

# **Energy Decarb Submission to the Australian Energy Market Operator's (AEMO) Draft 2024 Integrated System Plan (ISP)**

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EnergyDecarb welcomes the opportunity to provide feedback on the Draft 2024 ISP which sets out AEMO's Optimal Development Path (ODP) for the transitioning of the NEM to Net Zero by 2050.

## Background

The Draft 2024 ISP sets out what actions and investments AEMO forecasts as being required to achieve the ODP consistent with AEMO's obligations to produce a National Transmission Development Plan under the rules. AEMO describes the ISP as a "roadmap for the energy transition"<sup>1</sup>. Under the forecasts for the ISP Step Change Scenario, considered by AEMO to be the most likely scenario, the ISP materials state that the ODP calls for investment that would:

- **Grid-scale variable renewables:** Triple grid-scale variable renewable energy by 2030 and increase it seven-fold by 2050. About 6 GW of capacity would need to be added every year, compared to the current rate of almost 4 GW. By 2050 grid-scale solar capacity would be 55 GW and wind 70 GW.
- **Firming capacity:** Almost quadruple the firming capacity from sources alternative to coal that can respond to a dispatch signal, using utility-scale batteries, pumped hydro and other hydro, coordinated consumer energy resources as "virtual power plants" (VPPs), and gas-powered generation. This includes 50 GW/654 gigawatt hours (GWh) of dispatchable storage, as well as 17 GW of flexible gas.
- **Storage:** In total, approximately 12.7 GW of utility-scale storage is forecast to be needed by 2030, with an optimal mix of 2.4 GW as deep, 3.6 GW as medium and 6.7 GW as shallow storage.
- **Co-ordinated CER storage:** The capacity of coordinated CER storages is forecast to rise from today's 0.2 GW to 3.7 GW in 2029-30, and then 37 GW in 2049-50 – by then making up 65% of the NEM's energy storage capacity.
- **Rooftop solar:** A four-fold increase in rooftop solar capacity reaching 72 GW by 2050 and facilitating the use of consumer-owned flexible load to deliver 2.9 GW of flexible demand response for the NEM.
- **Transmission:** Close to 10,000 km of transmission would be needed by 2050, with about 5,000 kms being delivered in the next 10 years.

The changes in capacity for delivering the ODP under the 2024 draft ISP versus the 2022 ISP are highlighted in the following figure:

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<sup>1</sup> AEMO 2023, Draft 2024 Integrated System Plan for the National Electricity Market, pages 10, 11, 63.

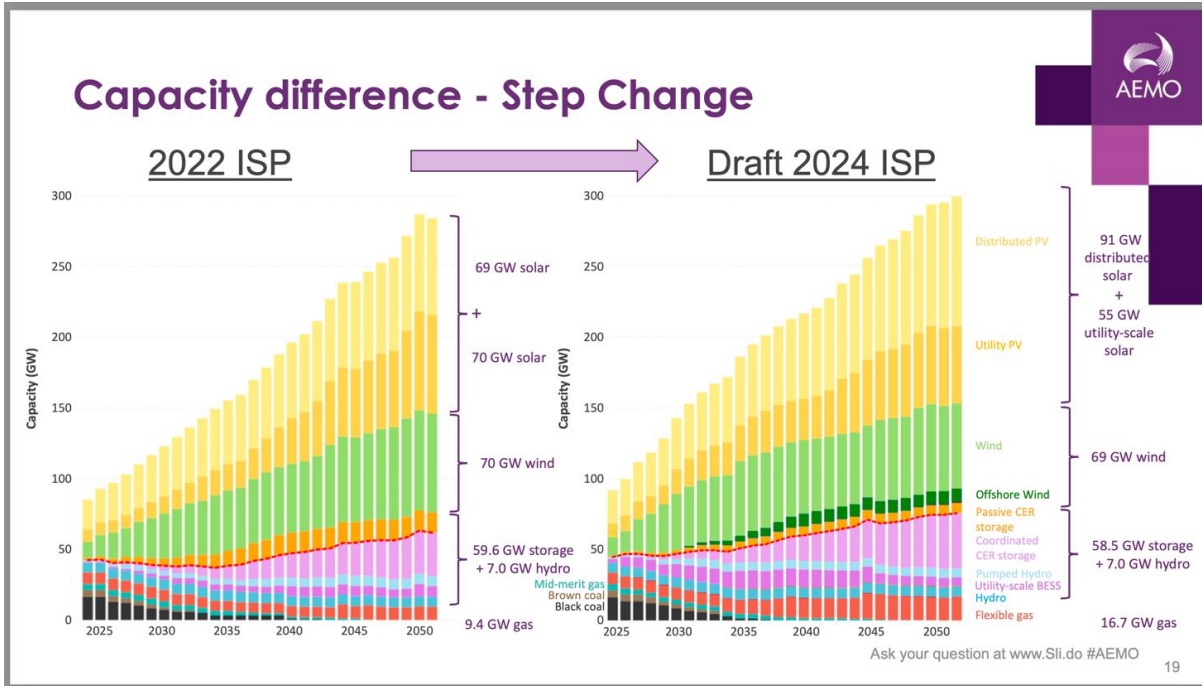


Figure 1 Forecast annual capacity requirement comparing 2022 ISP and draft 2024 ISP

The following 2 figures highlight the significance of the increase in capacity from Co-ordinated CER under the Step Change ODP.

