

11 February 2025

Merryn York  
Executive General Manager, System Design  
Australian Energy Market Operator  
Via e-mail: [forecasting.planning@aemo.com.au](mailto:forecasting.planning@aemo.com.au)

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Re: Submission to Draft 2025 Inputs Assumptions and Scenarios consultation

Dear Merryn,

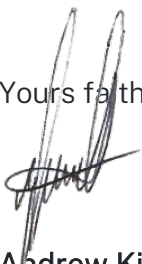
EnergyCo welcomes the opportunity to comment on the 2025 Draft Inputs, Assumptions and Scenarios Report (2025 Draft IASR) published by AEMO on 11 December 2024.

EnergyCo is the Infrastructure Planner for the Central-West Orana (CWO), New England (NE), South West (SW), Hunter-Central Coast (HCC) and Illawarra REZs in NSW, under the *Electricity Infrastructure Investment Act 2020*.

As Infrastructure Planner, EnergyCo has access to information on generation, storage and network infrastructure developments in NSW that may be useful for the ISP. We have included in our submission information on pumped hydro resource assumptions, wind resource in South West REZ, considerations arising from NSW REZ access schemes, and generation interest as an input to REZ build limits.

We would be pleased to discuss our submission with AEMO in further detail.

Yours faithfully,



**Andrew Kingsmill**  
Executive Director, Technical Advisory Services

# Feedback to Draft 2025 IASR Consultation

EnergyCo welcomes the opportunity to comment on the 2025 Draft Inputs, Assumptions and Scenarios Report (IASR) published by AEMO on 11 December 2024 in preparation for the development of the 2026 Integrated System Plan (ISP).

As Infrastructure Planner for the Central-West Orana (CWO), New England (NE), South West (SW), Hunter-Central Coast (HCC) and Illawarra REZs in NSW, EnergyCo provides potential network upgrade options for each REZ as inputs into the ISP, and considers the modelling outputs of the ISP when planning and delivering network infrastructure and associated programs within REZs.

As consistency between all organisations involved in joint planning is essential for a coordinated transition, we provide the following comments as part of this consultation on the Draft 2025 IASR.

## Pumped hydro resource assumptions

Pumped Hydro Energy Storage (PHES) build limits in NSW presented in the Draft 2025 IASR may be able to be updated to take into account current developer interest. EnergyCo is aware of projects that have progressed in development since the original adoption of these build limits, and recommends that current developer interest is taken into account in assumptions on build limits. These projects are listed in Table 1.

Table 1: Pumped hydro projects in development in NSW

Project Name	Company	Closest REZ	Capacity (MW)	Duration (Hrs)	Duration (MWh)	Link	Sub Region
Central West Pumped Hydro	ATCO Australia Pumped Hydro Pty Ltd	Central West Orana	325	8	2600	<a href="#">Link</a>	Central NSW
Glenbawn Dam PHES	Upper Hunter Hydro	Hunter Central Coast	770	10	7700	<a href="#">Link</a>	Northern NSW
Glennies Creek PHES	Upper Hunter Hydro	Hunter Central Coast	642	10	6420	<a href="#">Link</a>	Central NSW

Project Name	Company	Closest REZ	Capacity (MW)	Duration (Hrs)	Duration (MWh)	Link	Sub Region
Lake Lyell PHEs	Energy Australia	Central West Orana	385	8	3080	<a href="#">Link</a>	Central NSW
Muswellbrook PHEs	AGL Energy Limited & Idemitsu Australia Resources	Hunter Central Coast	400	8	3200	<a href="#">Link</a>	Central NSW
Phoenix Pumped Hydro	ACEN Australia	Central West Orana	810	12	9720	<a href="#">Link</a>	Central NSW
Shoalhaven Hydro Expansion Project	Origin Energy Eraring Pty Ltd	Illawarra	235	24	5640	<a href="#">Link</a>	Central NSW
Stratford Renewable Energy Hub - PHEs	Stratford Coal Pty Ltd	Hunter Central Coast	200	8	1600	<a href="#">Link</a>	Sydney Newcastle Wollongong <sup>1</sup>
Western Sydney Pumped Hydro	ZEN Energy Retail Pty Ltd	Illawarra	1000	8	8000	<a href="#">Link</a>	Sydney Newcastle Wollongong
Dungowan Dam PHEs	Mirus Energy, Energy Estate & EDF Australia	New England	300	10	3000	<a href="#">Link</a>	Northern NSW
Oven Mountain PHEs	Alinta Energy	New England	900	8	7200	<a href="#">Link</a>	Northern NSW
Snowy 2.0	Snowy Hydro	South West	2200	159	350000	<a href="#">Link</a>	Southern NSW

<sup>1</sup> Refer following comments regarding network upgrades that would provide capacity from the Stratford area into Sydney Newcastle Wollongong subregion.

