 2022 the Energy Security Board endorsed the unbundling and procurement of Essential System Services (ESS) ahead of forecasted declines through market-based reforms, and recognised the potential advantages in developing a spot market to co-optimise the supply of inertia and other ESS).[1]

- In 2023 in preparation for the shift to higher levels of renewable generation and the subsequent decline in rotational inertia currently supplied as a byproduct of thermal generation, the Australian Energy Council (AEC) proactively submitted a Rule change request to the AEMC proposing to introduce an inertia spot market. This Rule change request was made on the premise that the current framework for managing inertia shortfalls in the NEM is inefficient and does not meet the long-term needs of the power system.[2]

- In 2024 in response to the AEC's request, the AEMC concluded the "'Improving Security Frameworks for the energy transition" (ISF) Rule change, created a transitional framework enabling AEMO with the flexibility to either procure, or direct Transmission Network Service Providers (TNSPs) to procure essential services including inertia. This arrangement relies on an assumed level of service provision from incumbent or committed sources, supplemented by contracts only where gaps or shortfalls emerge.

- In 2025, concurrent with this consultation, Transgrid is procuring inertia through the system strength framework, with the apparent endorsement of the Australian Energy Regulator.[3] This process has been running for about three years, with first provision approximately a further three years away.

Throughout this period, Stanwell has consistently advocated for reforms that move towards a transparent, operational market for these services, including a market for inertia, well before any inertia shortfalls occur.[4]

Introduction

Absent a signal to invest in inertia-providing resources, there is little doubt the power system will become increasingly subject to inertia shortfalls as the proliferation of inverter-based generation technologies increase in the NEM and synchronous generation progressively exits. While the Draft Determination does recognise this, it fails to realistically consider the longer-term implications of a future capacity constrained energy system where significant volumes of ESS – notably inertia, will be essential.

The critical risks associated with a lack of inertia in the system could be significantly mitigated with the development and introduction of an inertia spot market that delivers a transparent signal for participants.

While the ISF Rule provides transitional arrangements, Stanwell maintains that work on enduring arrangements should not be deferred as the AEMC intends. We agree with the AEMC Reliability Panel's assessment that deferring the development of an inertia market is not a measured assessment of the risks and costs that would result from an inertia market being established too late.[5] The implications of delay far outweigh the risk and cost of markets being prudently in place ahead of when they are needed.

There is an immediate need for the development of an inertia spot market

In their Draft Rule, the AEMC stated that "*regional inertia supply and demand graphs show that inertia*

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1 Energy Security Board 2021, *Post-2025 Market Design: Final advice to Energy Ministers Part A*, p. 9.

2 Australian Energy Market Commission Consultation Paper 'Efficient Provision of Inertia–Consultation Paper–Proponent: Australian Energy Council, March 2023, p 1.

3 AER, December 2024, Efficient Management of System Strength Framework – Guidance note.

4 Australian Energy Market Commission Inertia consultations: *Inertia Ancillary Service Market* [ERC0208], 2017, 2018; *Efficient Provision of Inertia* [ERC0339], 2023, 2024, and 2025.

5 Australian Energy Market Commission Reliability Panel, 23 April 2025, Letter to AEMO: Reliability Panel comments on AEMO's Transition Plan for System
Security as noted in Transgrid Meeting system strength requirements in NSW, RIT-T Project Assessment Conclusion Report, 14 July 2025.

shortfalls are not expected in the short-and medium-term…",[6] thereby implying there is no urgency to develop and operationally test the viability of an inertia market in the immediate to short-term.

However, in 2022 the Australian Energy Market Operator (AEMO) forecasted that as early as 2025, the NEM will begin to have sufficient renewable resources to, at times, meet 100 per cent of demand,[7] while *"…on a day where there are 100% renewable resources potential in the NEM, this will not translate to 100% renewables dispatch in the absence of 'essential system services…"*.[8]

The AEMC Reliability Panel identified that *"…[s]ecurity risks are emerging faster than expected. For example, system strength and minimum system load have become critical risks earlier than expected, and market interventions have been needed to maintain system security…*" emphasising that "*… the urgency of system security investment to keep pace with the transition...*[and] *security needs must be identified earlier so that timely investment can occur."*[9]

The current Transgrid system strength procurement process also identifies that New South Wales will experience periods below the sub-regional inertia limit from 2027 to 2028 without the inertia needed and the "…*re-dispatch of synchronous machines*…".[10]

Consistently delaying the design task will inevitably see other committed reform work take precedence, leading to more complex and expensive scheduling of inertia market implementation. Importantly, there is currently a full and demanding schedule of committed reform work for AEMO and the energy sector, the completion of which is likely to fill the next few years. A decision to commence an inertia market design now would allow the implementation task to be planned and completed, with an inertia market in place in preparation for the expiry of ISF Type 1 contracts on 1 December 2029.

Should the AEMC progress the Draft Rule Determination as it stands, not only will it miss a key opportunity to establish a much needed market for inertia now, it is also likely to exacerbate the risk of shortfalls of other ESS, as observed in other jurisdictions, for no benefit.

Reliance on contracted procurement is only a transitional solution

The ISF Rule established a transitional framework enabling AEMO with the flexibility to either procure, or direct TNSPs to procure, "types" of transitional services using Type 1 and Type 2 contracts where AEMO forecasts a shortfall.[11] This transitional framework is intended as a temporary measure until a more enduring ESS procurement framework is in place.[12]

The AEMC's reasoning in their Draft Rule leans heavily on contract provided inertia solutions to fulfil a system security need, which they believe should meet the foreseeable minimal inertia needs at low marginal cost while they wait for other inertia providing services to come online.[13] This approach of "if we don't build it, essential system services will come" to market design is neither appropriate nor sustainable.