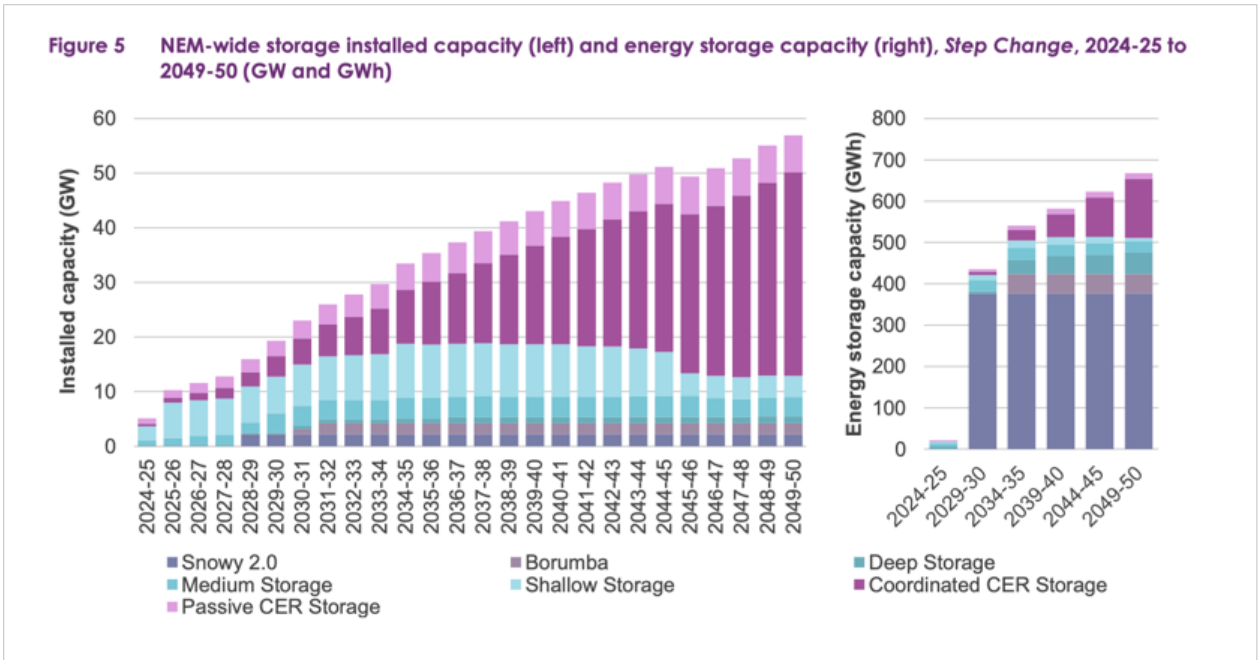


Figure 2 draft ISP 2024 Forecast total NEM wide storage including coordinated CER

