Friday, 13 February 2026

Attention: Nicola Falcon
Executive General Manager System Design
Australian Energy Market Operator
GPO Box 2008
MELBOURNE VIC 3001
Submitted electronically: ISP@aemo.com.au

CEC submission on AEMO's Draft 2026 Integrated System Plan

The Clean Energy Council (CEC) is the peak body for the clean energy industry in Australia, representing nearly 1,000 leading businesses across renewable energy, energy storage, and renewable hydrogen. We are committed to accelerating Australia's transition to a clean energy future as rapidly as possible while maintaining a secure and reliable electricity supply for customers.

The CEC welcomes the opportunity to provide feedback to the Australian Energy Market Operator (AEMO) about the draft 2026 Integrated System Plan (ISP). This submission reflects feedback received from our members, as well as independent analysis.

Australia's renewable energy transition will be delivered through a deliberate mix of utility-scale generation and distributed energy resources, with each playing a complementary role. Large-scale renewables and transmission investment remain essential to decarbonise the grid at scale and deliver long-term system security, while distributed energy (rooftop solar and household batteries) has already been doing much of the early, heavy lifting in reducing emissions and moderating costs. The draft 2026 AEMO Integrated System Plan must therefore strike a careful balance in identifying the least-cost pathway, recognising that distributed energy can defer network investment, reduce peak demand and deliver near-term consumer benefits, while utility-scale projects underpin system reliability and industrial decarbonisation. Treating these resources as complementary will be critical to delivering a resilient, affordable and timely energy transition.

This submission does not cover all elements of the draft 2026 ISP, nor each of the many Appendices that underpin it but provides some general commentary around improving complementarity between the need for a concerted push to the speedy development of the necessary transmission network infrastructure to connect large-scale generation and storage, with some suggestions and recommendations for how far greater emphasis should be placed on the capabilities of distributed energy, local flexibility markets, and the value that consumer and distributed assets can deliver when properly coordinated in the final 2026 ISP.

Phone: +61 3 9929 4100
Fax: +61 3 9929 4101
info@cleanenergycouncil.org.au

Level 20, 180 Lonsdale
Street, Melbourne, VIC
3000, Australia

cleanenergycouncil.org.au

ABN: 84 127 102 443

Our key points are:

- The CEC strongly advocates for a concerted push for all parties to commit to the timely implementation of the necessary transmission network infrastructure to be delivered when needed – if not before and provides a list of actionable ISP projects on the critical transmission development path.
- To provide greater national consistency to identify the necessary long-duration storage and the planning horizons necessary to deliver this storage, the CEC would like to see AEMO place greater emphasis on this in the final 2026 ISP.
- The CEC contends the final 2026 ISP should place far greater emphasis on the capabilities of distributed energy, local flexibility markets, and the value that consumer and distributed assets can deliver when properly coordinated.

The remainder of this submission will outline the above issues in a little more detail.

CEC concerns with the Draft 2026 ISP

The rapid build-out of transmission in the NEM is essential to keep pace with the accelerating shift toward large-scale renewable generation and allow the timely retirement of coal-fired generation. Without faster delivery of new and/or augmented interconnectors and REZ-enabling infrastructure, constraints will worsen, renewable energy projects will be delayed or stranded, and consumers will face higher costs from congestion and reliability risks. Speed is now critical: timely transmission investment underpins system security, unlocks low-cost renewable zones, and ensures the NEM can transition efficiently while maintaining affordability and reliability for all NEM users.

Speeding up the transmission network buildout

Increasing transmission network capacity in the National Electricity Market (NEM) is not just beneficial – it is indispensable for achieving Australia's renewable energy targets and ensuring the orderly retirement of coal-fired generation. While the CEC appreciates that expanding transmission network capacity takes time, the requirements – optimal development path (ODP) – in the Draft 2026 ISP broadly mirror those in the Final 2024 ISP and there has been insufficient progress over the past two years towards meeting the NEM's 2030 targets, let alone those beyond.

