14 February 2025

NEM Review
Expert Panel
C/o -
Department of Climate Change, Energy, the Environment and Water

Submitted online via portal on www.consult.dcceew.gov.au

Dear Panel

Re: Stanwell response to the National Electricity Market Wholesale Market Settings Review Initial Consultation

Stanwell Corporation Limited (Stanwell) welcomes the opportunity to respond to the Expert Panel's consultation on the National Electricity Market Wholesale Market Settings (NEM Review).

Stanwell is Queensland's leading provider of electricity and energy solutions to the National Electricity Market (NEM), 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.

Stanwell appreciates the NEM Review Expert Panel consulting with stakeholders on their views about the various designs that may be considered to meet the needs of a changing NEM.

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.

Introduction

The transformation occurring in the NEM will require appropriate policy settings to be in place to facilitate an orderly change from a thermal energy market, to one reliant on renewable energy sources. This shift will need to be accomplished without risking reliability and system security, or without increasing costs for consumers.

The purpose of this NEM Review is to provide recommendations to the Energy and Climate Change Ministerial Council (ECMC) on how best to shape the future of the NEM to ensure it ***promotes*** investment in ***firmed***, renewable generation and ***storage capacity*** following the conclusion of Capacity Investment Scheme (CIS) Tenders in 2027.

We are aware of some attempts to characterise the issue as transition versus post transition. We consider that the transition is likely to be continual with brief interludes of apparent stability. Any market design needs to be sustainable and incentivise efficient investment in, and the operation of, electricity resources. To achieve this, clear value pools are needed to cover multiple different services within (rather than outside) the market.

The most orderly and therefore least cost approach to reducing greenhouse gas emissions, allows for an

energy market that provides various signals to the market to invest and provide energy for when it is needed. However, in order for market signals to work effectively they must be strong (high or low) enough to drive market participants to engage in the market.

We do not believe the focus should be to re-design the energy market. An alternative solution to build out the future NEM could focus on a centralised planning approach; however, this may lead to unnecessary and expensive "gold plating" of the NEM. The solution for a decarbonised secure and reliable NEM lies somewhere between a transparent and untampered financial market, and a centrally planned NEM.

The future wholesale market must be technology neutral

There is a long road ahead to decarbonise the NEM. To support the decarbonisation journey a future wholesale market will need to be designed to accommodate any existing and future technology, that has the capability to provide the functions needed for the operation of the NEM at any given point in time. Setting rigid, non-technology neutral barriers into the market design will effectively stifle innovation, and hinder market participants' development of novel solutions at least cost to consumers.

Australia is embarking on decarbonising the NEM to meet our federally legislated emission reduction targets. However, there is nothing in these legislated targets which precludes specific fuels or technologies from being utilised in the NEM.

The NEM Review's Terms of Reference state the Review Panel "…*will not consider options that involve governments supporting new fossil fuel generation*."[1]

This approach limits the benefits of existing and new technology, which may ultimately assist coal retirement. For example, the Australian Energy Market Operator's (AEMO) 2024 Integrated System Plan (ISP) "…confirms that renewable energy, connected by transmission and distribution, firmed with storage and backed up by gas-powered generation, is the lowest-cost way to supply electricity to homes and businesses as Australia transitions to a net zero economy."[2]

RystadEnergy also confirms that "[g]as is increasingly considered a crucial stepping stone [sic] to a sustainable future…[and] gas is poised to play a pivotal role in the global energy transition."[3]

Firming technologies such as battery storage, pumped hydro, and gas fired generation will be needed to help maintain system stability. Gas-fired generation also provides a backup supply during long periods of 'dark and still' renewable droughts and times of extreme peak demand.[4]

If the NEM Review expects to develop workable, efficient and economically viable solutions for the wholesale market, then facilitating a technology neutral future NEM will go a long way to securing a reliable and affordable energy market.[5]

In addition, the NEM Review must also consider the actions to facilitate the planned retirement of coal-fired power stations from the energy system, which will still be occurring in the NEM beyond the CIS. The urgency of developing solutions cannot be overstated, as any indecision now would result in increased government intervention later, and a disorderly and costly NEM beyond the CIS.

