

Our ref: RN:MKS:NP

27 October 2020

Dr Kerry Schott AO
Independent Chair
Energy Security Board

Lodged by email: info@esb.org.au

Dear Dr Schott

Submission on Post 2025 Consultation Paper

CleanCo welcomes the opportunity to comment on the Energy Security Board (ESB) Post 2025 Consultation Paper.

CleanCo is Queensland's newest electricity generator. Our purpose is to deliver reliable clean energy solutions at a competitive price for Queenslanders. Our activities will help to improve electricity affordability, contribute to the achievement of Queensland's 50 per cent renewable energy target by 2030, support secure and reliable electricity generation, and create new investment and jobs in regional Queensland. We have a target to support 1,000 MW of new renewable generation by 2025 and we will achieve this by building, owning and operating our own assets and by investing in new renewable projects driven by others. CleanCo's supports rule and policy changes that help facilitate an affordable, reliable supply of clean energy to customers into the future.

CleanCo supports most of the ESB's proposals across each MDI. While each MDI requires significant further development, CleanCo notes and appreciates the ESB's efforts in developing a well-considered and balanced set of proposals. Below outlines our position on each MDI, with further detail on Essential System Services and Access Reform in **Attachments 1 and 2**:

- (a) **Resource Adequacy Mechanisms** – CleanCo considers a formal resource adequacy mechanism is not warranted at this stage. Our preference is to progress and implement the ESB's work on Essential System Services (ESS) to see how they affect investment before a resource adequacy mechanism is considered further. We acknowledge the increased pressure on governments to ensure reliability and a seeming discomfort with high spot prices that would otherwise send the signals for future investment. If governments desire greater levels of certainty for investment, we believe an expanded Retailer Reliability Obligation mechanism would be a more efficient solution than a capacity market. This is on the basis that an expanded RRO would (a) be simpler and less costly to implement as it would use existing market structures and processes and (b) be more efficient in that it clearly places risk/responsibility on retailers to ensure their load is covered and would be largely costless until a shortage arises.

- (b) **Ageing Thermal Generation Strategy** – CleanCo considers explicit actions to reduce the likelihood of early closure of fossil fuel generators are unnecessary and challenging to implement. As above, we prefer to progress and implement the ESB’s work on Essential System Services (ESS). Rewarding existing generators for the services they provide, particularly inertia and operating reserve, is likely to significantly reduce the likelihood of early or uneconomic closure.

- (c) **Essential System Services** – CleanCo supports the development of a robust market framework that rewards generators and other participants for providing the services the energy sector requires at the lowest long run cost to consumers. To that end, CleanCo supports the ESB’s proposed incentive frameworks or markets for operating reserve, inertia and fast frequency. CleanCo prefers spot market solutions where practical and sees the need for buyers have a clear long-term liability to help facilitate secondary markets and investment¹. More detailed comments on ESS are provided in **Attachment 1**.

- (d) **Scheduling and Ahead mechanisms** – CleanCo supports the ESB’s proposal on this MDI. When this workstream was initiated, we were concerned that a mandatory day ahead energy market would lead to higher costs for consumers and would not provide the desired certainty to the market operator; we support the ESB not progressing that option. We are comfortable with standardising and automating AEMO’s direction powers through the introduction of a day ahead market for Unit Commitment for Security (UCS). While we see some merit in voluntary day ahead ESS and Energy markets, these should be pursued only if they can be facilitated with minimal cost. From our perspective, improving the reliability of pre-dispatch is more critical than implementing day ahead mechanisms and will provide a more reliable commitment forecast. Improvement in the market forecasting process should be pursued regardless of other options being pursued as it will contribute to efficiency and decision-making accuracy within any market structure.

- (e) **Two-sided markets** – CleanCo supports the pursuit of two-sided markets over time and notes the significant role customers will need to play in terms of shifting demand from high-cost to lower-cost periods and helping meet system service requirements. We support the ESB’s proposed next stages of reform and note the importance of developing an appropriate consumer protection framework that facilitates opportunities for demand-side participation while protecting less-engaged consumers.

- (f) **Distributed Energy Resources** – ensuring DER become more responsive to market conditions is critically important for the sector. It is a complicated matter from an equity and fairness perspective but setting up opportunities (initially voluntary) with relatively low barriers to entry is important.

- (g) **Transmission Access Reform** – CleanCo supports the recent improvements in transmission planning through the Integrated System Plan and we are eager to help develop and implement workable REZ rules focused on providing clean, affordable, reliable energy to end users as an outcome. Improved planning and new structures that allow TNSPs and renewable energy participants to collaborate, share information and pool costs will support the ongoing efficient evolution of the energy sector.

