AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

Appendix A3. Renewable Energy Zones

December 2025

Appendix to the Draft 2026 Integrated System Plan for the National Electricity Market

We acknowledge the Traditional Custodians of the land, seas and waters across Australia. We honour the wisdom of Aboriginal and Torres Strait Islander Elders past and present and embrace future generations.

We acknowledge that, wherever we work, we do so on Aboriginal and Torres Strait Islander lands. We pay respect to the world's oldest continuing culture and First Nations peoples' deep and continuing connection to Country; and hope that our work can benefit both people and Country.

'Journey of unity: AEMO's Reconciliation Path' by Lani Balzan

AEMO is proud to have launched its first Reconciliation Action Plan in May 2024. 'Journey of unity: AEMO's Reconciliation Path' was created by Wiradjuri artist Lani Balzan to visually narrate our ongoing journey towards reconciliation – a collaborative endeavour that honours First Nations cultures, fosters mutual understanding, and paves the way for a brighter, more inclusive future.

Important notice

Purpose

This is Appendix A3 to the Draft 2026 Integrated System Plan (ISP) which is available at https://aemo.com.au/energy-systems/major-publications/integrated-system-plan-isp. AEMO publishes the Draft 2026 ISP pursuant to its functions under section 49(2) of the National Electricity Law (which defines AEMO's functions as National Transmission Planner) and its supporting functions under the National Electricity Rules. This document is generally based on information available to AEMO as at 1 July 2025 unless otherwise indicated.

Disclaimer

AEMO has made reasonable efforts to ensure the quality of the information in this publication but cannot guarantee that information, forecasts and assumptions are accurate, complete or appropriate for your circumstances.

Modelling work performed as part of preparing this publication inherently requires assumptions about future behaviours and market interactions, which may result in forecasts that deviate from future conditions. There will usually be differences between estimated and actual results, because events and circumstances frequently do not occur as expected, and those differences may be material.

This publication does not include all of the information that an investor, participant or potential participant in the National Electricity Market might require, and does not amount to a recommendation of any investment.

Anyone proposing to use the information in this publication (which includes information and forecasts from third parties) should independently verify its accuracy, completeness and suitability for purpose, and obtain independent and specific advice from appropriate experts.

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Version control

Version	Release date	Changes
1.0	10/12/2025	Initial release.

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Executive summary

AEMO's ISP is a roadmap for the NEM's transition and outlines an 'optimal development path' (ODP) for generation, storage and network investments to meet Australia's future energy needs.

The Draft 2026 ISP reaffirms that renewable energy, connected by transmission and distribution, firmed with storage and backed up by gas, presents the least-cost way to supply secure and reliable electricity to consumers as coal plants retire, while meeting government policies through to 2050.

The ODP forecasts a need for nearly 120 gigawatts (GW) of utility-scale variable renewable energy (VRE) by 2049-50 in the *Step Change* scenario. It also indicates more battery energy storage systems (BESS) than in previous ODPs, firming renewables, enhancing the utilisation of existing transmission and potentially deferring or reducing the need for new transmission.

Renewable energy zones (REZs) are high-quality resource areas where clusters of large-scale renewable energy projects can be developed using economies of scale. New network investment has been identified in the proposed ODP for this Draft 2026 ISP to connect these areas, and efficiently and reliably supply consumers as coal generators retire.

Appendix A3 identifies a selection of candidate REZs as well renewable energy development opportunities and network investments identified in the proposed ODP[1].

It sets out:

- **A3.1 REZ candidates**:
  - A map of the 44 short-listed candidate REZs across eastern and south-eastern Australia that AEMO has identified following rigorous consultation.
  - An overview of how these candidate zones were identified, including information on indigenous interests.
- **A3.2 REZ development overview** to help NEM stakeholders visualise the scale and speed of expected VRE development projected in all scenarios:
  - Information on resource diversity, resource quality, and projected curtailment (as REZs with high-quality wind and solar resources generally experience high network utilisation and low curtailment).
  - An outline of jurisdictional regulatory frameworks for REZ development.
- **A3.3 Regional outlook and REZ scorecards**
  - Regional outlook to help NEM stakeholders visualise the scale and speed of expected VRE development projected in all scenarios, highlighting REZs of greatest near-term interest.
  - REZ scorecards to provide NEM stakeholders with detailed data for specific REZs in all scenarios

AEMO recognises the importance of consultative, coordinated and efficient REZ development in supporting state and federal governments to achieve emission reduction policies. AEMO is continuing to work with jurisdictions to ensure the ISP reflects their policies and development plans.

[1] Outcomes presented in this appendix are based on the optimal development path (ODP), which is CDP4 described in Appendix A6. Cost benefit analysis.

Key changes from the 2024 ISP

AEMO notes the following key changes for Appendix A3 between the 2024 ISP and the Draft 2026 ISP.

Changes to REZ geographic boundaries and resource areas

- **New South Wales** – South Cobar, a new candidate REZ in the vicinity of Central West New South Wales, has been added following joint planning with Transgrid and EnergyCo.
- **Queensland** – AEMO has changed the boundary of the Isaac REZ, and added a nearby new candidate REZ – Collinsville REZ to align with the Queensland Government's REZ Roadmap identification of REZs in that area as well as the mapping of those REZ to the revised Central and Northern Queensland definitions.
- **South Australia** – an expansion of the Northern South Australia REZ has been implemented to include the Whyalla West area in the vicinity of Central West South Australia. This has been updated to assess the potential benefits of renewable energy in the areas identified in the South Australian Government's land release framework for renewable energy.

  Additionally, the ISP has removed the offshore candidate REZ South East South Australia Coast, and Leigh Creek REZ based on joint planning advice.
- **Victoria** – the candidate REZs in Victoria have been updated to be consistent with the 2025 Victorian Transmission Plan. The revised REZs in Victoria for ISP modelling purposes are North West Victoria, Central Highlands, Grampians Wimmera, Wimmera Southern Mallee, South West Victoria, Gippsland Onshore, Central North Victoria, Gippsland Offshore, and Southern Ocean. Grampians Wimmera and Wimmera Southern Mallee are part of the Western Victoria REZ reported in the 2025 Victorian Transmission Plan; to remain consistent this appendix will also report on these REZ as Western Victoria REZ.

Changes to REZ outlooks

In general, increases in transmission costs and falling costs of BESS along with government storage policies (Capacity Investment Scheme, Firm Energy Reliability Mechanism) results in higher projected uptake of BESS both within and outside of REZs, and at all voltage levels, compared to previous ISPs. More projected solar coupled with storage uptake can increase the utilisation of new and existing transmission infrastructure by reducing network congestion as it allows excess VRE to be stored during VRE peaks and discharged during VRE droughts, even without new infrastructure.

The Draft 2026 ISP shows there is significant potential to maximise Australia's clean energy supply by efficiently co-locating storage with renewables, but some transmission augmentation is still critical.

A3.1 REZ candidates

A3.1.1 Identifying REZ candidates

REZ candidates were initially developed in consultation with stakeholders for the 2018 ISP[2] and used as inputs to the ISP model. These candidates have been continuously updated and refined through subsequent ISP and *Inputs, Assumptions and Scenarios Report* (IASR) consultation processes.

Since the 2024 ISP, considerable government and transmission network service provider (TNSP) development of REZs has taken place. Jurisdictions have progressed REZ development through REZ roadmaps and emission reduction, energy generation and storage targets enshrined in policy.

An efficiently located REZ can be identified by considering a range of factors, primarily:

- quality of renewable resources, diversity relative to other renewable resources, and correlation with demand,
- the cost of developing or augmenting transmission connections to transport the renewable generation produced in the REZ to consumers,
- the proximity to load, and the network losses incurred to transport generated electricity to load centres,
- the critical physical requirements to enable the connection of new resources (particularly inverter-based equipment) and ensure continued power system security, and
- in some cases, the capability of the distribution network to host VRE[3].

Futher details on the selection of REZ candidates is detailed in the IASR[4], and the 44 REZs are shown in **Figure 1**. Details and costs of REZ augmentation options are in the 2025 *Electricity Network Options Report*[5].

Renewable energy developers, network companies and governments are responsible for development of REZs, including early and active engagement with communities, land title holders and affected persons as part of the detailed designs for REZs.

The following sections in this appendix present AEMO's identification of REZs within each NEM region. AEMO has worked with state and federal governments as part of defining the locations and renewable resources within the REZs in each state, cognisant that governments may have strategic land-use planning and rural and regional economic development objectives, among others, to overlay on REZ identification.

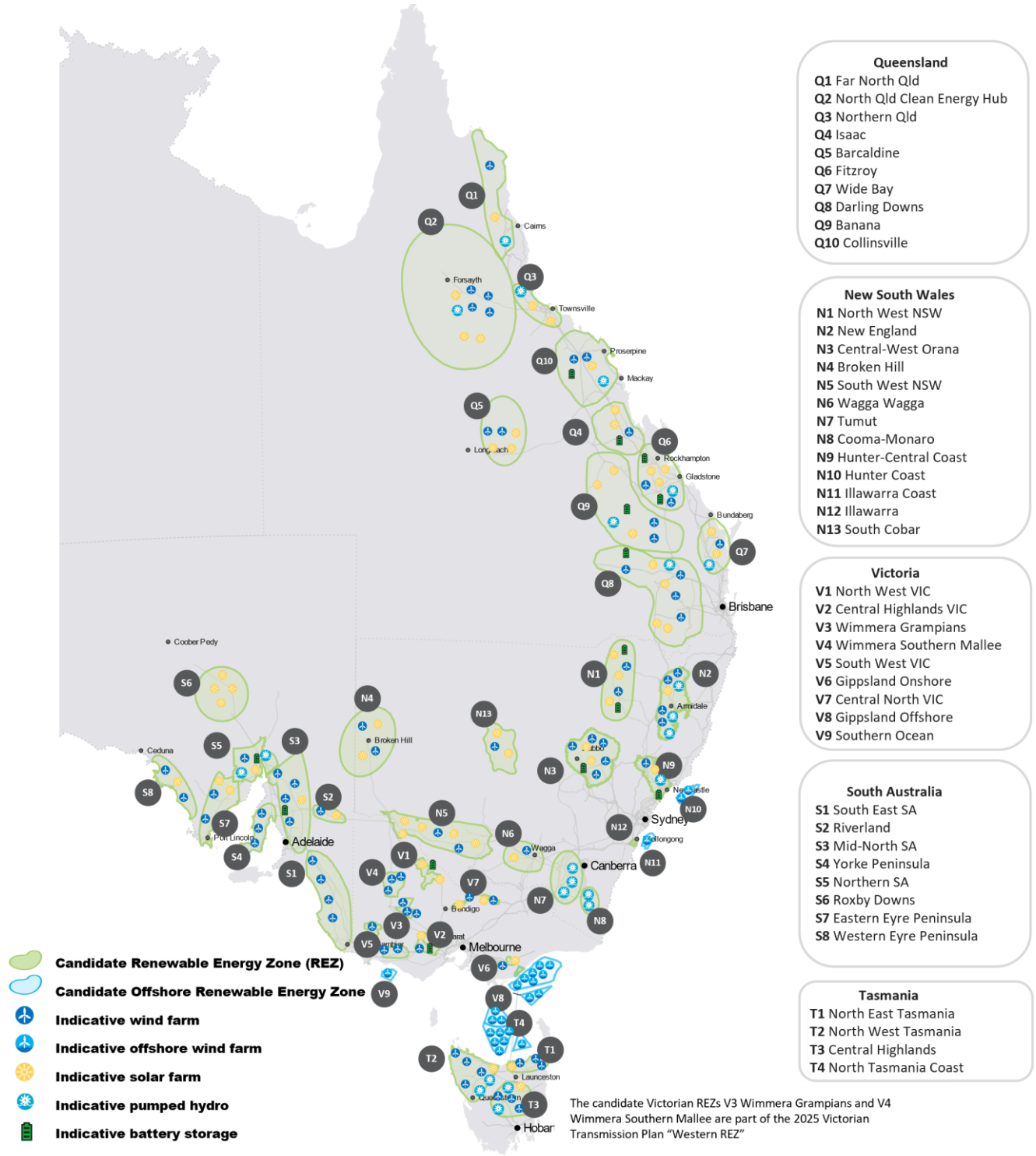
[2] At https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/isp/2018/integrated-system-plan-2018_final.pdf?la=enandhash=40A09040B912C8DE0298FDF4D2C02C6C.

[3] AEMO has modelled four regions of large utility-scale generation zones connected to distribution. The representation of these regions has been informed by inputs from the DNSPs, that were gathered and consulted on through AEMO's 2025 *Electricity Network Options Report*.

[4] At https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2024/2025-iasr-scenarios/final-docs/2025-inputs-assumptions-and-scenarios-report.pdf?rev=63268acd3f044adb9f5f3a32b6880c27&sc_lang=en.

[5] At https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2025/2025-electricity-network-options-report/final/2025-electricity-network-options-report.pdf?la=en.

Figure 1 2026 REZ candidates



Note: the location of generation symbols is illustrative only – these symbols do not reflect the location of actual projects or the location where projects should be developed. Similarly, the REZ boundaries are illustrative only. In some jurisdictions, where REZs are 'declared', the electrical boundaries of those REZs are defined through that declaration.

A3.1.2 Indigenous interests

REZ developments could provide a range of opportunities for Indigenous communities in regional and remote areas. As REZs progress from concepts to pre-feasibility studies, it is important that Traditional Owners and land councils are consulted early, often and throughout the development process. Early and genuine engagement can:

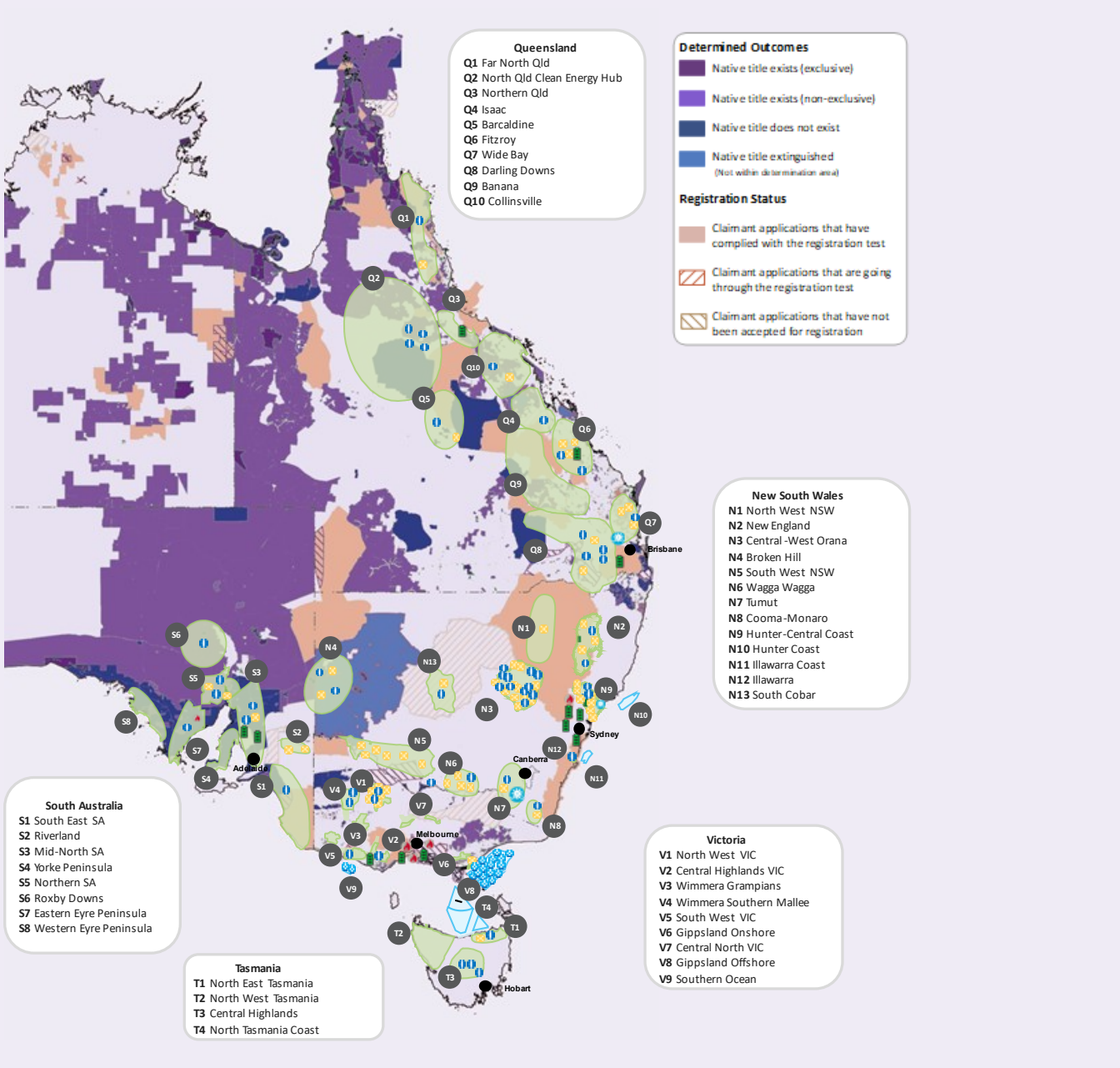
- improve designs by considering local knowledge,
- minimise the impact on areas of cultural significance,
- provide training, employment and other opportunities for local First Nations people, and
- build and maintain the social licence to deliver timely infrastructure.

The National Native Title Tribunal has developed a map of *Native Title Determinations and Claimant Applications*[6]. This map illustrates determination outcomes for native title claimant applications across Australia.

Figure 2 overlays candidate REZs across the native title map to illustrate the broader impacts that energy infrastructure development could have on Indigenous lands and interests, and to highlight a significant overlap between Indigenous land granted and potential energy infrastructure.

[6] National Native Title Tribunal Schedule and Determinations map. May 2024, at http://www.nntt.gov.au/Maps/Schedule_and_Determinations_map.pdf.

Figure 2 Candidate REZs shown on the National Native Title Tribunal, Native Title Determinations and Claimant Applications map



This figure has been reproduced with the permission of the National Native Title Tribunal.

A3.2 REZ development overview

This Draft 2026 ISP projects the need for 77 GW of utility-scale VRE in the NEM out to 2034-35 in the *Step Change* scenario. Allowing for the strong growth in consumer energy resources (CER), the NEM will still need 81 GW to 219 GW of VRE by 2049-50, depending on the scenario. To supply consumers with reliable, low-cost electricity, this ISP considers efficient VRE development by identifying candidate REZs with strong development factors.

There are factors that generally affect the development of a REZ and may change between ISPs, even if the REZ is the same. They include but are not limited to:

- energy targets, policies and scenarios,
- the timing of coal exiting the system,
- resource quality,
- existing and forecast BESS in the REZ and at load centres,
- demand within the REZ themselves, including future potential for hydrogen electrolyser co-located with renewable generation developments,
- existing transmission network capacity,
- demand correlation,
- cost of developing or augmenting the transmission network,
- proximity to the load centre,
- the amount of 'Other distributed resources' (ODR) solar and BESS connected to utility distribution networks, and
- social licence, or the trust and social acceptance for the development of generation, storage and associated network, by the people most affected by its impacts, opportunities and challenges.

The general increase in transmission costs, coupled with falling costs of BESS and government policies supporting dispatchable capacity (Capacity Investment Scheme, Firm Energy Reliability Mechanism), has resulted in a large uptake in BESS both within and outside of REZs, and at all voltage levels. BESS uptake helps firm VRE by allowing excess to be stored during VRE peaks and discharged during VRE droughts, even without new infrastructure, and improves the utilisation of both existing and new transmission infrastructure.

This uptake, along with slower decommitment of coal units than previously modelled and the 'winding back' of some existing renewable energy targets (specifically in Queensland), results in the need for some REZ transmission builds being deferred.

In every scenario – *Slower Growth, Step Change and Accelerated Transition* – large increases in VRE are needed. Targeted and strategic investment is required to balance resources across states and unlock much needed REZs while minimising infrastructure's environmental footprint on land and country.

Figure 3 to **Figure 5** illustrate the co-optimised geographical dispersion of VRE development for 2029-30, 2039-40 and 2049-50 in each scenario. Geographical VRE dispersion in each scenario emphasises the importance of efficient, coordinated and priority development of REZ candidates. REZs with projections of more than 5,000 MW by 2050 include

Central West Orana, Fitzroy, New England, Hunter Central Coast, North West Victoria, Gippsland offshore and Darling Downs.

Figure 3 Forecast geographic dispersion of new VRE developments in the *Step Change* scenario in 2029-30 (left), 2039-40 (middle), 2049-50 (right)

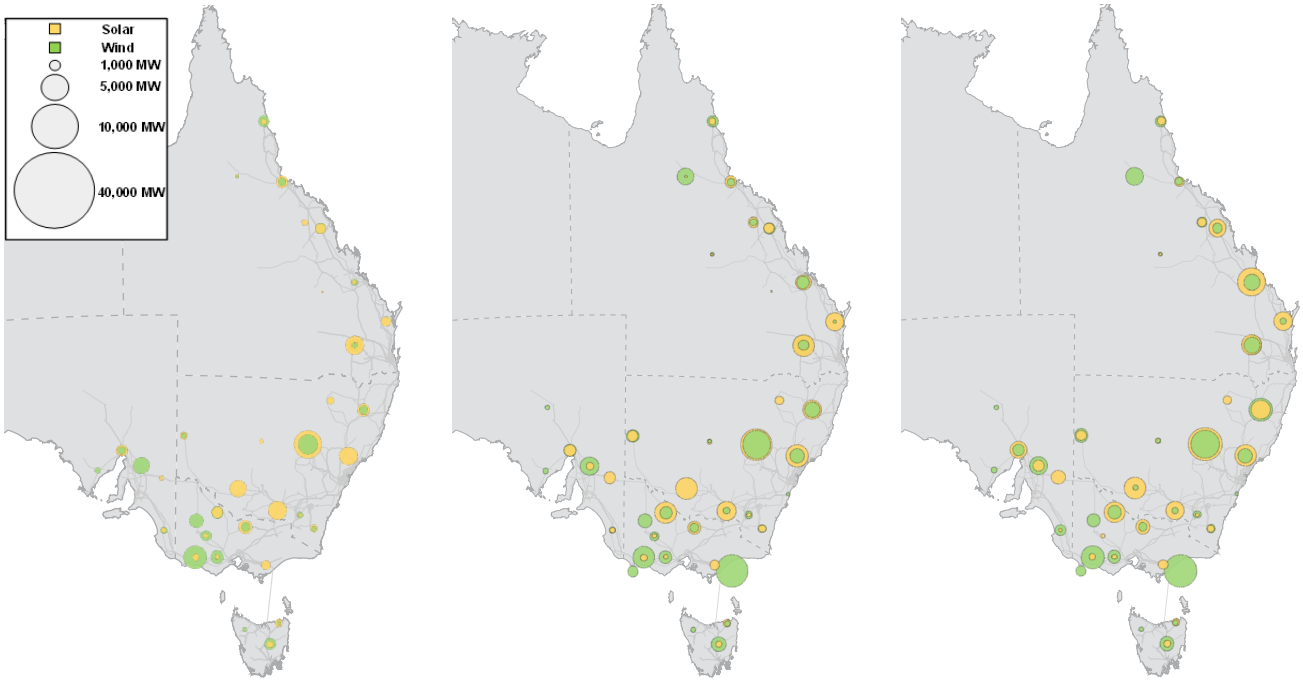


Figure 4 Forecast geographic dispersion of new VRE developments in the *Slower Growth* scenario in 2029-30 (left), 2039-40 (middle), 2049-50 (right)

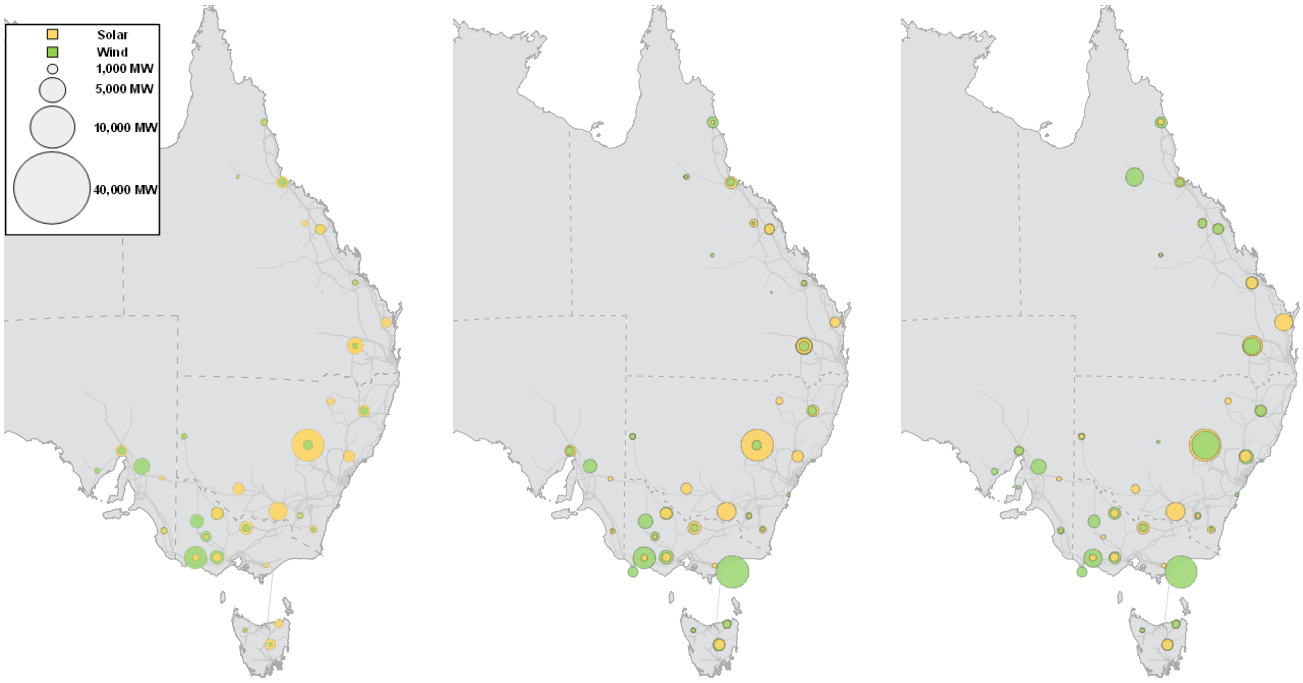
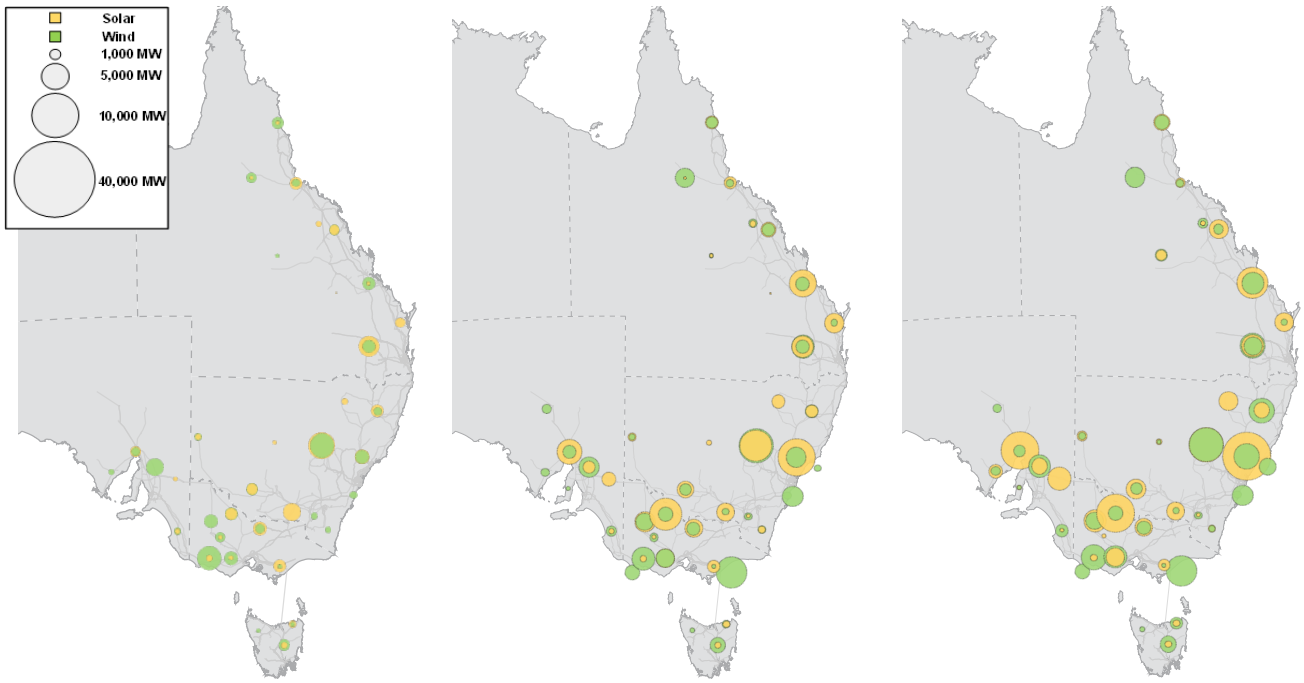


Figure 5 Forecast geographic dispersion of new VRE developments in the *Accelerated Transition* scenario in 2029-30 (left), 2039-40 (middle), 2049-50 (right)



A3.2.1 Diversity of resources in REZs

In the Draft 2026 ISP, AEMO identifies an 'optimal development path' (ODP) for generation, storage and network investments to meet both consumer needs and government policies, at least cost, for at least the next 20 years. From a REZ perspective, this least-cost optimisation allows for the consideration of resource diversity, economic spill[7] and network curtailment[8] to maximise utilisation of VRE while minimising the transmission network expansion.

As an example, **Figure 6** illustrates the forecast cumulative new utility-scale VRE, economic spill and network curtailment in *Step Change,* across the NEM. As an example, **Figure 6** illustrates the forecast cumulative new utility-scale VRE, economic spill and network curtailment in *Step Change,* across the NEM. To accommodate the projected utility-scale VRE of nearly 120 GW by 2050, the forecast economic spill is 15% and network curtailment is approximately 6%.To accommodate the projected utility-scale VRE of nearly 120 GW by 2050, the forecast economic spill is 15% and network curtailment is approximately 6%.