New mechanisms to ensure reliability and provide clear investment signals

The only investment signal currently available in an energy only market is a high spot price. A mechanism will be required to provide certainty to the market that capacity is available when it is needed.

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[1] Reliability Panel, Terms of Reference. *Review of Market Settings in the National Electricity Market to Follow the Capacity Investment Scheme*, 2024, p 2 at 12.
[2] Australian Energy Market Operator 2024 Integrated System Plan, Preface, and p 10. See also pp 21-23, 29, 47, 49, 54, and 65.
[3] RystadEnergy, *'New natural gas production is needed to meet demand; Middle East could hold the answer'*, accessed on 4 February 2025 at rystadenergy.com.
[4] Australian Energy Market Operator 2024 Integrated System Plan, p 65.
[5] Australian Energy Market Operator 2024 Integrated System Plan, p47.

Currently the NEM operates as a market constrained by plant availability or an energy only market trying to solve for capacity (capacity constrained). In a future NEM heavily reliant on variable renewable energy, the market will experience capacity shortfalls driven by insufficient fuel (i.e. wind and sun) availability (energy constrained) rather than plant availability.

Another tool will be needed to manage fuels when storage falls short.

Stanwell considers a specific mechanism is needed to value not just energy produced, but an ability to provide energy during fuel supply gaps as well as a means of creating a clearer investment signal with a longer lead time for developments. A well designed mechanism should incentivise the optimum mix of technologies to invest and bid their capacity into the market to meet the firming needs of the NEM.

Transparency of capacity would also ensure certainty, and provide an investment signal that encourages the "right type" of capacity into the market when it is needed i.e. during periods of high demand. For example, a capacity mechanism linked to the spot market would provide consistent, transparent market-based signals across the NEM.

In turn, this could open the door for other plant such as virtual power plants (VPP) to be available in the spot market and facilitate consumer energy resource (CER) participation. Although we note that designing a mechanism or approach to promote participation in markets for consumer energy resources (CER) will need to be considered in a way that facilitates greater coordination of existing and new resources. This will ensure the right balance of megawatts (MW) from other technologies are available, and have the ability to replace the vast amount of MW lost from the exit of coal, without curtailing existing plant.

Regardless of how a new mechanism is designed to operate, it ideally should not involve significant changes to the NEM. Stanwell's preference would effectively operate as a "piggyback" mechanism that could be adapted from an existing market mechanism, familiar to the market. Policy settings could then be adjusted with minimal changes to existing systems to ensure ease of participation within a timely manner.

NEM design should consider both capacity constraints and energy constraints of the system

As noted above, any energy market reliant on renewable generation will need sufficient fuel availability to meet demand when renewables are unable to generate. This is irrespective of how frequently that fuel or capacity may be called upon. Sufficient firming will need to be available to balance supply and demand regardless of the technology.

The current market considers only forecast shortfalls of capacity driven by plant availability. However, as previously stated, shortfalls of capacity will result from a lack of fuel i.e. from wind / solar resources once coal generation exits the system and the market changes to one dominated by renewables and storage.

A future NEM design will need to consider how best to evaluate forecast capacity shortfalls driven by fuel availability instead of plant availability, while also providing long-term incentives for dispatchable assets that will be vital to fill the gaps.

Creating investment signals to only accommodate technology capable of being deployed in a short timeframe, limits the variety of technologies available, and restricts the market to such an extent that it is unlikely to contain the optimal mix of the technology needed.

As such, the market of necessity will be required to look beyond solutions to solve problems in the immediate term, and focus on a market capable of providing signals over the longer term to facilitate investment in technologies with the capability to provide flexible dispatchable energy.

Ultimately, a lack of investment signals will lead to trade-offs between the rate of change, the costs associated with the rate of change, and the consequential costs to the broader economy.