¹ *Submission on System Services Rule Changes Consultation Paper*, CleanCo August 2020.
https://www.aemc.gov.au/sites/default/files/documents/rule_change_submission_-_cleanco_qld_-_20200813_-_erc0263_erc0290_erc0295_erc0296_erc0300_erc0306_erc0307.pdf

CleanCo opposes the AEMC's proposed access reforms (COGATI). Following consultation with our peers and stakeholders as well as consideration of the supporting analyses, we believe that COGATI could slow investment for as long as several years and increase hurdle rates for investments. This could both cost jobs in regional economies throughout the current recession, slowing our recovery, and lead to higher costs for consumers in the long run. CleanCo has concerns with the AEMC's cost benefit analysis and its findings (see **Attachment 2** for further comments on access COGATI).

We thank the ESB for the opportunity to make a submission on this process.

If you have any questions about our submission, please contact Rimu Nelson, Principal Advisor, Regulatory at rimu.nelson@cleancoqld.com.au or on 0455 080 871.

Yours sincerely



Maia Schweizer
Chief Executive Officer

Encs:

Attachment 1 : Detailed comments on essential system services

Attachment 2 : Detailed comments on Access Reform (COGATI)

Attachment 1 – Detailed comments on essential system services

General Points

CleanCo supports the development of a robust market framework that rewards generators and other participants for providing the services the energy sector requires at the lowest long run cost to consumers. We provided feedback on issues relating to system services in our recent submission to the AEMC on its system services rule changes discussion paper², which we appreciate the ESB incorporating into its consideration for this review. In general, we note:

- where practical, CleanCo prefers spot market solutions over centralised procurement or contracting on the basis that spot markets place investment risk on investors, while centralised procurement shifts this to consumers;
- we support the concept of a demand curve for determining volume and price and suggest this concept be developed in more detail. One potential challenge is how to reflect and optimise for shifting demand curves under different states of the energy sector (e.g. a demand curve may shift outwards during a shock to the market, or could shift inwards if the price of substitute or partial substitute goods reduce)³;
- efficient use of and investment in these services will require an appropriate operating standard or expectation. This standard would inform the demand curve (including max/min volumes). It is also the basis for investment – it is the signal that a service will be required and remunerated into the future. The ultimate market design, while important, is less critical; and
- liability to pay for these services (and the structure of those payments) is important. Buyers require a clear long-term liability to help facilitate secondary markets and investment. Causar-pays mechanisms are preferred where there are clear links between behaviour and costs.

Service	Comment
Operating reserves	<p>CleanCo supports an operating reserve market being developed.</p> <ul style="list-style-type: none"> • a spot-based approach, similar to the Infigen proposal⁴, appears simple and effective. It uses known market structures and could be optimised with other services. • options that add MW to the energy spot market are likely to come at higher cost than a stand-alone (but optimised) market. • there is room for interpretation in terms of who ‘causes’ the need for this service. Like with other contingency raise services, the service is (at least in some way) intended to cover the risk of unplanned generator outages, which would suggest-costs should shift to less reliable generators.

² Submission on System Services Rule Changes Consultation Paper, CleanCo August 2020. https://www.aemc.gov.au/sites/default/files/documents/rule_change_submission_-_cleanco_qld_-_20200813_-_erc0263_erc0290_erc0295_erc0296_erc0300_erc0306_erc0307.pdf

³ See “Summing up factors that change demand”, Figure 5, OpentextBC, accessed 13 October 2020 <https://opentextbc.ca/principlesofeconomics/chapter/3-2-shifts-in-demand-and-supply-for-goods-and-services/#:~:text=A%20change%20in%20the%20price,not%20shift%20the%20demand%20curve.>

⁴ Operating Reserves Rule Change Request, Infigen, March 2020. <https://www.aemc.gov.au/sites/default/files/2020-03/ERC0295%20Rule%20change%20request.pdf>

