

NEOEN



Essential System Services and Inertia in the NEM

21 July 2022

Neoen's response:

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About Neoen

Neoen is one of the world's leading and fastest-growing independent producers of exclusively renewable energy. We design and implement the means to produce the most competitive and sustainable renewable electricity on a large scale. Our total capacity in operation or under construction is currently over 5 GW, and we are aiming for more than 10 GW by the end of 2025.

As of June 2022, Neoen has over 2.5 GW of renewable assets in operation or under construction in Australia, spanning across Wind (1072 MW), Solar (918 MW) and Storage (576 MW / 910MWh). This represents over 3.5 billion Australian dollars in investment. Neoen intends to reach 5GW in Australia by 2025.

Dear Clare Stark,

Thank you for the opportunity to respond to the AEMO and AEMC joint paper on the essential system services and inertia in the NEM.

Neoen agrees with the AEMO and AEMC that a staged approach is prudent to allow for the efficient development of inertia services. And firstly, it is essential to continue to analyse the existing capabilities in the form of frequency services, synchronous inertia, and system strength reforms against the evolving needs of the electricity grid.

Overview

We do not believe that an inertia spot market is an appropriate mechanism at this time, and it remains to be seen whether it will be appropriate in the future. It does not make sense, in Neoen's opinion, to formulate the basis for a future market we may not ever need.

We support the current approach of gathering information and experience, which may indicate the need for a market at a later stage. It would be unfortunate if efforts were spent designing a market only for the design to dramatically change as our knowledge evolves.

We do not believe the time needed to create a market is a reason to work on one, as services can be procured through other mechanisms before a market is created.

Binary nature of inertia

The relationship between headroom and dispatch for Energy and FCAS means that it would be practical to create markets for FFR and PFR¹.

This relationship does not exist for inertia which creates issues. Synchronous units fully provide their inertia intrinsically when energised and cannot be partially dispatched at some other quantity of inertia. When not energised synchronous units provide zero inertia.

1. Binding and unbinding of constraints in a feedback loop:
This would create a significant disruption to generators within the system strength constraint, as well as the synchronous unit, and precipitate in huge energy market volatility.
2. Challenges for NEMDE to co-optimize binary variables: The binary nature of inertia will create challenges for NEMDE to co-optimize, leading to increased computation times and unresolved dispatch.
3. Uneconomic unit starts:
NEMDE will occasionally dispatch units out of merit in order to procure inertia.
This may encourage units (particularly peakers) to bid unavailable right up until they are willing to start.

If, at some point, inertia can be dispatched proportionally, for example, primarily from appropriately configured batteries, then this issue could be solved.

An oligopolistic pool of resources

Most inertia is supplied from a small pool of incumbent fossil generators.

A likely outcome of a market with restricted competition and structural oversupply would be that the price for inertia would be crushed most of the time but set to the market price cap during periods of tight supply conditions.

¹ Neoen advocated for a PFR market as we will require one in the medium term in order to procure PFR headroom directly.

Poor incentive for new entrants

This potential for high prices is not necessarily an incentive for new entrants, as the new entrant would know that their presence would likely significantly reduce the market value, and incumbents could choose to make it so.

The presence of a market does not in itself encourage supply. Instead, the expectation of ongoing revenues does this, which can be achieved through bilateral contracts and does not necessitate a market. A market is only there to provide information to buyers and sellers about the ongoing price of a service, which can facilitate longer-term contracts that would underpin the investment in new supply.

Contracting itself is likely to inform the need or specification of a market and is a more pragmatic first step.

Unknown status of new technology replacements

A potential solution to the above problems would be the available substitution of electro-mechanical inertia with synthetic inertia. AEMO is currently assessing these capabilities on an ongoing basis. Time and experience will give us the confidence to apply new technologies where they are appropriate.

Barriers to entry for the most cost-effective new entrant – TNSPs

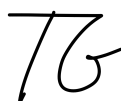
An inertia market likely excludes the participation of regulated entities like TNSPs. In many cases, the cheapest solution will be a synchronous condenser procured by a TNSP, not only due to their business structure but because they will have the fullest information on what, where and how the equipment can best be integrated into their network.

Given the reasons above, as well as the initial successes without a market so far, we believe the current approach for inertia procurement is sound. Similar to black start, tendering for medium to long-term supply is likely a lower-cost solution than a dynamic, non-competitive, and uncertain market. We certainly support the ongoing procurement of these inertia services through TNSPs or generators, particularly where inertia procurement avoids the need for directions.

In summary, we believe it is too early to be working on inertia market designs before we have certainty there will be competition and access to new entrants, as well as an established base of understanding of new technologies that can provide synthetic inertia.

In the meantime, contracting approaches are a more cost effective means to procuring inertia. Contracting provides greater certainty to incumbents and new entrants in order to build the business case for ongoing provision of inertia as a service. Through an ongoing contracting process, we may discover that a dispatch market is required, but at this point in time this is not clear.

Yours sincerely,



Tom Geiser,
Senior Commercial Manager,
Neoen Australia.