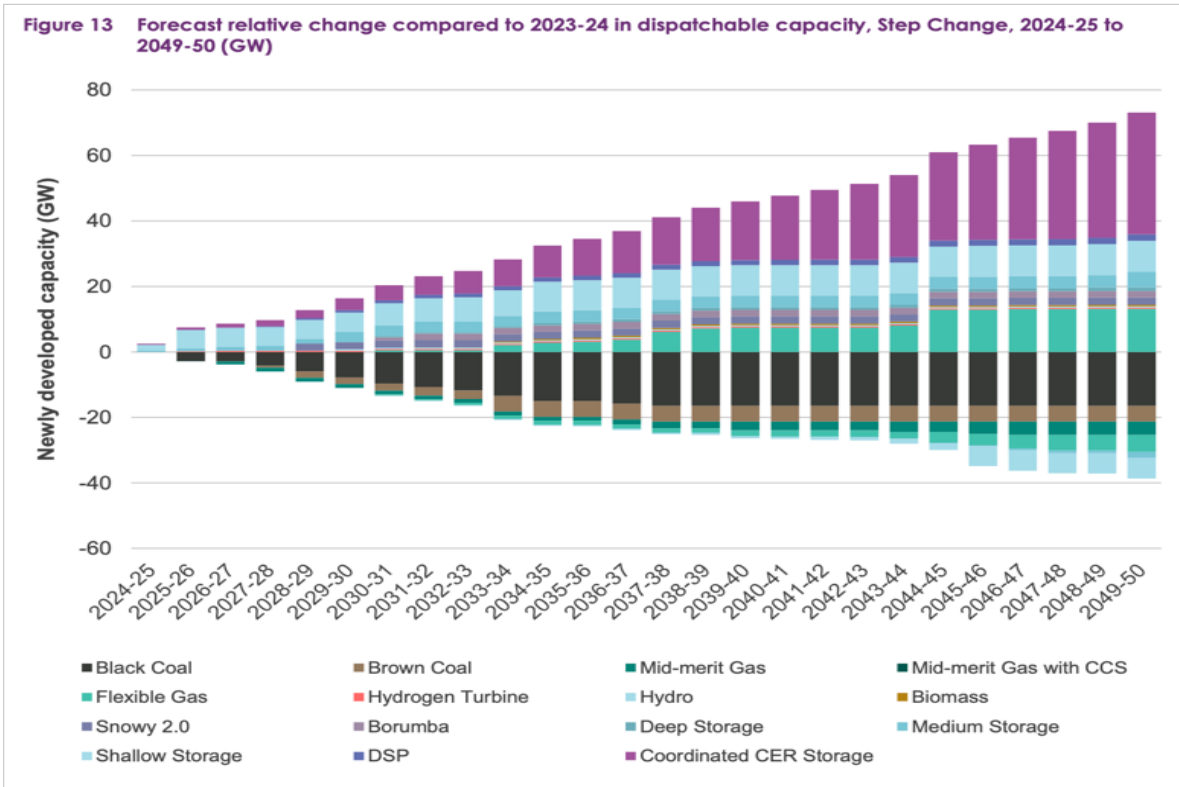


Figure 3 draft ISP 2024 Forecast relative changes in capacity to 2049-50

## Risks - general

The scale of these investments under the Step Change ODP are material particularly when compared to the current levels of investment. Moreover, with the majority of OECD economies racing to net zero emission targets, there is significant “competition” for the same input resources (materials like copper, cement and steel, equipment such as inverters and synchronous condensers), technologies, and skilled labour - both internationally and between jurisdictions in Australia, as well as with other major infrastructure projects in Australia. As such, they are susceptible to significant supply chain and skilled labour risks identified by AEMO.<sup>2</sup>

AEMO clearly signals that the scale of investment in both large scale renewables and transmission through to 2030 will be difficult to achieve, stating:

<sup>2</sup> AEMO 2023, Draft 2024 Integrated System Plan for the National Electricity Market, pages 76-78 and Appendix 2: Generation and Storage Development Opportunities, pages 58-60.

“The *Constrained Supply Chains* sensitivity explores how limitations in infrastructure delivery speed will impact the development and economic efficiency of generation, storage, and transmission in *Step Change*. This is to reflect potential constraints in supply chain capacity and workforce availability affecting the transition to a net zero economy by 2050.

“These limitations have been reflected through the following adjustments in inputs:

- NEM-wide annual build of additional generation and storage developments is limited to 4 GW until 2029-30.
- Two-year delay to the earliest in-service date (EISD) for transmission augmentation options and REZ augmentations (excluding committed and anticipated projects).

“If supply chains are limited, to meet policy settings the developments will concentrate within those regions with explicit renewable energy development targets within the policy collection. This impacts the ability to achieve the 82% renewable energy target by 2030, instead achieving only approximately 62%”.<sup>3</sup>

ie, AEMO is indicating that Supply Chain Constraints could, alone, result in a 25% shortfall in the achievement of the Federal Government’s 2030 82% Renewables Target.

The figures below show the NEM-wide development impact of this Supply Chain Constraints sensitivity and the Reduced Social Licence sensitivity and highlight the significant impacts through to around 2032.

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<sup>3</sup> AEMO 2023, Draft 2024 Integrated System Plan for the National Electricity Market, Appendix 2: Generation and Storage Development Opportunities, page 58.

