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31 August 2023

Hon. Chris Bowen MP  
Minister for Climate Change and Energy  
Commonwealth Government  
Lodged online at: [DCCEEW Consultation hub](#)

Dear Minister,

**Response to Commonwealth Government's consultation paper on Capacity Investment Scheme**

The Clean Energy Investor Group (CEIG) welcomes the opportunity to provide feedback on the Commonwealth Government's consultation paper on the Capacity Investment Scheme (CIS) published in August 2023.

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 system from the perspective of the stakeholders who will provide the low-cost capital needed to achieve it.

**Key Points**

- **CEIG supports the establishment of a national CIS scheme for 6GW of clean dispatchable capacity by 2030** and calls for a clear schedule for future auctions (timing and MWs).
- **CEIG supports CIS costs to be carried through the government's budget rather than passed through to consumers.**
- **CEIG supports the design of the payment mechanism**, including sharing upside revenue below the floor and above the ceiling, and maintaining incentives for projects to sign PPAs.
- **CEIG supports the CIS approach of moving beyond the provision of 'insurance revenue only' seen in the NSW generation LTESA contracts.**

- In recognition that equity investors are currently carrying temporarily elevated transition risks, **guidance on the CIS payment floor and ceiling parameters should be set at levels above that 'insurance revenue', at least for the next 3-5 years.**
- Those risks include: delays in transmission and REZ deployment; increasing congestion and curtailment; rising cost of materials and debt finance; slow planning, environmental and connection processes; social licence issues; lack of bankable PPAs; lack of incentives to bring investment ahead of coal closures.
- **CEIG supports expressing the reliability target in a technology agnostic way** (e.g. in terms of capacity (MW), medium storage (4 hour) equivalents). **The derating methodology that enables that conversion needs to be robust and ensure 'fair competition' across all technology types, not just BESS,** and CEIG would like to be consulted on the proposed derating and modelling methodologies used for setting the reliability target and for individual project assessments.
- If the government chooses to set a minimum storage duration, **CEIG recommends using a minimum 2-hour duration (rather than 4-hour).**
  - Use 2-hour minimum in the upcoming VIC/SA auction and flag 4-hour minimum for future auction(s) so the market can prepare the pipeline.
- **CEIG seeks further clarity behind the government's rationale for preferencing longer over shorter duration storage:**
- **CEIG supports in-principle the eligibility criteria outlined in the paper.**
- **CEIG supports the proposed two-stage merit assessment process:**
  - Stage A: assessment against technical, commercial and social licence merit;
  - Stage B: if shortlisted, assessment against contribution to system reliability and lower prices for consumers.
  - **CEIG's preference is also for all projects to be eligible for CIS support and assessed equally, regardless of location within a REZ or not.**
  - Incentives for hybrid projects could support meeting the government's renewable energy target whilst supporting reliability.
- **CEIG supports in-principle the proposed commercial structure** (notwithstanding that final contractual terms are yet to be released) including the proposed performance requirements to make the project available and to bid a minimum of 50% of the project capacity in a LOR3 event. CEIG makes suggestions on how to mitigate some of the risks associated with those clauses.
- **CEIG notes that AEMO's latest rule change proposal on *Mandatory primary frequency response obligations* is likely to be counter-productive and increase CIS costs.**

**General comments**

CEIG supports the establishment of a national CIS and its goals of unlocking around \$10B of new investment and adding 6GW of clean dispatchable capacity by 2030 to support grid reliability and security.

CEIG also supports the conduct of the CIS tender already underway in NSW, the upcoming joint tender in SA and VIC and a future schedule of national tenders. Whilst CEIG understands the need to keep the budget amount confidential, clarity around the quantum (MW) and timing of future auctions would give clarity to the market.

**Design of payment mechanism**

CEIG supports:

- the decision to carry the cost of CIS tenders through the government's budget rather than passing it through to electricity consumers;
- the overall design of the payment mechanism, including sharing upside revenue below the floor and above the ceiling; this will provide incentives for the plant to operate in ways that maximise benefits for the government and the plant operator;
- maintaining incentives for projects to sign Power Purchase Agreements (PPAs) as this will support the continued efficient operation of the contract market;
- CIS underwriting operating for the term of the agreement (as opposed to a strip of options under the NSW generation LTESAs) which will provide greater revenue certainty for investors.