Further, the Draft 2025 IASR has no build limit for PHES in the SNW subregion. EnergyCo is aware of pumped hydro projects being progressed through feasibility assessment and environmental approvals in and near SNW subregion, including Stratford Renewable Energy Hub at Gloucester, which has been declared Critical State Significant Infrastructure (CSSI) and has lodged an Environmental Impact Statement (EIS). With upgrades to lines 96P (Taree to Stroud) and 96F (Stroud to Tomago), this project could be considered part of the SNW subregion if it proceeds.

We recommend the inclusion of a PHES node in the SNW subregion to capture the resource opportunity identified by pumped hydro projects in and near the region, including a \$/MW cost to reflect network upgrades associated with the projects to provide capacity into the SNW subregion (similarly to the approach to modelling pumped hydro in other subregions).

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## Wind resource in the South West REZ

EnergyCo has recently reviewed wind generation traces for prospective projects located within the SW REZ as part of the NSW Roadmap Tender Round 5 for SW REZ Access Rights.

Wind project proponents have measured higher capacity factors in SW REZ than those in the Draft 2025 IASR. We recommend reviewing assumptions for the wind resource in SW REZ, in collaboration with generation proponents in the area.

Some proponents who participated in Tender Round 5 have provided permission for us to share their measured wind trace data with AEMO on a confidential basis. These are attached to this submission.

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## Consideration of NSW REZ Access Schemes

EnergyCo appreciates the consideration of NSW REZ Access schemes in the draft IASR, as they provide some certainty of expected generation in a REZ and limit the amount of generation that can connect to access rights network. We offer the following suggestions to incorporate outcomes of access schemes into the ISP modelling.

### Consideration of projects awarded access rights

EnergyCo expects the first round of successful access right holders for both CWO REZ and SW REZ will be announced in early 2025. These generation proponents will have been granted the right to negotiate connection to the REZ network infrastructure, and committed contractually to reach financial close and commissioning by certain target dates. We recommend that AEMO takes into account successful access right holders in generation forecasts, similarly to the current consideration of anticipated and committed generators, and in the forecasting of system strength requirements.

## Consideration of aggregate maximum capacity caps

The Draft 2025 IASR describes the following method of considering aggregate maximum capacity caps in ISP modelling:

***Central-West Orana** – a maximum connection limit of 7.7 GW of new variable renewable energy (VRE) is applied, and is lifted if transmission augmentation increases the REZ capacity beyond the scope of the Central-West Orana REZ Network Infrastructure Project.*

***South West New South Wales** – a maximum connection limit of 3.98 GW of new VRE is applied, and is lifted if transmission augmentation increases the REZ capacity beyond the scope delivered by Project EnergyConnect, HumeLink and Victoria – New South Wales Interconnector West (VNI West)*

EnergyCo notes that representation of Renewable Energy Zones in ISP modelling considers all connections in the geographic area of the REZ, while EnergyCo's aggregate maximum capacity caps apply only to connections on the access rights network, a subset of the network within the geographical boundary. As such any consideration of these caps in the ISP modelling should only apply to connections on the relevant access rights networks.

The aggregate maximum capacity cap of a REZ is increased through a headroom assessment. While this can occur if a transmission augmentation increases the transfer capacity of the REZ, it may be undertaken at any time the Infrastructure Planner forms the opinion that there is likely to be material headroom. This may occur, for example, as greater information is available on specific projects that are awarded access rights. The current aggregate maximum capacity caps are thus not an absolute statement of the maximum connection limit for a particular network augmentation. We recommend updating any wording on maximum connection limits used in the model.