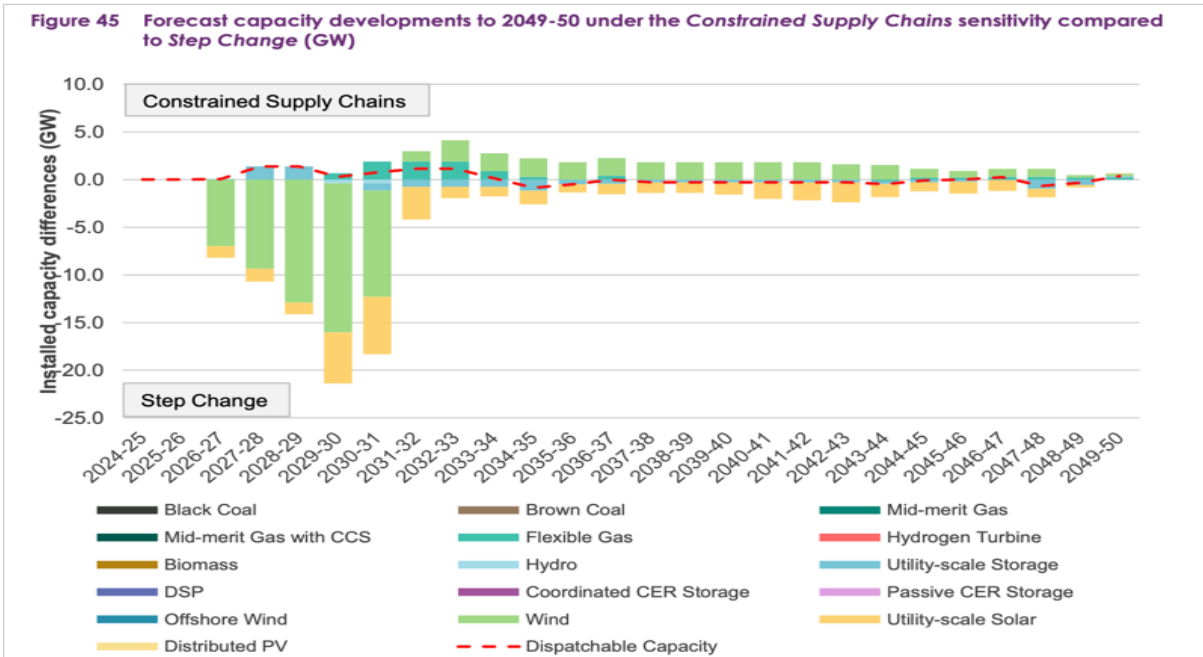


Figure 4 draft ISP 2024 Forecast capacity developments under Constrained Supply Chains sensitivity compared to Step Change

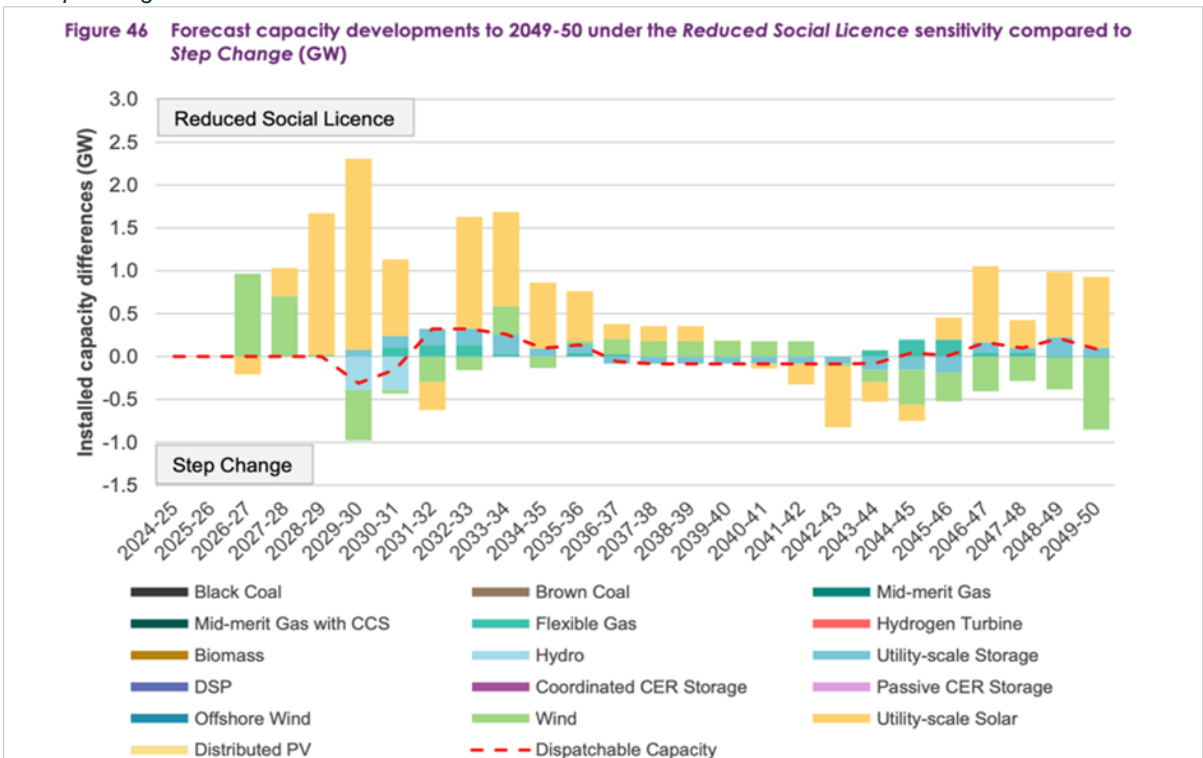


Figure 5 draft ISP 2024 Forecast capacity developments under Constrained Supply Chains sensitivity compared to Step Change<sup>4</sup>

<sup>4</sup> AEMO 2023, Draft 2024 Integrated System Plan for the National Electricity Market, Appendix 2: Generation and Storage Development Opportunities, page 61.

## Importance of Coordinated CER to meeting net zero targets

AEMO defines coordinated CER or CER orchestration as “...the coordination of consumer batteries and EVs to support reliability of the power system, manage power system security risks and maximise consumers’ financial returns.”<sup>5</sup>

As set out above, a significant level of Co-Ordinated CER is required to achieve net zero emission targets under the Step Change scenario with the capacity of coordinated CER storage forecast to rise from today’s 0.2 GW to 3.7 GW in 2029-30, and then 37 GW in 2049-50. And in 2050, the Step Change scenario results in Co-ordinated CER storage making up 65% of the NEM’s energy storage capacity.

