

19 September 2024

James King  
Project Leader  
Australian Energy Market Commission  
Lodged online via the [Commission's website](#)

Dear Mr King,

**Response to the AEMC's consultation paper on Improving the cost recovery arrangements for non-network options**

The Clean Energy Investor Group (CEIG) welcomes the opportunity to provide feedback on the Australian Energy Market Commission's (AEMC) consultation paper on the Improving the cost recovery arrange for non-network options (NNOs) published in August 2024.

CEIG represents domestic and global renewable energy developers and investors, with more than 16GW of installed renewable energy capacity across more than 76 power stations and a combined portfolio value of around \$38 billion. CEIG members' project pipeline is estimated to be more than 46GW across Australia. CEIG strongly advocates for an efficient transition to a clean energy future on behalf of the investors who will provide the low-cost capital required for this transition.

**Key Points**

- CEIG agrees that **there is a need to improve cost recovery certainty and timing for NNOs and supports the identified solutions.**
- **CEIG supports the rule change in principle, however we caution against relying solely on synchronous condensers over grid-forming inverters** for system security services.
- CEIG is concerned that **Transgrid's preference for synchronous condensers over grid-forming inverters, based on Baringa's assumption that inverters will not be viable until 2033, may be influenced by a misinterpretation of Aurecon's high-level qualitative assessment.**

- CEIG fears that the **RIT-T might lead to a preference for synchronous condensers, despite BESSs and other grid-forming technologies offering equivalent support and greater cost benefits.**
- CEIG emphasises the **importance of supporting inverter-based resources like BESSs to improve grid flexibility and stability and encourages TNSPs and market bodies to explore the use of grid-forming inverters for optimising grid performance rather than defaulting to synchronous condensers.**
- CEIG believes this proposed rule change for improving the cost recovery arrangements for NNOs **could be a crucial step toward more cost-effective deployment of BESSs other grid-forming technologies for system strength.**

### GENERAL COMMENTS

CEIG understands that Transgrid has submitted a rule change request to amend the cost recovery for non-network transmission options, noting that current regulatory barriers restrict the delivery of NNOs. This includes technologies, such as batteries and synchronous condensers, that can meet network needs and serve as alternatives to traditional 'poles and wires' solutions.

CEIG agrees that there is a need to improve cost recovery certainty and timing for NNOs, and supports the identified solutions, namely:

- Initial cost recovery: introduce a pre-approval process where transmission network service providers (TNSPs) can seek Australian Energy Regulator (AER) approval for NNO expenditures before entering agreements.
- Ongoing cost recovery: TNSPs can seek AER approval for a methodology to adjust NNO payments over time.
- Cost recovery timing: Updating the network support payment allowance at the time the AER approves NNO project expenditures.

CEIG recognises that since the grid connection rule changes came into effect on 15 March 2023, TNSPs are now responsible for centrally procuring services to meet projected requirements through the regulated network planning and investment process<sup>1</sup>. The costs of these services are shared between both inverter-based resources and consumers.

Following this rule change, Transgrid conducted a review of technology options to provide system services that support the transition away from coal and gas<sup>2</sup>. Transgrid invited technology providers to submit solutions for system strength and received over 100 submissions, with approximately 40 of them focused on network options and 60 on non-network options. The submissions included storage technologies like grid-forming battery storage, pumped hydro, and compressed air, as well as synchronous condensers from existing hydro, coal, or gas generators to address gaps where necessary.

<sup>1</sup> AEMC (Oct-21) [Final Determination: National Electricity Amendment \(Efficient Management of System Strength on the Power System\) Rule 2021](#)

<sup>2</sup> Transgrid (Jun-24) [Meeting system strength requirements in NSW](#)

Therefore, CEIG supports this rule change in principle, and sees the potential it has to create a new revenue stream for battery energy storage systems (BESS). However, we caution against relying exclusively on synchronous condensers rather than grid-forming inverters to meet system strength requirements. The short-term deployment of non-network solutions, including BESSs, is an economically viable alternative to network solutions that are not required on an ongoing basis.