Optimising VRE build is a balance between maximising VRE expansion and developing sufficient transmission and distribution, and storage capacity. It is uneconomic to develop capacity to capture all peak VRE generation potential, and some degree of economic spill and network curtailment is inevitable. After peaking in 2033 at 19%, economic spill remains low (around 12%) due to coal units turning off[9] during times of high renewable output as well as higher solar generation efficiently pairing with utility-scale storage capacity projected than in previous ODPs. To 2049-50, economic spill and

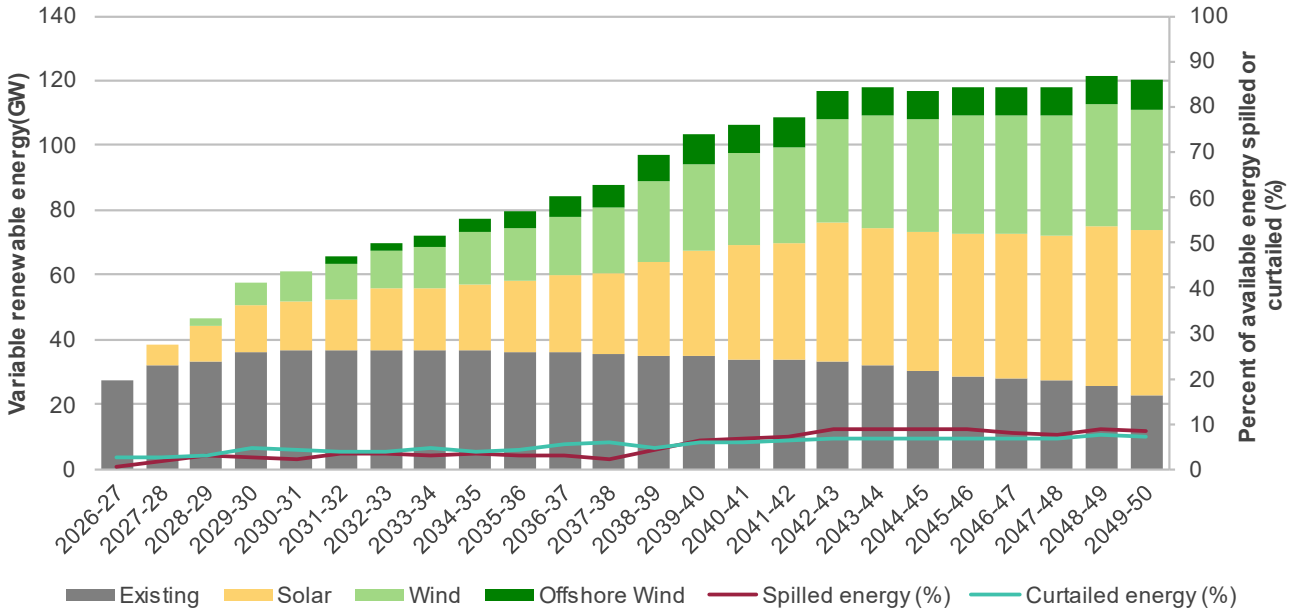
[7] Economic spill (also called economic offloading) occurs when generation reduces output due to unfavourable market price.

[8] Network curtailment occurs when generation is constrained down or off due to operational limits such as voltage or thermal limitations.

[9] These results are assuming successful decoupling of reliance on coal for system security, through investment in synchronous condensers or equivalent. Refer to Appendix A7 System Security for further detail.

network curtailment fluctuates as coal retires, VRE capacity increases, and regional demand shifts. Further detail on VRE curtailment is provided in Appendix A4.

Figure 6 Projected new utility-scale VRE in REZ for the NEM, economic spill and network curtailment, *Step Change* scenario (GW)



A3.2.2 Regulatory framework for REZ development

AEMO aims to incorporate renewable energy targets and REZ development plans from state and federal governments into ISP modelling. Additionally, the REZ design report[10] framework in the National Electricity Rules (NER) aims to improve network planning for REZs.

This framework allows AEMO to trigger the requirement to prepare a REZ design report by the jurisdictional planning body if:

- a REZ including transmission network development is specified on the ODP of an ISP within 12 years of the publication of that ISP, and
- AEMO reasonably considers the Minister of the relevant jurisdiction supports the preparation of a REZ design report.

The requirement to prepare a REZ design report places obligations on the jurisdictional planning body to undertake consultation with potential generators, local councils, local community members, members of the public and any other relevant stakeholders wishing to express their views about developments in the REZ.

Additionally, the jurisdictional planning body and TNSPs (in their capacity as regulatory investment test for transmission (RIT-T) proponents) must engage with interested parties, including local community members, as part of preparatory

[10] NER clause 5.24.1 REZ design reports.

activities in the planning process in accordance with community engagement expectations[11]. Specifically, the NER require TNSPs to engage with interested parties when planning for ISP projects and REZ stages from the development of the ISP, through the joint planning process, to the completion of the RIT-T.

To date, AEMO has not triggered a REZ design report. Some jurisdictions are now progressing REZ projects under their own jurisdictional frameworks[12] rather than the NER framework for actionable ISP projects. Additionally, AEMO may receive information on REZ design considerations from the jurisdictional planning bodies through preparatory activities.

A3.2.3 REZ group constraints

The transmission network is a complex and interconnected system. Transmission flows are influenced by generation and system services across multiple locations. Within AEMO's capacity outlook model, simplifications are needed to represent the power system to keep the optimisation problem tractable, which may rely on flow limits being influenced by single REZ outcomes. To address this need, 'group constraints' are applied. These constraints combine either the generation from more than one REZ, or the generation within a REZ with the power flow along a flow path, to reflect transmission limits that apply to multiple areas of the power system.

The 2025 IASR[13] contains a complete list of the group constraints that apply in the capacity outlook model. These have been developed by considering the limits observed from power system analysis, and in consultation with TNSPs.

[11] AEMC. *Enhancing community engagement in transmission building*, at https://www.aemc.gov.au/rule-changes/enhancing-community-engagement-transmission-building. These NER changes commenced operation on 5 December 2023.

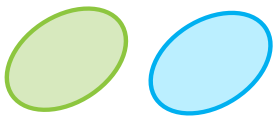
[12] For example, the *Electricity Infrastructure Investment Act 2020* (NSW), the Victorian transmission investment framework established under the *National Electricity Victoria Act 2005* (NEVA) (Vic) and the *Energy (Renewable Transformation and Jobs) Act 2024* (Qld).

[13] At https://www.aemo.com.au/energy-systems/major-publications/integrated-system-plan-isp/2026-integrated-system-plan-isp/2025-26-inputs-assumptions-and-scenarios.

A3.3 Regional outlook and REZ scorecards

A3.3.1 REZ scorecard details

The REZ scorecards in this section provide an overview of the characteristics of each REZ. The following table explains the criteria in the scorecards.

<table>
<tr><th colspan="7">REZ report card details</th></tr>
<tr><td colspan="7">REZ assessments</td></tr>
<tr><td>REZ grouping</td><td colspan="6">REZs are grouped into the following:
• REZs where design and community engagement are progressing.
• REZs where the coordination of generation infrastructure may be required.
• REZs where the coordination of transmission and generation infrastructure is required.
• REZs where the coordination of transmission and generation infrastructure can start later.</td></tr>
<tr><td colspan="7">Renewable resources</td></tr>
<tr><td rowspan="3">Map legend</td><td colspan="6">Indicative generation is shown based on the Step Change VRE outlook in 2040:</td></tr>
<tr><td>Wind</td><td>Offshore Wind</td><td colspan="2">Solar</td><td colspan="2">Hydro</td></tr>
<tr><td colspan="2">The green and blue shading shows the indicative geographic area of onshore and offshore REZs, respectively. Augmentation options shown are described in more detail in the Electricity Network Options Report[14].</td><td colspan="4">  </td></tr>
<tr><td rowspan="11">Metrics</td><td colspan="6">Resource quality for solar is the average capacity factor based on 11 reference years:</td></tr>
<tr><td>≥30%</td><td>≥28%</td><td>≥26%</td><td>≥24%</td><td>≥22%</td><td><22%</td></tr>
<tr><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td></tr>
<tr><td colspan="6">Resource quality for wind is the average capacity factor based on 11 reference years:</td></tr>
<tr><td>≥45%</td><td>≥40%</td><td colspan="2">≥35%</td><td>≥30%</td><td><30%</td></tr>
<tr><td>A</td><td>B</td><td colspan="2">C</td><td>D</td><td>E</td></tr>
<tr><td colspan="6">Demand correlation describes whether the REZ resources are available at the same time as the regional demand, using a statistical correlation factor. A higher correlation represents that the resource is more available at regional demand:</td></tr>
<tr><td>≥0.12</td><td>≥0.06</td><td>≥0.0</td><td>≥-0.10</td><td>≥-0.20</td><td><-0.20</td></tr>
<tr><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td></tr>
<tr><td colspan="6">Loss factor robustness is a sensitivity of marginal loss factor (MLF) to additional generation inside the REZ. This is calculated using Step Change scenario outcomes during the Final 2026 ISP. As such, results are omitted from the Draft 2026 ISP scorecards. The measure used is the additional generation (in MW) that can be added before the MLF changes by -0.05:</td></tr>
<tr><td>≥1,000</td><td>≥800</td><td>≥600</td><td>≥400</td><td>≥200</td><td><200</td></tr>
<tr><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td></tr>
</table>

[14] At https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2025/2025-electricity-network-options-report/final/2025-electricity-network-options-report.pdf?la=en.

<table>
<tr><th colspan="3">REZ report card details</th></tr>
<tr><td></td><td colspan="2">Renewable potential outlines possible REZ size in MW based on the geographical size and resource quality in the REZ. Additional capacity (in MW) above the resource limit is allowed for within the market modelling, but this incurs a penalty factor to account for likely social licence and community support costs. This can occur for all scenarios, but is predominantly seen in the Accelerated Transition results.</td></tr>
<tr><td colspan="3">Climate hazard</td></tr>
<tr><td rowspan="6"></td><td colspan="2">The REZ temperature score is based on the projected once in 10-year maximum temperatures[A] for the years 2030 and 2050. Temperature scores for offshore REZs consider the area on land that is expected to connect.</td></tr>
<tr><td>Score</td><td>Description</td></tr>
<tr><td>A</td><td>Between 28°C and 38°C</td></tr>
<tr><td>B</td><td>Between 30°C and 44°C</td></tr>
<tr><td>C</td><td>Between 32°C and 48°C</td></tr>
<tr><td>D</td><td>Between 34°C and 50°C</td></tr>
<tr><td>E</td><td>Between 44°C and 52°C</td></tr>
<tr><td>Bushfire</td><td colspan="2">The REZ bushfire score is based on the projection of annual average FFDI "high" fire danger days[B] around the years 2030 and 2050 and the probability of large bushfires occurring (a dominant input). Bushfire scores for offshore REZs consider the area on land that is expected to connect.</td></tr>
<tr><td rowspan="6"></td><td>Score</td><td>Description</td></tr>
<tr><td>A</td><td>Model projections associate less than half the days of a year with high fire danger days and a probability of zero large fires in 20 years.</td></tr>
<tr><td>B</td><td>Model projections associate less than half the days of a year with high fire danger days and a probability of one large fire in 20 years.</td></tr>
<tr><td>C</td><td>Model projections associate more than half the days of a year with high fire danger days and a probability of one large fire in 20 years.</td></tr>
<tr><td>D</td><td>Model projections associate more than half the days of a year with high fire danger days and a probability of between one and four large fires in 20 years.</td></tr>
<tr><td>E</td><td>Model projections associate more than half the days of a year with high fire danger days and a probability of one large fire in three years.</td></tr>
<tr><td colspan="3">Variable generation outlook</td></tr>
<tr><td>Scenario</td><td colspan="2">Long-term market simulations of different scenarios named Slower Growth, Step Change and Accelerated Transition.</td></tr>
<tr><td>Existing, committed and anticipated generation</td><td colspan="2">The existing, committed and anticipated generation as of July 2025, based on the July 2025 Generation information page published by AEMO. This metric includes some data not used as an input to ISP modelling.</td></tr>
<tr><td>Projected variable generation, BESS and electrolyser load</td><td colspan="2">Long-term market simulations of projected variable energy outlook for utility-scale solar, wind and BESS generation as well as hydrogen electrolyser load at different time intervals across all scenarios. All VRE projections are based on the optimal development path and is in addition to existing, committed and anticipated generation. All values are rounded to the nearest 50 MW.</td></tr>
<tr><td colspan="3">Transmission expansion forecasts</td></tr>
<tr><td>Transmission limit</td><td colspan="2">The limit represents the network limit for the total VRE within a REZ. REZ expansion options are generally linearised, that is, they are not discrete options.</td></tr>
<tr><td>Network curtailment</td><td colspan="2">Curtailment happens when generation reduces output due to transmission network congestion. It is represented as a percentage of VRE. The network curtailment is calculated based on the electricity capacity outlook model, and is rounded to nearest 1%.</td></tr>
<tr><td>Economic spill</td><td colspan="2">Economic spill happens when generation reduces output due to market price. It is represented as a percentage of VRE and rounded to nearest 1%.</td></tr>
</table>

A. Once in 10-year maximum temperature data was provided by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) for 2030 and 2050.
B. A "high" fire danger day is defined as any day where the Forest Fire Danger Index (FFDI) is greater than 12.
C. Advised seasonal generation capacities are taken into account in the modelling and are detailed in the Inputs and Assumptions Workbook.

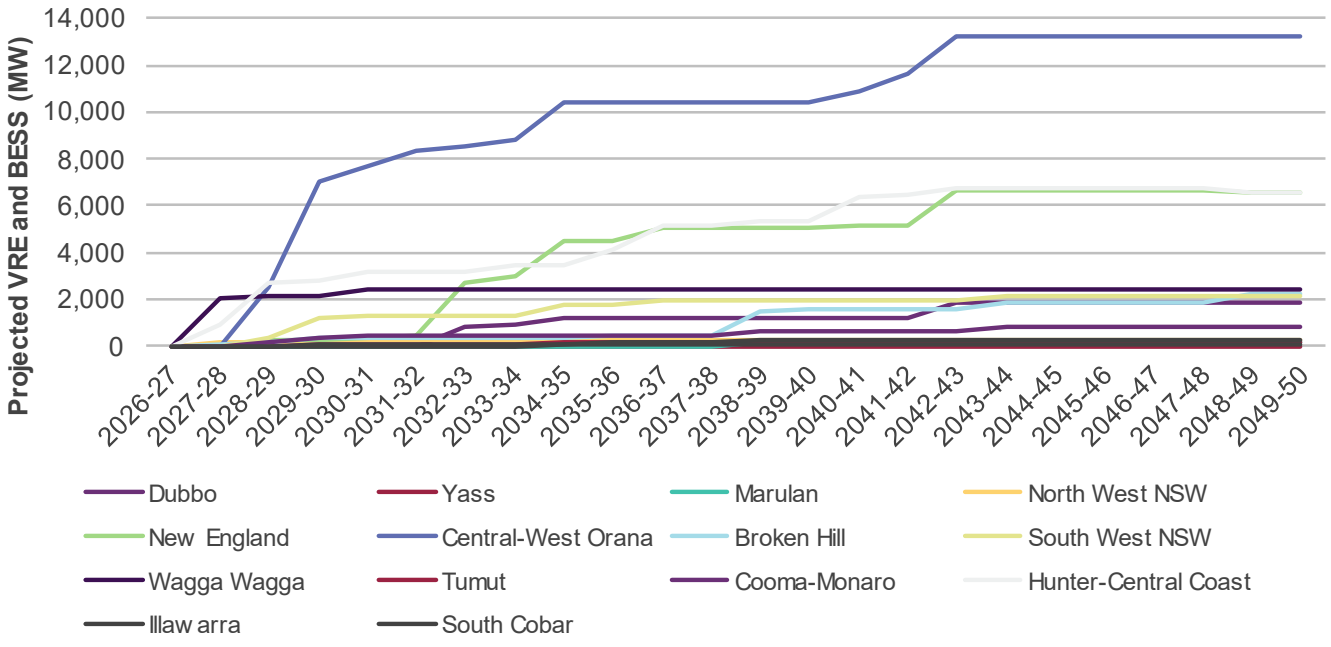
A3.3.2 New South Wales

REZ outlook

In New South Wales, over 34 GW of new utility-scale wind and solar VRE located in REZs is projected by 2050 in *Step Change* scenario to assist in replacing retiring coal-fired generation capacity. **Figure 7** shows the new utility-scale VRE projected for each REZ in New South Wales under *Step Change*. This modelling indicates:

- From the start of the study horizon, there would be a rapid increase in VRE projected in the Central-West Orana and Wagga Wagga REZs, with 2,500 MW and 2,100 MW respectively of new VRE capacity by 2028-29. By 2030-31 this has increased to 7,700 MW and 2,500 MW respectively. After this, Wagga Wagga development stops, while Central-West Orana is projected to increase to over 13 GW in the 2040s.
- There would be 2,500 MW of VRE capacity installed by 2028-29 in the New England REZ, with installed capacity increasing above 6 GW after 2040..
- Broken Hill sees projected solar capacity from about 2030 before over 1,000 MW of wind is modelled by 2038-39. By 2050, over 2 GW of VRE is projected.
- South West New South Wales shows approximately 1,200 MW of VRE developments from 2029-30, and about 2,100 MW by 2049-50.
- Other REZs in New South Wales – such as Tumut, Cooma-Monaro, the Illawarra and South Cobar – also see smaller developments later in the study horizon, and account for less than 4% of the total projected utility -scale VRE developments in New South Wales.
- Significant distribution connected VRE is projected to be unlocked throughout the distribution network. Over 2 GW is required by the end of the horizon by 2050, mostly in the Dubbo area.
- No offshore wind development is projected in the *Step Change* results for New South Wales, largely due to the assumptions around cost and availability.
- Although there is some large utility-scale storage in New South Wales's REZs, most utility-scale storage projected in the region is located around the load centre in Sydney, Newcastle and Wollongong. By 2029-30 there is approximately 8.7 GW/43 GWh of utility-scale storage capacity projected increasing to nearly 11 GW/54.9 GWh by the end of the horizon.

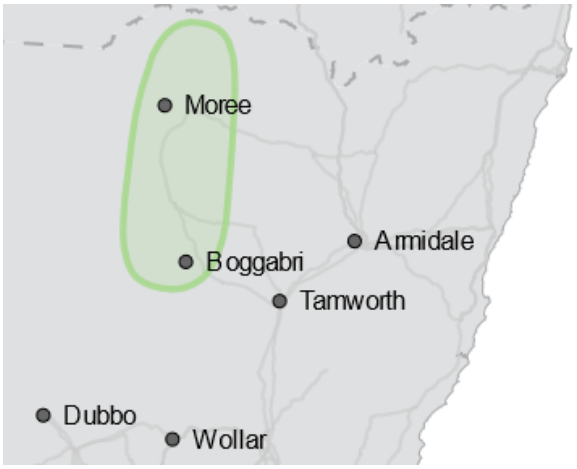
Figure 7 New South Wales utility-scale VRE and BESS development in REZs for *Step Change* (MW)



N1 – North West New South Wales

Summary

The North West New South Wales (NWNSW) REZ is located to the west of the existing Queensland – New South Wales Interconnector (QNI). While this zone has B grade solar resource quality, the wind resource is estimated to be mostly inadequate for wind farm development.



Existing network capability

The existing 132 kV network is weak and would require significant network upgrades to accommodate VRE greater than the transmission limit of approximately 170 MW.

REZ grouping

Infrastructure coordination can start later	Modelling outcomes indicate a low likelihood that significant investment in transmission infrastructure will be optimally required in the next 20 years, beyond what is already committed/anticipated.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	B			E		
Renewable Potential (MW)	6385			-		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	D	**Bushfire score**	E

REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	166	200	200	200	0	0	0	0
Step Change		250	250	250		0	0	0
Accelerated Transition		150	1,000	2,650		0	0	0

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	0	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0	50
Accelerated Transition		0	100	750		0	400	650

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)

VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	2%	15%	3%	21%	10%	42%
Step Change	3%	21%	1%	38%	1%	43%
Accelerated Transition	0%	16%	0%	36%	0%	36%

N2 – New England

Summary	
New England REZ is located to the east of and along the existing QNI. The capacity of this REZ is supported by extensive Northern NSW – Central NSW corridor network options and it will be part of New England REZ infrastructure development. This REZ has C grade solar and wind resource quality in close proximity to the 330 kV network. Interest in the area includes large scale solar and wind generation as well as pumped hydro generation.	
Existing network capability	
The existing network capacity, following completion of the committed QNI Minor upgrade, is limited by transient and voltage stability on the circuits between Bulli Creek, Sapphire and Dumaresq. Thermal limits on the 330 kV circuits between Armidale, Tamworth, Muswellbrook and Liddell can also restrict flows on this network.	

REZ grouping	
REZ design and community engagement is progressing	On 17 December 2021, the New England REZ was formally declared to progress under the *Electricity Infrastructure Act 2020* (NSW) rather than through the RIT-T framework. This declaration identifies that EnergyCo is the appointed infrastructure planner responsible for coordinating the delivery of the REZ. More information about the delivery of the New England REZ is available on EnergyCo NSW's website[15].

Metrics						
Resource	**Solar**			**Wind**		
Resource Quality	C			C		
Renewable Potential (MW)	2,985			7400		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	C	**Bushfire score**	E

REZ Outlook

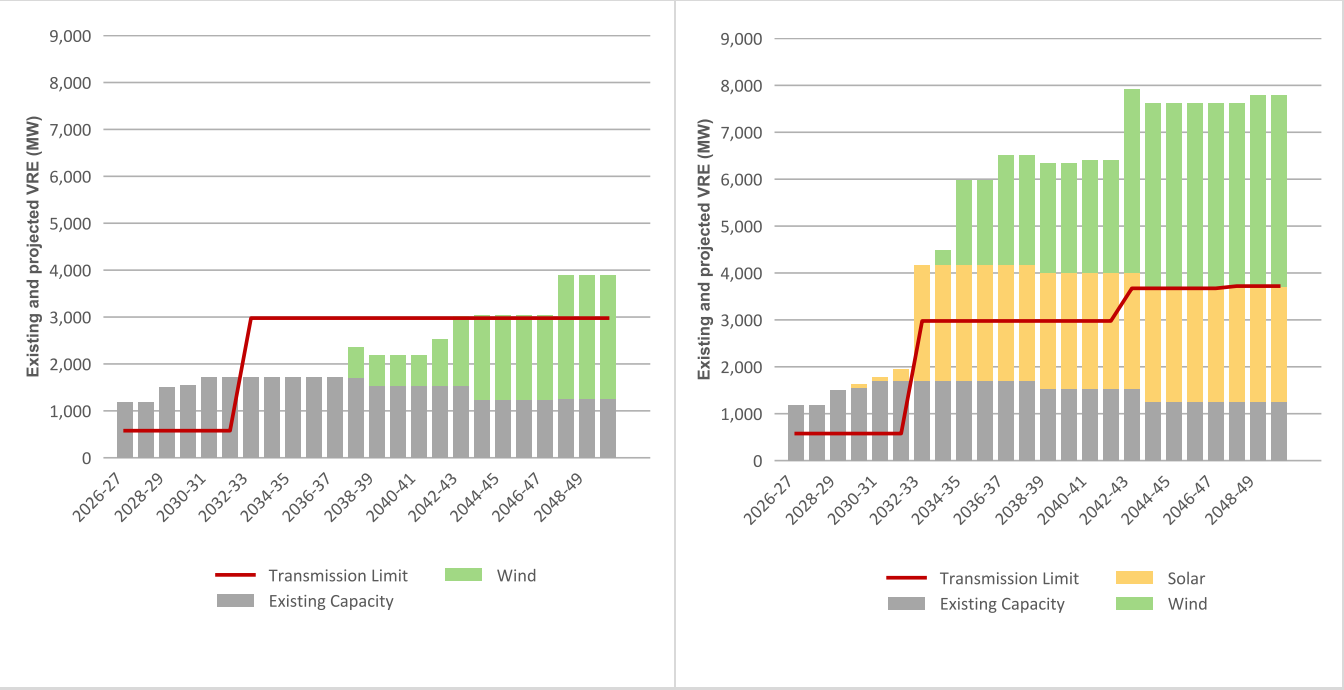
	Solar PV (MW)				Wind (MW)			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	1056	0	0	0	652	0	650	2,650
Step Change		50	2,450	2,450		0	2,350	4,050
Accelerated Transition		0	0	700		0	2,900	4,550

[15] See https://www.energyco.nsw.gov.au/ne-rez.

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)		
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected		
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	200	0	0	0	0	0	50	100
Step Change		250	250	50		0	50	100
Accelerated Transition		200	200	0		0	850	1,100

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	5%	22%	0%	4%	0%	4%
Step Change	2%	15%	0%	13%	0%	15%
Accelerated Transition	1%	14%	0%	15%	0%	20%

N3 – Central-West Orana

Summary

Central-West Orana REZ has been identified by the New South Wales Government as the state's first pilot REZ. The Central-West Orana REZ is electrically close to the Sydney load centre and has moderate wind and solar resources.

The Central-West Orana REZ was declared on 5 November 2021 under the *Electricity Infrastructure Investment Act 2020* (NSW)[16]. The declaration was amended in December 2023 to increase the intended network capacity. The Central-West Orana REZ has an intended 6,000 MW[17] of additional network capacity, with an initial stage of 4,500 MW to be delivered from 2027-28, to be constructed in the Central West New South Wales region of the state. The declaration identifies that EnergyCo will be the infrastructure planner responsible for coordinating the development of the REZ.

The project to establish the Central-West Orana REZ is considered committed, with construction of Australia's first REZ commencing in mid-2025. EnergyCo have awarded 7.15 GW of generation and storage projects under its access rights scheme[18].

Existing network capability

The project to establish the Central-West Orana REZ is considered committed. As such the existing network capability is assumed to be approximately 5,400 MW, incorporating the Central-West Orana REZ transmission link project (4,500 MW), as well as existing network capability (900 MW).

Hunter Transmission Project 1.0 (CNSW-SNW Option 1) is required to address network constraints between CNSW and SNW to enable the increase in network capacity from 3,000 MW to 4,500 MW for the Central-West Orana REZ Transmission Project.

REZ grouping

REZ design and community engagement is progressing	The Central-West Orana REZ was formally declared in November 2021. EnergyCo, appointed as the Infrastructure Planner for the Central-West Orana REZ, consulted on the revised study corridor for the REZ transmission project in early 2022.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	B			C		
Renewable Potential (MW)	4,450			6,850		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	C	**Bushfire score**	E

[16] See https://www.energyco.nsw.gov.au/cwo-rez and https://gazette.nsw.gov.au/gazette/2021/11/2021-569.pdf.

[17] See Government Gazette No 580 of Friday 15 December 2023, at https://gazette.legislation.nsw.gov.au/so/download.w3p?id=Gazette_2023_2023-580.pdf.

[18] See https://www.energyco.nsw.gov.au/central-west-orana-access-scheme.

REZ Outlook

	Solar PV (MW)				Wind (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected		
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	1496	6,700	6,700	6,700	667	0	0	4,950
Step Change		4,750	6,100	7,700		2,300	4,300	5,550
Accelerated Transition		3,800	6,100	7,800		3,900	6,900	7,350

	Battery energy storage systems (MW)				Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected		
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	415	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0
Accelerated Transition		0	0	0		0	0	0

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)

VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	2%	15%	2%	8%	1%	6%
Step Change	1%	7%	0%	9%	0%	8%
Accelerated Transition	1%	5%	0%	13%	0%	15%

Dubbo distribution

Summary

The Dubbo distribution REZ is located near Dubbo in Central New South Wales, proposing to initially connect 2.4 GW of generation and storage to both distribution (Essential Energy) and transmission (Transgrid). The Dubbo distribution REZ project has been jointly planned between EnergyCo, Essential Energy and Transgrid.
Options expand the distribution and transmission network in Central West New South Wales to export generation and storage to supply the Sydney, Newcastle, Wollongong area and local loads. This distribution REZ is separate to the Central-West Orana REZ and has been modelled independently.

AEMO has identified a potential augmentation option to unlock capacity at Dubbo as a future distribution project, outlined in Appendix A5.

Existing network capability

There is no additional network capacity within this REZ.

REZ grouping

Coordination of generation and network infrastructure may be required.	Modelling outcomes identify this zone for development of moderate amounts of solar, wind after 2030 and BESS in the mid 2040s. Network augmentation may be required to unlock this zone.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	C			C		
Renewable Potential (MW)	1,300			1,050		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	C	**Bushfire score**	E

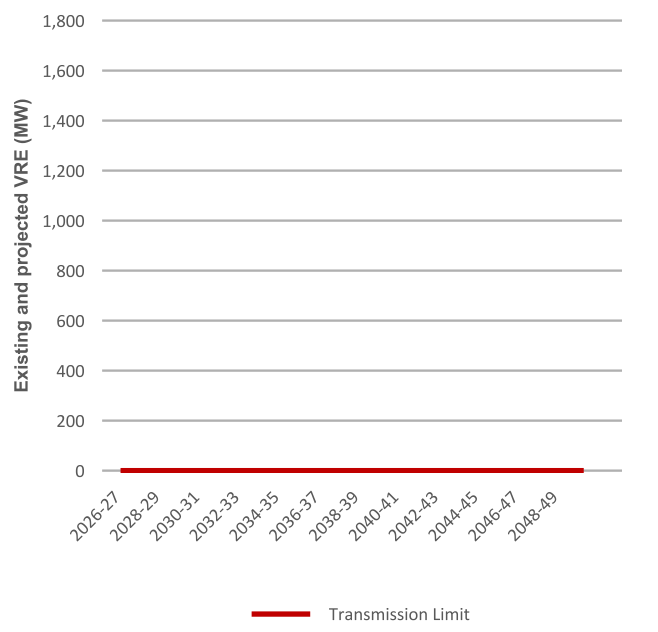
REZ Outlook

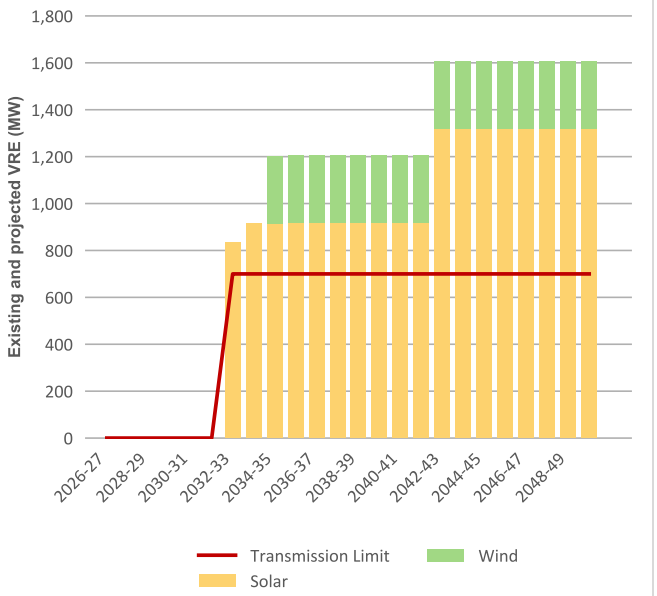
	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	0	0	0	0	0
Step Change		0	900	1,300		0	300	300
Accelerated Transition		0	1,000	1,300		0	300	300

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	0	0	0	0	0	0	0	0	0
Step Change		0	0	300		0	0	0	0
Accelerated Transition		0	0	250		0	0	0	0

Transmission access expansion forecast for *Step Change,* there is no distribution VRE projected in *Slower Growth*.





VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	-	-	-	-	-	-
Step Change	100%	99%	0%	28%	0%	31%
Accelerated Transition	100%	99%	0%	45%	0%	50%

N4 – Broken Hill

Summary

Broken Hill REZ has grade A solar resource quality and grade B wind quality. It is connected to the New South Wales grid via a 220 kV line from Buronga with an approximate length of 270 km.

AEMO has not identified actionable or future ISP projects for this REZ, and will continue to explore options in the final 2026 ISP.

Existing network capability

Due to the existing utility-scale solar and wind generation projects already operating in this REZ, there is limited network capacity within this REZ. Further development of new generation development in this REZ requires significant transmission network augmentation due to the distance of the REZ from the main transmission paths of the shared network.

REZ grouping

Coordination of generation infrastructure may be required	Modelling outcomes identify this REZ for development of solar and wind generation mostly in the 2030s. Coordination of generation and transmission infrastructure may be required.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	A			B		
Renewable Potential (MW)	8,000			5,100		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	E	**Bushfire score**	C

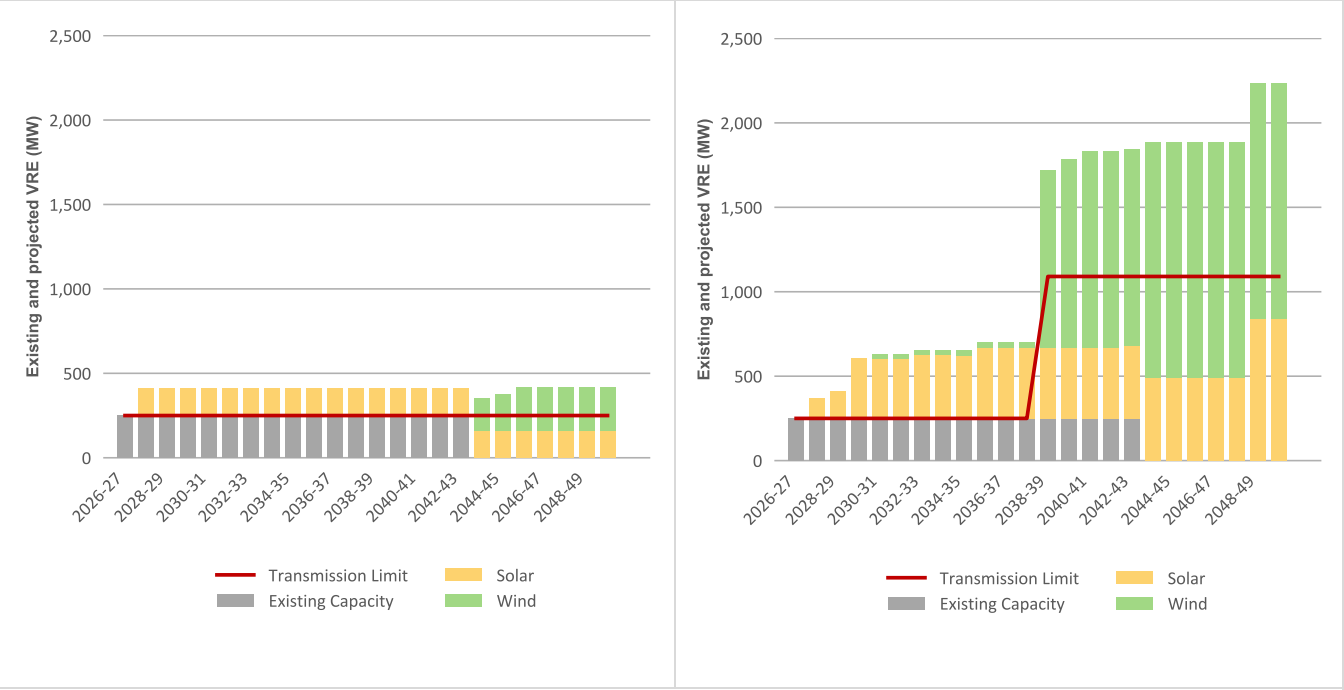
REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	53	150	150	150	198	0	0	250
Step Change		350	400	850		0	1,100	1,400
Accelerated Transition		200	400	700		50	100	450

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)		
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected		
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	50	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0
Accelerated Transition		0	0	0		0	0	0

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



Note: AEMO to explore between Draft and Final ISPs why capacity build is occurring in the Broken Hill REZ rather than the South West REZ.

VRE curtailment

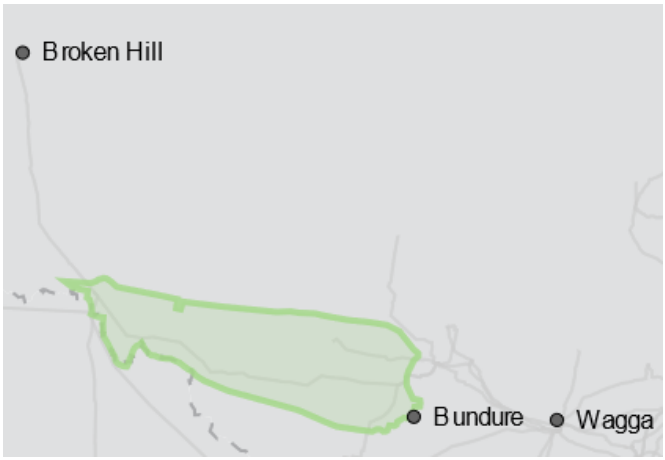
Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	12%	0%	20%	0%	25%
Step Change	0%	12%	0%	16%	1%	21%
Accelerated Transition	0%	11%	0%	47%	0%	51%

N5 – South West NSW

Summary

The South West NSW REZ has grade B solar resource quality and incorporates the Dinawan 330 kV substation that will be built as part of Project EnergyConnect. Further west, the 220 kV links to North West Victoria and Broken Hill. This REZ is one of the REZs being targeted for further development under the NSW Electricity Infrastructure Roadmap. Transmission Network limits associated with the existing voltage stability limit for loss of the existing Darlington Point to Wagga 330 kV line are represented by the SWNSW1 secondary transmission limit.

EnergyCo has contracted generator access right holders, and will support ongoing community and stakeholder consultation.



Existing network capability

Due to the existing utility-scale solar projects already operating within this REZ, there is no additional network capacity. Further development of new generation in this REZ requires network augmentation towards the greater Sydney load centre. The capacity within this REZ and ability to transfer energy from the REZ to the main load centres in the greater Sydney area will be improved with the construction of Project EnergyConnect and HumeLink projects. Furthermore, VNI West also increases the capacity of this REZ.

REZ grouping

REZ design and community engagement is progressing	The South-West NSW REZ[19] was formally declared in November 2022 under the *Electricity Infrastructure Investment Act 2020*[20], which is the first step in formalising the REZ under the Act.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	B			C		
Renewable Potential (MW)	5,677			14,000		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	E	**Bushfire score**	D

REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	904	0	0	0	0	0	0	0
Step Change		1,200	1,950	1,950		0	0	200
Accelerated Transition		0	1,100	2,300		1,050	1,050	1,050

[19] EnergyCo, South-West Renewable Energy Zone, at https://www.energyco.nsw.gov.au/sw-rez.

[20] New South Wales Government, *Electricity Infrastructure Investment Act 2020* (NSW), at https://legislation.nsw.gov.au/view/html/inforce/current/act-2020-044.

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	50	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0
Accelerated Transition		0	0	0		0	0	0

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)

Note: AEMO to explore between Draft and final ISPs why capacity build is occurring in the Broken Hill REZ rather than the South West REZ.

VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	1%	0%	3%	0%	0%
Step Change	1%	13%	0%	24%	0%	17%
Accelerated Transition	0%	5%	0%	27%	0%	32%

N6 – Wagga Wagga

Summary

This REZ extends to the west of Wagga Wagga and has C grade solar resource quality.

Existing network capability

There is no additional capacity within this REZ due to congestion in the surrounding 330 kV networks. Further development of new generation in this REZ requires network augmentation towards the greater Sydney load centre. Additionally, the capacity within this REZ and ability to transfer energy from the REZ to the main load centres in the greater Sydney area are improved with the committed HumeLink project.

REZ grouping

Coordination of generation infrastructure may be required	Modelling outcomes indicate this REZ for the development of mostly solar generation, utilising the capacity unlocked by Humelink. Significant investment in VRE is identified in the next 5 years under the proposed ODP. Ongoing community engagement is underway for HumeLink.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	C			C		
Renewable Potential (MW)	2,146			1,000		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard

Temperature score	D	**Bushfire score**	D

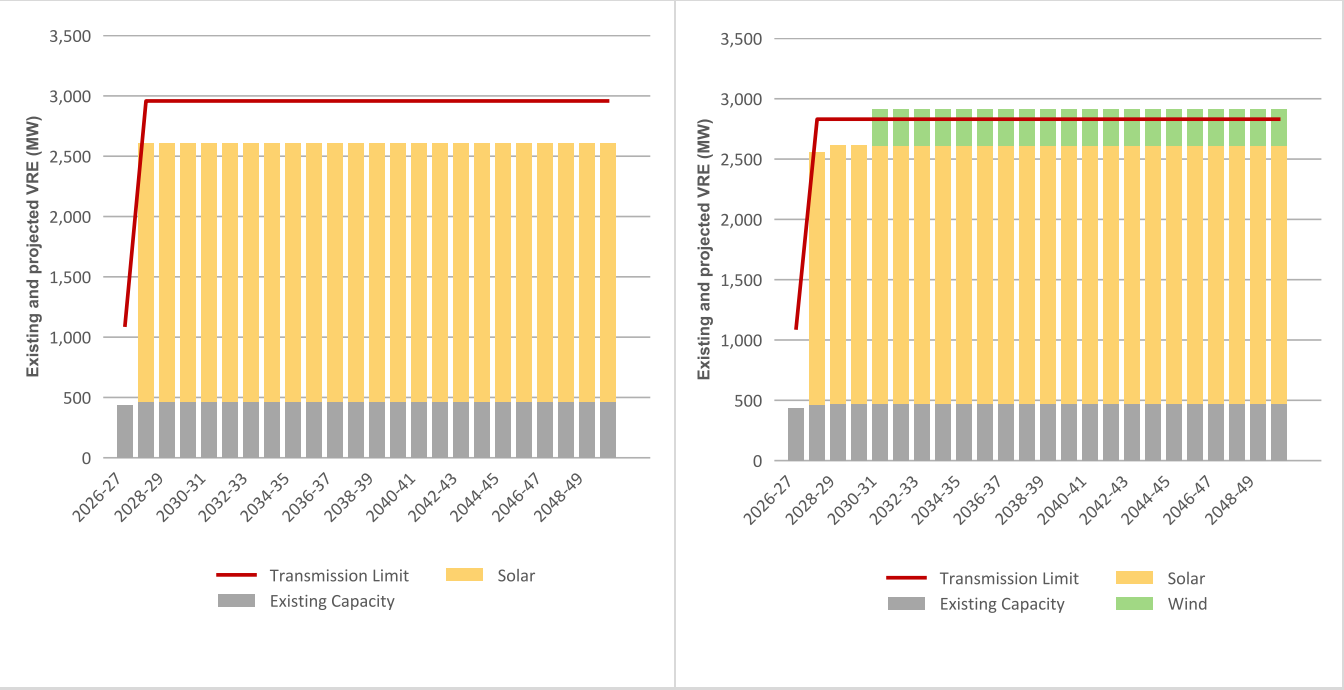
REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	466	2,150	2,150	2,150	0	0	0	0
Step Change		2,150	2,150	2,150		0	300	300
Accelerated Transition		1,500	2,150	2,150		0	200	200

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)		
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected		
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	10	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0
Accelerated Transition		0	0	0		0	0	50

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



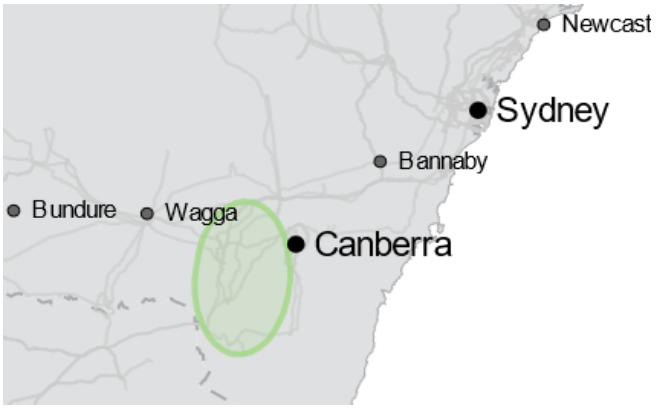
VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	3%	0%	4%	0%	1%
Step Change	0%	7%	0%	14%	0%	15%
Accelerated Transition	0%	7%	0%	27%	0%	33%

N7 – Tumut

Summary

The Tumut REZ has been identified due to the potential for additional pumped hydro generation in association with Snowy 2.0 and HumeLink. The HumeLink project will enable the connection of more than 2,000 MW of pumped hydro generation (Snowy 2.0) in the Tumut REZ area.



Existing network capability

There is no additional network capacity within this REZ. Further development of new generation in this REZ is associated with the HumeLink project. Currently the 330 kV transmission network around Lower and Upper Tumut is congested during peak demand periods. A careful balance of generation from the existing hydro units and flow between Victoria and New South Wales is required to prevent overloads within this area.

REZ grouping

Design and community engagements are progressing	Modelling outcomes indicate a low likelihood that significant investment in VRE and transmission infrastructure will be required in the next 20 years under the proposed ODP. Ongoing community engagement is underway for HumeLink.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	D			C		
Renewable Potential (MW)	100			400		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	B	B	B

Climate hazard

Temperature score	C	**Bushfire score**	E

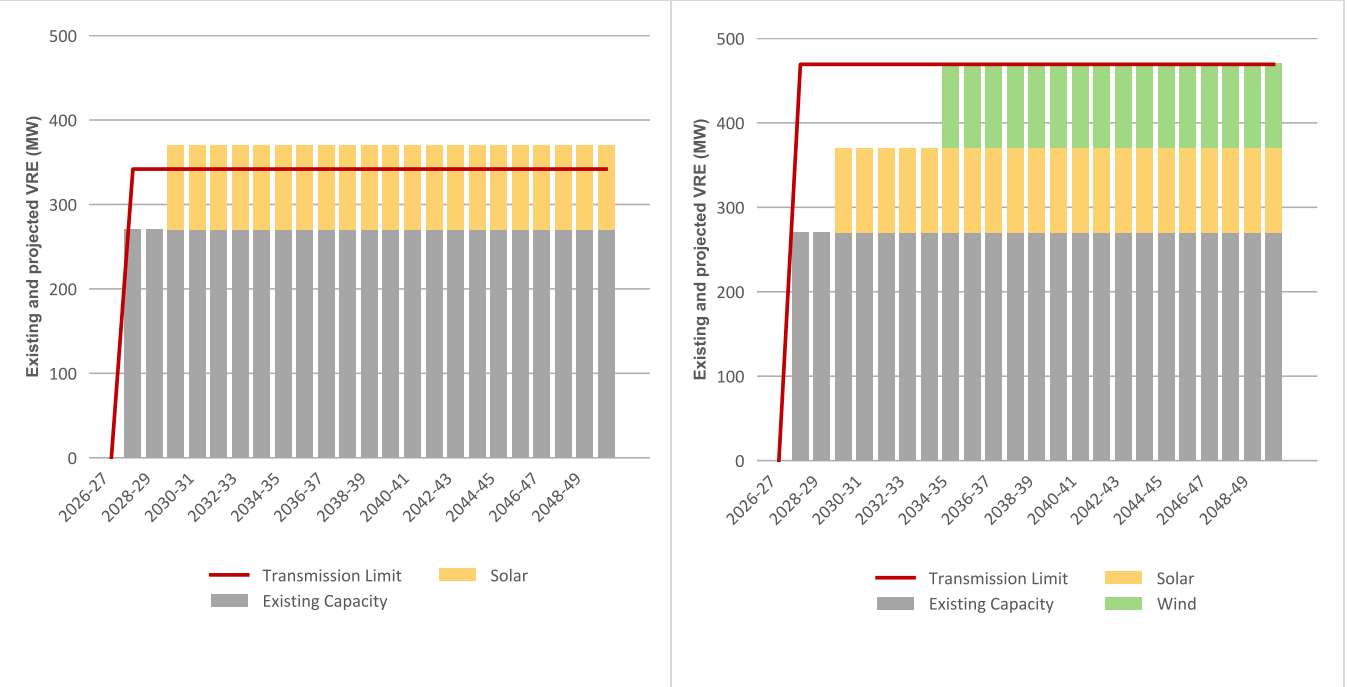
REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	100	100	100	270	0	0	0
Step Change		100	100	100		0	100	100
Accelerated Transition		0	100	100		0	100	100

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50	
Slower Growth	110	0	0	0	0	0	0	0	
Step Change		0	0	0		0	0	0	
Accelerated Transition		0	0	0		0	0	0	

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	3%	0%	11%	0%	7%
Step Change	0%	9%	0%	15%	0%	16%
Accelerated Transition	0%	3%	0%	24%	0%	23%

N8 – Cooma-Monaro

Summary

The Cooma-Monaro REZ has been identified for its pumped hydro potential. This REZ has C grade wind resource quality

Existing network capability

The existing 132 kV network connecting Cooma-Monaro REZ to Canberra, Williamsdale and Munyang can accommodate approximately 200 MW of additional generation.

REZ grouping

Coordination of generation and transmission infrastructure may be required.	The modelling outcomes identify this zone for development of mostly solar generation with wind projected later in the horizon. This REZ could benefit from early community engagements and from the coordination of generation.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	D			C		
Renewable Potential (MW)	350			300		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	B

Climate hazard

Temperature score	B	**Bushfire score**	E

REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	350	350	350	113	0	0	100
Step Change		350	350	350		50	300	500
Accelerated Transition		0	350	350		100	300	300

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)		
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected		
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	0	0	0	0	0	0	50	100
Step Change		0	0	0		0	50	100
Accelerated Transition		0	0	0		0	150	200

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)

VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	9%	0%	6%	0%	13%
Step Change	0%	17%	0%	27%	0%	29%
Accelerated Transition	0%	7%	0%	33%	0%	36%

N9 – Hunter-Central Coast

Summary

The Hunter-Central Coast (HCC) REZ[21] has been identified to assist industries to decarbonise and access renewable energy with a mix of solar, onshore and offshore wind energy projects.

The REZ was declared on 9 December 2022 with 1,000 MW of intended network capacity[22] and EnergyCo has been appointed the Infrastructure Planner enabled by the *Electricity Infrastructure Investment Act 2020*.

The capacity of the Hunter-Central Coast REZ is likely to increase over time with the retirement of coal-fired power stations, re-purposing of mining land and the growth of offshore wind.

Existing network capability

This REZ is intended to supply SNW and it is assumed that supply to SNW would also include high southbound flows from Northern to Central New South Wales (NNSW to CNSW). The REZ transmission limit is set to 400 MW to reflect this condition.The REZ transmission network limit is set to 400 MW to reflect this condition.

REZ grouping	
REZ design and community engagement is progressing	The Hunter Central Coast REZ was formally declared in December 2022 and generation and transmission infrastructure coordination is progressing. The modelling outcomes identify this zone for significant development of VRE generation and utility-scale storage for all scenarios.

Metrics						
Resource	**Solar**			**Wind**		
Resource Quality	D			D		
Renewable Potential (MW)	953			1,400		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	A	**Bushfire score**	E

REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	950	950	950	0	0	0	1,500
Step Change		2,400	3,100	3,650		0	1,500	1,500
Accelerated Transition		1,550	9,950	18,300		1,300	3,050	5,050

[21] See https://www.energyco.nsw.gov.au/our-projects/hunter-central-coast-rez.

[22] See https://gazette.legislation.nsw.gov.au/so/download.w3p?id=Gazette_2022_2022-569.pdf.

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	960	0	0	200	0	0	50	100
Step Change		350	700	1,350		0	50	250
Accelerated Transition		0	3,550	5,650		0	150	350

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)

VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	0%	0%	17%	0%	14%
Step Change	1%	8%	0%	14%	0%	14%
Accelerated Transition	0%	6%	0%	21%	0%	22%

N10 – Hunter Coast

Summary

The Hunter Coast offshore REZ has been identified for the offshore wind resource potential in relatively shallow waters close to shore, with a connection point near to the SNW load centre[23].

Existing network capability

Newcastle has multiple 330 kV lines already connected and is situated within the SNW load centre. Network capacity is shared with local gas generation and coal generation output. The current network limit is approximately 5,500 MW for new generation connections in the Newcastle and Eraring areas. This capacity could also be shared with any new generation connecting in the Hunter Central Coast REZ.

REZ grouping

REZ design and community engagement is progressing	Following consultation and being satisfied that it is considered suitable for offshore renewable energy infrastructure, on 12 July 2023, the Federal Government declared an area in the Pacific Ocean off the Hunter, New South Wales, under the *Offshore Electricity Infrastructure Act 2021*[24]. Modelling outcomes indicate a low likelihood that significant investment in VRE and transmission infrastructure will be required in the next 20 years.

Metrics

Resource	Offshore Wind (fixed)			Offshore Wind (floating)		
Resource Quality	-			A		
Renewable Potential (MW)	-			7,420		
Demand Correlation	2029-30	2039-40	2049-50	2029-30	2039-40	2049-50
	A	A	A	A	A	A

Climate hazard			
Temperature score	A	Bushfire score	E

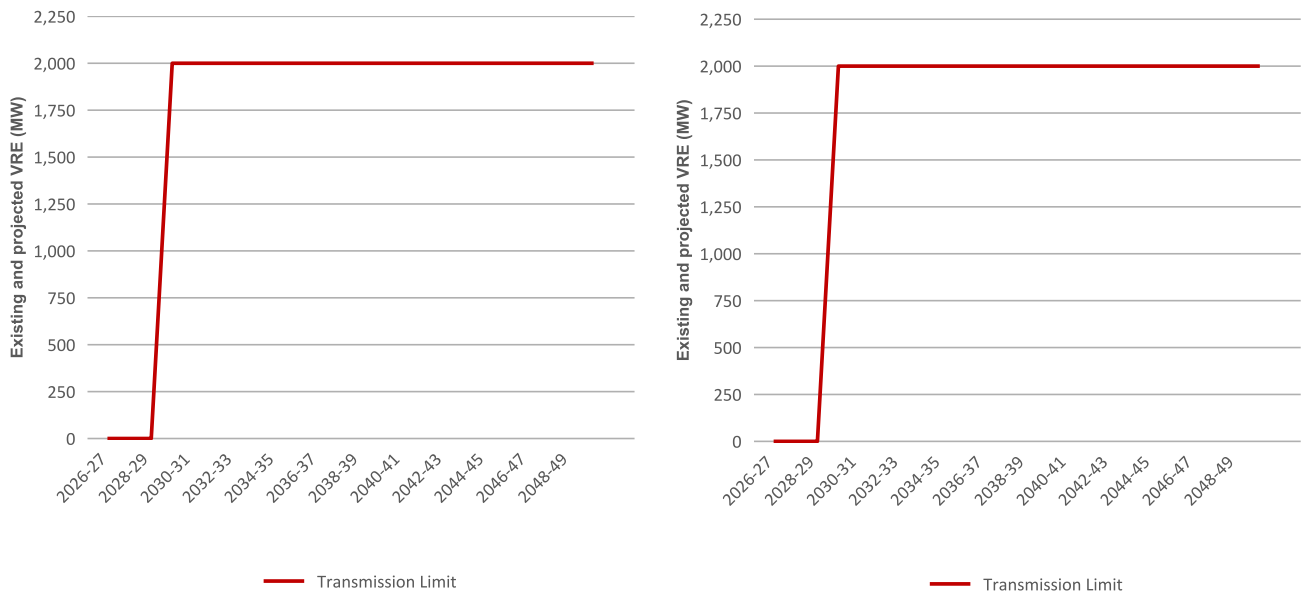
VRE outlook

	Offshore Wind – fixed (MW)				Offshore Wind - floating (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected		
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0
Accelerated Transition		0	0	0		0	0	0

[23] Federal Government, Hunter offshore wind zone declaration, at https://www.dcceew.gov.au/energy/renewable/offshore-wind/areas/hunter.

[24] Offshore Electricity Infrastructure (Declared Area OEI-01-2023) Declaration 2023, at https://www.legislation.gov.au/F2023L01005/asmade/2023-07-12/text/original/pdf.

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	-	-	-	-	-	-
Step Change	-	-	-	-	-	-
Accelerated Transition	-	-	0%	23%	0%	12%

N11 – Illawarra Coast

Summary

The Federal Government has proposed an area for future offshore renewable energy projects in the Pacific Ocean off the coast of the Illawarra region, and is currently finalising consultation prior to any declaration

Existing network capability

Dapto has multiple 330 kV lines already connected and is situated within the SNW load centre. Network capacity is shared with local gas generation and hydro generation output. The current network transfer capacity is approximately 1,000 MW. This capacity is shared with any new generation connecting in the Illawarra REZ.

REZ grouping

REZ design and community engagement is progressing	The Minister for Climate Change and Energy declared an area in the Pacific Ocean off the Illawarra for offshore renewable energy, including offshore wind, on the 15 June 2024[25]. Modelling outcomes indicate a low likelihood that significant investment in VRE and transmission infrastructure will be optimally required in the next 20 years.

Metrics

Resource	**Offshore Wind (fixed)**			**Offshore Wind (floating)**		
Resource Quality	-			B		
Renewable Potential (MW)	-			4,452		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	A	B	B	A	B	B

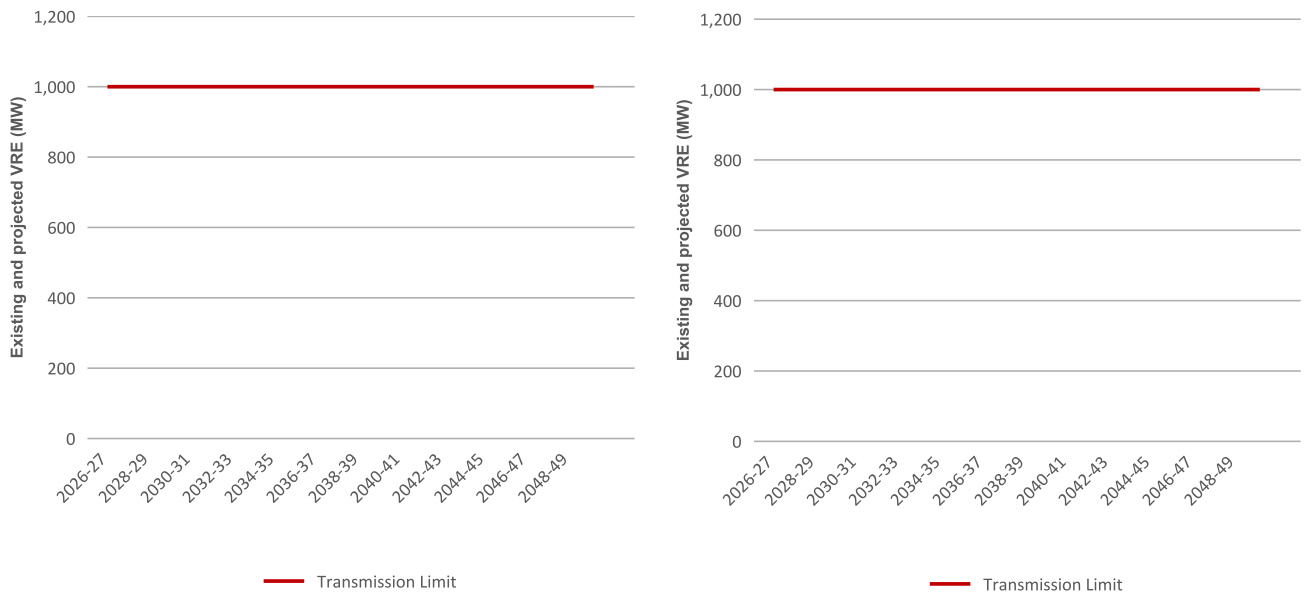
Climate hazard			
Temperature score	C	**Bushfire score**	C

VRE outlook

	Offshore Wind – fixed (MW)				**Offshore Wind - floating (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0
Accelerated Transition		0	0	0		0	0	0

[25] Federal Government, Illawarra declared offshore wind area, at https://www.legislation.gov.au/F2024L00685/asmade/text.

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	-	-	-	-	-	-
Step Change	-	-	-	-	-	-
Accelerated Transition	-	-	0%	10%	0%	12%

N12 – Illawarra

Summary

The Illawarra REZ[26] was declared on 27 February 2023 with 1,000 MW of intended network capacity, and EnergyCo has been appointed the Infrastructure Planner for the REZ, under the *Electricity Infrastructure Investment Act 2020* (NSW)[27]. Community consultation has been initiated by EnergyCo, following an earlier Registration of Interest that highlighted potential for wind (onshore and offshore), solar, energy storage, pumped hydro, hydrogen production, and green steel manufacturing.

Existing network capability

Dapto has multiple 330 kV lines already connected and is situated within the SNW load centre. Network capacity is shared with local gas generation and hydro generation output. The intended network capacity for this REZ is approximately 1,000 MW.