The Draft 2026 ISP notes that over 650 km of new transmission has been completed, with another 2,800 km underway and on track to be delivered by 2031. However, progress to date has been plagued by delays that have put back this progress and risk the transmission augmentation underway not being delivered on time. These delays will reduce the customer benefits of the energy transition, in addition to increased project risks of the replacement renewable generation and system security services not being available to support the retirement of coal-fired power generation.

The CEC strongly advocates for a concerted push for all parties to commit to definitive timelines and implementation of the necessary transmission network infrastructure to be delivered when needed – if not before. This includes the rapid completion of among others:

- Project Energy Connect;
- HumeLink;

- Western Renewables Link;
- Reinforcement of the Sydney-Ring South;
- Project Marinus Link 1; and
- VNI West.

The concerted and rapid expansion of transmission network infrastructure in line with the ODP, in addition to transmission beyond the currently Actionable ISP projects will be required to meet the pace and scale of the transformation identified in both AEMO's modelling and the broader market. The timely completion of this network expansion will also be key to providing CEC developer members with the certainty that they require to invest in the large-scale renewable energy and storage required to ensure there is sufficient capacity to meet the needs of the NEM and achieve the decarbonisation targets of the electricity sector.

The CEC acknowledges that challenges that have existed in meeting the ODP to date and recommends that AEMO consider providing greater commentary in the final 2026 ISP on any sensitivities surrounding the ODP that seeks to bridge the gap between the modelled optimal pathway and the NEM's operational reality. The following section will set out some possible areas for AEMO to investigate further.

Increasing robustness of final 2026 ISP

The CEC understands the context under which the ISP is constructed and modelled by AEMO to set out a least-cost pathway to meet a doubling of demand for secure and reliable electricity, as coal-fired generation retires through to 2050, while meeting government policies. However, the resultant roadmap, in essence, appears to represent a best-case snapshot of the future NEM where all ducks' lineup perfectly to deliver the least-cost solution.

While we recognise the need for and the value of a goal to aspire to, we are cognisant that the world we operate in often does not always lend itself to the optimal result and as such necessarily deviates from the plan. It is against this context that the CEC would like to see AEMO undertake some "what if" planning as part of, or a section of, the ISP where the development plan needed to achieve and/or meet a future state is considered in more detail and the optimal development path (ODP) necessary to meet that future state is canvassed in detail.

To this end, the CEC is supportive of the introduction of greater testing of the leading candidate development pathways (CDPs) – through sensitivity analysis – to test their resilience against uncertainty or understand the impacts of important possible changes. The tested sensitivities were on constrained delivery of the proposed ODP, faster or slower coal retirements, and alternative gas development projections. We consider that these sensitivities, while providing valuable information on the required levels of new renewable generation (both where and when), in addition to the impact of these changes on overall carbon emissions, do not quite bridge the gap between modelled optimal pathway and the NEM's operational reality. The CEC would like to see changes to the sensitivity analysis that more accurately calibrates it to better reflect the cost increases and delivery delays observed in recent years.

The CEC would also like to see stronger interpretation around the ODP that seeks to identify and bring forward any additional network augmentation that could be progressed more quickly to bridge any gaps between the modelled ODP and the NEM's operational reality.

In addition, in the absence of a complete understanding of each of the CDPs and what differences distinguish each CDP from one another, it is difficult to understand whether there are CDPs that focus on different capacities or timings of transmission augmentation upgrades at specific locations in the network and how this could influence the ODP. For example, where constraints (whether these constraints are logistical, a lack of social licence or financial) lead to changes in the required project sequencing, AEMO should be able to explain how this impacts on the rankings of other CDPs and its result on the ODP.

Additional transmission beyond the currently Actionable ISP projects is required to meet the pace and scale of transformation identified in both AEMO's modelling and the broader market. As such, the CEC would like to see a further section in the ISP that outlines how these delivery constraints on selected network augmentations could impact the potential volumes of renewable generation deployed over the ISP timeframes and at what locations and the likely implications for the ODP.