### **Concerns regarding the interpretation of grid-forming inverter viability**

CEIG is aware that in Transgrid's report, *Meeting system strength requirements in NSW*, Transgrid favours synchronous condensers instead of grid-forming inverters to meet projected requirements<sup>3</sup>.

A report from Baringa indicates that NSW will need 14 synchronous condensers by 2032/2033, based on the assumption that grid-forming inverters will not be viable to meet requirements until 2033<sup>4</sup>. As a result, synchronous condensers have been selected by Transgrid as the technology to support system strength requirements in NSW.

This assumption appears to originate from a qualitative assessment in Aurecon's report, *Advice on the maturity of grid forming inverter solutions for system strength*<sup>5</sup>. It appears that Baringa has interpreted this assessment as a hard constraint in their modelling, thereby justifying the need for synchronous condensers.

CEIG is concerned by the apparent disconnect between Aurecon's high-level qualitative report and how Baringa has interpreted and applied the 2033 assumption regarding grid-forming inverters in informing Transgrid's decision to use synchronous condensers instead of grid-forming inverters.

CEIG understands that Transgrid is developing a portfolio of system strength solutions to fulfill its regulatory obligations, with the benefits assessed through the Regulatory Investment Test for Transmission (RIT-T). Consequently, CEIG is concerned that the RIT-T may lead Transgrid to select synchronous condensers as the preferred option to address the identified system needs, despite the fact that BESSs and other grid-forming technologies could provide equivalent support and additional system benefits at a lower cost to consumers.

### **Support needed for grid-forming technologies**

As Australia transitions to clean energy, redefining system strength is crucial. The Government must embrace forward-looking strategies to support inverter-based resources such as BESSs, which improve grid flexibility and stability, rather than relying solely on traditional solutions like synchronous condensers.

BESSs can be quickly redirected to various grid services, such as fast frequency

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<sup>3</sup> Transgrid (n.d.) [Meeting system strength requirements in NSW](#)

<sup>4</sup> Baringa (Jun-24) [Meeting system strength requirements in NSW](#)

<sup>5</sup> Aurecon (Mar-24) [Advice on the maturity of grid forming inverter solutions for system strength](#)

response, system protection, or for storing excess energy. This flexibility allows batteries to address short-term system strength needs and be re-tasked for other market functions, unlike synchronous condensers or gas generators, which cannot be easily reallocated once deployed.

A report commissioned by the Australian Renewable Energy Agency (ARENA) found that grid-forming batteries can increase system strength and support the operation of inverter-connected renewables in a manner similar to synchronous condensers<sup>6</sup>. In the scenario studied in the report, a grid-forming battery solution was found to be effective in alleviating transient stability constraints. If a synchronous condenser had been used instead, transient stability would have become the major limitation, restricting the operational flexibility of nearly all renewable generators. The report concludes that deploying grid-forming batteries, along with other technologies and techniques, will be essential for managing the transition to renewables.

To fully capitalise on the benefits of emerging digital renewable energy technologies, which will increasingly make up a larger portion of the energy system, CEIG encourages TNSPs and market bodies to explore the use of grid-forming inverters such as BESSs for optimising grid performance rather than defaulting to synchronous condensers<sup>7</sup>. This proposed rule change for improving the cost recovery arrangements for NNOs could be a crucial step toward more cost-effective deployment of BESSs and other grid-supporting inverters for system strength.

CEIG thanks the AEMC for the opportunity to provide feedback on its proposed rule change and looks forward to continued engagement on those issues. Our Head of Policy and Advocacy can be contacted at [marilyne.crestias@ceig.org.au](mailto:marilyne.crestias@ceig.org.au) if you would like to further discuss any elements of this submission.

Yours sincerely,



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<sup>6</sup> Powerlink (Apr-21) [PSCAD assessment of the effectiveness of grid forming batteries](#)

<sup>7</sup> CEIG (Jun-21) [Response to draft Determination on Efficient management of system strength on the power system](#)