**Need to set guidance on payment floor and ceiling parameters at levels that recognise the temporarily elevated risk settings for equity investors**

CEIG notes that the government intends to provide guidance for the payment floor and ceiling parameters in its tender guidelines.

In doing so, the guidance should be set at levels that recognise the temporarily elevated risk settings for equity investors in the early stages of the energy transition. The guidance should consider that until those risks abate, projects will need a proportionate incentive to absorb those risks and come forward early.

CEIG supports the CIS approach of moving beyond the provision of 'insurance revenue' seen in the NSW generation LTESA contracts and the CIS guidance should set the levels of revenue support above that 'insurance revenue', at least for the next 3-5 years.

Once those risks are mitigated (e.g. Renewable Energy Zone (REZ) and transmission delivery well underway), the government can adjust its tender evaluation process and CIS pricing accordingly.

Risks in the National Electricity Market (NEM) are at temporarily more elevated levels because of:

- Delays in the deployment of transmission investment, with no clear and defined timetables for when transmission network upgrades will be completed. This

exacerbates existing congestion and curtailment risks for investors;

- Delays in REZ buildout: in NSW, the Central-West Orana REZ has now been delayed by 2 years. Even if it will ultimately be hosting more capacity than originally expected, investors carry the uncertainty and lower revenues in the meantime. REZ development is at various stages in the NEM, with slow REZ design and development in many States.
- Complex, slow and expensive connection processes: whilst some reforms are underway, they have not yet demonstrated material reductions in connection times.
- Social licence issues for transmission and generation buildout: this is causing delays in investment.
- Rising cost of materials and debt finance and weakening foreign exchange rates: this is due to the Russian war in Ukraine, supply chain pressures, intensifying activity in the EU and USA, increased interest rates.
- Growing curtailment in the NEM as transmission investment is delayed. Whilst this issue is not material yet for most plants, some plants operate under significant curtailment conditions.
- Slow and cumbersome planning processes: some jurisdictions are seeing long planning approval timelines; processes can be nebulous and time-consuming with unclear processing deadlines.
- Lack of clarity around environmental planning processes: the work around Regional planning processes and early government guidance (for where renewables developments would be best to locate) is not yet completed.
- Lack of clarity around the Renewable Energy Target (RET) post 2030: whilst the Commonwealth Government has consulted on its proposed Guarantee of Origin scheme, the legislation is yet to be introduced into Parliament.
- Lack of bankable PPAs to underpin new solar and wind development: currently, very few retailers, corporations or governments are writing PPAs at a price sufficient to underwrite debt and equity finance for projects (e.g. none of major retailers have written wind or solar PPAs for 5 years). As the costs of clean energy projects are all front-loaded (capital expenditure), this lack of revenue certainty creates additional risks.
- As current market signals do not fully incorporate a carbon constraint, investors require sufficient financial support to accelerate the pace of deployment ahead of coal closure deadlines.

- The generation LTESA contracts are designed to offer insurance. Whilst this payment mechanism appears to provide sufficient certainty for banks, in the context of elevated risks, they do not deliver a sufficient return for equity investors to carry those elevated energy transition risks.

## **Principles for CIS contribution to reliability target**

### Reliability target and derating methodology

CEIG notes the proposed methodology to forecast the reliability capacity required in each year, in total and for each jurisdiction.

CEIG supports expressing the reliability target in a comparable way (for example in terms of capacity (MW), medium storage (4 hour) equivalents as discussed in the paper). This will ensure that the target is expressed in a technology agnostic way and this methodology will then also enable easier comparisons of the 'duration of storage per dollar spent' for each project.

CEIG notes however that the derating methodology that enables that conversion needs to be robust and ensure 'fair competition' across all technology types, not just BESS.