REZ grouping

REZ design and community engagement is progressing	EnergyCo is also in the early stages of planning for a REZ, as set out under the *Electricity Infrastructure Investment Act 2020*, in the Illawarra region of New South Wales. Modelling outcomes indicate a low likelihood that significant investment in VRE and transmission infrastructure will be optimally required in the next 20 years.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	F			E		
Renewable Potential (MW)	-			-		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard

Temperature score	-	**Bushfire score**	-

REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	0	0	0	50	50
Step Change		0	0	0		0	50	50
Accelerated Transition		0	0	0		350	350	350

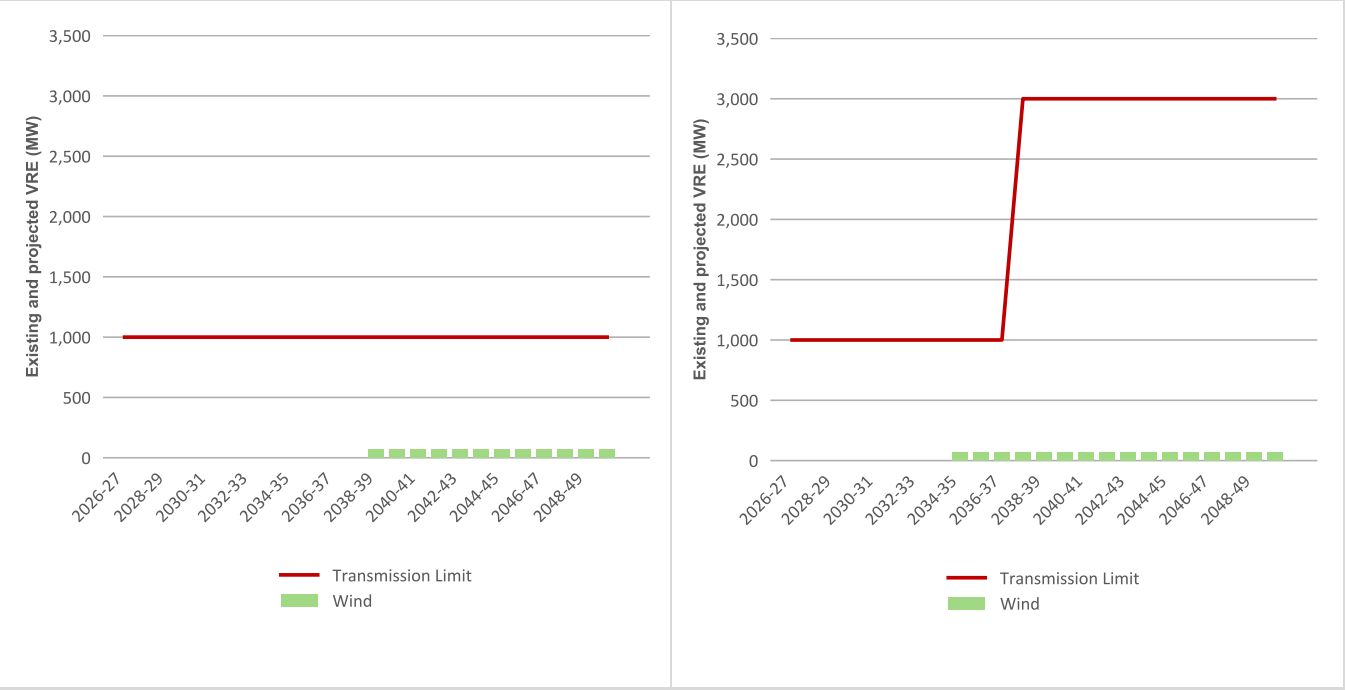
[26] At https://www.energyco.nsw.gov.au/our-projects/illawarra-rez.

[27] At https://gazette.nsw.gov.au/gazette/2023/2/2023-98.pdf.

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)		
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected		
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	0	0	0	0	1	0	300	650
Step Change		0	0	0		0	500	850
Accelerated Transition		0	0	0		0	1,100	1,600

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	-	-	0%	11%	0%	6%
Step Change	0%	14%	0%	17%	0%	20%
Accelerated Transition	0%	5%	0%	20%	0%	19%

N13 – South Cobar

Summary

South Cobar REZ is a new candidate REZ proposed in the Draft 2026 ISP with high quality wind and solar resources. It is connected to the New South Wales grid via the existing 132 kV line from Cobar.

Existing network capability

South Cobar REZ has a limited initial network capacity of approximately 100 MW due to the single 132 kV connection to the New South Wales grid. Further development of new generation in this REZ requires significant transmission network augmentation due to the distance of the REZ from the main transmission paths of the shared network.

REZ grouping

REZs where the coordination of generation infrastructure may be required.	Modelling outcomes indicate a low likelihood that significant investment in VRE and transmission infrastructure will be required in the next 20 years under the proposed ODP.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	B			C		
Renewable Potential (MW)	3,285			2,094		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	-	**Bushfire score**	-

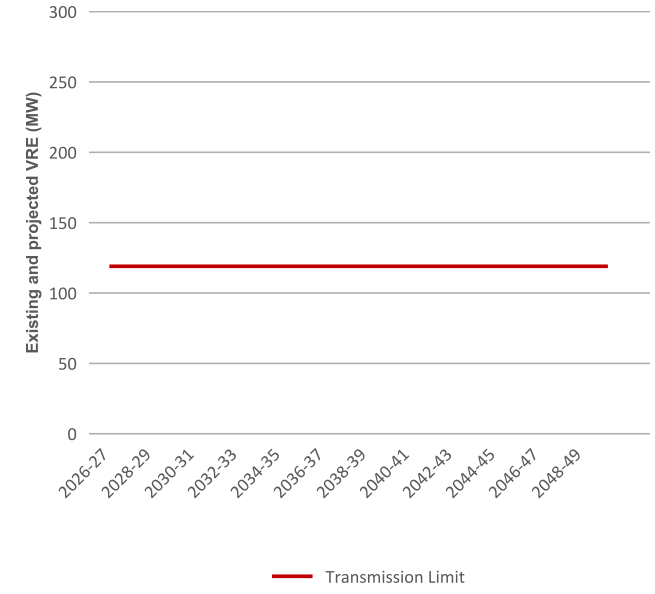
REZ Outlook

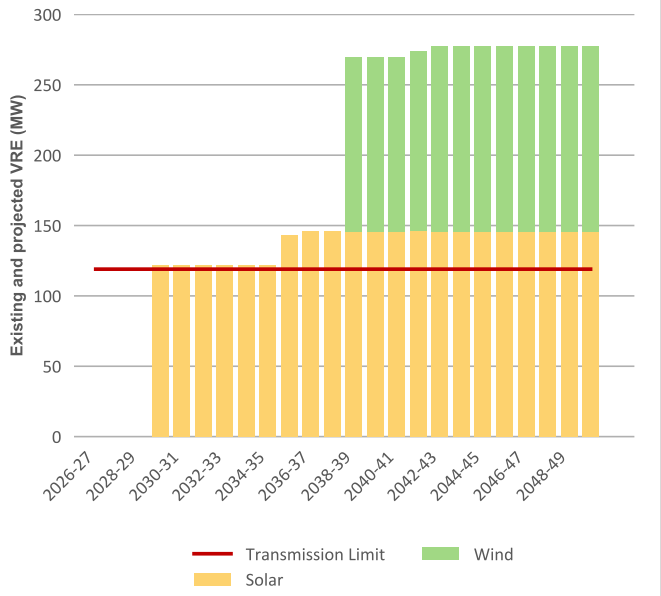
	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	0	0	0	0	0
Step Change		100	150	150		0	100	150
Accelerated Transition		100	150	150		0	0	50

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50	
Slower Growth	0	0	0	0	0	0	0	0	
Step Change		0	0	0		0	0	0	
Accelerated Transition		0	0	0		0	0	0	

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)





VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	-	-	-	-	-	-
Step Change	0%	29%	0%	36%	1%	40%
Accelerated Transition	0%	31%	0%	64%	0%	62%

Yass distribution

Summary

The Yass distribution project is located near Yass in South New South Wales, proposing to initially connect 1.55 GW of generation and storage to both distribution (Essential Energy) and transmission (Transgrid). The Yass distribution project has been joint planned between EnergyCo, Essential Energy and Transgrid.

The option expands the distribution and transmission network in Southern New South Wales to export generation and storage to supply the Sydney, Newcastle, Wollongong area and local loads.

Existing network capability

There is no additional network capacity within this REZ.

REZ grouping

Infrastructure coordination can start later	Modelling outcomes indicate a low likelihood that significant investment in VRE and transmission infrastructure will be optimally required in the next 20 years.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	E			D		
Renewable Potential (MW)	825			825		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	B	**Bushfire score**	E

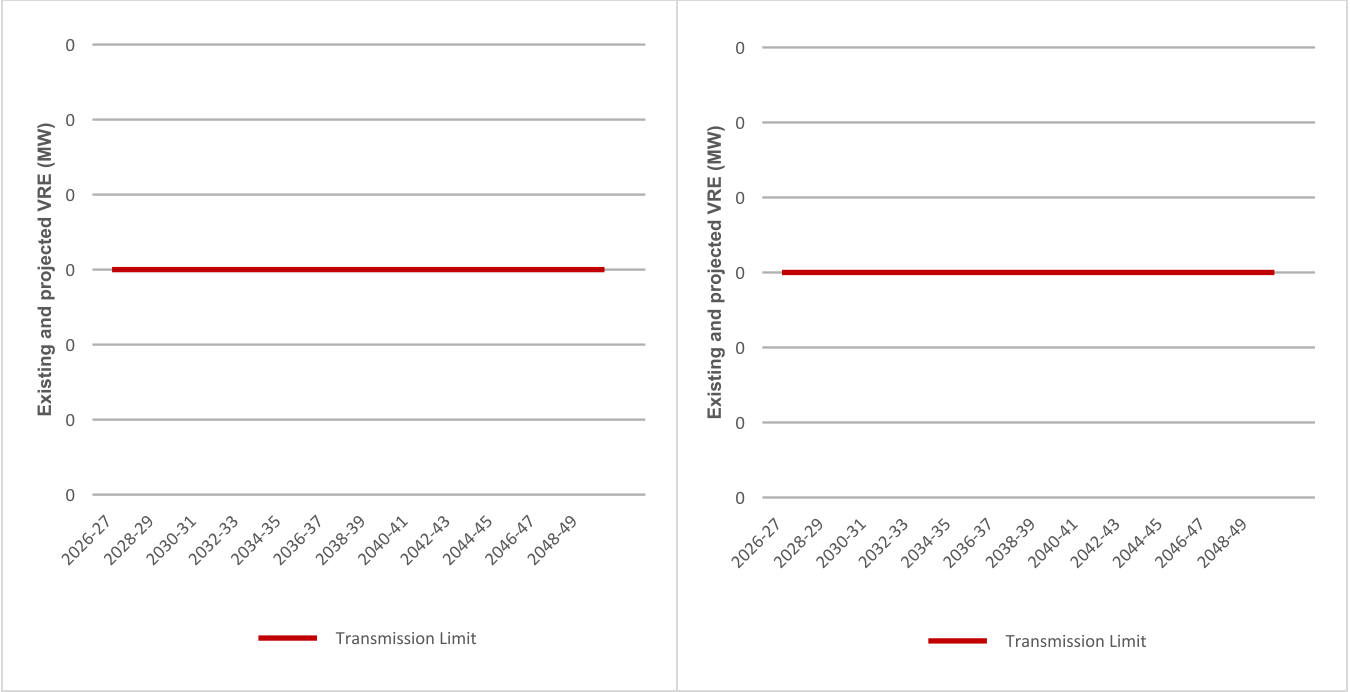
REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0
Accelerated Transition		0	0	0		0	0	0

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	0	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0	0
Accelerated Transition		0	0	0		0	0	0	0

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	-	-	-	-	-	-
Step Change	-	-	-	-	-	-
Accelerated Transition	-	-	-	-	-	-

Marulan distribution

Summary

The Marulan distribution project is located near Marulan in South New South Wales, proposing to initially connect 1.65 GW of generation and storage to both distribution (Essential Energy) and transmission (Transgrid). The Marulan distribution project has been jointly planned between EnergyCo, Essential Energy and Transgrid.

Existing network capability

There is no additional network capacity within this REZ.

REZ grouping

Infrastructure coordination can start later	Modelling outcomes identify this zone for moderate amounts of wind later in the horizon around 2040. Generation infrastructure coordination may be required at this time. .

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	E			D		
Renewable Potential (MW)	775			775		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	B	**Bushfire score**	E

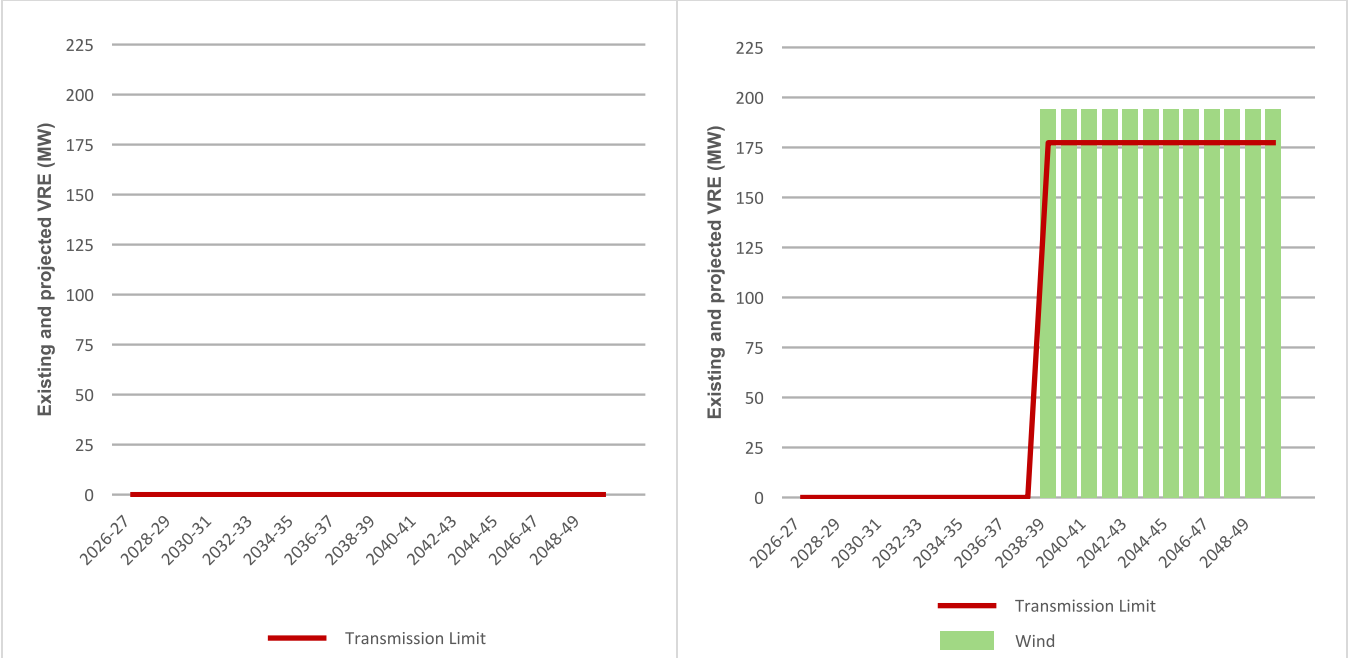
REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	200	200
Accelerated Transition		0	0	100		0	200	200

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	0	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0	0
Accelerated Transition		0	0	0		0	0	0	0

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	-	-	-	-	-	-
Step Change	-	-	0%	16%	0%	17%
Accelerated Transition	-	-	0%	37%	0%	38%

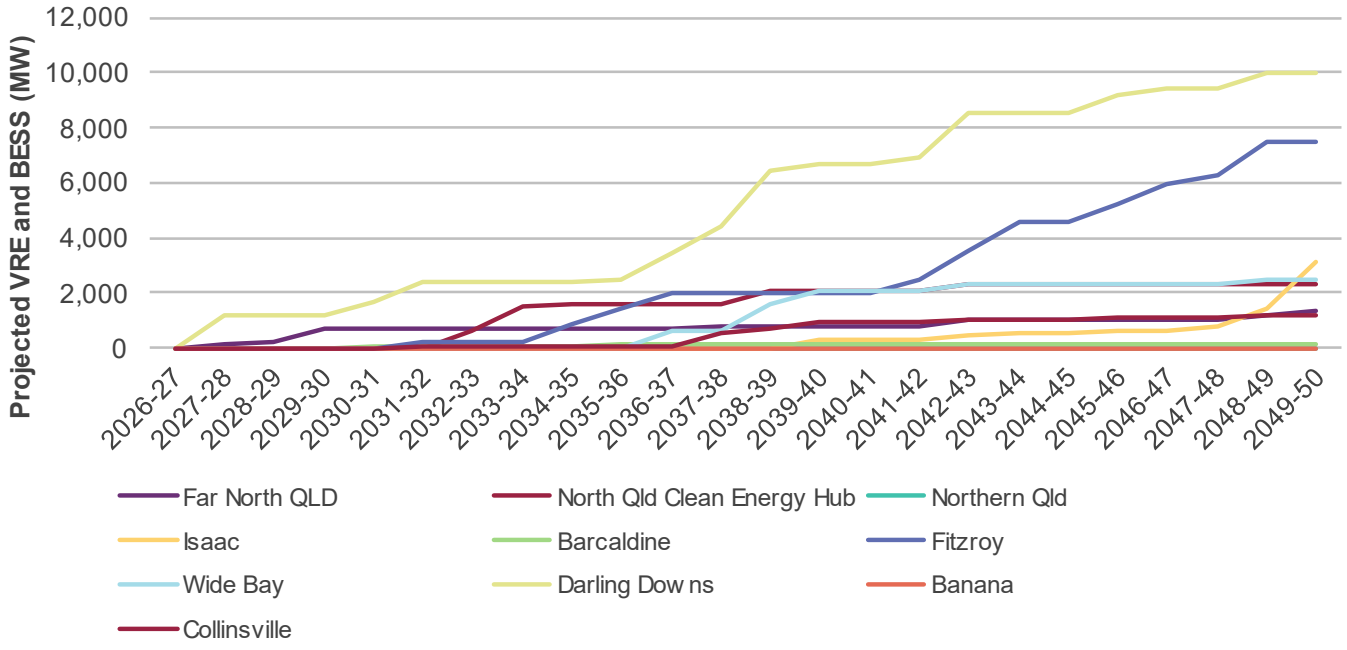
A3.3.3 Queensland

REZ outlook

The Queensland Renewable Energy Targets were removed from the AEMC's Emissions Targets Statement at the request of the Queensland Minister for Energy. This results in less new VRE than in previous publications. Despite this, approximately 27 GW of new utility-scale wind and solar VRE is projected as being required by 2050 to assist in replacing retiring generation and meet forecast load. **Figure 8** shows the new utility-scale VRE projected for each REZ in Queensland under *Step Change*. This modelling indicates:

- The majority of new VRE capacity is installed in Darling Downs, Fitzroy, Isaac, Wide Bay, and the North Queensland Clean Energy Hub.
- Darling Downs sees the largest amount of projected new VRE capacity, with rapid developments utilising existing spare network capacity, and with 2,400 MW new VRE by 2034-35, and nearly 10,000 MW by 2049-50.
- Fitzroy REZ also has a large amount of VRE connecting, with 900 MW of new VRE capacity installed by 2034-35, increasing to over 7,000 MW by 2050.
- Although there is limited large utility-scale storage in Queensland's REZs, there is significant utility-scale storage projected in the region, primarily located around the load centre in Southern Queensland as well as Gladstone Grid. By 2029-30 there is 4.9 GW/12.5 GWh of utility-scale storage capacity projected increasing to over 11 GW/85.5 GWh by the end of the horizon.

Figure 8 Queensland utility-scale VRE and BESS development in REZs for *Step Change* (MW)



Q1 – Far North Queensland

Summary

The Far North Queensland (FNQ) REZ is at the most northerly section of Powerlink's network. It has grade A wind resource quality with C grade solar and existing hydroelectric power stations.

Existing network capability

The current total REZ transmission limit for existing and new VRE before any network upgrade in Far North Queensland is approximately 750 MW for peak demand, summer typical and winter reference conditions.

REZ grouping

Coordination of generation infrastructure may be required	The modelling outcomes identify this zone for development of wind generation in all scenarios in the 2020s and further expanded in the 2030s and 2040s. Coordination of generation and generation infrastructure may be required.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	C			A		
Renewable Potential (MW)	1,100			2,280		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	B	B	B

Climate hazard			
Temperature score	B	**Bushfire score**	A

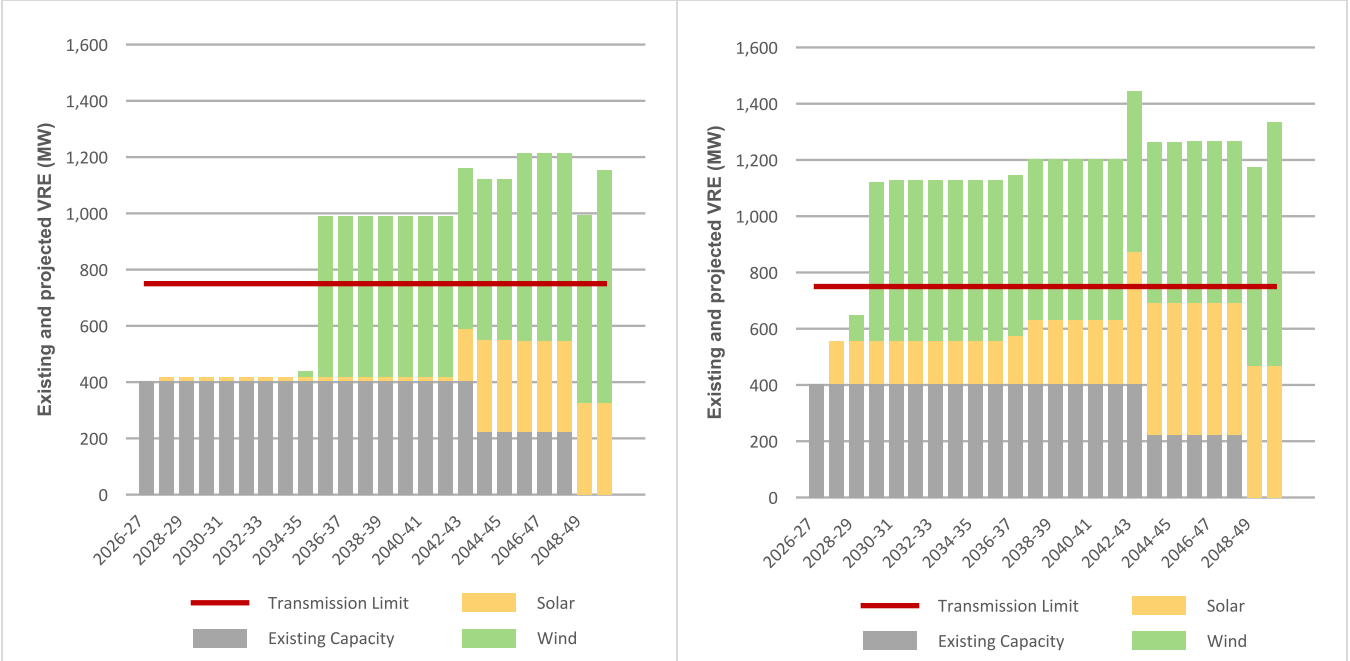
REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	350	332	0	550	800
Step Change		150	250	450		550	550	850
Accelerated Transition		0	1,100	1,100		600	600	1,800

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	0	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0	0
Accelerated Transition		0	300	300		0	400	700	

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



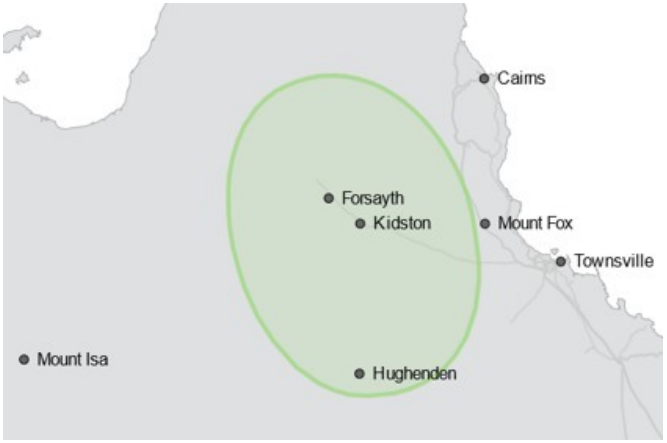
VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	5%	0%	1%	0%	12%
Step Change	0%	4%	0%	13%	1%	20%
Accelerated Transition	0%	6%	0%	19%	0%	18%

Q2 – North Queensland Energy Hub

Summary

The Clean Energy Hub REZ is at the north-western section of Powerlink's network, and has grade A and B solar and wind resource quality respectively. The Queensland Government has announced that it will deliver the section of the CopperString 2032 project from Townsville to Hughenden, with investigations continuing for the section between Hughenden and Mount Isa. CopperString 2032 aims to connect the North-West Minerals Province of Queensland to the NEM via Woodstock near Townsville. The project scope includes 330 kV transmission capacity between Townsville and Hughenden to unlock the renewable energy potential of the region. AEMO is now considering the CopperString 2032 project as an anticipated project after outcomes from joint planning with Powerlink and the Queensland Government.



Existing network capability

The existing network capability is assumed to be up to 2,200 MW, incorporating the anticipated CopperString 2032 project addition of up to 1,500 MW to the existing 700 MW of network capability. For the Draft 2026 ISP, only the section of CopperString 2032 between Hughenden and Townsville is modelled.

REZ grouping

Coordination of generation infrastructure may be required	The modelling outcomes identify this zone for development of wind generation in the 2030s across the *Slower Growth* and *Step Change* scenarios. This build is brought forward under the *Accelerated Transition* scenario. Coordination of generation and transmission infrastructure may be required.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	A			B		
Renewable Potential (MW)	8,000			18,600		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard

Temperature score	D	**Bushfire score**	C

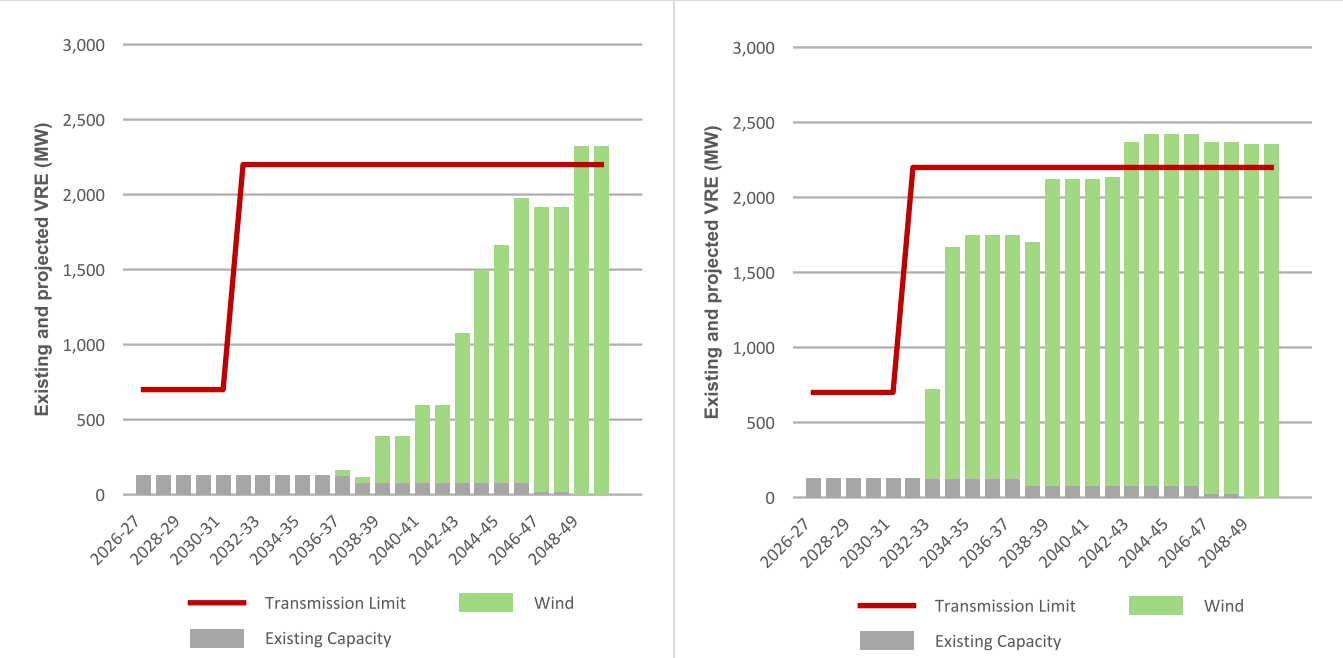
REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	84	0	0	0	43	0	300	2,350
Step Change		0	0	0		0	2,050	2,350
Accelerated Transition		0	0	0		750	2,800	2,950

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	0	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0	0
Accelerated Transition		0	0	0		0	0	0	0

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	2%	0%	6%	0%	8%
Step Change	0%	9%	0%	7%	0%	9%
Accelerated Transition	0%	5%	0%	19%	0%	17%

Q3 – Northern Queensland

Summary

The Northern Queensland REZ encompasses Townsville and the surrounding area. It has B grade solar resource quality and is situated close to the high-capacity 275 kV network. There are already 450 MW of existing large-scale solar generation projects operational within this REZ.

Existing network capability

Existing network capacity can allow for up to approximately 1,200 MW of new generator connections, shared between Q1, Q2 and Q3. Transmission limits are modelled by the North Queensland group constraint (NQ1) limits.