The following provides a couple of examples of options that AEMO could consider in this analysis.

South West REZ example

Some CEC members see significant market benefits in AEMO modelling the potential for expanding areas of the network where there is a pipeline of shovel-ready projects on foot (for example, the South West REZ (SW REZ) that would provide the required capacity within the necessary timeframes needed to meet targets. To this end, CEC members canvassed several options that could be considered by AEMO as CDPs for the expansion of the SW REZ and that could be incorporated into the ODP for the final 2026 ISP.[1]

Many CEC members consider the N5 South-West REZ contains some of NSW's highest-quality wind resources, with capacity factors of 40–45%, offering some of the lowest levelised costs of wind energy in the state. Members also consider the region also presents minimal environmental impact (given existing land clearance), enjoys strong community support, and is subject to limited social-license risk.

Despite these advantages, around 31 GW of projects in the planning system were unable to secure access rights in the REZ, demonstrating latent demand. In its submission to the Draft 2025 Electricity Networks Options Report (ENOR), the CEC outlined seven additional transmission options to unlock this potential—ranging from cost-effective "quick wins" to a "Super REZ" vision with 12.5 GW hosting capacity. CEC Strongly urges reconsideration at senior levels within AEMO about fully utilising this REZ's true capacity recognising its potential to deliver the required capacity necessary to action the closure of coal-fired generation assets within the state.

The CEC submission considers the optimal way forward for these proposed options would be as follows:

1. Initially implement Option 4A (or 4B) as a "Quick Win" for $81M to immediately unlock existing transmission assets (825 MW wind generation pre-2030)

[1] Clean Energy Council | AEMO Draft 2025 Electricity Networks Options Report submission

2. Then implement Option 5A (or 5B) for $1.4-2.6B to fully utilise the existing 500kV with some 330kV upgrades (2,420MW wind generation early-2030s)
3. Finally implement Option 6A, 6B or Option 7 for $5.0-8.0B in the medium term to become a "Super REZ" – like CWO or New England REZs (4,840-6,600 MW wind generation by mid-2030s)

   with the details of each of the above options outlined in the Table on pages 6-7 of the submission.

South Cobar candidate REZ example

CEC members were also buoyed by the changes outlined in the draft 2026 ISP that officially incorporated the N13 – South Cobar REZ as a future new candidate REZ in a resource rich area of Western NSW. However, the CEC considers the modelled renewable energy generation capacities under each of the three scenarios for solar, storage and wind-powered generation grossly underestimates the actual potential of the resources available in this candidate REZ.

The CEC is aware of industry interest to developing proposals for this candidate REZ and who are intending to provide submissions to AEMO for its assessment that advocate for the inclusion of this candidate REZ in the ODP of the final 2026 ISP.

Candidate REZs' are an important element of the ISP to facilitate the expansion of large-scale renewable energy projects that can be developed using economies of scale, supported by transmission network infrastructure, with the CEC considering this solution worthy of due consideration by AEMO as a substantial enabler to achieve long term energy needs within the NEM.

Better signalling long-duration storage in the ISP

Section 6.1 of the draft 2026 ISP notes that approximately 33 GW of utility-scale storage is forecast to be needed by 2050. This includes 27 GW of grid-scale batteries and 6 GW of pumped hydro storage. By 2030, the projected need of total storage is 27 GW, with an optimal mix of 3.3 GW deep storage, 10.7 GW medium and 13.2 GW shallow. The draft 2026 ISP further indicates that deep storage will be a critical contributor to system reliability, accounting for about 80% of energy storage capacity by 2030.