	<p>However, the market is being developed to benefit customers via an additional or surplus level of reliability. From this perspective, some form of pro-rata cost-sharing across retailers appears reasonable.</p> <ul style="list-style-type: none"> • unlike other contingency markets, operating reserve will have to be locational and specific to each region (or sub-region if considerable constraints arise).
Frequency Control	<p>We see the need for a range of improvements to frequency markets, in particular:</p> <ul style="list-style-type: none"> • developing a fast frequency contingency market, similar to the Infigen proposal (in conjunction with an inertia market below). We note the limitations of fast frequency response in comparison to inertia, but also its potential to provide far greater support in future⁵. Depending on the ESB’s approach to inertia, it may also be appropriate to include compensation for inertial response in the design of the fast frequency mechanism. • shifting to a real-time causer pays model for regulated FCAS. The existing causer pays model significantly dampens the relationship between a participant’s actions and its costs. • adopting an appropriate market/incentive structure for primary frequency response (a two-sided real-time causer pays model appears to have merit). • implementing a ‘pay for performance’ metric for regulation FCAS services, as is common in the USA, to improve the consistency of response across generators and to ensure consumers get what they pay for.
Inertia	<ul style="list-style-type: none"> • The need to reward generators for providing inertia is growing. Having an appropriate framework will both reduce the likelihood of early/uneconomic closure of ageing fleet and provide a basis for new investment. • Despite our usual preference for spot markets, we support using structured procurement for inertia at this stage. As the sector develops, and new technologies enter, shifting to a spot-type market may be possible/preferable, but this is uncertain at this stage.
System Strength	<ul style="list-style-type: none"> • CleanCo notes that the range of challenges with developing a market for system strength and supports ongoing procurement through TNSPs/developers and consideration of the TransGrid Rule change⁶.

⁵ <http://www.wattclarity.com.au/articles/2020/04/do-you-know-the-difference-between-virtual-inertia-and-fast-frequency-response/>

⁶ Rule change proposal on a new system strength framework for the NEM, Transgrid, April 2020
https://www.aemc.gov.au/sites/default/files/documents/erc0300_rule_change_request_pending.pdf

Attachment 2 – Detailed comments on Access Reform (COGATI)

General Comments

CleanCo recognises the significant effort the AEMC has made to address specific industry concerns with COGATI and appreciates the workshops, briefings and meetings the AEMC have offered through its pursuit of this work program. Nonetheless, CleanCo remains of the view that the access reform proposals will provide little benefit in terms of improving locational investment signals and will increase costs to consumers in the long run.

Our specific concerns are outlined below and can be summarised as:

- the model addresses old problems, not current or future ones. The sector has moved on, and locational decisions have improved because better information has become available. A coordinated and collaborative approach is what we need moving forward;
- NERA’s modelling lacks sensitivity testing and does not reflect the commercial business practices of investors; and
- investors expect the COGATI changes to cause an investment freeze for 4-5 years – meaning regional economies miss out on considerable jobs/investment at this critical time – and increase hurdle rates for capital investment in the long run.

In light of the above, we believe work on COGATI should cease immediately so that industry resources can focus on developing a detailed and workable REZ framework, evolving the system strength frameworks, continuing to improve and implement the ISP, and further developing new system services.

The industry has learned and is learning

COGATI addresses old problems, not current or future ones. At its heart, COGATI aims to rectify problems arising from investments that were planned and committed in the 2014-2017 period. At that time, there was little useful information on where renewables should be located and there was a ‘race’ to get projects built while there was strong value in the Large-scale Renewable Energy Target.

North Queensland is often invoked as an area of congestion requiring a COGATI-style model. However, north Queensland renewables investments were planned and committed at a time when:

- MLFs in north Queensland were strongly positive, which signalled to investors that new generation was required⁷;
- while TNSPs and AEMO may have had information on the pipeline of new projects, that information was not available to the investment community; and
- there was no detailed public information around network capacity in north Queensland or transmission constraints in central Queensland⁸, and system strength was largely unheard of.

⁷ MLFs in north Queensland were strongly positive in 2015-16. They reduced slightly in 2016-17 (still positive) as a result of the closure of northern Power Station drawing more generation south. They reduced more significantly in 2017-18 due to the closure of Hazelwood. It wasn’t until AEMO published its 2018-19 MLFs that there was any discussion of new generation in North Queensland having an impact on MLFs. AEMO, *Regions and Marginal Loss Factors*, various years <https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/market-operations/loss-factors-and-regional-boundaries>

⁸ No information on capacity for new generation was provided in the 2015 TAPR and the information in the 2016 TAPR appeared indifferent between northern and south-western QLD (see figure 7.2 on p134 and constraint charts on p86-88). Powerlink, *Transmission Annual Planning Report*, 2016 - <https://www.powerlink.com.au/sites/default/files/2017-12/Transmission%20Annual%20Planning%20Full%20Report%202016.pdf>

In this context, and given the strong solar resource in north Queensland, investors reasonably looked at this region as an attractive investment location. Had it been in place, the COGATI framework would not have improved these investment decisions.