REZ grouping

Infrastructure coordination can start later	Modelling outcomes indicate a low likelihood that significant investment in VRE and transmission infrastructure will be required in the next 20 years under the proposed ODP.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	B			E		
Renewable Potential (MW)	3,400			-		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard

Temperature score	C	**Bushfire score**	E

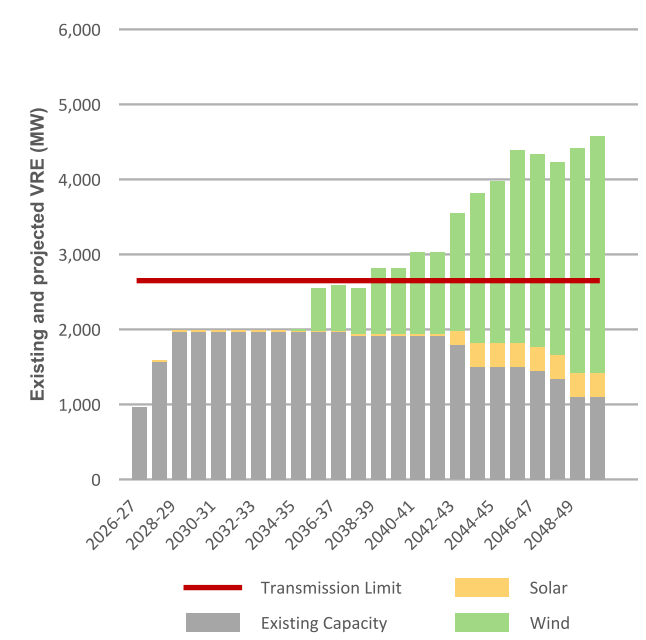
REZ Outlook

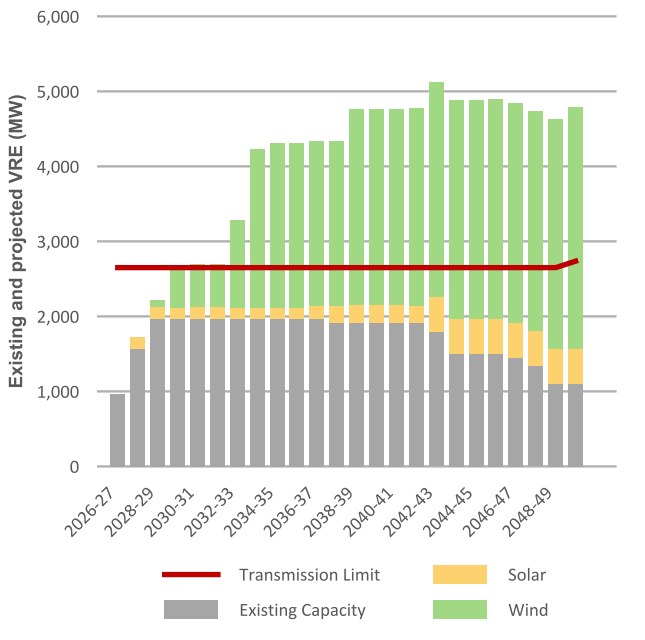
	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	1037	0	0	0	400	0	0	0
Step Change		0	0	0		0	0	0
Accelerated Transition		0	0	0		0	0	0

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	704	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0
Accelerated Transition		0	0	0		0	0	0

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)





Note: The transmission limit was modelled using the NQ1 group constraint limit, and includes VRE projections for Q1, Q2, and Q3

VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	5%	0%	5%	0%	1%
Step Change	0%	2%	0%	13%	0%	22%
Accelerated Transition	0%	4%	0%	32%	0%	31%

Q4 – Isaac

Summary

The Isaac REZ is now placed further south, between Mackay and Rockhampton, following recent boundary adjustments. The region previously covered by Collinsville and Mackay is now designated as Q10 – Collinsville REZ. Isaac retains B-grade solar resource quality and offers a strong diversity of resources, including wind, and solar. Locating storage in this zone could maximise transmission utilisation towards Brisbane.
The previously proposed Pioneer-Burdekin PHES project has been cancelled and is no longer considered in planning scenarios. The Queensland Government's Energy Roadmap has replaced the former Queensland Energy and Jobs Plan (QEJP), guiding future development priorities.

Existing network capability

The Isaac REZ forms part of the NQ transmission backbone from Nebo to Strathmore. Due to the existing high voltage infrastructure, there are no augmentation options specifically for this REZ. The associated augmentations are the CQ1 group constraint augmentations that facilitate power from Q1 to Q5 to be transmitted south to the load centres. The network has the capacity to support up to a total of 2,500 MW of generation in summer peak and summer typical conditions and 2,750 MW for winter reference conditions across the REZs in northern Queensland.

REZ grouping

Coordination of generation infrastructure may be required	The modelling outcomes identify this zone for development of solar and wind generation in the 2040s across the *Step Change* and *Accelerated Transition* scenarios. Coordination of generation and transmission infrastructure may be required to facilitate more power flow across the CQ1 group constraint.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	B			C		
Renewable Potential (MW)	2,500			1,400		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	C	**Bushfire score**	C

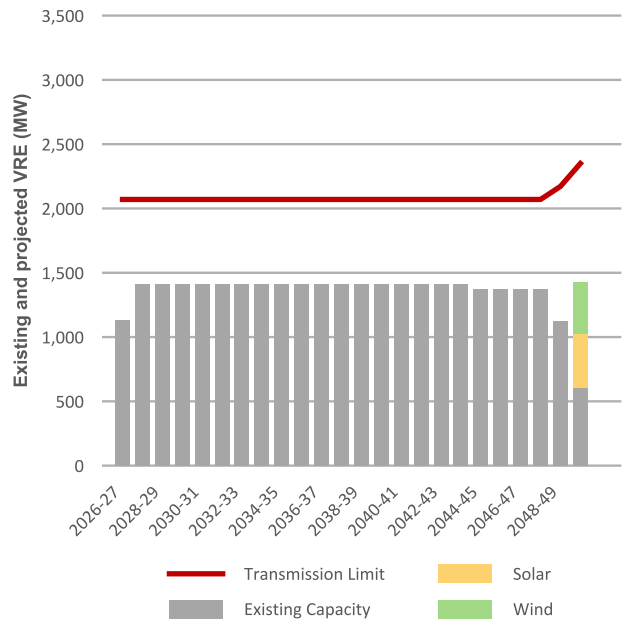
REZ Outlook

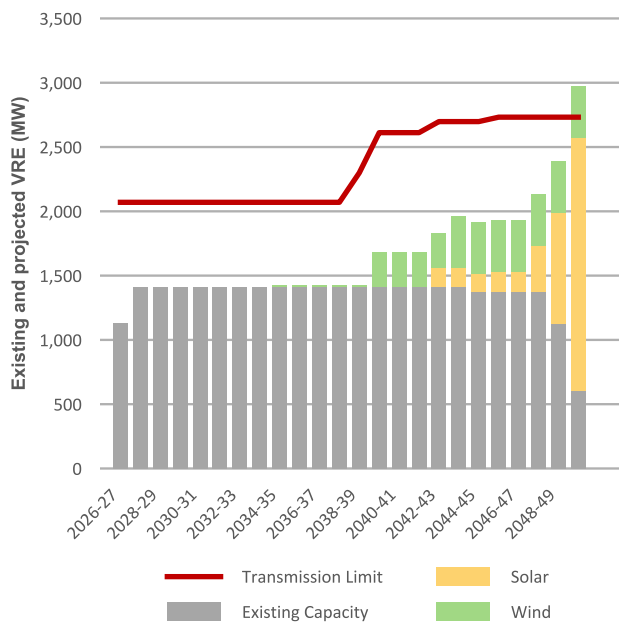
	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	719	0	0	400	439	0	0	400
Step Change		0	0	1,950		0	250	400
Accelerated Transition		0	850	2,500		0	400	400

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	180	0	0	50	0	0	0	0
Step Change		0	0	750		0	0	0
Accelerated Transition		0	350	900		0	0	0

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)





Note: The transmission access expansion forecasts show the results for CQ1 group constraint, which includes VRE projections for Q1, Q2, Q3, Q4, and Q5.

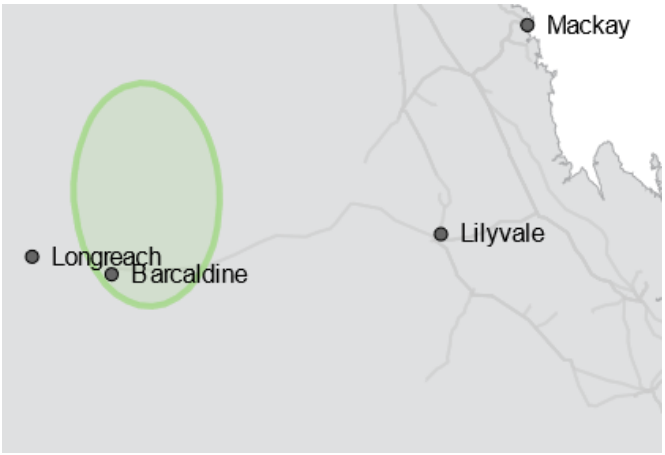
VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	0%	0%	0%	0%	7%
Step Change	0%	2%	0%	6%	0%	16%
Accelerated Transition	0%	2%	0%	21%	0%	28%

Q5 – Barcaldine

Summary

This REZ has grade A solar resource quality but is remote from the Queensland transmission backbone.



Existing network capability

The current total REZ transmission limit for existing and new VRE before any network upgrade in Barcaldine is approximately 85 MW.

REZ grouping

Coordination of generation infrastructure may be required	The modelling outcomes identify this zone for development of solar and wind generation across all three scenarios. It is unlikely significant transmission infrastructure will be required in the next 20 years under the proposed ODP.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	A			B		
Renewable Potential (MW)	8,000			3,900		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	D	**Bushfire score**	C

REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	15	0	0	50	0	0	100	100
Step Change		0	50	50		0	100	100
Accelerated Transition		0	50	800		100	100	1,000

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	0	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0	0
Accelerated Transition		0	0	100		0	0	0	0

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)

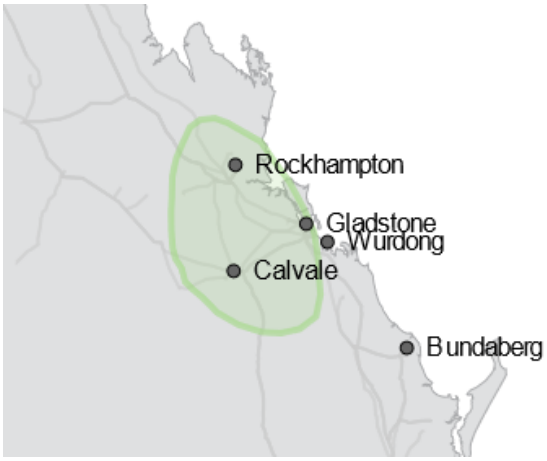
VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	-	-	0%	9%	1%	19%
Step Change	0%	19%	0%	18%	1%	30%
Accelerated Transition	0%	8%	0%	44%	0%	31%

Q6 – Fitzroy

Summary

The Fitzroy REZ is in Central Queensland and covers a strong part of the network where Gladstone and Callide generators are connected. This REZ has grade B and C solar and wind resource quality respectively.



Existing network capability

The network capability for Fitzroy REZ to export electricity to southern Queensland is shared with other generation including coal and gas in northern and central Queensland. Due to the existing high voltage infrastructure, there are no augmentation options specifically for this REZ. The associated augmentations are the Central Queensland to Gladstone Grid flow path augmentations, as detailed in the 2025 *Electricity Network Options Report*.

REZ grouping

Transmission and generation infrastructure coordination is required	Transmission and infrastructure coordination is required for Fitzroy REZ. The Gladstone Project is identified as an actionable project, with Powerlink providing updated scope and cost estimates in the Electricity Network Options Report. No augmentation options are specific to Fitzroy REZ. Associated upgrades occur along the Central Queensland to Gladstone flow path.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	B			C		
Renewable Potential (MW)	7,533			3,500		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	C	**Bushfire score**	B

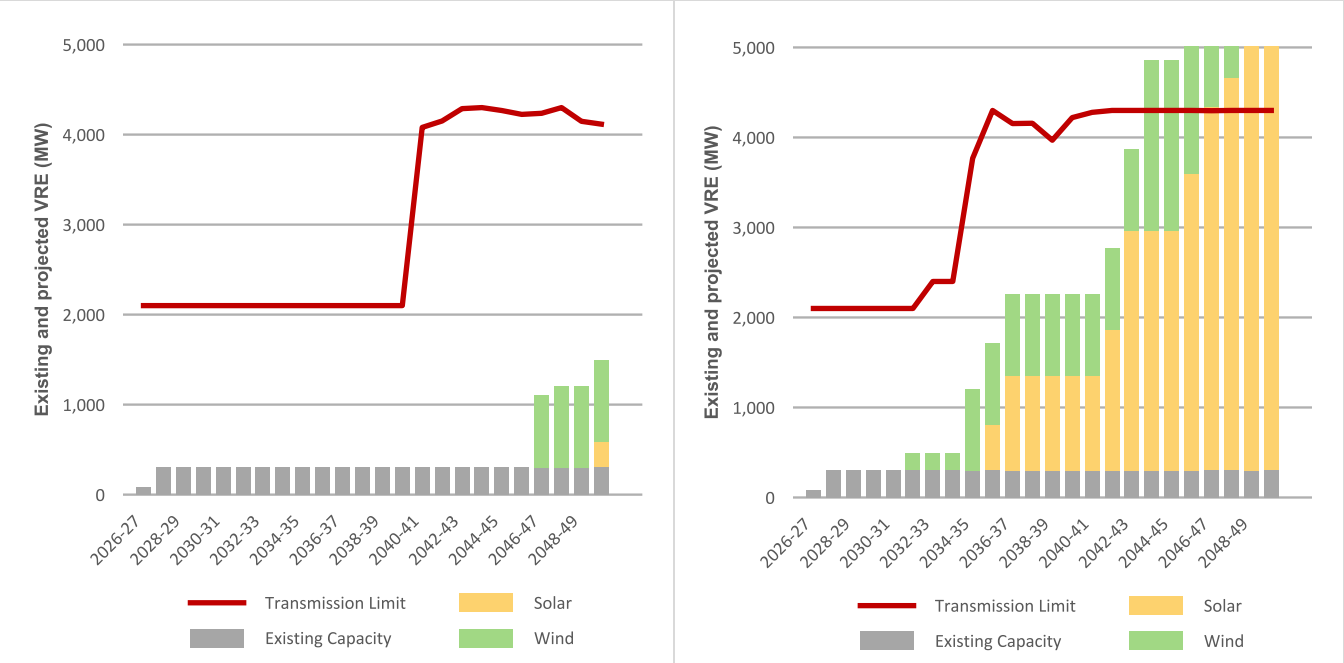
REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	82	0	0	300	221	0	0	900
Step Change		0	1,050	5,550		0	900	1,900
Accelerated Transition		0	5,650	7,550		900	1,500	3,500

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)		
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected		
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	350	0	0	0	22	0	50	50
Step Change		0	0	0		0	100	250
Accelerated Transition		0	0	0		0	300	350

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



Note: The transmission limit was modelled using the SQ-CQ sub-regional flow path limit.

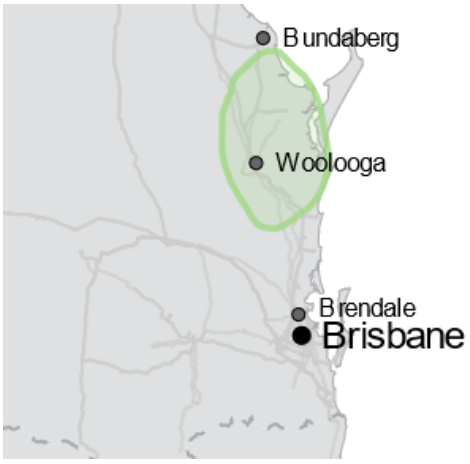
VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	0%	0%	0%	0%	6%
Step Change	0%	2%	0%	7%	0%	9%
Accelerated Transition	0%	3%	0%	16%	0%	17%

Q7 – Wide Bay

Summary

The Wide Bay area has grade C solar resource quality and already has a number of large solar PV generators operational within the REZ. The Queensland Government has announced in the Queensland Government Energy Roadmap that it will review the 2,000 MW/24-hour Borumba pumped hydro energy storage project in southern Queensland. AEMO considers Borumba to be an anticipated project. The project's dispatch is included in the SQ1 group constraint in the ISP modelling process.



Existing network capability

The existing network facilitates power transfer from Central Queensland to the load centre in Brisbane. This is a 275 kV transmission backbone and currently supports up to approximately 1,400 MW of power flow from CQ into Brisbane. This means the maximum VRE output in the REZ is highly dependent on CQ-SQ flow.

REZ grouping

Coordination of generation infrastructure may be required.	The modelling outcomes identify this zone for development of wind and solar generation. Coordination of generation and transmission and generation infrastructure may be required.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	C			D		
Renewable Potential (MW)	2,200			1,100		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard				
Temperature score	B	**Bushfire score**	E	

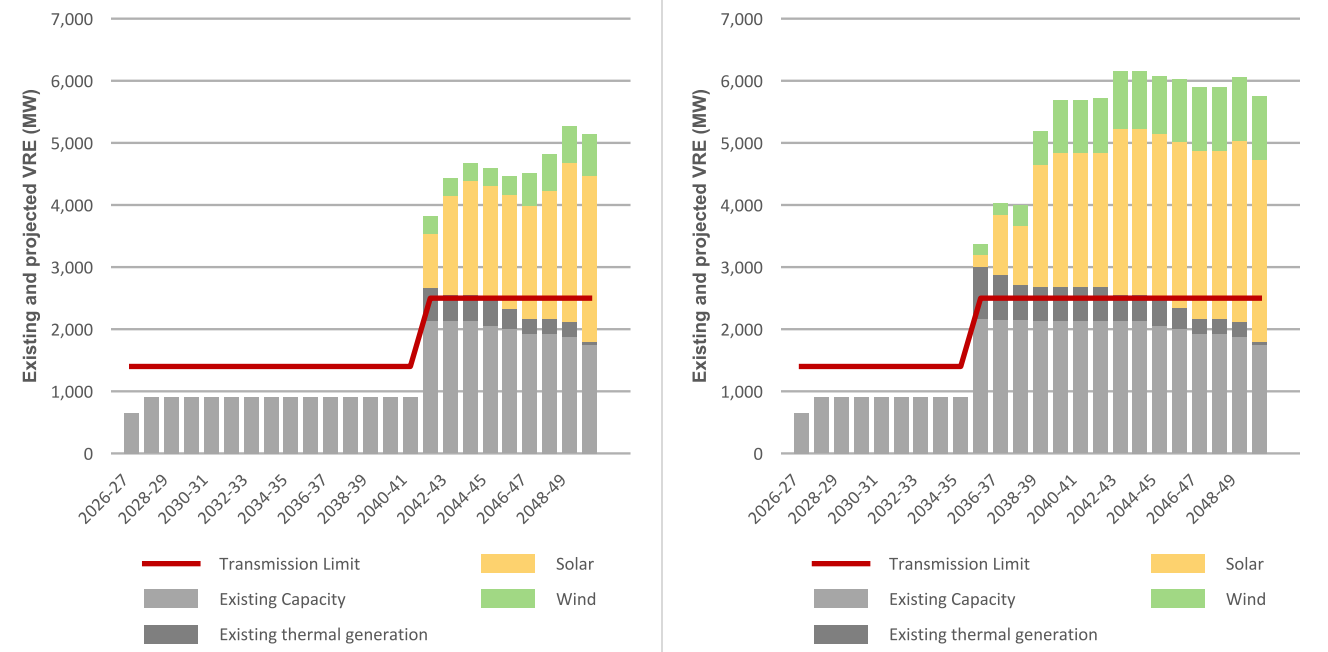
REZ Outlook

	Solar PV (MW)				Wind (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected		
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	678	0	0	2,000	0	0	0	0
Step Change		0	1,800	2,200		0	250	300
Accelerated Transition		0	2,200	2,200		0	300	300

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	222	0	0	0	0	0	50	200
Step Change		0	0	0		0	100	200
Accelerated Transition		0	0	0		0	350	1,550

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



Note: The transmission access expansion charts show the results for SQ1 group constraint augmentation, which includes Q7 as well as the effect of SQ-CQ flow. The transmission limit was modelled using the SQ1 group constraint limit which increases with the Anticipated Borumba PHES project. The existing thermal generation plotted in the chart at this time only becomes impactful for this REZ once the generator connection network for Borumba is built.

VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	2%	0%	1%	0%	2%
Step Change	0%	4%	0%	9%	0%	17%
Accelerated Transition	0%	7%	0%	26%	0%	28%

Q8 – Darling Downs

Summary

The Darling Downs REZ extends from the border of New South Wales around Dumaresq up to Columboola within the Surat region of Queensland, and has B and C grade solar and wind resource quality respectively. A number of large solar and wind projects are already connected within the zone. The Darling Downs REZ has been subdivided into three sub-regions to better reflect network constraints and resource distribution: Q8a Western Downs, Q8b Darling Downs, Q8c Southern Downs. This enables more accurate modelling of transmission limits and generation potential across distinct connection points.

Existing network capability

The Darling Downs REZ has high network capacity and is near QNI and Brisbane. The ultimate retirement of generation within this REZ will allow for increased VRE connections. The existing network facilitates power transfer from south west Queensland to the load centre in Brisbane. This transmission can support up to approximately 5,300 MW of generation into Brisbane. This capability is shared with existing coal and gas generation in the REZ, the flow of power from New South Wales, and the flow of power from central Queensland. This sharing is captured by the SWQLD1 transmission limit constraint that facilitates power flow to load centres in south east Queensland. Changes to network capability for this REZ are therefore reflected in the SWQLD1 limit.

REZ grouping

Transmission and generation infrastructure coordination may be required	The modelling outcomes identify this zone for development of wind and solar generation. Coordination of generation and transmission infrastructure may be required particularly in relation to the *Facilitating power to South East Queensland project*.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	B			C		
Renewable Potential (MW)	6,992			5,600		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	C	**Bushfire score**	E

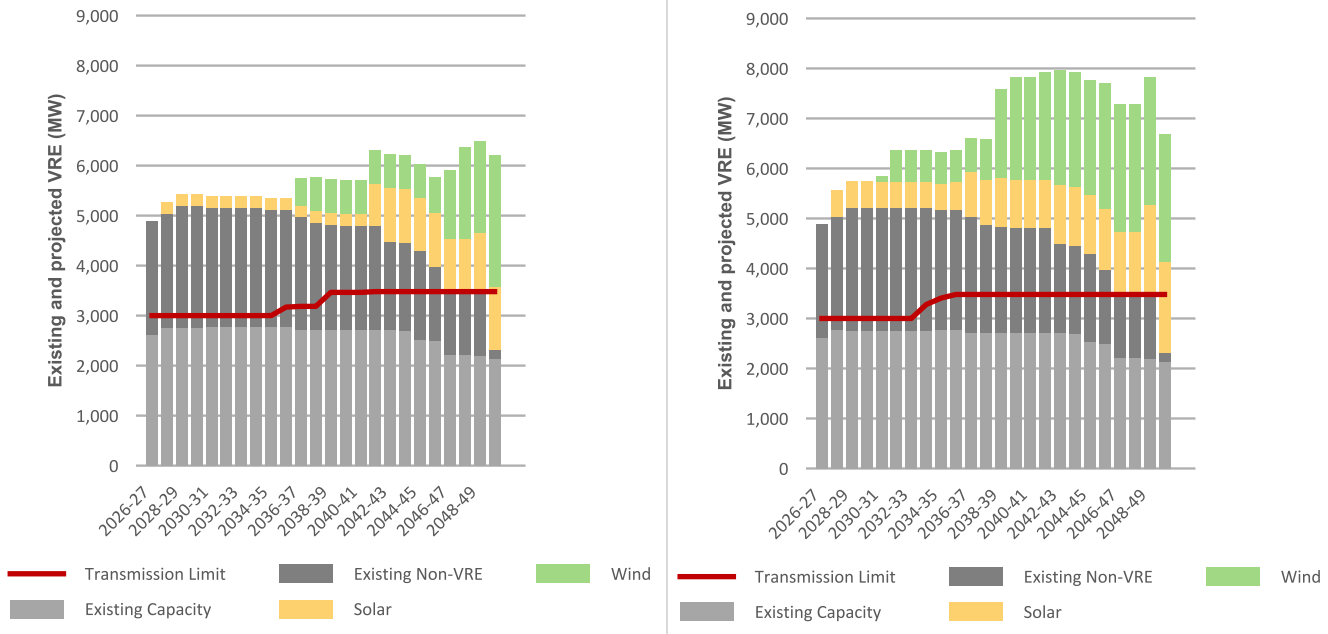
REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	1556	200	200	1,250	1,061	0	700	2,650
Step Change		550	1,000	1,800		0	2,050	2,550
Accelerated Transition		800	2,850	3,650		1,350	1,750	2,400

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50	
Slower Growth	305	0	0	0	0	0	0	0	
Step Change		0	0	400		0	0	0	
Accelerated Transition		550	1,500	1,600		0	0	0	

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



Note: The transmission access expansion charts show the results for the SWQLD1 group constraint augmentation, which includes Q8 as well as the effect of CQ-SQ and QNI flow. The transmission limit was modelled using the SWQLD1 group constraint limit as opposed to a static number.

VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	1%	0%	3%	0%	5%
Step Change	0%	2%	0%	7%	0%	13%
Accelerated Transition	0%	4%	0%	19%	0%	22%

Q9 – Banana

Summary

The Banana REZ is located roughly 200 km south-west of Gladstone and lies north of the CQ-SQ flow path. It has B grade solar resource quality. There are currently no generators and limited high voltage network in this area. AEMO understands from the Queensland Government and from Powerlink that transmission augmentation projects for the Banana REZ are likely to be delivered as a dedicated asset of some kind. This has been treated similar to a generation connection asset in the ISP model, rather than a network augmentation option.

Existing network capability

There is currently very little high voltage network in the area. There is some 132 kV network on the edge of the REZ, supporting the townships of Moura and Biloela. There is very little spare capacity within the network.

REZ grouping

Infrastructure coordination can start later	Modelling outcomes indicate a low likelihood that significant investment in generation and transmission infrastructure will be required in the next 20 years under the proposed ODP.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	B			D		
Renewable Potential (MW)	6,100			3,400		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	C	**Bushfire score**	B

REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0
Accelerated Transition		0	0	0		0	0	0

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	0	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0	0
Accelerated Transition		0	0	0		0	0	0	0

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)

Note: Existing generation in this transmission access charts should be 0 MW. This will be addressed in the final ISP.

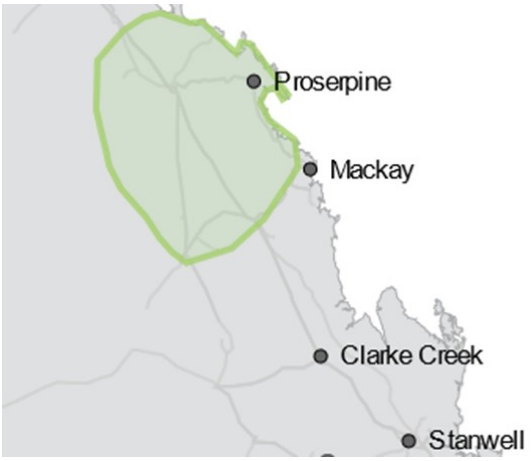
VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	0%	0%	0%	-	-
Step Change	0%	21%	0%	49%	-	-
Accelerated Transition	0%	29%	0%	69%	-	-

Q10 – Collinsville

Summary

The Collinsville REZ encompasses the region around Proserpine and Mackay, offering strong wind and solar resource quality and a good diversity of renewable options, including storage. Several large-scale solar generation projects are already operational within this REZ. There are also numerous potential pumped hydro locations to the northeast and southeast of Nebo.



Existing network capability

The Collinsville REZ forms part of the Northern Queensland transmission backbone between Strathmore and Nebo. Due to the existing high-voltage infrastructure, there are no augmentation options specifically for this REZ. Associated augmentations are linked to the CQ–NQ flow path, which facilitates power transfer from Northern Queensland south to major load centres.
Current transfer capability from NQ to CQ is approximately 1,440 MW under peak demand and summer typical conditions, and 1,910 MW under winter reference conditions.

REZ grouping

Coordination of generation infrastructure may be required	The modelling outcomes identify this zone for development of wind and solar generation. Coordination of generation and transmission infrastructure may be required, particularly relating to the *Facilitating power to Central Queensland project*.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	B			C		
Renewable Potential (MW)	4,400			2,440		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard

Temperature score	C	**Bushfire score**	C

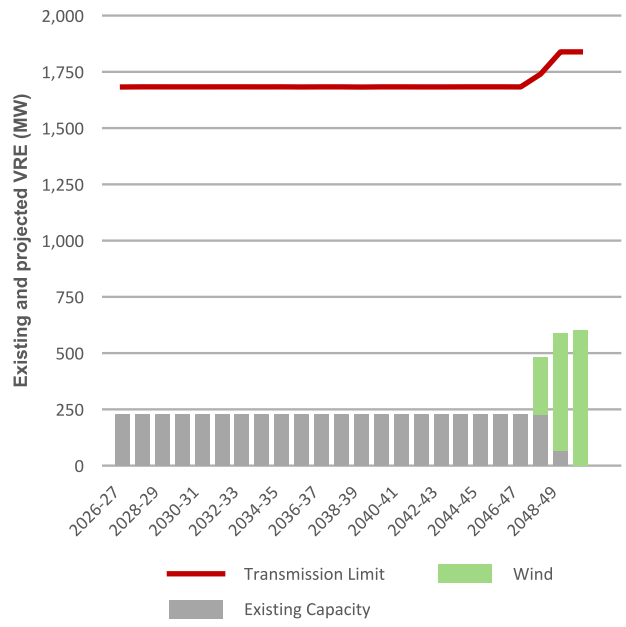
REZ Outlook

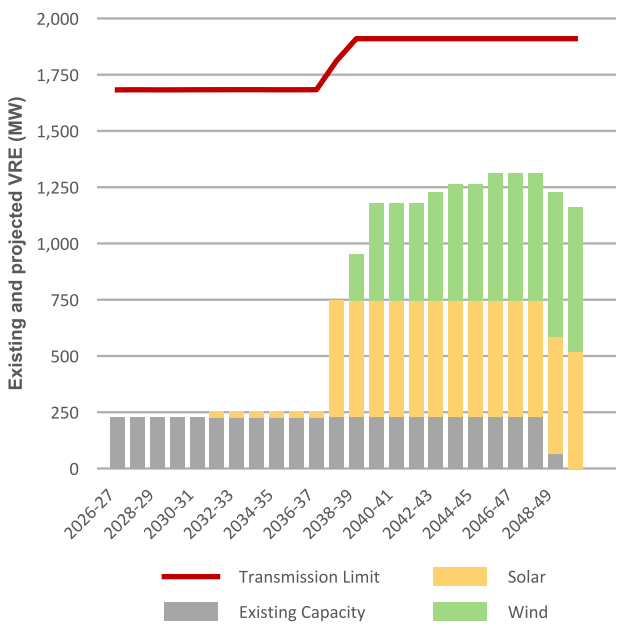
	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	420	0	0	0	0	0	0	600
Step Change		0	500	500		0	450	650
Accelerated Transition		0	0	300		0	550	650

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)		
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected		
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	0	0	0	0	0	0	0	50
Step Change		0	0	0		0	50	50
Accelerated Transition		0	0	0		0	100	300

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)





Note: The transmission limit was modelled using the CQ-NQ sub-regional flow path limit.

VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	2%	0%	6%	0%	8%
Step Change	0%	7%	0%	16%	0%	20%
Accelerated Transition	0%	11%	0%	28%	0%	29%

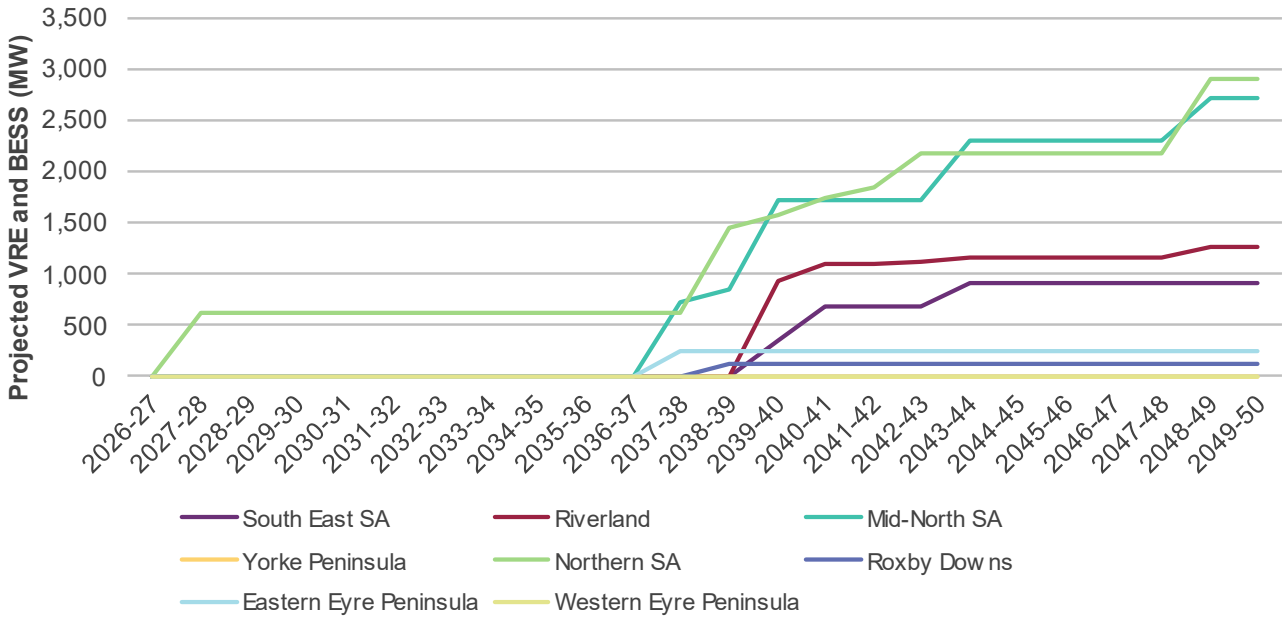
A3.3.4 South Australia

REZ outlook

In South Australia, over 8 GW of new utility-scale wind and solar VRE is projected as being required by 2050 to assist in replacing retiring gas generation capacity. **Figure 9** shows the new utility-scale VRE projected for each REZ in South Australia in *Step Change*. This modelling indicates:

- The projected VRE is shared over multiple REZs throughout South Australia, with the largest share of early development occurring in the Mid North South Australia REZ due to the high-quality wind resource and Northern South Australia REZ due to the high-quality solar resource.
- The Northern South Australia REZ sees an immediate moderate increase in VRE, with an additional 600 MW of new solar capacity by 2027-28, then much larger increases in VRE capacity later in the horizon with 2,200 MW by 2042-43 and reaching almost 3,000 MW by 2049-50.
- The South East South Australia REZ sees a gradual increase in VRE with close to 700 MW new capacity from 2040-41 and just under 1,000 MW by 2049-50.
- The Mid-North South Australia REZ is projected to see developments in both solar and wind in the late 2030s, with 2,700 MW new VRE capacity by 2049-50.
- The Riverland REZ is projected to develop solar from 2040, with 1,200 MW of new VRE capacity by 2044-45.
- The Eastern Eyre Peninsula and Roxby Downs REZs also see small amounts of VRE developments in the order of 300 MW in the late 2030s.
- Although there is limited large utility-scale storage in South Australia's REZs, there is significant utility-scale storage projected in the region outside of REZs, primarily located around the load centre in the Central South Australia sub-region. By 2029-30 there is over 3.3 GW/8.9 GWh of utility-scale storage capacity projected. AEMO will conduct joint planning with ElectraNet for the final ISP to confirm the feasibility of different storage locations across South Australia.

Figure 9 South Australia utility-scale VRE and BESS development in REZs for *Step Change* (MW)



S1 – South East

Summary

The South East SA REZ lies on the major 275 kV route of the South Australia – Victoria Heywood interconnector. It has B grade wind resource quality.

Existing network capability

The existing network capacity of this REZ is modelled as part of South East South Australia – Central South Australia (SESA-CSA) sub-regional maximum transfer capability of 800 MW (winter reference periods) and 750 MW (summer typical and peak demand periods). There are no augmentation options specifically for this REZ. The associated augmentations are the WNV-SESA and SESA-CSA flow path augmentations.

REZ grouping

Infrastructure coordination can start later	Modelling outcomes indicate a low likelihood that significant investment in generation and transmission infrastructure will be required in the next 15 years in the proposed ODP.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	D			B		
Renewable Potential (MW)	100			3,200		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	D	**Bushfire score**	D

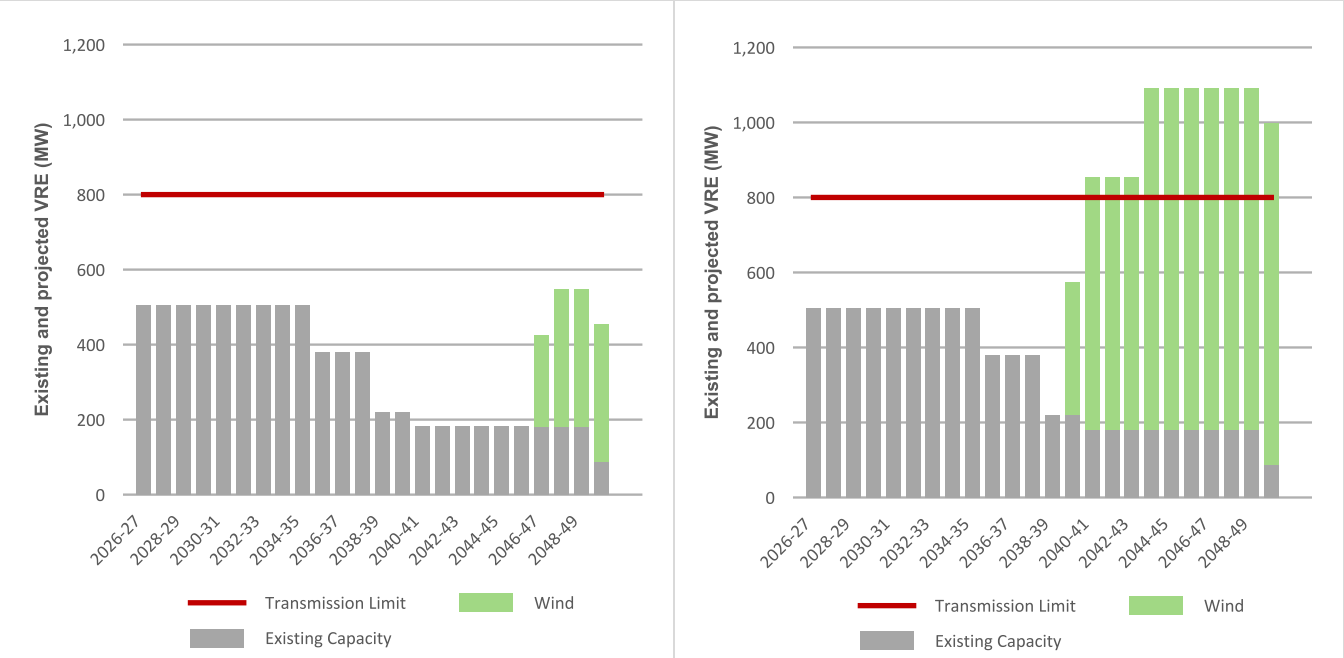
REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	182	0	0	0	324	0	0	350
Step Change		0	0	0		0	350	900
Accelerated Transition		0	0	100		0	800	1,200

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)		
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected		
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	316	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0
Accelerated Transition		0	0	0		0	50	50

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	10%	0%	11%	0%	5%
Step Change	0%	6%	0%	19%	0%	17%
Accelerated Transition	0%	15%	0%	28%	0%	27%

S2 – Riverland

Summary

The Riverland REZ is on the South Australian side of the proposed Project EnergyConnect route. It has grade C wind resource quality.

Existing network capability

There is minimal existing renewable generation in the zone. Prior to Project EnergyConnect, approximately 130 MW can be connected in this REZ for all three operating conditions (peak demand, summer typical and winter reference). Once Project EnergyConnect is commissioned, the REZ transmission limit increases by approximately 800 MW.

REZ grouping

Infrastructure coordination can start later	Modelling outcomes indicate a low likelihood that significant investment in generation and transmission infrastructure will be required in the next 15 years in the proposed ODP.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	B			C		
Renewable Potential (MW)	4,000			1,400		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard

Temperature score	E	**Bushfire score**	C

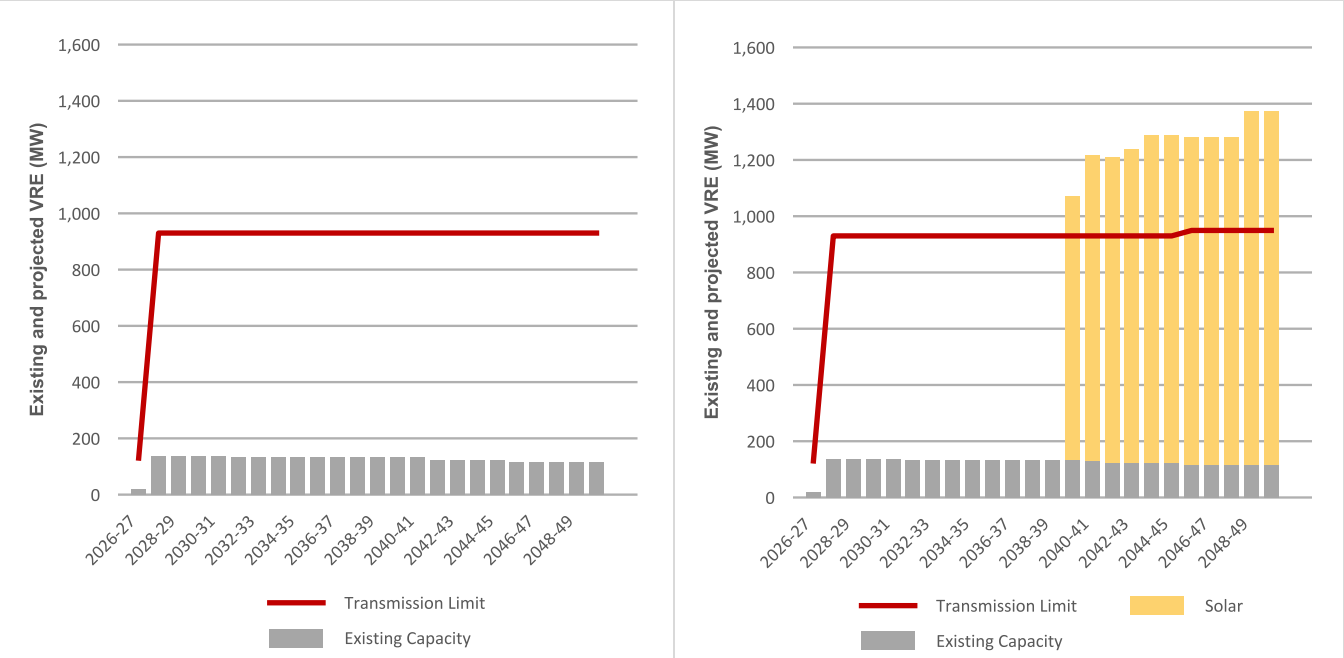
REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	138	0	0	0	0	0	0	0
Step Change		0	950	1,250		0	0	0
Accelerated Transition		0	1,300	4,000		0	0	0

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50	
Slower Growth	256	0	0	0	0	0	0	0	
Step Change		0	0	0		0	0	0	
Accelerated Transition		0	0	0		0	0	0	

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	33%	0%	39%	0%	21%
Step Change	0%	11%	0%	38%	0%	41%
Accelerated Transition	0%	22%	0%	58%	0%	50%

S3 – Mid-North

Summary

The Mid-North South Australia REZ has moderate quality wind and solar resources. There are several major wind farms in service, in this REZ, totalling more than 1,700 MW of installed or committed capacity. Four 275 kV parallel circuits provide the bulk transmission along the corridor from Davenport to near Adelaide (Para) which traverse this REZ. This transmission corridor forms the backbone for exporting power from REZs north and west of this REZ in South Australia towards the Adelaide load centre.

Existing network capability

The collective generation from S3 and S4, the reverse flow on the CSA-NSA flow path and 20% of Project EnergyConnect flows into South Australia cannot exceed 1,630 MW (summer typical and peak demand periods) or 1,860 MW (winter reference periods) without additional network augmentation between Davenport and Adelaide.

REZ grouping

Infrastructure coordination can start later	ElectraNet provided updated costs and revised options for S3 through the *Electricity Network Options Report* consultation. Modelling outcomes currently indicate that further investment in generation and transmission infrastructure may not be required in the next 10 years. ElectraNet will need to proceed with a Project Assessment Draft Report (PADR) as this REZ's actionability is still under analysis.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	C			B		
Renewable Potential (MW)	1,300			4,600		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard

Temperature score	D	**Bushfire score**	D

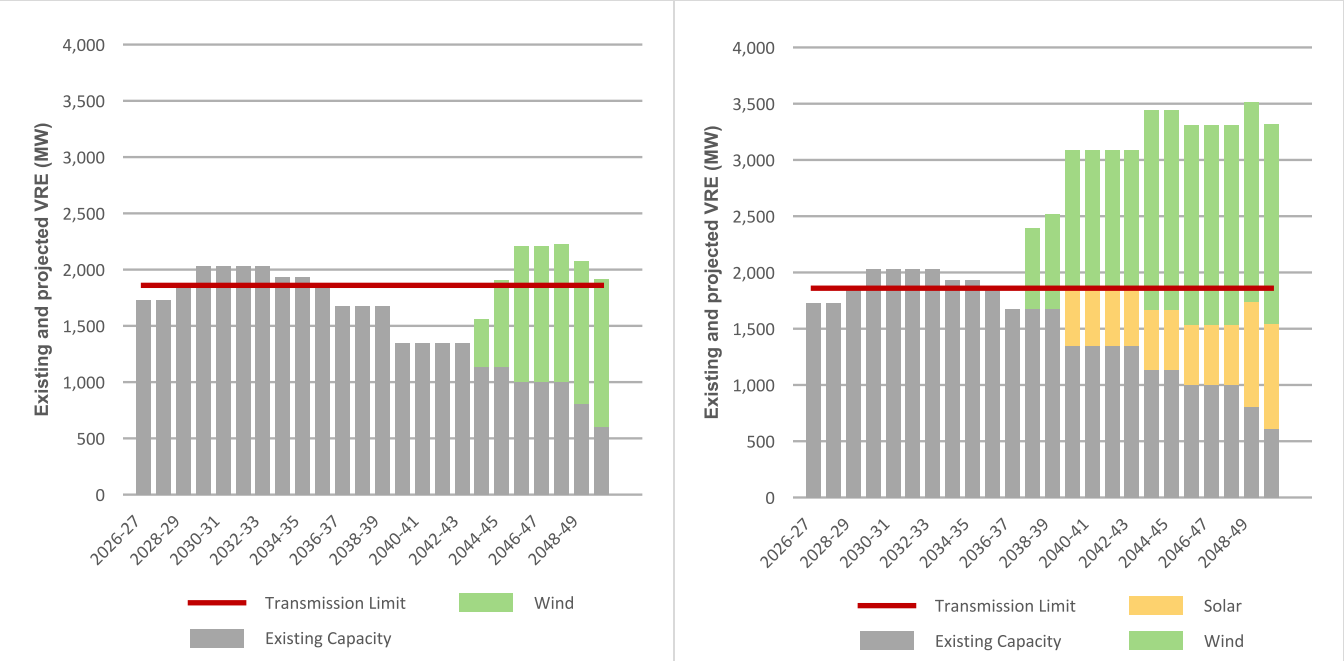
REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	0	1,732	0	0	1,200
Step Change		0	550	950		0	1,200	1,800
Accelerated Transition		0	1,250	1,900		200	1,700	3,150

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)		
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected		
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	921	0	0	0	0	0	0	50
Step Change		0	0	0		0	50	50
Accelerated Transition		0	0	350		350	600	1,050

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	8%	0%	9%	0%	11%
Step Change	0%	2%	0%	16%	0%	18%
Accelerated Transition	0%	8%	0%	24%	0%	22%

S4 – Yorke Peninsula

Summary

The Yorke Peninsula REZ has grade B wind resource quality. A single 132 kV line extends from Hummocks to Wattle Point (towards the end of Yorke Peninsula).

Existing network capability

The existing 132 kV network has 100 MW of additional network capacity for all three operating conditions (peak demand, summer typical and winter reference). Transmission augmentation is required to connect any significant additional generation in this REZ. The capability of this zone to accommodate new generation is subject to the MN1 mid-north group constraint.

REZ grouping

Infrastructure coordination can start later	Modelling outcomes indicate a low likelihood that significant investment in generation and transmission infrastructure will be required in the next 20 years in the proposed ODP.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	None			B		
Renewable Potential (MW)	-			1,400		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard

Temperature score	D	**Bushfire score**	C

REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	0	91	0	0	100
Step Change		0	0	0		0	0	0
Accelerated Transition		0	0	0		0	100	100

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	30	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0
Accelerated Transition		0	0	0		0	0	0

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)

VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	-	-	-	-	0%	28%
Step Change	0%	51%	0%	42%	0%	39%
Accelerated Transition	0%	26%	0%	50%	0%	52%

S5 – Northern South Australia

Summary

The Northern SA REZ has grade B solar resource quality. This REZ forms a candidate for a hydrogen electrolyser facility in South Australia.

Existing network capability

The capability of this zone to accommodate new generation is subject to the MN1 mid-north and NSA1 northern group constraint[1].

REZ grouping

Infrastructure coordination can start later.	Modelling outcomes indicate a low likelihood that significant investment in generation and transmission infrastructure will be required in the next 12 years in the proposed ODP. Solar and wind development later in the horizon in *Step Change* is related to industrial load increases and localised electrolyser operation.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	B			B		
Renewable Potential (MW)	5,000			2,360		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	E	**Bushfire score**	D

REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	296	600	600	600	408	0	0	300
Step Change		600	800	2,150		0	750	750
Accelerated Transition		450	4,450	11,150		0	750	750

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	10	0	0	0	0	0	0	50
Step Change		0	0	0		0	0	150
Accelerated Transition		0	0	0		0	50	100

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)

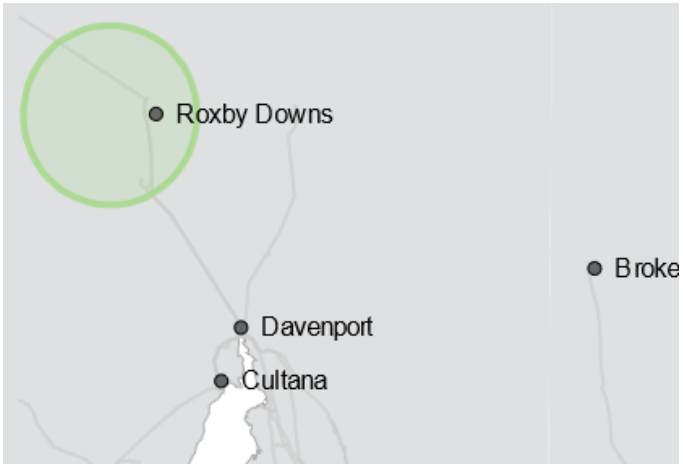
VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	25%	0%	27%	0%	22%
Step Change	0%	8%	0%	29%	0%	34%
Accelerated Transition	0%	18%	0%	49%	0%	41%

S6 – Roxby Downs

Summary

Roxby Downs REZ is located a few hundred kilometres northwest of Davenport. It has excellent solar resource quality. The only significant load in the area is the Olympic Dam and Carrapateena mines. This REZ is currently connected with a 132 kV line that provides supply to small loads, and two privately owned 275 kV lines from Davenport that provide supply to large mines in the area.



Existing network capability

The existing network capacity of this REZ is 500 MW, although the capability of this zone to accommodate new generation is subject to the MN1 mid-north group constraint.

REZ grouping

Infrastructure coordination can start later.	Modelling outcomes indicate a very low likelihood that significant investment in generation infrastructure will be required in the proposed ODP over the next 20 years.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	A			-		
Renewable Potential (MW)	3,400			-		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	D	**Bushfire score**	C

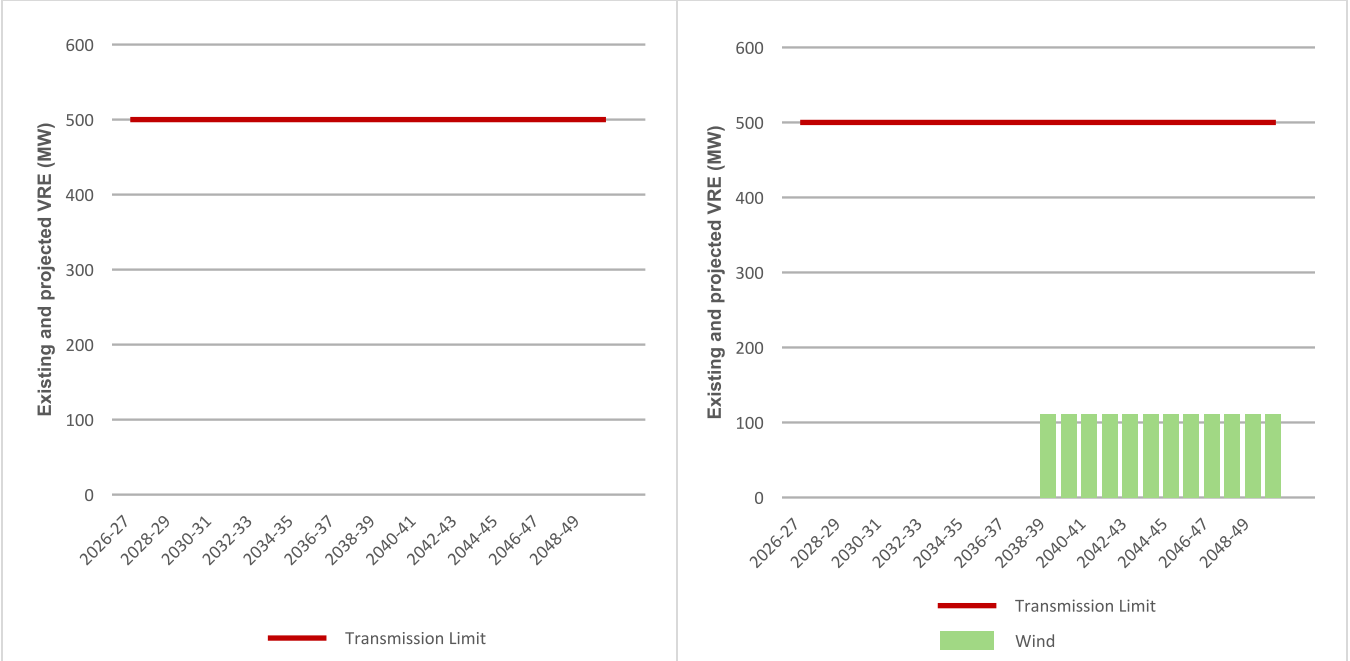
REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	100	100
Accelerated Transition		0	0	0		0	550	550

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	0	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0	0
Accelerated Transition		0	0	0		0	0	0	0

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	-	-	-	-	-	-
Step Change	-	-	0%	23%	0%	22%
Accelerated Transition	0%	44%	0%	28%	0%	34%

S7 – Eastern Eyre Peninsula

Summary

The Eastern Eyre Peninsula REZ has strong wind resource quality. The Eyre Peninsula Link was completed in February 2023. It replaced the existing Cultana–Yadnarie–Port Lincoln 132 kV single-circuit line with a new double-circuit 132 kV line. The section between Cultana to Yadnarie is built to operate at 275 kV, however, initially energised at 132 kV.

Existing network capability

The existing network capacity of this REZ is 300 MW (subject to the capacity of the 275/132 kV transformers). The capability of this zone to accommodate new generation is subject to the MN1-SA mid-north and NSA1 northern group constraint.

REZ grouping

Infrastructure coordination can start later.	Modelling outcomes indicate a low likelihood that significant investment in generationinfrastructure will be required over the next 12 years. There is some wind development to replace existing wind capacity.

Metrics

	Solar			Wind		
Resource						
Resource Quality	D			A		
Renewable Potential (MW)	5,000			2,300		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard

Temperature score	E	**Bushfire score**	C

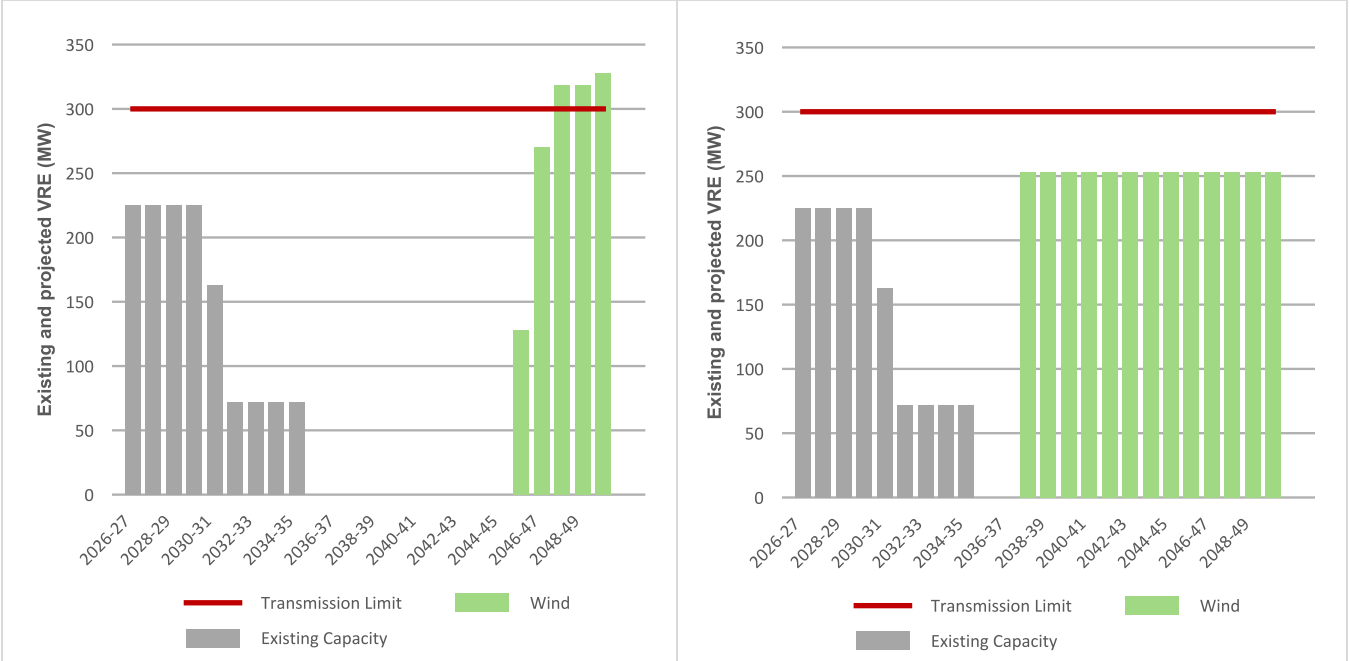
REZ Outlook

	Solar PV (MW)				Wind (MW)			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	0	134	0	0	350
Step Change		0	0	0		0	250	250
Accelerated Transition		0	0	1,450		0	600	600

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	0	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0	0
Accelerated Transition		0	0	0		0	50	450	

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	9%	-	-	0%	29%
Step Change	0%	6%	0%	28%	0%	25%
Accelerated Transition	0%	11%	0%	39%	0%	46%

S8 – Western Eyre Peninsula

Summary

The Western Eyre Peninsula REZ shares the same electrical network as the Eastern Eyre Peninsula. It has good solar and moderate wind resources. There are no generators currently connected or committed within this REZ.