While AEMO has stated that the maximum connection limits refer to VRE, EnergyCo's aggregate maximum capacity caps are a limit on the aggregate of maximum capacity allocated under access rights at each connection point on the access rights network, taking into account storage. This includes the nameplate capacity of stand-alone storage connections, and takes into account the effect of the storage component of hybrid projects (projects with generation and storage behind the same connection point) on enabling the hosting of more renewable generation. The maximum capacity of a hybrid project may be less than the sum of the nameplate capacities of the units behind the connection point.

Therefore, aggregate maximum capacity caps are not indicative of a build limit for wind and solar in the REZ for a particular REZ network option.

We are also aware of generation and storage developments proposing to connect to existing networks within CWO REZ that are not currently considered in the list of anticipated and committed generators. As such, there will likely be future connections beyond the limit presented by the aggregate maximum capacity cap for the CWO REZ access rights network. Similarly for SW REZ, any future connections to the existing network would be outside the aggregate maximum capacity cap. If access schemes are declared in other REZs, a similar situation may develop for those REZs, depending on the design of potential future access schemes.

EnergyCo has estimated the potential connection of variable renewable energy generation (wind and solar) in the geographic region of the CWO and SW REZs, across access rights network and the existing network, noting that this level of VRE connection requires an associated amount of storage (Table 2).

Table 2: Estimates of potential VRE connection in CWO and SW REZs considering access schemes

REZ	REZ transfer capacity (GW)	Potential VRE connection (MW)	Required Storage (MW)
CWO REZ transmission link + Hunter Transmission Project	4.5	7,798	3,786
CWO REZ Transmission link + Hunter Transmission Project + Sydney Southern Ring	6	10,039	5,062
SW REZ Option 1	2.5	3,560	700

We recommend AEMO consider using the maximum potential VRE connection numbers in Table 2 as connection limits for VRE in the relevant REZs, for the given transfer capacities of the access rights network, beyond which further network options would be required to increase REZ transfer capacity and/or expand the footprint of the transmission network within the REZ.

## REZ build limits

The current methodology for determining REZ build limits is based on applying fixed percentages to the area of each REZ, and adjusting for known developer interest and feedback from NSPs.

EnergyCo notes that project interest in some NSW REZs is approaching or exceeding the REZ resource limits proposed in this Draft 2025 IASR, and recommends AEMO take this into account when reviewing the currently proposed limits.

Table 3 below summarises developer interest of projects greater than 30 MW that are electrically in or near each of the REZs, have submitted a planning application, and were not considered existing, committed or anticipated in the 2022 ISP. This interest is compared against the proposed build limits in the Draft 2025 IASR, and limits that are exceeded by interest are highlighted in red.

Table 3: Project interest in or electrically near NSW REZs, considering projects >30 MW, which have at least submitted a planning application, and were not considered in the 2022 ISP

	Solar			Wind		
	Total NSW interest (MW)	2025 IASR Soft limit (MW)	2025 IASR Hard limit (MW)	Total NSW interest (MW)	2025 IASR Soft limit (MW)	2025 IASR Hard limit (MW)
N1: North West NSW	1,645	6,385	11,412	0	0	4,755
N2: New-England REZ	2,812	2,985	11,044	1,710	7,400	4,602
N3: Central-West-Orana REZ	6,654	6,850	10,847	5,557	3,000	4,519
N4: Broken Hill	0	8,000	15,151	0	5,100	6,313
N5: South-West REZ	5,677	2,256	13,477	15,993	3,900	5,615
N6: Wagga Wagga	2,146	1,028	5,056	680	1,000	2,106
N7: Tumut	100	0	6,767	400	0	2,819
N8: Cooma-Monaro	350	0	1,988	113	300	828
N9: Hunter-Central-Coast REZ	953	516	3,659	455	1,400	1,524
N12: Illawarra	0	0	172	0	0	71
N13: South Cobar	0	3,285	6,207	216	2,094	2,586
N0: Outside all other regions	3,410	0	1,679	910	0	699
Total	23,747	31,305	81,249	26,034	24,194	33,854



The solar resource limit (soft limit) is exceeded for the South West, Wagga Wagga, Tumut, Cooma Monaro, Hunter Central Coast and non-REZ regions. The solar land use limit (hard limit) is exceeded in non-REZ regions. Both the wind land use limit (hard limit) and the resource limit (soft limit) are exceed for the Central-West Orana, South-West and non-REZ regions. We recommend AEMO considers raising these soft limits.

EnergyCo would be pleased to undertake further work with AEMO on the representation of these limits in the IASR.