The reluctance of the AMEC to facilitate the development of an inertia market will inevitably increase costs

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6 Australian Energy Market Commission, Draft Rule determination, Efficient Provision of inertia' June 2025, p 52.

7 The Australian Energy Market Operator, '*Engineering Roadmap to 100% Renewables'*, 2022.

8 Ahuja, V, Cheng, S, et al, '*The security services of spinning machines: a primer on essential system services'* King & Wood Mallesons 25 October 2025 accessed at:< The security services of spinning machines: a primer on essential system services - KWM>.

9 Australian Energy Market Commission Reliability Panel, 23 April 2025, Letter to AEMO: Reliability Panel comments on AEMO's Transition Plan for System.
Security as noted in Transgrid Meeting system strength requirements in NSW, RIT-T Project Assessment Conclusion Report, 14 July 2025.

10 Transgrid Meeting system strength requirements in NSW, RIT-T Project Assessment Conclusion Report, 14 July 2025, p 7.

11 Australian Energy Council.

12 Under the Improving Security Framework for the Energy Transition (ISF) Rule, ESS can be procured by contracting with providers who can supply multiple or single ESS using either Type 1 or Type 2 transitional services contracts. Type 1 and Type 2 contracts are scheduled to end 1 December 2029 and 1 December 2039 respectively. Type 1 Services are those required for power system security that cannot otherwise be provided by existing ancillary services. These contracts will end 1 December 2029, and Type 2 Services are acquired for the purpose of trialing new technologies, or a new application of existing technologies. Type 2 contracts will end 1 December 2039.

13 Australian Energy Market Commission media statement 26 June 2025.

for consumers, which will ultimately eventuate in not meeting the least cost and reliability requirements of the National Energy Objective (NEO).

Contract-based procurement does not allow for real-time optimisation, for which a market-based solution would be ideal. The current contractual arrangements procure services with multi-year lead times to meet the worst case, or credible contingency conditions. In practice, there are likely to be instances when the efficient level of service is higher or lower than the long-term procured level, or where uncontracted services will be operating such that they could provide the service at low cost as a by-product.

For example, in their Regulatory Investment Test for Transmission (RIT-T) Project Assessment Conclusions Report for 2025 (Report), Transgrid estimates it will cost at least $6 billion to provide inertia and system strength services using synchronous condensers and grid-forming Battery Energy Storage Systems (BESS) (noting that inertia and system strength services are currently being supplied, for free, as a byproduct of thermal generation).[14]

The Report identifies that this cost is "…*expected to have a material impact on the ultimate cost to end consumers*, ...". [15]

Transgrid have also identified the cost of adding flywheels to synchronous condensers to provide inertia is estimated at 2.5 per cent. Assuming this only applies to the capital cost of $1.6 billion for Transgrid synchronous-condensers (but not REZ synchronous condensers or grid-forming BESS assumed in the modelling), on our working, puts the cost of inertia provision at around $40 million.[16] This figure is not referred to in the Report and is therefore unlikely to be able to be compared to alternative procurement options such as a real-time market.

Importantly, under the ISF contractual procurement process, TNSPs are paid full capital costs for synchronous condensers, but it is unclear whether other resources would receive the same treatment or only incremental cost / revenue. The Transgrid Report indicates that grid-forming BESS are paid a maximum of five per cent of their capital cost, while BESS already committed as grid-forming receive zero.

In addition, TNSPs do not face any penalties for late delivery of projects and services, so there is no guarantee that projected shortfalls will actually be addressed before they eventuate. Where lead times for construction and delivery of synchronous condensers are under significant pressure due to global demand, there is an increased risk that TNSPs may not be able to meet the required timeframes.

In light of this, it is unclear why the AEMC is reluctant to put the market signals in place to encourage development of an inertia spot market, as in the operational timeframe, a spot market could procure inertia more efficiently to meet the dynamic needs of the energy market, and would, over the long-term, provide more consistent and transparent price signals that will help guide investment and innovation in inertia provision, and support more efficient entry and exit decisions.[17]

Incentivising sufficient inertia providers into the market needs to go beyond ISF contractual procurement. Investment decisions are being made now for new generation for the NEM. The newly formed and unproven ISF framework will not encourage inertia producing technologies into the market nor support the provision of energy at least cost to consumers.

Conclusion

For many years Market Participants have continued to push for the development of markets for ESS. The AEC's rule change request was brought about because of the inaction on the part of market bodies to proactively investigate the development of markets for ESS, specifically inertia.

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[14] Transgrid Meeting system strength requirements in NSW, RIT-T Project Assessment Conclusion Report, 14 July 2025, p 6, see also Table 2 at p 7.
Australian Energy Council see p iv in Australian Energy Market Commission Efficient Provision of Inertia Consultation Paper March 2024.

[16] Transgrid Meeting system strength requirements in NSW, RIT-T Project Assessment Conclusion Report, 14 July 2025, p 7.

[17] Australian Energy Council see p iv in Australian Energy Market Commission Efficient Provision of Inertia Consultation Paper March 2024.

Inertia has clearly been recognised as a system service that is identifiable, measurable, and lends itself to procurement through a market-based solution. An established inertia market could also provide the significant benefit of setting out frameworks for future ESS markets.

Many of the risks outlined in this submission could be mitigated with the development and introduction of an inertia spot market. A real-time, market-based solution is the option most likely to provide the benefits needed to support commercial decisions, provide additional cost efficiencies, and encourage innovation; all of which will offer a solution to meet the longer-term needs of the power system.

Stanwell welcomes the opportunity to discuss any of the issues raised in this submission. Please direct any inquiries to Lya McTaggart via email at lya.mctaggart@stanwell.com

Ian Chapman
Manager Market Policy and Regulatory Strategy