In delivering the required deep storage capacity foreshadowed by the draft 2026 ISP, CEC considers that pumped hydro remains the proven, scalable option for long duration storage, and can deliver multi-hour to multiday firming, fast response and synchronous services over long-lived asset lives.[2]

On the regulatory and planning side of the equation, the CEC notes that several governments are supporting the development of new deep (or medium) storages. Hydro Tasmania is investigating a new pumped-hydro Battery of the Nation initiative at Cethana and Queensland is developing the Borumba and Kidston pumped hydro projects. The Federal Government's Capacity Investment Scheme offers incentives for large dispatchable storage, as does South

[2] International Hydro Association | An energy secure Australia - recommendations from the hydropower sector

Australia's Firm Energy Reliability Mechanism, while New South Wales has a 2 GW target for storage of at least eight hours duration by 2030.

However, the CEC is conscious that there needs to be clear planning signals at the national level given the NEM-wide importance of hydro to ensure the necessary long-duration storage is delivered on time and aligned with the large-scale renewable generation and transmission network buildout. In the absence of a national approach to coordinating long-duration storage, as noted above, the states are likely to develop their own individual state-based schemes.

To provide greater national consistency to identify the necessary long-duration storage and the planning horizons necessary to deliver this storage, the CEC would like to see AEMO place greater emphasis on this in the final 2026 ISP. We also note AEMO could consider the role of long-duration storage in the context of the transition plan for system security as an enabler of grid stability for the energy transition going forward to maintain the secure and reliable operation of the network as fossil-fuelled generation assets retire.

The CEC welcomes further engagement with AEMO as it considers the feedback from the energy industry in the publication of the final ISP. Further queries can be directed to James Eastcott at jeastcott@cleanenergycouncil.org.au.

CEC concerns with CER integration in the ISP

Australia's energy transition is accelerating at a pace that exceeds many of the assumptions embedded in AEMO's Draft 2026 Integrated System Plan (ISP). Households and businesses are investing in rooftop solar, batteries, and electric vehicles at new record rates, while advances in consumer energy technologies are expanding the scale, depth and potential value of distributed resources across the National Electricity Market (NEM). The Draft ISP acknowledges this momentum through updated projections for CER uptake, storage growth, and the increasing role of VPPs and V2G technologies, and it identifies substantial latent capacity within the distribution network that can be unlocked through targeted, low-cost reforms. CER integration is becoming not just a complement to grid scale investment, but a central pillar of the least cost pathway through the transition.[3]

Against this backdrop, the Clean Energy Council believes the final 2026 ISP should place far greater emphasis on the capabilities of distributed energy, local flexibility markets, and the value that consumer and distributed assets can deliver when properly coordinated. The capability is proven, with the installation of more than 160,000 batteries delivering over 3.6 GWh of new storage in just five months under the Cheaper Home Batteries Program demonstrating that CER is scaling at a rate that materially exceeds the assumptions used in the Draft ISP. At the same time, AEMO's own analysis shows that even modest investment in distribution level voltage management could unlock a further 3.5 GW of CER export capacity, thus enabling the development of local flexibility markets that can reduce reliance on grid-scale storage and transmission. The CEC therefore submits that the final ISP must integrate these developments much more fully; ensuring that CER, VPPs, V2G and distribution level flexibility are recognised as central, high-value components of Australia's least-cost energy future.

[3] Federal Energy Minister | Joint media release - 50,000 cheaper batteries now powering Australian homes, businesses and community groups

CER Storage, Integration and Under-Forecasting in the Draft 2026 ISP

The Draft 2026 ISP revises down its expectations for consumer energy resource (CER) integration compared with previous ISPs, resulting in a material increase in the amount of grid-scale storage and transmission investment the model deems necessary. Yet AEMO also acknowledges that household batteries are becoming larger, cheaper and more capable, with the average CER battery size expected to double by 2050 and that previous ISPs have under predicted CER storage growth and coordination. These inconsistencies suggest that the Draft ISP may be systematically understating the future contribution of CER.[4]

Elements within the Draft ISP itself reinforce this point. Coordinated CER through VPPs and V2G could avoid up to $7.2 billion in grid scale storage, and targeted distribution level voltage management can unlock around 3.5 GW of CER export capacity at modest cost.[5] These findings support a higher central case assumption for CER participation and storage contribution in the final 2026 ISP.