Existing network capability

There is no additional network capacity within this REZ. The capability of this zone to accommodate new generation is subject to the MN1 mid-north and NSA1 northern group constraint

REZ grouping

Infrastructure coordination can start later	Modelling outcomes indicate a low likelihood that significant investment in VRE and transmission infrastructure will be optimally required in the next 20 years.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	B			A		
Renewable Potential (MW)	4,000			1,500		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	D	**Bushfire score**	D

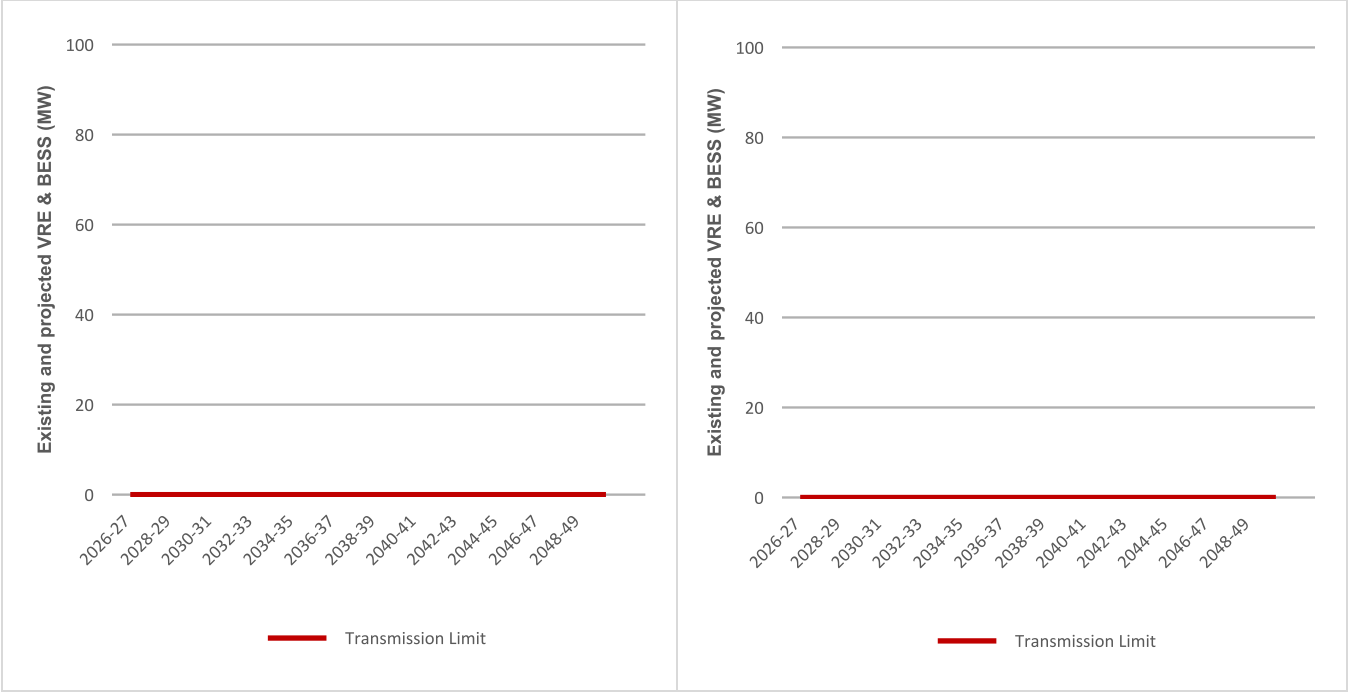
REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0
Accelerated Transition		0	0	0		0	0	0

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	0	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0	0
Accelerated Transition		0	0	0		0	0	0	0

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	-	-	-	-	-	-
Step Change	-	-	-	-	-	-
Accelerated Transition	0%	100%	0%	62%	0%	80%

A3.3.5 Tasmania

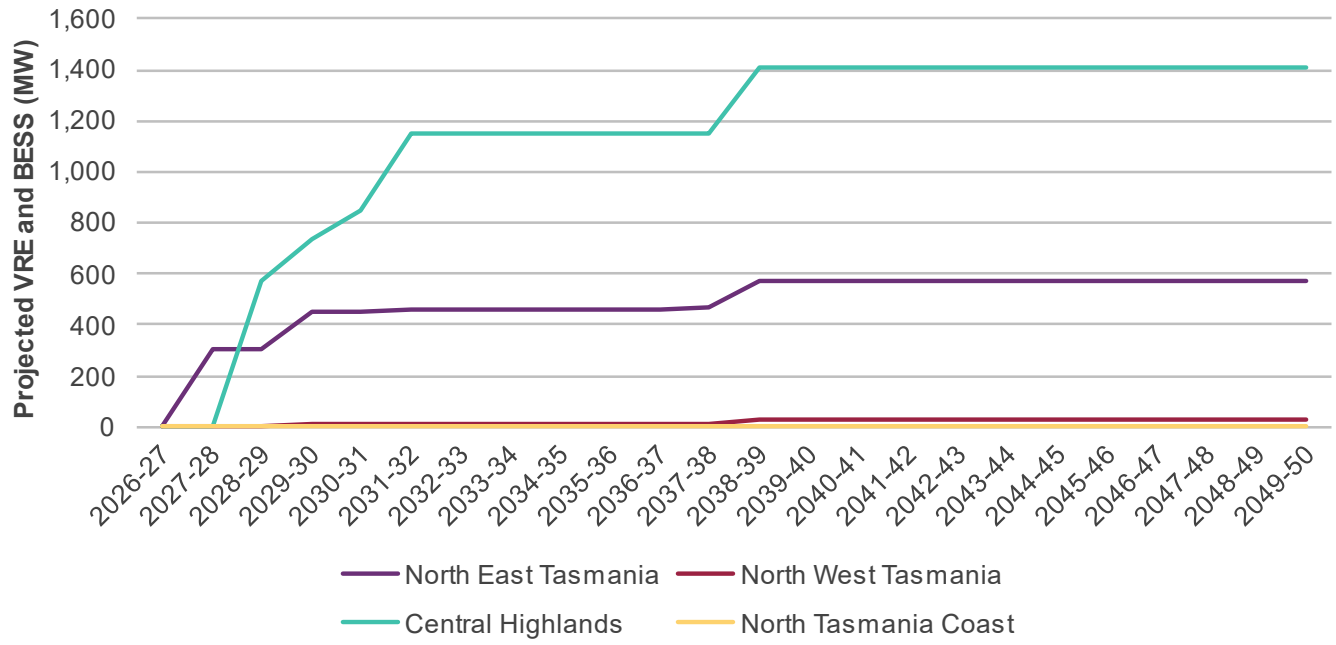
VRE outlook

In Tasmania, around 1.2 GW of new utility-scale wind VRE as well as around 380 MW of utility-scale solar VRE is projected as being required by 2031-32, utilising transmission capacity released by the development of Project Marinus Stage 1.

Figure 10 shows the new utility-scale VRE projected for each REZ in Tasmania in *Step Change*. This modelling indicates:

- Around 1.1 GW of new wind is projected for the Central Highlands REZ by 2031-2032 to utilise the full capacity of Marinus Stage 1. This REZ has the highest VRE projection in Tasmania, with 1.4 GW required by 2049-2050.
- 380 MW of new utility-scale solar is projected for the North East Tasmania REZ by 2029-30, and a gradual increase of new wind is projected for this REZ, reaching a maximum of 189 MW by the late 2030s.
- No major change in utility-scale VRE capacity would be required beyond 2039-40.
- No offshore wind development is projected in *Step Change* results for Tasmania.

Figure 10 Tasmania utility-scale VRE and BESS development in REZs for *Step Change* (MW)



T1 – North East Tasmania

Summary

This REZ has a B grade wind resource quality. North East Tasmania provides the connection point for Basslink which integrates Tasmania to the rest of the NEM.

Existing network capability

Currently there is no capacity on the 110 kV network from Hadspen to Derby. There is approximately 400 MW of VRE resource capacity available within the vicinity of George Town.

The capability of this zone to accommodate new generation is subject to the NET1 northeast Tasmania group constraint.

REZ grouping

Infrastructure coordination can start later.	Modelling outcomes identify moderate VRE development in the late 2020s but indicate a low likelihood that significant investment in transmission infrastructure will be required in the next 20 years under the proposed ODP.

Metrics

	Solar			Wind		
Resource						
Resource Quality	E			B		
Renewable Potential (MW)	300			1,400		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	B	B	A

Climate hazard			
Temperature score	A	**Bushfire score**	B

REZ Outlook

	Solar PV (MW)				Wind (MW)			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	500	500	500	0	0	400	400
Step Change		400	400	400		50	200	200
Accelerated Transition		300	300	300		100	400	1,050

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	0	0	0	0	0	0	0	50
Step Change		0	0	0		0	100	100
Accelerated Transition		0	0	0		0	250	550

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)

VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	1%	8%	3%	3%	0%	20%
Step Change	0%	0%	0%	0%	0%	24%
Accelerated Transition	0%	2%	0%	0%	0%	20%

T2 – North West Tasmania

Summary

This REZ has grade A wind resource quality and good pumped hydro resources. Timing of the North West Tasmania REZ augmentation options are highly dependent on Project Marinus.

In May 2024, the Tasmanian Government released a proposed REZ Area for consultation for North West Tasmania, and AEMO will include outcomes of this consultation in subsequent studies.

Existing network capability

The current total REZ transmission limit for existing (112 MW Granville Harbour Wind Farm) and new VRE before any network upgrade in North West Tasmania is approximately 277 MW for peak demand and summer typical conditions and 112 MW for winter reference condition.

This REZ is affected by transient stability constraints for VRE connection at Farrell 220 kV substation. Future REZ generators are assumed to have a runback scheme in place to reduce generation output post contingency to within network capacity for lines currently covered by the Network Control System Protection Scheme (NCSPS), but not for new transmission lines.

REZ grouping

Ongoing community engagement for network upgrades between Sheffield, Staverton, Hampshire and Burnie is underway as part of the North West Transmission Developments.	Modelling outcomes indicate a low likelihood that significant investment in VRE and transmission infrastructure will be required in the next 20 years, under the proposed ODP.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	F			A		
Renewable Potential (MW)	150			5,000		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	B	A	A

Climate hazard			
Temperature score	A	**Bushfire score**	A

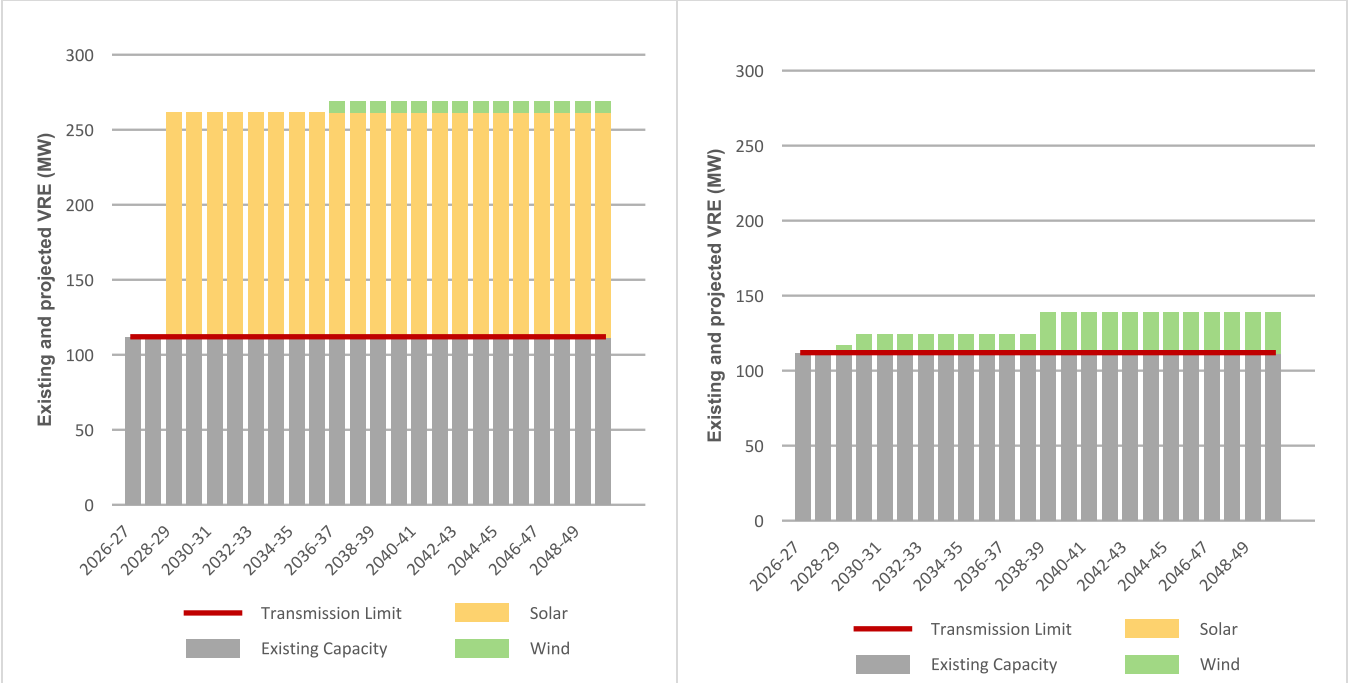
REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	150	150	150	112	0	0	0
Step Change		0	0	0		0	50	50
Accelerated Transition		0	0	0		0	50	50

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	0	0	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0	0
Accelerated Transition		0	0	0		0	0	0	0

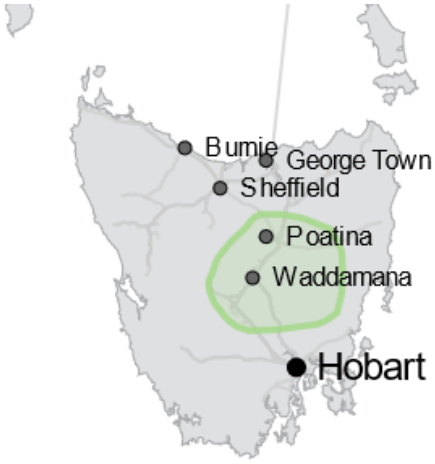
Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	3%	7%	8%	8%	1%	9%
Step Change	1%	1%	4%	4%	1%	28%
Accelerated Transition	1%	1%	6%	6%	2%	41%

T3 – Central Highlands

Summary	
This REZ has grade A wind resource quality and has good pumped hydro resources. It is located close to major load centres at Hobart. Timing of the Tasmania Central Highlands REZ augmentation options are influenced by the timing of Project Marinus augmentations. Waddamana to Palmerston transfer capability upgrade was an actionable project in the 2024 ISP and is proposed to continue to be actionable in this Draft 2026 ISP. The updated options have been provided by TasNetworks through joint planning and are being modelled as part of the RIT-T.	
Existing network capability	
The current total REZ transmission limit for existing (144 MW Wild Cattle Hill Wind Farm) and new VRE before any network upgrade (but considering minor operational improvements) in the Central Highlands is approximately 702 MW for peak demand and summer typical conditions and 843 MW for winter reference condition. VRE development opportunities are anticipated around the Waddamana substation. Note that a runback scheme is not considered for any new transmission lines.	

REZ grouping	
Design and community engagements are progressing.	The modelling outcomes identify this zone for development of wind generation in the 2030s across all scenarios. Ongoing community engagement for network upgrades between Palmerston and Sheffield is underway as part of the North West Transmission Developments.

Metrics						
Resource	**Solar**			**Wind**		
Resource Quality	F			A		
Renewable Potential (MW)	150			3,400		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	B	A	A

Climate hazard			
Temperature score	A	**Bushfire score**	D

REZ Outlook

	Solar PV (MW)				Wind (MW)			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	287	550	550	550	144	0	950	950
Step Change		0	0	0		750	1,400	1,400
Accelerated Transition		0	0	0		800	1,550	1,950

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50	
Slower Growth	0	0	0	0	0	0	0	0	
Step Change		0	0	0		0	0	0	
Accelerated Transition		0	0	0		0	0	0	

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)

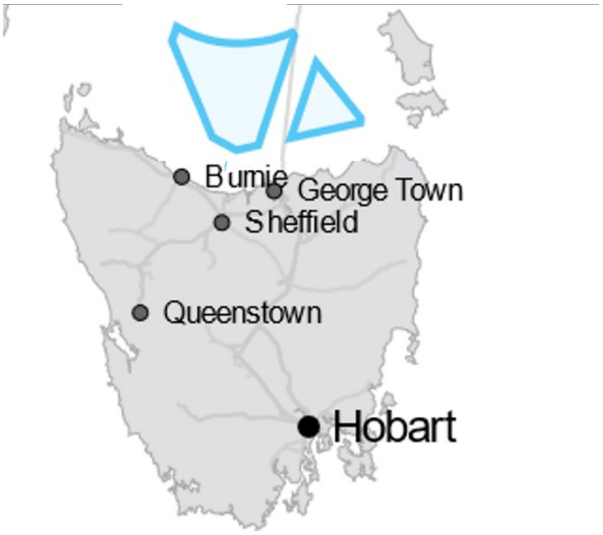
VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	9%	2%	2%	0%	5%
Step Change	3%	3%	2%	2%	0%	11%
Accelerated Transition	3%	4%	4%	4%	1%	18%

T4 – North Tasmania Coast

Summary

The North Tasmania Coast REZ has been identified for the offshore wind resource potential in relatively shallow waters close to shore, with a connection point close to existing 220 kV networks. There is interest from offshore wind proponents in this REZ but no proposed projects are sufficiently progressed to be considered as anticipated or committed by AEMO's criteria.



Existing network capability

North West Tasmania Coast REZ connects to the 220 kV network within the North West REZ or North East REZ. Two potential connection points for this offshore REZ are in the vicinity of Burnie or George Town, and the REZ transmission limit for each connection point is considered differently.

For a connection to the 220 kV network in the vicinity of Burnie, the total REZ transmission limit for existing and new VRE is included as part of the North West REZ limit of approximately 277 MW for peak demand and summer typical conditions and 112 MW for winter reference condition.

For a connection to the 220 kV network in the vicinity of George Town, the total REZ transmission limit for existing and new VRE is included as part of the North East Tasmania NET1 group constraint with a combined transmission limit of 1,600 MW for offshore wind and onshore VRE from T1.

REZ grouping

Infrastructure coordination can start later.	Modelling outcomes indicate a low likelihood that significant investment in VRE and transmission infrastructure will be optimally required in the next 20 years.

Metrics

Resource	**Offshore Wind (fixed)**			**Offshore Wind (floating)**		
Resource Quality	A			A		
Renewable Potential (MW)	8,024			20,360		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	C	B	B	C	B	B

Climate hazard

Temperature score	A	**Bushfire score**	A

VRE outlook

	Offshore Wind – fixed (MW)				**Offshore Wind - floating (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	There is no existing, committed or anticipated offshore wind generation for this REZ. The modelling outcomes, for all scenarios, did not project any offshore wind for this REZ.							
Step Change								
Accelerated Transition								

Transmission access expansion forecast and VRE curtailment

There are no existing, committed or anticipated VRE projects for this REZ, and the modelling outcomes, for all scenarios, did not project any additional VRE for this REZ. Therefore, no VRE curtailment or transmission expansion occurs in this REZ.

A3.3.6 Victoria

VRE outlook

In Victorian REZs, approximately 20 GW of new utility-scale wind and solar VRE is projected by 2050 to assist in meeting VRET targets and replacing retiring generation.

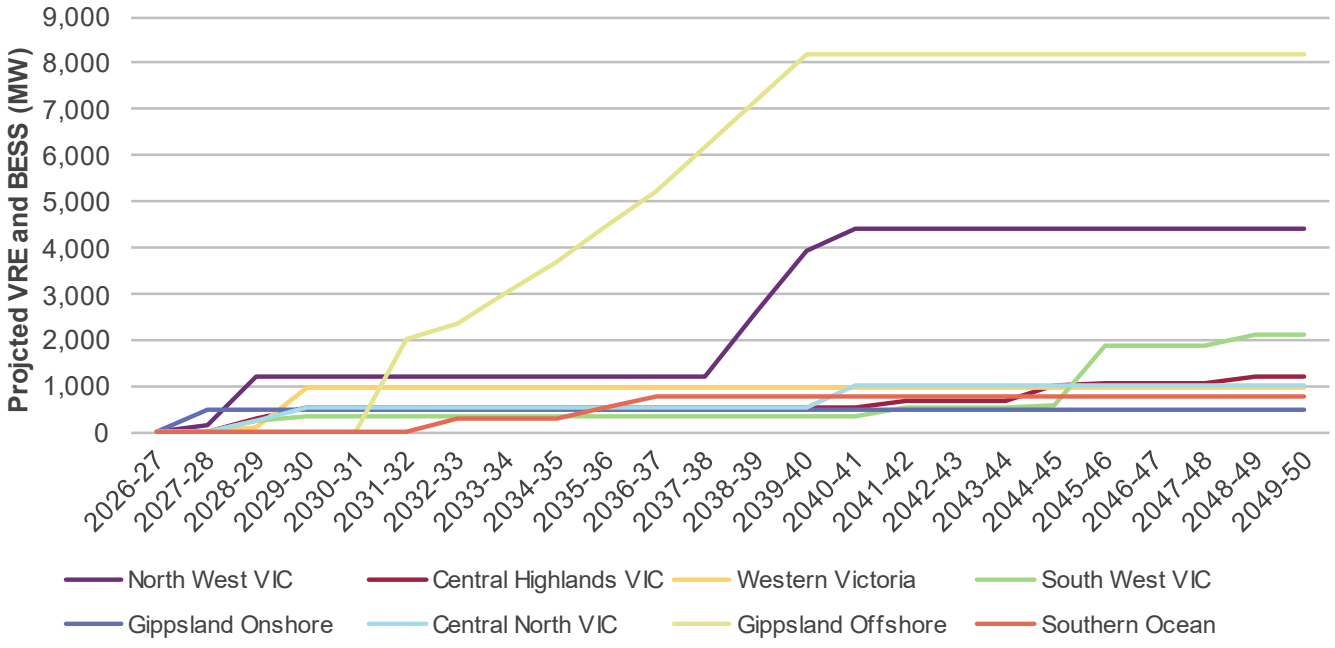
The Victorian Government has outlined its vision[28] for offshore wind and has set targets for at least 2 GW of offshore wind capacity by 2032, 4 GW by 2035 and 9 GW by 2040.

Figure 11 shows the new utility-scale VRE capacity projected for each REZ in Victoria in *Step Change*. This modelling indicates:

- Approximately 4,200 MW new utility-scale VRE is forecast to be required in Victoria by 2029-30. This new VRE generation is predominantly located in North West Victoria and Wimmera Southern Mallee, with the rest spread evenly across most of the other REZs.
- By 2032, nearly 3,000 MW of new VRE capacity is projected in the Central Highlands, Wimmera Southern Mallee and North West Victoria REZs, using the additional REZ network capacity from VNI West and the Western Renewables Link.
- Past 2032, the offshore wind primarily in Gippsland offshore provides the majority of the REZ capacity increase and are drivers for future upgrades to the south-east Victoria.
- By 2035, the Southern Ocean REZ develops with approximately 300 MW. By 2040, the Gippsland Offshore and Southern Ocean REZs are forecast to develop 8,200 MW and 800 MW respectively.
- After 2039, new utility-scale solar is projected to connect to the North West Victoria REZ, with over 3 GW by 2049-50.
- There is limited generation projected in the South West REZ under the *Step Change* scenario, with generation being planted in the 2040s to replace existing VRE which is retiring. AEMO acknowledges that modelling results for this REZ differ from the 2025 Victorian Transmission Plan (VTP) and will continue to jointly plan with VicGrid to understand any differences and consider any changes for the final 2026 ISP.
- Although there is limited large utility-scale storage in Victoria's REZs, there is significant utility-scale storage projected in the region, primarily located around the load centre in Melbourne. By 2029-30 there is over 5 GW / 14.6 GWh of utility-scale storage capacity projected.

[28] Victorian Government, 2023. "Offshore Wind Transmission Development and Engagement Roadmap". At https://engage.vic.gov.au/offshore-wind-transmission-in-gippsland-and-portland. Viewed 27 October 2023.

Figure 11 Victoria utility-scale VRE and BESS development in REZs for *Step Change* (MW)



V1 – North West

Summary

The North West REZ (in previous ISPs this was part of V2 – Murray River REZ) has good solar and wind resource quality. Despite being remote, this REZ has attracted significant investment in solar generation. Voltage stability and thermal limits currently restrict the output of generators within this REZ.
The actionable VNI West project will upgrade transfer capability between Victoria and New South Wales via Bulgana, and significantly increase the ability for renewable generation to connect in this zone.

Existing network capability

The current REZ transmission limits for existing and new VRE before any network upgrade in North West is approximately 440 MW for peak demand and summer typical conditions and 640 MW for winter reference condition. There is no additional capacity to connect new generation.

REZ grouping

REZ design and community engagement is progressing.	Modelling outcomes indicate moderate amounts of wind over the next few years and large amounts solar being built around 2040. Outside of the actionable VNI West project, it is unlikely transmission infrastructure will be required in the next 20 years under the proposed ODP.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	B			B		
Renewable Potential (MW)	3,000			1,500		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard

Temperature score	E	**Bushfire score**	C

REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	597	200	200	200	0	1,200	1,200	1,200
Step Change		150	2900	3,000		1,100	1,100	1,450
Accelerated Transition		250	7,200	11,200		1,100	1,550	1,550

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	210	0	0	0	0	0	0	0
Step Change		0	0	0		0	0	0
Accelerated Transition		0	1,750	3,100		0	850	1,250

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)

VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	2%	15%	0%	25%	0%	12%
Step Change	2%	9%	0%	27%	0%	18%
Accelerated Transition	2%	10%	0%	33%	0%	32%

V2 – Central Highlands

Summary

The Central Highlands REZ (in previous ISPs this was part of V3 – Western Victoria REZ) has good wind resource quality. The existing and committed renewable generation within this REZ exceeds 630 MW, all of which is from wind generation.
The Western Renewables Link (WRL) uprated is an anticipated project, and increases the ability for renewable generation to connect in this zone. VNI West further increases the network capability in this REZ.

Existing network capability

The current REZ transmission limits for existing and new VRE before any network upgrade in Central Highlands are approximately 600 MW for peak demand and summer typical conditions and 800 MW for winter reference condition.

REZ grouping

REZ design and community engagement is progressing.	The modelling outcomes identify this zone for development of wind generation around 2030 across the *Step Change* and *Accelerated Transition* scenarios. This REZ could benefit from early community engagements and from coordination of generation.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	E			B		
Renewable Potential (MW)	2,500			2,000		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard

Temperature score	C	**Bushfire score**	D

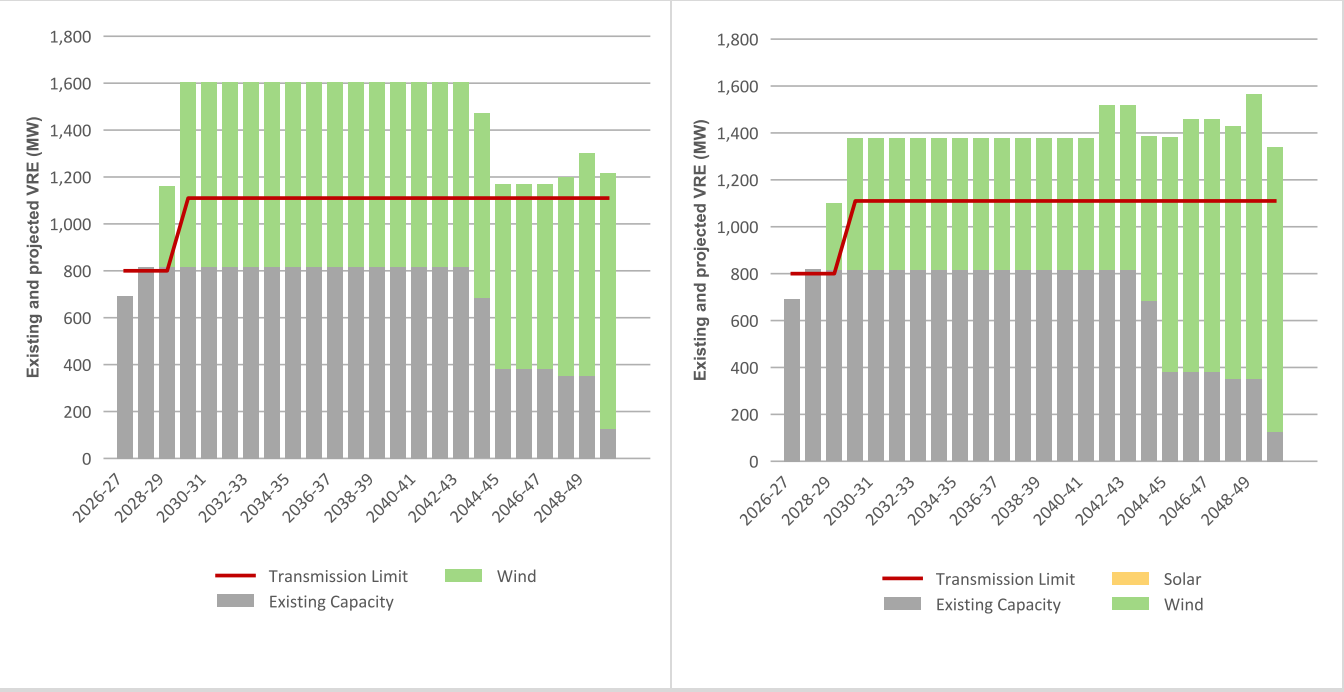
REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	0	693	750	750	1,050
Step Change		0	0	0		550	550	1,200
Accelerated Transition		0	2,550	2,550		600	1,650	3,850

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50	
Slower Growth	30	0	0	0	0	0	0	0	
Step Change		0	0	0		0	0	0	
Accelerated Transition		0	0	0		0	0	0	

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	5%	14%	0%	22%	0%	10%
Step Change	4%	11%	0%	21%	0%	16%
Accelerated Transition	5%	11%	0%	34%	0%	21%

V3,4 – Western Victoria REZ

Summary

The Western Victoria REZ as defined in the Victorian Transmission Plan[29] includes the ISP REZ of Wimmera Grampians (V3) and Wimmera Southern Mallee (V4). It has good wind resource quality. The existing and committed renewable generation within this REZ exceeds 1,300 MW of wind and solar generation.
REZ augmentation options shown take into account the WRL (uprate) scope as part of the VNI West RIT-T utilising 500 kV from Sydenham to Bulgana.

Existing network capability

The current REZ transmission limits for existing and new VRE before any network upgrade in Wimmera Grampians and Wimmera Southern Mallee is approximately 780 MW for peak demand and summer typical conditions and 980 MW for winter reference conditions. Wimmera Grampians and Wimmera Southern Mallee's (combined as the Western Victoria REZ) ability to export to the wider network was modelled under the Group Constraint WV1.

REZ grouping

REZ design and community engagement is progressing.	The modelling outcomes identify this zone for development of wind generation in the 2030s across all of the scenarios. This REZ could benefit from community engagements and from coordination of generation. Community consultation is ongoing for WRL.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	F			B		
Renewable Potential (MW)	-			3,100		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard

Temperature score	D	**Bushfire score**	D

REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	0	466	950	950	950
Step Change		0	0	0		1,000	1,000	1,000
Accelerated Transition		0	3,100	3,600		800	1,900	2,150

[29] See https://www.vicgrid.com.au/transmission-planning/victorian-transmission-plan.