## Potential System-Wide Benefits From CER

The AEMC’s Directions Paper on Unlocking CER Benefits Through Flexible Trading (August 2023) highlights the significant system-wide benefits if CER is done properly, with the AEMC stating (emphasis added):

“Ensuring that consumers can benefit from their CER assets and if they choose to make these resources available can contribute to and operate within the system. **This will be key to achieving an affordable, reliable, and secure low-emissions energy supply for all consumers.**”

“If CER is integrated well, there will be positive outcomes for all market participants, with flow-on benefits such as cost-efficiency and reliability for consumers – including those who do not have access to newer CER technology. A range of studies have estimated **the net benefit of effective integration and coordination of CER to be between \$1 billion - \$6.3 billion by 2030-2040** (CSIRO and Baringa consulting, 2019, ARENA, NERA consulting, 2022 respectively).

“If the growing quantity of CER and DER is not integrated well, it has the potential to increase energy costs. For example, costly network and generation infrastructure would need to be built (which could be served by CER and consumer response at lower cost) to meet forecast increases in electricity demand. This would result in additional costs for industry and customers. The market operator would also need to

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<sup>5</sup> AEMO 2023, Draft 2024 Integrated System Plan for the National Electricity Market, Appendix 8. Social Licence, page 17.

intervene to deliver greater security and reliability. This will also increase costs for consumers”.<sup>6</sup>

Further detail as to the additional capital costs that would be required to be incurred if projected levels of CER (formerly DER) was not achieved are set out in the AEMC Consultation Paper National Electricity Amendment (Integrating Price-responsive Resources Into the NEM) Rule (emphasis added):

“AEMO expects that in order to operate the grid with large amounts of variable renewable energy (VRE), generation that can help to keep the grid stable will be needed. This firming capacity is expected to be comprised of 46GW/640 gigawatt hours (GWh) of dispatchable storage, in all its forms, by 2050. Price-responsive resources, in particular VPPs, Vehicle to Grid (V2G) services and other emerging technologies, are expected to provide approximately two-thirds of this, or around 31GW, of dispatchable capacity.....”

“The (2022) ISP shows that the **required additional investment in large-scale firming capacity** will depend on the extent to which these price-responsive resources can be used to fulfil power system needs. AEMO states that duplicating 20 per cent of the projected coordinated price-responsive resources through investment in additional shallow grid-scale storage (2-hour large scale batteries) each year to 2040 would come to **a cumulative capital cost of around \$1.8 billion, rising to approximately \$4.4 billion** if 50 per cent of the capacity were to be replicated over that same period.”<sup>7</sup>

Energy Decarb would therefore wish to highlight that:

- Embedded BtM power control on commercial and industrial premises with market-facing wholesale trading offers a large-scale potential alternative to expansion of grid-based renewables that require development approvals and environmental approvals for competing uses of land for REZ’s and major transmission interconnections.
- As well as providing commercial solutions to many commercial and industrial energy consumers, BtM energy trading of these CER-based facilities reshapes the net power demand faced by grid-based power stations and networks, improving the utilisation and capital efficiency of existing transmission and distribution networks and generation facilities.

Energy Decarb therefore submits that the significant benefits from Co-ordinated CER would warrant urgent consideration by Federal and State Governments of transferring funding from the \$20 billion Rewiring the Nation Fund and the expanded Capacity Investment Scheme to a

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<sup>6</sup> AEMC Directions Paper, National Electricity Amendment (Unlocking CER Benefits Through Flexible Trading) Rule 2023, pages (i) – (ii).

<sup>7</sup> AEMC Consultation Paper National Electricity Amendment (Integrating Price-responsive Resources Into the NEM) Rule, pages 11-12.



financial support scheme to promote the accelerated take-up of CER/BtM assets, with particular focus on the significantly untapped area of commercial premises.

## The Potential Of Untapped CER Assets

A Commonwealth Government 2022 baseline study of current non-residential building stock highlighted that there were over 1 million buildings with a total gross floor area of 846 million square meters.<sup>8</sup> In simple terms, assuming that 50% of the GFA is able to be used for behind the meter solar PV than these commercial building rooftops could host up **100GWs of capacity** and would be able to provide on-site electricity to these buildings' tenants but also support a significant portfolio of on-site battery storage. This is significantly higher than the level of Co-ordinated CER envisaged under the Draft 2024 ISP in 2049-50 at 37 GW.

That is, there is significant potential capability to utilise the very large area of low-rise roofs of commercial premises, shopping centres, factories, and of sporting and entertainment venues in the cities and towns of the NEM and the WEM, capable of housing many gigawatts of battery-backed rooftop solar between now and 2030 – and beyond.

Any significant increase in this uptake would deliver a total reshaping of the net grid power demand. It would flatten generation, transmission and distribution power demands, enabling a greater soft closure of coal-fired generation, while eliminating the demand and pool price volatility occurring with increasing grid-based solar and wind generation. It would also facilitate growing electricity demands without new network capital investments.

It is noted that materials presented on the promotion of CER (Project Edge) highlight that Aggregators, not AEMO or DNSPs, are best placed to deliver these benefits, as they are best placed to value stack and optimise benefits for customers.