CEC Recommendation

The Clean Energy Council recommends that AEMO recalibrate CER uptake, storage sizing and coordination rates in the ISP's central case. This will better reflect observed market momentum, reduce the total system cost, and position CER and DER appropriately as a cornerstone of the least cost pathway.

VPP Market Growth

The Draft 2026 ISP identifies substantial benefits from greater VPP coordination, including peak shaving, improved system security, and significant reductions in required grid scale storage. The AEMO Step Change scenario estimates that by 2050 that 53% of household batteries will operate within VPPs, enabling flexible dispatch across the NEM, as consumer confidence in their benefits rises. Given the pace of aggregator expansion, retailer innovation, and battery cost decline, the CEC considers this forecast too conservative. VPP participation is already accelerating far beyond prior expectations, fuelled by consumer confidence in their benefits. Customers were participating in VPPs and participation increased at an average rate of 21.9 per cent every six months in the two and a half years to January 2025.[6] This creates a strong foundation for AEMO to raise its central case assumptions.

EV to Grid (V2G) Integration

The Draft ISP projects that 11% of EVs will participate in V2G programs by 2050, contributing roughly 9 GW of dispatchable flexible capacity across the NEM. With EV ownership forecast to reach 80% of the vehicle fleet[7], even marginal increases in V2G participation above AEMO's central case will deliver outsized system value. This includes value from reduced peak demand, from more effective absorption of daytime solar, and from improved resilience

[4] ibid.
[5] AEMO 2026 | Draft Integrated System Plan - Section 9: Consumer and distribution actions to reduce grid scale investments
[6] ACCC | Inquiry into the National Electricity Market July 2025 Report
[7] AEMO 2026 | Draft Integrated System Plan - Section 9: Consumer and distribution actions to reduce grid scale investments

during renewable generation lulls. Rapid progress can be achieved through national policy and actions that improve the value proposition for consumers while reducing associated costs and risks for automakers supplying our market.[8] Australian policy agencies see V2G standards as mature and deployment ready.[9]

The ISP could therefore justifiably adopt a more ambitious V2G trajectory in recognition of maturing standards and rapidly expanding bidirectional ready vehicle options.

New Evidence Since the Draft ISP: Distributed Storage Uptake is Surging

Recent public updates from the Minister for Climate Change and Energy demonstrate that distributed storage installations under the Cheaper Home Batteries Program have rapidly outpaced earlier expectations:

- 50,000 installations in the first two months of the program (Sept 2025)
- 95,000 installations in the first 3.5 months, delivering ~2 GWh of capacity (Oct 2025)
- Over 160,000 installations in the first five months, exceeding 3.6 GWh of aggregated new storage (Dec 2025)
- An average battery size of around 21KWh

This confirms that more than 3 GWh of new CER storage has been added in a matter of months and not years. This demonstrates that earlier forecasts (including 1.5 GWh estimates) materially understate the pace of deployment.

The CEC believes that these outcomes should trigger an upward revision in AEMO's CER storage assumptions.

Rooftop Solar Continues to Exceed Forecasts

Rooftop solar remains on a sharply rising trajectory, with total national capacity of 1.1 GW added in H1 2025 and a total of 26.8 GW by June last year already surpassing earlier ISP projections.[10] There are no immediate limits to growth with Climate Council analysis identifying up to 103 GW of national rooftop potential. The CEC recommends increasing rooftop solar assumptions in the ISP's central case to better reflect this structurally persistent trend of CER outperforming forecasts.

Unlocking Flexibility Markets Through Excess Capacity in Distribution Networks

The Draft 2026 ISP Demand Side Factors Statement (Appendix A9) shows that distribution networks have material excess hosting and export capacity that can be unlocked through modest, targeted voltage management and operational reform.