CEIG notes its concerns around derating methodologies:

- AEMO's methodology for the Integrated System Plan (ISP) and the electricity Statement of Opportunities (ESOO) expects to see significant derating of storage capacity.
  - This methodology is expected to deliver arbitrary reductions of capacity for storage assets (50 % for batteries of less than 2-hour duration, 25 % for 2 to 4-hour duration, and 10 % for 4-hour and greater duration<sup>1</sup>).
  - Whilst this may be appropriate to model grid reliability and for grid planning, it is not appropriate for determining the required storage capacity to be delivered through the CIS;
  - Non-renewable capacity also does not have "perfect foresight", and yet AEMO's proposed methodology does not apply to those plants.
- the derating factor may be based on a too small sample of unserved energy events.
  - The paper notes that:  
*"The derating factors will be based on an assessment of the contribution of each technology to demand during low probability (1 in 10 year) unserved energy events."*
  - There is a risk that derating factors end up being decided based on a very small period sample (given that unserved energy events are rare), which could add statistical noise to the results. This could then impact how generators are treated, depending on how their generation levels happened to be during a very small number of events (many of which are determined by random outages of larger thermal generators).

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<sup>1</sup> [https://aemo.com.au/-/media/files/stakeholder\\_consultation/consultations/nem-consultations/2023/isp-methodology-2023/consultation-summary-report---update-to-the-isp-methodology.pdf?la=en](https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/isp-methodology-2023/consultation-summary-report---update-to-the-isp-methodology.pdf?la=en), page 39

- To reduce the statistical noise, consideration could be given to increasing the number of unserved energy events in the simulation. This could be done by basing the reliability factors on a greater amount of critical supply-balance periods (e.g. through a simulation that uses higher forecast demand such as a 1 in 20-year demand).

For the purpose of individual project assessments, CEIG supports the proposed approach of modelling shortlisted project impacts to assess their reliability contribution, that is “*consider the impact of location and network constraints.*” Transparency on how this will be assessed (e.g. how projects can score highest during this process) is critical if it is to effectively direct investment.

CEIG would like to be consulted on the proposed derating and modelling methodologies used for setting the reliability target and for individual project assessments.

#### Setting a minimum storage duration

CEIG understands that the government is considering setting a minimum storage duration for a project to be eligible to participate in a CIS tender.

If the government chooses to set a minimum storage duration, CEIG recommends using a 2-hour duration as a minimum (rather than 4-hour):

- It would increase competition and broaden out the pool of projects eligible to participate in the CIS tenders (many BESS projects in the pipeline are 2-hour duration);
- It would lower the cost of the CIS scheme by delivering lower floor price bids and less likely operation below the floor;
- Because bids will be assessed using a comparable reliability measurement, longer duration storage projects will still be encouraged to participate; and

#### Setting a minimum storage duration – VIC/SA vs. future auctions

Considering the tight timelines ahead of the upcoming VIC/SA auction, CEIG recommends setting 2-hour duration as a minimum in that auction to maximise the pool of eligible projects that can participate (especially since there is already a geographical limit to which projects can participate).

The government can then flag future auctions that would have 4-hour duration as a minimum, so that the market can prepare and build a pipeline of longer-duration projects.

#### Seeking clarity behind rationale for preferencing longer over shorter duration storage

CEIG seeks further clarity behind the government’s rationale for preferencing longer over shorter duration storage.

The paper states that:

*“An effective tender evaluation should transparently attribute greater value to longer duration technologies that better contribute to reliability”*

but also acknowledges that

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*“(...) a 4 hour, 100MW hour battery energy storage system (BESS) has less operating flexibility compared to a 1 hour, 400MW BESS.”*

CEIG notes the following aspects to be considered in assessing the performance of 2-hour against 4-hour storage assets:

- operational flexibility trade-offs
  - a 4-hour battery takes longer to charge (at least 4 hours) compared to shorter duration;
  - however, longer duration systems might have ample opportunity to fully charge at low cost. This could be exacerbated in future (e.g. if the solar duck curve becomes more extreme).
  