## CER Risks Identified By AEMO

AEMO also clearly identifies the risks with respect to the increased reliance on Co-ordinated CER under the draft 2024 ISP, stating:

“Risk that insufficient consumer energy resources are not adequately integrated into grid operations.”<sup>9</sup>

In elaborating on this risk, AEMO stated:

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<sup>8</sup> 2022 Commercial Building Baseline Study, prepared for the Australian Government Department of Industry, Science, Energy & Resources.

<sup>9</sup> AEMO 2023, Draft 2024 Integrated System Plan for the National Electricity Market, page 75.

“Consumer-owned assets offer significant system benefits and offset the need for grid-scale investment. They offer the potential for significant net market benefits being shared both by their owners and by energy consumers across the NEM....”

“Those benefits are maximised when two things happen:

- First, when owners link up with other owners to coordinate their CER as virtual power plants (VPPs), which is being facilitated by many retail market specialists and among businesses.
- Second, when those VPPs are integrated into the NEM to help support power system reliability and security. This ‘orchestration’ needs appropriate operational standards between the distribution grid and VPPs, and appropriate incentives and agreements with CER owners.

“For this to happen, owners would need to see the benefits of orchestration, overcoming both technical complexity and a lack of perceived value, then trust the energy sector to deliver those benefits. AEMO will continue working with industry, governments, market bodies and consumers for the benefits of CER orchestration to be realised”<sup>10</sup>.

It is therefore critical that the barriers to achieving this growth in Co-ordinated CER and its integration into the grid are removed. Achievement of this growth may also require positive initiative from Government, including a shift in focus of funding support away from large scale renewables in the short term if the reality is that the relevant large-scale projects will not be delivered over the next decade.

## **CER forecasts – risks**

There are already 3 million CER assets, mainly distributed solar PV, installed in the NEM with an aggregate capacity of around 20GWs. To practically achieve the draft 2024 ISP forecasts of an additional 22GW per decade to 2049-50 to have 85GWs of distributed PV shall require greater installations with non-residential consumers.

Energy Decarb maintains that AEMO’s final 2024 ISP must include these considerations if it is to credibly include coordinated CER as the basis to support the energy transition. By explicitly including these considerations in the final 2024 ISP, AEMO would increase awareness of the barriers to coordinated CER providing the basis for appropriately designed policy and initiatives to support coordinated CER as forecast in the ISP.

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<sup>10</sup> AEMO 2023, Draft 2024 Integrated System Plan for the National Electricity Market, page 76.

## **CER: The Need To Explicitly Recognise Role of DNSPs In ISP**

Energy Decarb notes the significant role of DNSPs in relation to CER, and believes the ISP should provide detail around both TNSP and DNSP investments required under the ODP.

In this context, Energy Decarb notes that the Draft 2022 ISP (page 92) stated that a working group consisting of DNSPs, Energy Networks Australia (ENA) and AEMO had been established, with:

“The vision.....to collaborate to better understand how developments in the distribution network interact with the transmission network and ultimately support incorporating DNSP planning inputs into the ISP in a way that optimises benefits to consumers. This collaborative working group is planning to produce qualitative outputs for the 2022 ISP with the view to lay the foundation for sharing scenarios and developing joint modelling approaches for the 2024 ISP”.

Energy Decarb looks forward to the results of this work being presented in the final of the 2024 ISP to allow stakeholders to be fully informed as to the network investments, both TNSPs and DNSPs, required to deliver the outcomes envisaged under the ODP, particularly given the increased role of Co-ordinated CER in the Draft 2024 ISP.

### **Current CER reforms may not be enough**

Energy Decarb acknowledges that there is a large body of work being undertaken by AEMO, the Australian Energy Market Commission (AEMC), the Australian Energy Regulator (AER) and jurisdiction Energy Ministers focused on enabling CER and how best to accommodate CER resources into the power system. The most relevant reforms include:

- the completed AEMC Metering Review<sup>11</sup> requires the accelerated roll out of smart meters by DNSPs, which, if implemented correctly shall provide greater levels of visibility and operability for CER
- AEMO rules changes with the AEMC, namely:
  - The completed AEMC CER Technical Standards Review<sup>12</sup> which correctly identified the required product, communication and operability standards for CER assets, however, it did not address an approach to achieve effective compliance with standards as it recommended a voluntary approach for enforcement to be managed by each NEM jurisdiction
  - completed AEMC Integrating Price Responsive Resources, which provides improvements to how registered batteries are able to interact with the power

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<sup>11</sup> [https://www.aemc.gov.au/sites/default/files/2023-08/emo0040 - metering\\_review - final\\_report.pdf](https://www.aemc.gov.au/sites/default/files/2023-08/emo0040_-_metering_review_-_final_report.pdf)

<sup>12</sup> <https://www.aemc.gov.au/sites/default/files/2023-09/RCERTS%20Final%20Report.pdf>

system and markets (bidding, inflexibility profiles etc) however still retains the complexity around registration and participant categories while also maintaining the aggregator, retailer, network service provider and metering relationships

- the current AEMC’s Unlocking CER benefits through Flexible Trading rule change, which looks to create separate visibility of each CER assets and allow for multiple relationships for a single consumer<sup>13</sup>
- AER’s soon to be finalised guidelines for DNSPs on the setting of Dynamic Operating Envelopes, which identify and provide clarity on the regulatory framework necessary to facilitate the effective implementation of export limits, and specifically:
  - provide clarity on policy objectives and design principles for DNSPs when implementing and using flexible export limits as a tool for managing network congestion and increasing available hosting capacity
  - provide clarity to DNSPs on AER expectations to support the development of expenditure to implement and use flexible export limits
  - establish ‘guard rails’ for the development and use of flexible export limits to protect consumers and enable owners of consumer energy resources to maximise the value from their investments in a manner that delivers benefits to all consumers.