All essential system services must be valued

A key focus of the NEM Review should be the design of markets that facilitate the reallocation of value from

a largely single value structure (with some available value in ancillary markets and Essential System Services (ESS)), to a market where value is spread across the full range of ESS required in a NEM reliant on renewable energy.

The current market predominantly allocates zero value to ESS that are provided as by-products of certain types of generation. Without thermal generation in the energy system, ESS currently largely provided for free, will progressively decline. System security needs will be required to be met via non-traditional plant, for which there are presently no market mechanisms or investment incentives in place.

Currently where a shortfall is forecast, ESS are procured through contracts that are not visible to the market. As a result, the lack of a transparent price signal in both the operational and investment timeframes, acts as a deterrent to new sources of ESS which limit alternative supply, and may result in higher costs being passed through to consumers.

The transparent real-time signals of a competitive clearing price from decentralised markets would reflect the true underlying value of these resources, and encourage new investment in technology to support the retirement of coal generation. This would ultimately contribute to ESS being provided at least cost to consumers.[6]

More than one market for ESS may be needed, and any ESS market should be visible and structured to optimise efficiency in the energy market.

A number of regulatory reforms are currently considering how ESS can be incorporated into the existing energy market. For example, the Australian Energy Market Commission (AEMC) is presently considering potential options for the procurement of inertia, including a stand-alone inertia spot market proposed to be co-optimised with FCAS markets. However, the proposal does not include the entire inertia "stack", with only a portion of available inertia able to be bid into the market.

As noted in our submission to AEMC's proposal, this approach misses the mark in terms of developing a "deep" commercial market with the flexibility and responsiveness to incentivise new technologies into the market, and avoid unnecessary costs ultimately paid for by consumers.[7] As we see it, any approach to develop markets for ESS should consider the entire ESS stack so as to optimise the benefits to the market and consumers.

Stanwell continues to support a market for ESS,[8] noting that any changes to the structure or introduction of new mechanisms in the NEM should consider broader implications, including how markets for ESS will work harmoniously with existing markets to ensure least cost to consumers.

Integrating Consumer Energy Resources into the NEM

Installed Consumer Energy Resources (CER) i.e. roof top solar, has grown significantly in Australia in recent years, with CER owners able to export excess energy into the energy grid during times of peak generation.

How to integrate CER resources into the energy grid poses some difficulties due to its inherently intermittent nature, which in turn leads to voltage fluctuations and risks grid stability.

The current challenge with installed CER is how to manage this resource in a way that can effectively provide any additional energy that may be needed, and effectively and efficiently support other generation sources that have the ability to provide system stability and reliability.

There is opportunity to utilise orchestrated CER to support the energy grid, and therefore an immediate need to ensure CER does not develop into an impediment to a coordinated, efficient and affordable energy system.

[6] Stanwell Corporation Limited Response to the Australian Energy Market Commission's Consultation Paper – Efficient Provision of Inertia, 2023.
[7] Stanwell Corporation Limited Response to the Australian Energy Market Commission's Consultation Paper – Efficient Provision of Inertia, 2024
[8] Stanwell Corporation Limited Response to the Australian Energy Market Commission's Consultation Paper – Efficient Provision of Inertia, 2023.

Conclusion

As coal gradually exits the system, the NEM will fundamentally change. This change requires a new market approach to how energy is provided and how energy shortfalls will be addressed, including incentivising investment in technologies that have the ability to provide capacity when it is needed.

Existing incentive schemes for new generation technologies are impacting the effectiveness of market signals which do not provide long-term solutions for investment certainty and ultimately technology innovation.

The current market focus looks to plant availability to ensure sufficient energy is available. A future market needs to solve for fuel availability in addition to plant availability. A new mechanism could ensure both the continuation and evolution of the current market.

Providing market signals for essential system services must also be a primary consideration of the future market to ensure the right type of capacity is there when it is required. Separate markets will also need to be established to value essential services.

Stanwell welcomes the opportunity to further discuss the matters outlined in this submission. Please refer any enquires to Lya McTaggart@stanwell.com.

Yours sincerely

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