- capital cost trade offs:
  - longer duration storage assets have been impacted by increases in capital expenditure costs since they require more battery modules (whereas inverter costs have been easing with supply chain bottlenecks decreasing);
  - however, once factoring in operational costs, requiring two 2-hour systems may overall be more expensive than one 4-hour system.
  
- operational conditions used to compare the 2-hour and 4-hour systems
  - under idealised, hypothetical situations, where batteries operate with perfect foresight and identical portfolio strategies and VRE droughts/ system outages never last longer than 2 hours, it is not clear that one 4-hour battery is more effective at maintaining reliability than two 2-hour batteries.
  - however, the following sources of error must also be considered (human error; forecast error; algorithmic error; diversity in portfolio strategies and bidding behaviour; extreme event duration). 2-hour systems may be more prone to these sources of error, and thus their ability to maintain reliability relative to an equivalent 4-hour system may be reduced.

CEIG would be pleased to discuss those issues further with the government.

#### Support CIS specific modelling for increased ambition

CEIG notes that the government intends to ask AEMO to model CIS specific scenarios:

*“As the reliability targets are updated over time, the Commonwealth will request that AEMO undertake separate ISP style modelling for a CIS specific scenario which identifies economically efficient trajectories to achieving national targets for renewable energy and emissions reductions and adopts modelled rather than announced dates for coal and gas retirements.”*

CEIG encourages the government to use this approach to design CIS specific scenarios that test increased decarbonisation ambition in the NEM.

#### **Eligibility criteria**

CEIG supports in-principle the eligibility criteria outlined in the paper (pages 15 to 18).

CEIG is particularly pleased that eligibility has been extended to:

- VRE that generates dispatchable electricity (rather than only storage projects); and
- projects that achieve financial close from 8 December 2022 onwards. CEIG agrees with the focus on speed of delivery and keeping the market liquid and flowing (rather than a focus on project additionality).

#### Question of clarification

CEIG wishes to clarify the roles of AEMO and AEMO Services in running tenders and recommending successful projects to the government.

The paper states that:

*“As part of this governance and decision-making framework, it is currently expected that:*

- *(...)*
- *AEMO will run competitive tenders in partnership with its subsidiary, AEMO Services, (...)*
- *AEMO will recommend projects for underwriting by the Commonwealth based on the tenders (...).”*

#### **Merit assessment process**

CEIG supports the proposed two-stage merit assessment process where:

- projects are first assessed in Stage A against their technical, commercial and social licence merit;
- if shortlisted, projects are assessed in Stage B against their contribution to system reliability and lower prices for consumers.

#### Opportunity to reward the reliability benefits provided by hybrid projects

CEIG notes that the CIS does not appear to provide incentives for hybrid projects (e.g. to pair a battery with renewable supply vs. standalone battery). Given the current level of concern of failing to meet 2030 emission and renewable energy targets, projects could be assessed more favourably when pairing a battery with clean supply, and the wind or solar components of hybrid projects should be rewarded for any reliability benefits that they provide.

The CIS could achieve this by incorporating the renewable generation component of hybrid projects when assessing their reliability contribution (including through appropriate storage derating factors that incorporate the associated renewable energy component of the project). Unserved energy events between 2026-2030 are likely to occur on hot summer afternoons or during cold, cloudy winter days. Although those are likely to occur when wind & solar resource is low, there are often geographically distinct wind and solar farms that are producing when most are not (e.g. QLD wind is often generating when wind in the southern states is poor, or a tracking solar farm in far western NSW, VIC or SA might produce power later in the afternoon than other projects).



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**Preference for all projects to be eligible for CIS support and assessed equally, regardless of location within a REZ or not**

The paper notes that:

*“State-based policies on social licence may be taken into consideration during merit assessment of a project’s social licence. This could include, for example, policies preferring or requiring projects to locate within a State-declared REZ.”*

CEIG recognises that many jurisdictions are actively coordinating the location of renewable energy developments, primarily through REZ policies.