Energy Decarb maintains that consumers must be at the centre of these CER reforms, noting that consumers have invested in behind the meter electricity assets as the basis to have more control over their energy bills. Accordingly, the reforms to enable the untapped potential of CER must be consumer centric and as much as possible adopt approaches that are least cost to the economy.

For instance, to ensure that CER assets can be coordinated as envisioned in the ISP scenarios and as being tested in AEMO projects such as Project Edge, then the most affordable regulatory approach is to have standards for products, communication services, and operability that manufacturers must comply with<sup>14</sup>. This was recognised in the AEMC CER Technical Standards market review process. However, the review did not deal with how non-compliance would be addressed. For example, AEMO recently found that of the CER assets installed in the calendar quarter 1 2022 63% were non-compliant with the only current DER Standard AS/NZ4777.2:2020 which has been in place since 18 December 2021.<sup>15</sup>

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<sup>13</sup> [https://www.aemc.gov.au/sites/default/files/2023-08/ERC0346%20CER%20Benefits%20directions%20paper%20-%20Information%20sheet\\_0.pdf](https://www.aemc.gov.au/sites/default/files/2023-08/ERC0346%20CER%20Benefits%20directions%20paper%20-%20Information%20sheet_0.pdf)

<sup>14</sup> Much of the research highlights that consumers do not have sufficient knowledge and experience in CER. To resolve this information asymmetry the first best solution is to require that the experts in CER assets build them to minimum standards.

<sup>15</sup> AEMO (December 2023), Compliance of Distributed Energy Resources with Technical Settings: Update – compliance to AS/NZS4777.2:2000.

Energy Decarb considers that the AEMC's Integrating Price Responsive Resources (IPRR) rule change does much to improve value opportunities for CER assets greater than 3-5MWs. However, for consumers to access these benefits the CER assets must be registered and connected in manner as required by AEMO and the DNSP, respectively. This invariably means that consumers or CER asset coordinators must incur the significant transaction costs associated with registration and connection.

Importantly, the AEMC's IPRR did not change the current tripartite commercial model where coordinating CER assets requires the consumer to:

- have a FRMP (a retailer)
- have an aggregator who then has an agreement with the retailer, and
- regulated network connection agreement or negotiated connection agreement for larger capacities.

Noting that there is a further contract between the retailer, DNSP and metering agent and as per the findings from AEMO's project EDGE, the current level of commercial complexity to coordinate CER increases up-front costs and ongoing costs to such an extent that there is little perceived value able to be 'shared' with consumers to incentivise them to offer their behind the meter assets.<sup>16</sup>

Energy Decarb notes that AEMO's proposed rule change Unlocking CER benefits through flexible trading looks to address the complexity by:

- looking at opportunities to separately identify controllable CER assets at a single consumer site, and
- allowing multiple energy service providers at single large consumer sites but not at residential and small business consumer sites.

The AEMC expects to make a draft determination by the end of this month. However, Energy Decarb maintains that it is difficult to see how AEMO's Unlocking CER Benefits would reduce (i) the complexity of relationships in coordinating CER and, thus, (ii) transactions costs and reduced perceived value to incentivise consumers to participate in coordinated CER services.

Energy Decarb considers that the AER's guidelines on Dynamic Operating Envelopes (DOE) shall be important in shaping the 13 DNSPs in the NEM's approach to allowing more CER assets, particularly batteries, to safely export into their networks. However, Energy Decarb highlights that an incredible barrier to supporting consumers to invest in CER assets and to make excess energy available to export are the different operating approaches of the DNSPs.

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<sup>16</sup> AEMO (October 2023), Project EDGE – Final Report. Project EDGE participants, AEMO, Mondo Power Pty Ltd (un-regulated service provider of AusNet Electricity Services Pty Ltd), AusNet Electricity Services Pty Ltd.

## Additional initiatives to promote coordinated CER

Energy Decarb believes that the significant benefits from Co-ordinated CER identified by AEMO and the AEMC noted above would warrant financial support to promote the accelerated take-up of CER/BtM assets, with particular focus on the significantly untapped area of commercial premises. As also noted above, this funding could be sourced from the \$20 Billion Rewiring the Nation Fund and the Capacity Investment Scheme which are principally focussed on large scale projects.