A similar phenomenon played out in north west Victoria at the time. In the June 2016 Victorian Annual Planning Report, AEMO noted that there was strong renewable interest (1500MW) in the north west, and then noted it would⁹ make upgrades in November 2016 to facilitate renewable exports from the north west. It also proposed to initiate a RIT-T later that year to strengthen the area. AEMO noted that “greater certainty around future connections improves the likelihood that major augmentation will be justified”. Some investors interpreted this as encouragement to commit to connections for the RIT-T to be successful. This RIT-T was progressed, but so far has not led to Transmission upgrades.

All participants in the energy transition have been learning together. In order to make informed decisions, developers and the broader industry require access to reliable information at the time they are making investment decisions.

Since that time, the industry (investors, developers, TNSPs, AEMO) have matured their understanding of the capability of the grid and the relative strengths and weaknesses of different areas. This information is now a critical input in terms of deciding where to locate new renewables. For instance:

- the transparency of new projects rule change means potential new entrants can better understand the pipeline of projects in any given area;
- system strength and network constraints are better understood, defined and published;
- MLF modelling has improved and is based on better data;
- AEMO now has interactive maps with various information overlays (though the generation information requires updating)¹⁰;
- TNSPs are providing more information on network capacity, such as Powerlink’s Generation Capacity Guide¹¹; and
- the Integrated System Plan has started to provide a longer-term vision for transmission upgrades and potential REZ.

Having access to this information is working. If we compare Powerlink’s 2018 and 2020 Generation Capacity Guides, capacity is locating in the strongest and most underutilised parts of the network. Powerlink noted that more than 1,300MW of new inverter-based generation was committed in Queensland in the year to August 2020, almost all of which was in southern Queensland.

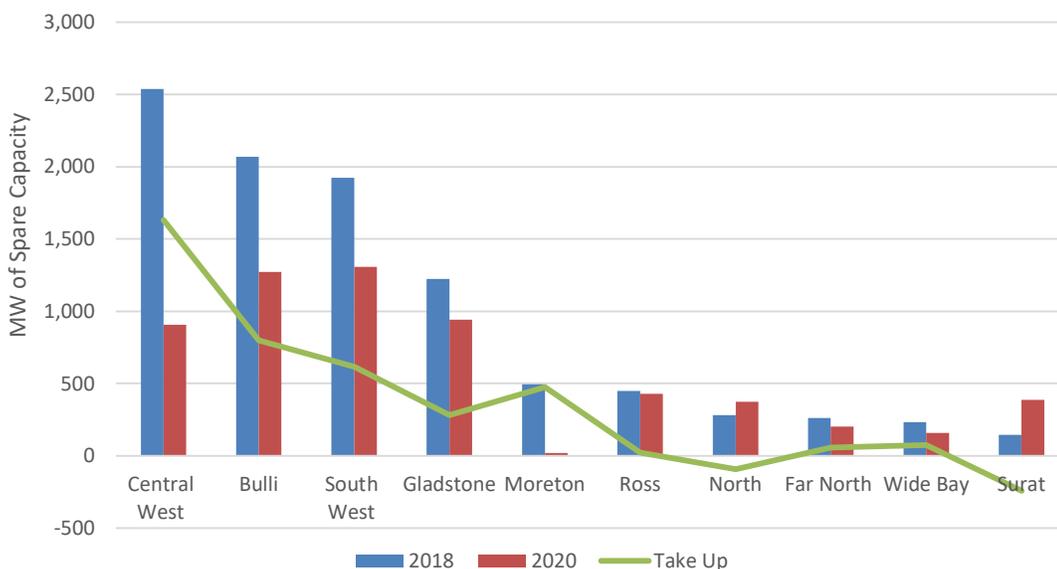
⁹ AEMO, Victorian Annual Planning Report, 2016 pages 1 and 2

<https://aemo.com.au/-/media/files/pdf/2016-victorian-annual-planning-report-vapr.pdf>

¹⁰ AEMO, *AEMO Map*, 2020, <https://www.aemo.com.au/aemo/apps/visualisations/map.html>

¹¹ Powerlink, *Generation Capacity Guide*, August 2020 <https://www.powerlink.com.au/sites/default/files/2020-08/Generation%20Capacity%20Guide%20-%20August%202020%20Update.pdf>

Take-up of QLD Transmission Capacity



Source - Powerlink 2018 and 2020 Generation Capacity Guides

We will continue to have greater insight into appropriate investment locations as the ISP and REZ frameworks are developed and expanded. Many decisions around investment locations will be driven by AEMO and the TNSPs, but consumers, generators and investors will also play their part.

Developers and investors have shown that they make appropriate investment decisions when useful, reliable information is available. Rather than pursuing COGATI, CleanCo considers it would be more productive to focus on actions that continue to improve and clarify the industry's knowledge of the network, the relative strength of different areas and the future pipeline of generation and transmission investment.