Nevertheless, CEIG’s preference is for all projects to be eligible for CIS support and assessed equally, regardless of location within a REZ or not:

- all projects (in a REZ or outside) can contribute to system reliability and demonstrate good social licence outcomes (defined broadly, i.e. encompassing engagement with local communities, local content procurement, local employment, etc.);
- there are also often good reasons to locate storage next to demand, or in other non-REZ regions with high congestion or low system strength; and
- batteries tend to have fewer issues with social licence than large scale wind & solar projects.

Enabling broad participation (i.e. not limiting the CIS scheme or favouring projects in REZs) will have the added benefits of:

- lower prices for the government by providing a more competitive process and a broader pool of projects to choose from;
- making the most of all available locations across the NEM (with the developer responsible for resource availability, gaining social licence, etc.);
- support sustained development of clean energy assets while REZ buildout is delayed; and
- provides a level playing field for projects that have been advancing in sensible grid locations in the absence of clear direction on REZs until recently.

The government has noted that it could amend tender guidelines as required. The specific social licence requirements (defined in the broad sense) for each State could be incorporated into the tender guidelines for that State (rather than seeking to harmonise those requirements). States are all tending towards slightly different REZ frameworks and industry will learn to address each framework. It is not clear that the Commonwealth needs to harmonise those frameworks for the purpose of CIS tenders.

CEIG’s preference is for projects to be assessed based on their merit against social licence requirements (defined broadly), regardless of REZ location or not.

**CIS commercial structure**

CEIG supports in-principle:

- the proposed commercial structure outlined in the paper, notwithstanding that final contractual terms are yet to be released and that CEIG Member companies may have

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specific feedback based on their individual review of commercial terms and their own business model;

- the proposed performance requirement to make the project available (noting that a specific % availability is not discussed in the paper but that 97% has been discussed at a public webinar):
  - the contract should be flexible to account for plants that need to deviate from the 97% guarantee requirement;
  - the time period for measurement is an important consideration: meeting a requirement over a year is achievable, but more difficult to meet over shorter periods (e.g. monthly, where there may be planned maintenance outages).
- the proposed performance requirement to bid a minimum of 50% of the project capacity in an LOR3 event
  - the contract should be flexible to account for:
    - long-duration storage facilities need more time to charge. If not given sufficient warning prior to a LOR3 event, they have less opportunity to charge compared to a short-duration facility. They should not be unduly penalised under the LOR3 performance criteria if they were not given sufficient time to charge.
    - by quickly charging to meet its contractual obligations immediately prior to a LOR3 event, a battery could cause a LOR2 event to tip into a LOR3 event. There should be exemptions for storage facilities who don't perform during LOR3 events if the reason for lack of performance was a genuine effort to not make the LOR3 event even worse by charging immediately prior to it.
  - CEIG supports AEMO directions overriding CIS contractual requirements; the CIS penalty regime for breaching LOR3 requirements should reflect this.
- the ability to submit two financial value bids for the same project (e.g. where an alternative bid could adjust the contract tenor). CEIG agrees that this would provide flexibility and encourage commercial innovation.

#### Question of clarification

The government intends to underwrite a project's net revenue by accounting for revenue from 'eligible wholesale contracts'.

It would be useful for government to clarify the definition of 'eligible wholesale contracts' and how the requirement to attribute a contract to a project would work in practice to determine the project's net revenue. Also, considering it is highly likely that CIS support may be provided before other contracts are negotiated, government could clarify how it would assess the likelihood of one party contracting over another in the future.

#### **AEMO's rule change proposal is likely to be counterproductive and increase costs (Clarifying mandatory primary frequency response obligations for bi-directional plant - ERC0364)**

CEIG notes that AEMO's rule change proposal seeking to clarify arrangements for the

long-term provision of primary frequency response is likely to be counter-productive and increase costs for batteries, which will in turn increase the level of support required through the CIS.

The AEMC also agrees that the rule change proposal is likely to increase costs for storage operators:

*“The Commission recognises that these proposed changes go beyond the existing obligation for scheduled and semi-scheduled generators to provide PFR when generating and are likely to impose material costs for batteries operating in the NEM.”*

CEIG thanks the Commonwealth Government for the opportunity to provide feedback on its proposed CIS and looks forward to continued engagement on those issues. Our Policy Director 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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