Energy Decarb believes that in addition, the following specific actions are required:

- All barriers to DER/CER and BtM trading in the NEM by ENO's of BtM battery-backed rooftop Solar PV on commercial premises, including the storage and utilisation of the renewable generation for in-house use and BtM supply to tenants, and also trading the battery capability of buying and selling into the wholesale market should be minimised, and certainly that any likely objections by TNSPs and DNSPs are critically assessed by AEMC, AER, as well as AEMO and solutions developed.
- Ambiguities about embedded network operators trading of battery capabilities from BtM in commercial premises be eliminated to provide greater certainty of necessary approval process paths.
- State and Federal Energy Ministers endorse open competitive access by BtM CER to deliver emissions reduction on much shorter timeframes than is occurring in relation to grid-based renewables and energy storage and the interconnecting transmission connections.

Energy Decarb recommends that to support AEMO, the AEMC and the AER so that actual CER, both distributed PV and coordinated CER, matches the draft 2024 ISP forecasts the following additional policy and market interventions are considered.

Topic area	Options
Customer incentives for CER	<p>CER assets registered in compliance with the standards to be eligible to participate in any capacity, energy and non-energy service schemes for example the expanded Commonwealth Capacity Investment Scheme.</p> <p>Government subsidies, whether direct or indirect through certificate schemes, should target behind the meter storage as a priority.</p> <p>Additionally, given the technical challenges to economically allowing CER assets to 'earn' revenue from the NEM then NEM jurisdictions should consider allowing consumers to treat the value of the asset:</p> <ul style="list-style-type: none"> <li>• as a credit against income tax through an accelerated depreciation and or</li> <li>• against capital gains tax payable.</li> </ul>

Topic area	Options
<p>Technical barriers on CER visibility and operability</p>	<p>Establish a National DER Technical Standard Agency to enforce the current DER Standard AS/NZS4777.2:2020 and to quickly establish standards with regards to:</p> <ul style="list-style-type: none"> <li>• Set product standards for CER assets including product enforcement powers to approve standard compliant OEM products</li> <li>• Set cyber secure communication hardware, software and firmware standards for CER assets including product enforcement powers to approve standard compliant OEM products.</li> </ul> <p>Ensure that this agency is independent of current institutions with a clear mandate across all jurisdictions as well as access to financial resources to support its effectiveness.</p> <p>The objective of the agency would be to ensure the CER assets are being designed and manufactured to standards that comply with the visibility and operability requirements with little need for post-sale changes.</p>
<p>Better incentives for DNSPs as it relates to CER and coordination of CER</p>	<p>We consider that Project EDGE provides a reasonable pathway towards guiding the development of coordinating CER assets, however, the proposed arrangements are likely to increase the complexity of integrating CER. The critical party to the coordination of CER are the DNSPs, particularly if they become the Distribution System Operator (DSO) as envisioned in Project EDGE. To enable CER in the power system and market we recommend that there be further regulatory reforms to incentivise DNSPs in the critical areas of:</p> <ul style="list-style-type: none"> <li>• Network connection and registration reforms – this is non-revenue cap regulated service provided by DNSPs for a fee which is paid in addition to private transaction costs that must be incurred as part of the registration and connection process, where required. These fees are increasing and there are now multiple delays, given the resource constraints in DNSPs, and there should be rules considered that look to streamline as much as possible the connection and registration process including the fee arrangements.</li> <li>• Network tariff reforms – there is no easy solution to network tariff reform. However, there is a need for reforms that incentivise CER owners to sell ‘coordinated CER services’ to the market through aggregators-retailers. The current tariff structures are complex and do not provide incentives for CER assets.</li> </ul>

## Conclusion

The Draft 2024 ISP highlights the importance of Co-ordinated CER and BtM under its ODP. But AEMO also highlights the risks to the delivery of large-scale projects over the next decade. It clearly signals that Supply Chain Constraints (alone) could result in a 25% shortfall in the achievement of the Federal Government's 2030 Renewables Target – with a consequential shortfall in its Emissions Reduction Target.

Increased Co-ordinated CER is a potential “low hanging fruit” to make up the necessary shortfall if the Federal Government's Emissions Reduction Target is to be achieved taking account of the various implementation risks.

This highlights the need for quicker and realistic processes for the build-out of Co-ordinated CER, particularly on commercial premises. Energy Decarb has outlined some of the necessary actions to achieve the significant potential capacity from behind the meter solar PV on commercial building rooftops.

The submission also highlights that embedded BtM power control on commercial and industrial premises with market-facing wholesale trading offers a large-scale potential alternative to expansion of grid-based renewables that require development approvals and environmental approvals for competing uses of land for REZ's and major transmission interconnections.

In addition, the submission highlights that BtM energy trading of CER-based facilities reshapes the net power demand faced by grid-based power stations and networks, improving the utilisation and capital efficiency of existing transmission and distribution networks and generation facilities.

In line with these benefits, the submission particularly notes materials from AEMO and the AEMC on the significant benefits from Co-ordinated CER, including significant capex savings for transmission and large scale storage.

Energy Decarb therefore believes the Federal and State Governments should urgently consider switching funding from the \$20 billion Rewiring the Nation Fund and the expanded Capacity Investment Scheme to a financial support scheme to promote the accelerated take-up of CER/BtM assets, with particular focus on the significantly untapped area of commercial and industrial premises.