NERA Modelling

CleanCo supports cost-benefit analyses being undertaken for all major policy reforms and appreciates the AEMC engaging NERA to work on the COGATI reforms. However, we are concerned that the modelling undertaken by NERA does not reflect the significant learnings and clear improvements in the market in recent years, did not consider a range of scenarios reflecting our highly dynamic market, and did not allow for investors to continue to learn.

As outlined above, investors are making improved locational decisions by weighing factors including the relative quality and value of wind/solar resources, land and connection costs, availability of transmission capacity and likelihood of transmission upgrades, system strength information and constraints, and MLFs and their likelihood of changing. The baseline "no-reform" case modelled seems not to reflect these significant learnings and shows apparently poor decisions being taken, whereas the "reform" case shows perfectly efficient decisions being taken. Our view is that the locational signals from COGATI are simply the incremental increased locational signals from LMP above those investors already account for (see list above), less the ability to hedge locational signals with FTRs.

The modelling methodology increases the ‘subsidy’ to investors behind constraints in the no-reform case, meaning that ever more capacity is built behind constraints¹². This does not reflect an investor’s commercial decision-making process; those same investors would achieve significantly higher revenue if they built in a non-constrained area (achieving the same price and dispatching considerably more energy). This feature may account for the significant benefits gap between this modelling and other similar studies¹³

¹⁴ ¹⁵

Finally, we consider that the single scenario NERA ran is insufficient relative to the scale of the proposed changes and the estimated \$6 to 8 billion of benefits. AEMO considers a wide range of scenarios and options in preparing the ISP, as does a TNSP for a network upgrade of similar value. In our highly dynamic market, we are curious about the impacts of different demand levels, generation build profiles, transmission build profiles, closure profiles, technology costs, losses, hurdle rates, and other variables on the outcomes of COGATI. We note Baringa Partners’ recent analysis that found negative benefits (negative \$337 million per annum) from COGATI if NERA’s modelling is adjusted to incorporate higher hurdle rates and more realistic locational decisions¹⁶.

Investment freeze, higher hurdle rates, fewer jobs

Our peers and partners tell us that COGATI may cause them to pause investment until there is greater clarity over the likely outcomes and until they can value FTRs with more accuracy, potentially for a period of up to 5 years. They also suggest that, in the longer term, COGATI will lead to an increase in their WACC, in line with the AEMC’s February 2020 investor survey which found that COGATI-style reforms would lead to a 150-200 basis point increase in WACC¹⁷.

The ISP central scenario suggests the NEM needs to attract 12.2GW of large-scale renewable and firming investment to 2030. This is at risk from even a year or two’s slow-down, and higher hurdle rates will ultimately show up as cost to consumers (15-20%, based on Rai and Nelson’s work).

Now more than ever, given the precarious state of the economy, care should be taken to sustain momentum and retain skilled employees in the sector. A slowdown risks billions of dollars of investment, and alongside it, regional development and jobs.

For these reasons, we believe work on COGATI should cease, allowing industry resources to focus on developing a detailed and workable REZ framework, evolving the system strength frameworks, continuing to improve and implement the ISP, and further developing new system services.

If work continues, the AEMC should undertake further modelling to account for the issues raised above, including scenario testing, commercial decision-making, and the potential delays and hurdles to investment due to uncertainty.

¹² CleanCo requested data from AEMC to investigate this further but the AEMC was unwilling to provide the information. Given the no-reform scenario led to a 20GW overbuild of solar, it is relatively safe to presume that capacity factors were deteriorating over time and that the model continued to place more solar in constrained regions.

¹³ <https://www.aemc.gov.au/sites/default/files/content/271255f4-4323-4931-934d-50566be6be5b/ROAM-Consulting-Modelling-Transmission-Frameworks-Review.PDF>

¹⁴ <https://www.aemc.gov.au/sites/default/files/content/a854548f-c86f-4d5c-848d-ce1311f8177f/EY-Modelling-the-impact-of-OFA-in-the-NEM.PDF>

¹⁵ https://www.aemc.gov.au/sites/default/files/documents/nera_benchmarking_consultant_report_-_aemc_transmission_access_reform_-_march_update.pdf

¹⁶ Baringa Partners, *An independent assessment of the NERA report on the AEMC’s proposed transmission access reforms*, October 2020

¹⁷ RAI AND NELSON, *FINANCING COSTS AND BARRIERS TO ENTRY IN AUSTRALIA’S ELECTRICITY MARKET*, SEPTEMBER 2020

HTTPS://PAPERS.SSRN.COM/SOL3/PAPERS.CFM?ABSTRACT_ID=3692295