[8] ARENA 2025 | National Roadmap for Bidirectional Charging
[9] ibid.
[10] Clean Energy Council | Rooftop solar and storage biannual report - January to June 2025

AEMO identifies that optimising voltage management alone can release 3.5 GW of additional CER export capacity, including 1,334 MW in Greater Melbourne & Geelong, 305 MW in Southern NSW, and 466 MW in parts of Western and Northern Victoria. This capacity is currently inaccessible due to conservative voltage limits and operational constraints, but not physical infrastructure shortages.

AEMO also concludes that the required investment to unlock this latent capability is only in the order of $160 million across all DNSPs, representing a fraction of the cost of comparable grid scale investments. Unlocking this distribution level headroom reduces the need for additional grid scale storage and transmission, strengthens operational flexibility, and provides a foundation for locational flexibility markets that can deliver real time services such as peak reduction, voltage support, thermal constraint management, and frequency response.

Given this evidence, the Clean Energy Council believes that distribution network excess capacity should be used to accelerate the development of local flexibility markets, where aggregated CER and VPPs compete to provide non network and system services.

What AEMO Can Do in the ISP to Unlock This Value

1. Quantify and monetise distribution level flexibility

   AEMO should expand the ISP modelling to quantify the system wide avoided costs from flexibility markets using unlocked distribution capacity (e.g., avoided transmission, avoided batteries, reduced RERT or FCAS costs).

2. Treat flexibility markets as an explicit ISP development pathway

   Flexibility markets should be recognised as a viable alternative or complement to major augmentations in certain locations and be eligible for consideration alongside grid scale investments.

3. Provide indicative flexibility market mapping

   AEMO should publish a NEM wide map of distribution hosting headroom, dynamic operating envelope potential, and CER export opportunities, like how REZ maps are used for generation.

4. Integrate flexibility into the Optimal Development Path (ODP) modelling

   To identify the least cost, technically secure, and policy aligned mix to meet the NEM's reliability, security, emissions and demand requirements, the ODP should treat CER flexibility as a dispatchable resource, allowing aggregated CER to compete directly with grid scale storage and network solutions.

AEMO should coordinate National DOEs and Data Frameworks

Today, DOE development in Australia is fragmented. DNSPs are adopting different methodologies, data models, communications protocols, and visibility tools ahead of system wide considerations. This inconsistency constrains the ability of CER aggregators, VPP operators, and retailers to operate efficiently across jurisdictions, and it raises system wide integration costs.

Flexible export limits will become a key tool to efficiently coordinate the use of the network for exports over the longer term, and the CEC would like to see AEMO include this analysis in the preparation of the ISP. Any future arrangements must support the integration of consumer energy resources at scale. DNSPs are using different modelling approaches, connection processes, and communication protocols, and regulatory and policy design

reform is needed to establish nationally harmonised approaches essential to moving from conservative static limits to dynamic, locationally specific limits that reflect real hosting capacity.

Summary of CER related Recommendations

1. **Increase CER storage, battery size, and coordination assumptions** in the ISP central case.
2. **Incorporate updated real world CER uptake data**, including >3.6 GWh installed in 2025.
3. **Elevate VPP and V2G contributions** to reflect accelerating market growth.
4. **Increase rooftop PV forecasts**, reflecting persistent PV outperformance and scope.
5. **Embed flexibility markets and distribution level solutions** as core ISP modelling elements, given AEMO's identification of 3.5 GW of latent distribution capacity.
6. **Model flexibility as a system service provider**, reducing grid scale network investment needs.
7. **Standardise all hosting capacity methodologies**, enabling a CER centric two-sided market.

The CEC welcomes further engagement with AEMO as it considers the feedback from industry on the better integration of CER in the publication of the final 2026 ISP. Further queries can be directed to David Markham at dmarkham@cleanenergycouncil.org.au. I

Kind regards,

Veronika Nemes

Acting General Manager, Market Operations and Grid