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50	
Slower Growth	0	0	0	0	0	0	0	0	
Step Change		0	0	0		0	0	0	
Accelerated Transition		0	0	0		0	0	0	

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)

Note: The transmission access expansion forecasts show the results for WV1 group constraint augmentation, which includes VRE projections for V3 and V4 (which form the Western Victoria REZ).

VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	12%	0%	23%	0%	8%
Step Change	0%	17%	0%	14%	0%	13%
Accelerated Transition	0%	15%	0%	32%	0%	33%

V5 – South West

Summary

The South West REZ has moderate wind resource quality in close proximity to the 500 kV and 220 kV networks in the area. The total committed and in-service wind generation in the area exceeds 3 GW.

Existing network capability

The current REZ transmission limits for existing and new VRE before any network upgrade in South West Victoria are limited by voltage stability, and this REZ was modelled with the SWV1 group constraint.
This limit is approximately 2,495 MW post commissioning of the Victorian Government's REZ Development Plan: Mortlake turn in project.

REZ grouping

REZ design and community engagement is progressing.	The modelling outcomes identify this zone for development of moderate wind generation in the 2030s across the *Step Change* and *Slower Growth* scenarios.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	F			B		
Renewable Potential (MW)	-			2,100		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	C	**Bushfire score**	D

REZ Outlook

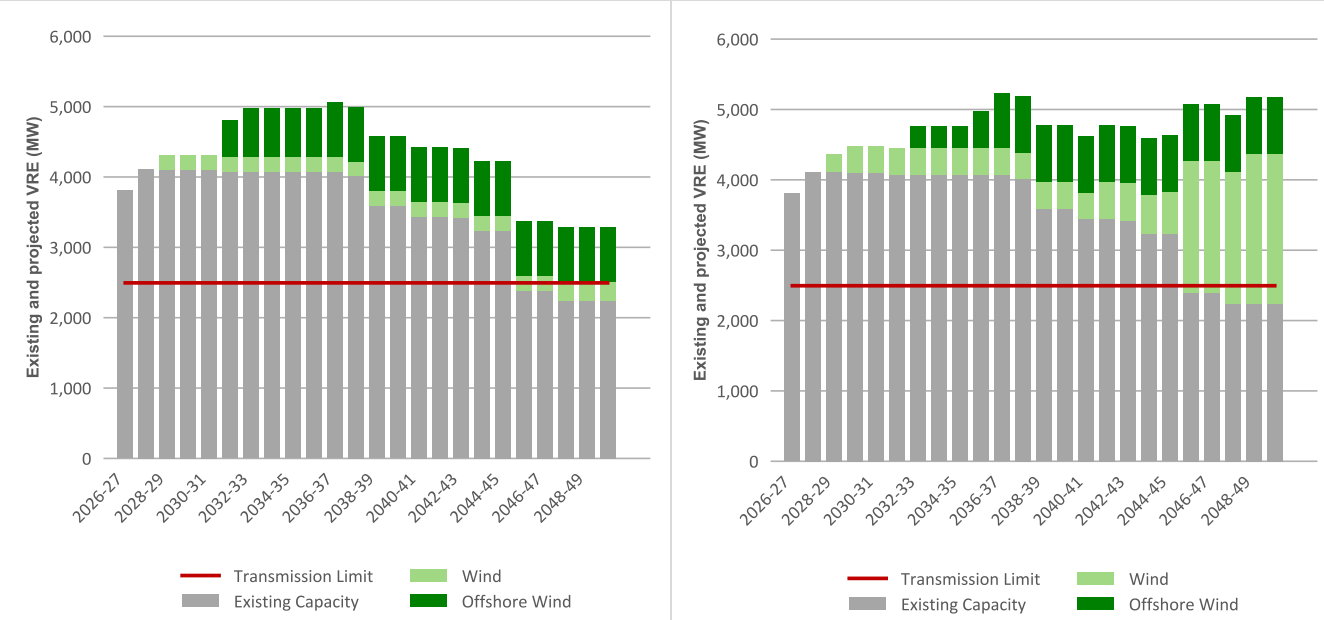
	Solar PV (MW)				**Wind (MW)[30]**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	0	3808	200	200	250
Step Change		0	0	0		350	350	2,150
Accelerated Transition		0	0	0		350	450	2,750

[30] AEMO acknowledges that modelling results for this REZ differ from the 2025 VTP and will continue to jointly plan with VicGrid to understand any differences and consider any changes for the final 2026 ISP.

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)		
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected		
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	918	0	0	0	0	0	500	1,150
Step Change		0	0	0		0	850	1,300
Accelerated Transition		0	0	0		50	1,150	1,950

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



Note: The transmission access expansion forecasts show the results for SWV1 group constraint augmentation, which includes VRE projections for V5 and V9. There is a future South West Victoria expansion project however its purpose in the ODP is to increase the transmission flow path limit of WNV – MEL, and does not support any further generation in South West REZ. AEMO will continue to jointly plan with VicGrid to understand any project discrepancies and consider any changes for the final 2026 ISP.

VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	3%	0%	15%	0%	5%
Step Change	0%	4%	0%	13%	0%	9%
Accelerated Transition	0%	3%	0%	13%	0%	15%

V6 – Gippsland Onshore

Summary

The Gippsland Onshore REZ has moderate wind resource quality, in proximity to the 500 kV networks.

Existing network capability

The transmission limit of the Gippsland REZ is modelled with the SEV-MEL flow path limit.
Due to the high capacity of the network in this REZ (with four 500 kV and six 220 kV lines from Latrobe Valley to Melbourne designed to transport energy from major Victorian brown coal power stations), significant generation can be accommodated. However, limitations exist at key points of 500/220 kV transformation.

REZ grouping

Coordination of generation infrastructure may be required.	The modelling outcomes identify this zone for development of solar generation in the next few years across the *Step Change* and *Slower Growth* scenarios

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	F			D		
Renewable Potential (MW)	900			500		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	B	B	A

Climate hazard			
Temperature score	C	**Bushfire score**	D

REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	77	450	450	450	0	0	0	0
Step Change		500	500	500		0	0	0
Accelerated Transition		900	900	900		100	100	100

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50
Slower Growth	664	0	0	0	0	0	50	150
Step Change		0	0	0		0	100	150
Accelerated Transition		0	0	0		0	200	300

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)

Note: The transmission limit of the Gippsland REZ is modelled with the SEV-MEL flow path limit.

VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	0%	1%	0%	19%	0%	1%
Step Change	0%	8%	0%	30%	0%	28%
Accelerated Transition	0%	5%	0%	33%	0%	24%

V7 – Central North

Summary

The Central North REZ has moderate solar and wind resource quality. In addition to the currently in service and committed solar farms, there are enquires for over 1 GW of additional solar.

Existing network capability

The current REZ transmission limits for existing and new VRE before any network upgrade in Central North Victoria are approximately 650 MW for peak demand and summer typical conditions and 1,300 MW for the winter reference condition.

REZ grouping

Coordination of generation infrastructure may be required.	The modelling outcomes identify this zone for development of a moderate amount of wind generation around 2030 across all scenarios, and some solar generation beyond 2040 in Step Change and Accelerated Transition.

Metrics

Resource	**Solar**			**Wind**		
Resource Quality	C			B		
Renewable Potential (MW)	500			5,000		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	F	F	F	A	A	A

Climate hazard			
Temperature score	0	**Bushfire score**	0

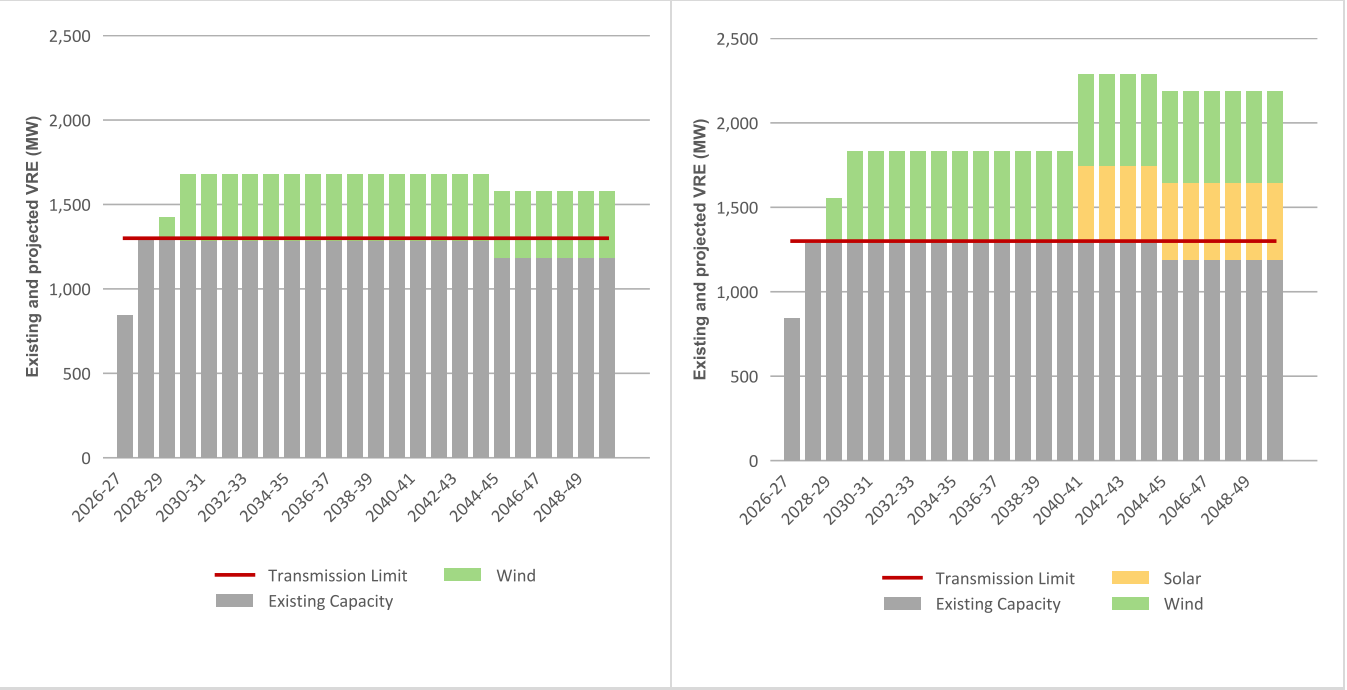
REZ Outlook

	Solar PV (MW)				**Wind (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	844	0	0	0	0	400	400	400
Step Change		0	0	450		550	550	550
Accelerated Transition		0	1,100	1,100		550	1,350	1,350

REZ Outlook (continued)

	Battery energy storage systems (MW)					Hydrogen load (MW)			
	Existing/ committed/ anticipated	Projected			Existing/ committed/ anticipated	Projected			
		2029-30	2039-40	2049-50		2029-30	2039-40	2049-50	
Slower Growth	250	0	0	0	0	0	0	0	
Step Change		0	0	0		0	0	0	
Accelerated Transition		0	100	100		0	0	0	

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	3%	16%	1%	29%	3%	20%
Step Change	5%	17%	0%	31%	1%	36%
Accelerated Transition	4%	15%	0%	46%	0%	46%

V8 – Gippsland Offshore

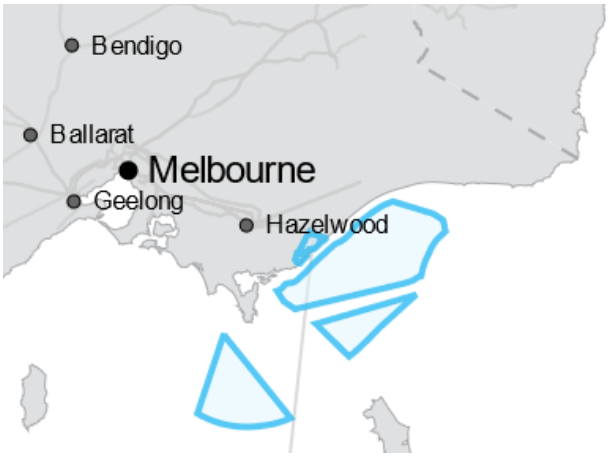
Summary

The Gippsland Offshore REZ has been identified for offshore wind resource potential in relatively shallow waters, with a connection point close to existing 500 kV networks at Loy Yang/Hazelwood. There is currently significant interest in this area, but proposed projects have not developed sufficiently to be considered anticipated.

The Victorian Government has announced that VicGrid will provide a coordinated transmission connection point for offshore wind near the Gippsland Shoreline[31]. New transmission lines will also be developed where needed to link the common connection points with the existing energy grid.

AEMO understands that transmission augmentation projects for Gippsland Shoreline REZ are likely to be delivered as a dedicated asset of some kind. Additionally, the Victorian Government has announced that VicGrid will provide a coordinated transmission connection point near Portland (see V9).

VicGrid is currently undertaking consultation[32] on the development of this infrastructure and AEMO will continue to co-ordinate with VicGrid on this matter.



Existing network capability

Gippsland Offshore REZ requires connection to the 500 kV network.

REZ grouping

Design and community engagement are progressing.	The Federal Minister for Climate Change and Energy proposed an area off the Gippsland Coast in Victoria for offshore renewable energy, including offshore wind, on 5 August 2022. Consultation on this proposed area closed on 7 October 2022. VicGrid is currently undertaking consultation on the development of connection infrastructure.

Metrics

Resource	**Offshore Wind (fixed)**			**Offshore Wind (floating)**		
Resource Quality	A			A		
Renewable Potential (MW)	55,000			5,000		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	B	B	B	B	B	B
MLF Robustness	**2029-30**		**2034-35**		**2039-40**	

Climate hazard

Temperature score	C	**Bushfire score**	D

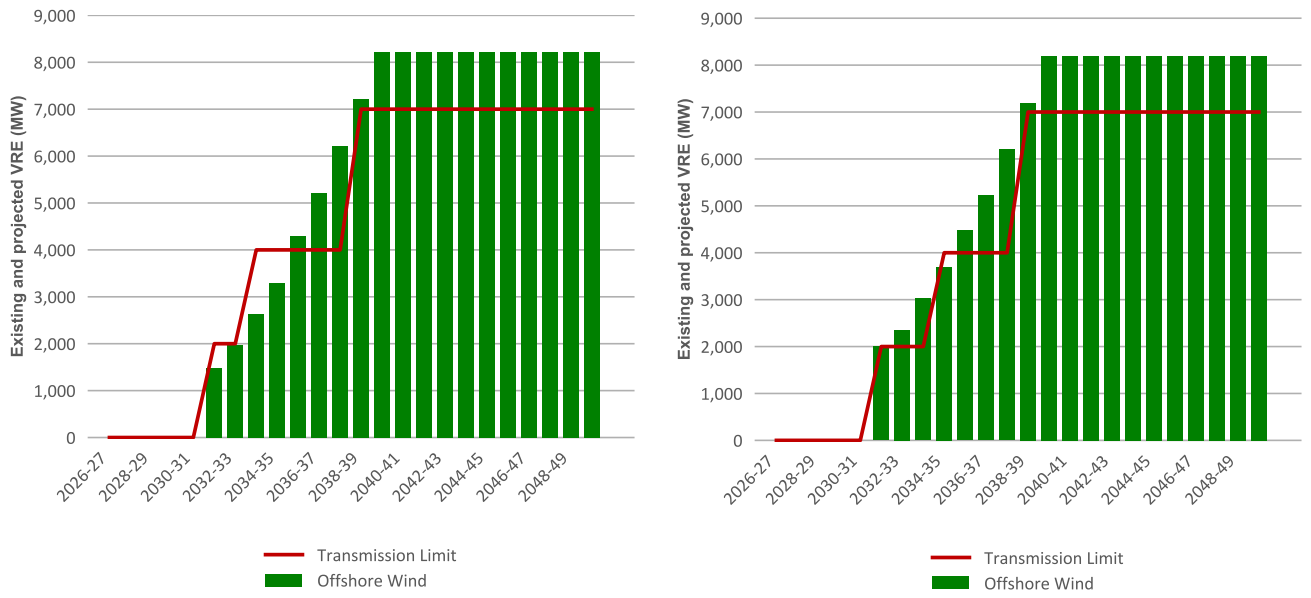
VRE outlook

	Offshore Wind – fixed (MW)				**Offshore Wind - floating (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	0	0	0	8,200	8,200
Step Change		0	0	0		0	8,200	8,200
Accelerated Transition		0	0	0		0	6,700	6,700

[31] See https://www.energy.vic.gov.au/renewable-energy/vicgrid/offshore-wind-transmission/gippsland-offshore-wind.

[32] See https://www.vicgrid.com.au/about/news/news-stories/consultation-offshore-wind-transmission.

Transmission access expansion forecast for *Progressive Change* (left) and *Step Change* (right)



VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	-	-	0%	8%	1%	4%
Step Change	-	-	0%	7%	0%	3%
Accelerated Transition	-	-	0%	8%	0%	5%

V9 – Southern Ocean

Summary

The Southern Ocean REZ has been identified for offshore wind resource potential in relatively shallow waters, with a connection point close to existing 500 kV networks at Alcoa Portland (APD)/Heywood.
The Victorian Government has announced that VicGrid will provide a coordinated transmission connection point near Portland[33].
VicGrid is currently undertaking consultation on the development of this infrastructure[34] and AEMO will continue to co-ordinate with VicGrid on this matter.

Existing network capability

The network capacity available for V9 is the same as V5 South West Victoria.

REZ grouping

Design and community engagement are progressing.	The Federal Minister for Climate Change and Energy proposed[35] an area in the Southern Ocean off Victoria and South Australia for offshore renewable energy, including offshore wind, on 28 June 2023. Consultation on this proposed area closed on 31 August 2023. VicGrid is currently undertaking consultation on the development of connection infrastructure.

Metrics

Resource	**Offshore Wind (fixed)**			**Offshore Wind (floating)**		
Resource Quality	A			A		
Renewable Potential (MW)	780			3,330		
Demand Correlation	**2029-30**	**2039-40**	**2049-50**	**2029-30**	**2039-40**	**2049-50**
	A	A	A	A	A	A

Climate hazard			
Temperature score	C	**Bushfire score**	D

VRE outlook

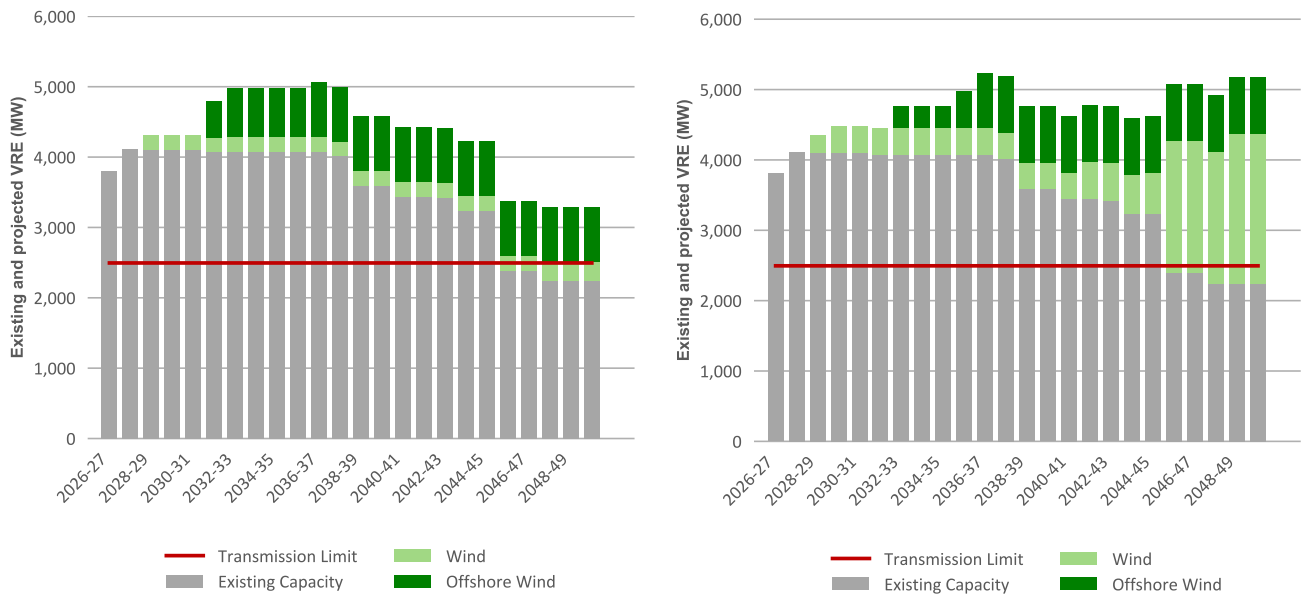
	Offshore Wind – fixed (MW)				**Offshore Wind - floating (MW)**			
	Existing/ committed/ anticipated	**Projected**			**Existing/ committed/ anticipated**	**Projected**		
		2029-30	**2039-40**	**2049-50**		**2029-30**	**2039-40**	**2049-50**
Slower Growth	0	0	0	0	0	0	800	800
Step Change		0	0	0		0	800	800
Accelerated Transition		0	0	0		0	800	800

[33] See https://www.dcceew.gov.au/energy/renewable/offshore-wind/areas/southern-ocean-region.

[34] See https://www.vicgrid.com.au/about/news/news-stories/consultation-offshore-wind-transmission.

[35] See https://consult.dcceew.gov.au/oei-southern-ocean.

Transmission access expansion forecast for *Slower Growth* (left) and *Step Change* (right)



Note: The transmission access expansion forecasts show the results for SWV1 group constraint augmentation, which includes VRE projections for V5 and V9.

VRE curtailment

Scenario	2029-30		2039-40		2049-50	
	Network curtailment	Economic spill	Network curtailment	Economic spill	Network curtailment	Economic spill
Slower Growth	-	-	0	8%	0%	1%
Step Change	-	-	0	15%	0%	14%
Accelerated Transition	-	-	0	27%	0%	25%

Glossary

This glossary has been prepared as a quick guide to help readers understand some of the terms used in the ISP. Words and phrases defined in the National Electricity Rules (NER) have the meaning given to them in the NER. This glossary is not a substitute for consulting the NER, the Australian Energy Regulator's (AER's) Cost Benefit Analysis Guidelines, or AEMO's *ISP Methodology*.

Term	Acronym	Explanation
Actionable ISP project	-	Actionable ISP projects optimise benefits for consumers if progressed before the next ISP. A transmission project (or non-network option) identified as part of the ODP and having a delivery date within an actionable window. For newly actionable ISP projects, the actionable window is two years, meaning it is within the window if the project is needed within two years of its earliest in-service date. The window is longer for projects that have previously been actionable. Project proponents are required to begin newly actionable ISP projects with the release of a final ISP, including commencing a RIT-T.
Actionable project progressing under a jurisdictional framework	-	A transmission project (or non-network option), other than an actionable ISP project, which optimises benefits for consumers if progressed before the next ISP, is identified as part of the ODP, and which will progress under a jurisdictional policy that AEMO considers under NER 5.22.3 (b) and includes in the ISP.
Actionable New South Wales project and actionable Queensland project	-	A transmission project (or non-network option) that optimises benefits for consumers if progressed before the next ISP, is identified as part of the ODP, and is supported by or committed to in New South Wales Government or Queensland Government policy and/or prospective or current legislation.
Anticipated project	-	A generation, storage or transmission project that is in the process of meeting at least three of the five commitment criteria (planning, construction, land, contracts, finance), in accordance with the AER's Cost Benefit Analysis Guidelines. Anticipated projects are included in all ISP scenarios.
Candidate development path	CDP	A collection of development paths which share a set of potential actionable projects. Within the collection, potential future ISP projects are allowed to vary across scenarios between the development paths. Candidate development paths have been shortlisted for selection as the ODP and are evaluated in detail to determine the ODP, in accordance with the ISP Methodology.
Capacity	-	The maximum rating of a generating or storage unit (or set of generating units), or transmission line, typically expressed in megawatts (MW). For example, a solar farm may have a nominal capacity of 400 MW.
Committed project	-	A generation, storage or transmission project that has fully met all five commitment criteria (planning, construction, land, contracts, finance), in accordance with the AER's Cost Benefit Analysis Guidelines. Committed projects are included in all ISP scenarios.
Consumer energy resources	CER	Generation or storage assets owned by consumers and installed behind-the-meter. These can include rooftop solar, batteries and electric vehicles (EVs). CER may include demand flexibility.
Consumption	-	The electrical energy used over a period of time (for example a day or year). This quantity is typically expressed in megawatt hours (MWh) or its multiples. Various definitions for consumption apply, depending on where it is measured. For example, underlying consumption means consumption being supplied by both CER and the electricity grid.
Cost-benefit analysis	CBA	A comparison of the quantified costs and benefits of a particular project (or suite of projects) in monetary terms. For the ISP, a cost-benefit analysis is conducted in accordance with the AER's Cost Benefit Analysis Guidelines.
Counterfactual development path	-	The counterfactual development path represents a future without major transmission augmentation. AEMO compares candidate development paths against the counterfactual to calculate the economic benefits of transmission.

Term	Acronym	Explanation
Demand	-	The amount of electrical power consumed at a point in time. This quantity is typically expressed in megawatts (MW) or its multiples. Various definitions for demand, depending on where it is measured. For example, underlying demand means demand supplied by both CER and the electricity grid.
Demand-side participation	DSP	The capability of consumers to reduce their demand during periods of high wholesale electricity prices or when reliability issues emerge. This can occur through voluntarily reducing demand, or generating electricity.
Development path	DP	A set of projects (actionable projects, future projects and ISP development opportunities) in an ISP that together address power system needs.
Distribution network service provider	DNSP	A business which owns, controls or operates a distribution system (including a distribution network).
Dispatchable capacity	-	The total amount of generation that can be turned on or off, without being dependent on the weather. Dispatchable capacity is required to provide firming during periods of low variable renewable energy output in the NEM.
Economic offloading	-	Refers to a generator being dispatched below its maximum availability, because some or all of its output was bid into price bands greater than the regional reference price. This may also be referred to as economic 'spill' or 'spilled energy' as generators reduce output due to low market prices or lack of available demand.
Firming	-	Grid-connected assets that can provide dispatchable capacity when variable renewable energy generation is limited by weather, for example storage (pumped-hydro and batteries) and gas-powered generation.
Future distribution project	-	A distribution project that is part of the ODP and forecast to be needed in the future. The project is an ISP development opportunity and does not address an identified need specified in the ISP. The ISP cannot make a distribution project 'actionable' or require commencement of the Regulatory Investment Test for Distribution (RIT-D).
Future ISP project	-	A transmission project (or non-network option) that addresses an identified need in the ISP, that is part of the ODP, and is forecast to be actionable in the future.
Identified need	-	The objective a TNSP seeks to achieve by investing in the network in accordance with the NER or an ISP. In the context of the ISP, the identified need is the reason an investment in the network is required, and may be met by either a network or a non-network option.
ISP development opportunity	-	A development identified in the ISP that does not relate to a transmission project (or non-network option) and may include generation, storage, demand-side participation, or other developments such as distribution network projects.
National Electricity Rules	NER	The Rules are legally binding rules made under the National Electricity Law, which govern the operation of the National Electricity Market and the ways in which AEMO manages power system security. The Rules also provide the regulatory framework for network connections and access, national transmission planning and pricing for network services. The Rules are mainly made by the AEMC having regard to the National Electricity Objective.
Net market benefits	-	The present value of total market benefits associated with a project (or a group of projects), less its total cost, calculated in accordance with the AER's Cost Benefit Analysis Guidelines.
Non-network option	-	A means by which an identified need can be fully or partly addressed, that is not a network option. A network option means a solution such as transmission lines or substations which are undertaken by a Network Service Provider using regulated expenditure.
Optimal development path	ODP	The development path identified in the ISP as optimal and robust to future states of the world. The ODP contains actionable projects, future ISP projects and ISP development opportunities, and optimises costs and benefits of various options across a range of future ISP scenarios.
Regulatory Investment Test for Transmission	RIT-T	The RIT-T is a cost benefit analysis test that TNSPs must apply to prescribed regulated investments in their network. The purpose of the RIT-T is to identify the credible network or non-network options to address the identified network need that maximise net market benefits to the NEM. RIT-Ts are required for some but not all transmission investments.
Reliable (power system)	-	The ability of the power system to supply adequate power to satisfy consumer demand, allowing for credible generation and transmission network contingencies.

Term	Acronym	Explanation
Renewable energy	-	For the purposes of the ISP, the following technologies are referred to under the grouping of renewable energy: "solar, wind, biomass, hydro, and hydrogen turbines". Variable renewable energy is a subset of this group, explained below.
Renewable energy zone	REZ	An area identified in the ISP as high-quality resource areas where clusters of large-scale renewable energy projects can be developed using economies of scale.
Renewable drought	-	A prolonged period of very low levels of variable renewable output, typically associated with dark and still conditions that limit production from both solar and wind generators.
Rooftop solar and other small-scale solar	-	Solar photovoltaic (PV) generation assets that are not centrally controlled by AEMO dispatch. Examples include residential and business rooftop PV as well as larger commercial or industrial "non-scheduled" PV systems.
Scenario	-	A possible future of how the NEM may develop to meet a set of conditions that influence consumer demand, economic activity, decarbonisation, and other parameters. For the Draft 2026 ISP, AEMO has considered three scenarios: *Slower Growth*, *Step Change* and *Accelerated Transition*.
Secure (power system)	-	The system is secure if it is operating within defined technical limits and is able to be returned to within those limits after a major power system element is disconnected (such as a generator or a major transmission network element).
Sensitivity analysis	-	Analysis undertaken to determine how modelling outcomes change if an input assumption (or a collection of related input assumptions) is changed.
Spilled energy	-	Energy from variable renewable energy resources that could be generated but is unable to be delivered. Transmission curtailment results in spilled energy when generation is constrained due to operational limits, and economic spill occurs when generation reduces output due to market price. This can also be referred to as 'economic offloading'.
Transmission network service provider	TNSP	A business that owns, controls or operates a transmission network.
Utility-scale or utility		For the purposes of the ISP, 'utility-scale' and 'utility' refers to technologies connected to the high-voltage power system rather than behind the meter at a business or residence.
Value of greenhouse gas emissions reduction	VER	The VER estimates the value (dollar per tonne) of avoided greenhouse gas emissions. The VER is calculated consistent with the method agreed to by Australia's Energy Ministers in February 2024.
Virtual power plant	VPP	An aggregation of resources coordinated to deliver services for power system operations and electricity markets. For the ISP, VPPs enable coordinated control of consumer-scale batteries.
Variable renewable energy	VRE	Renewable resources whose generation output can vary greatly in short time periods due to changing weather conditions, such as solar and wind.