Department of Climate Change, Energy, the Environment and Water

Energy Security Target Monitor report 2025

NSW GOVERNMENT

Acknowledgement of Country

Department of Climate Change, Energy, the Environment and Water acknowledges the traditional custodians of the land and pays respect to Elders past, present and future.

We recognise Australian Aboriginal and Torres Strait Islander peoples' unique cultural and spiritual relationships to place and their rich contribution to society.

Artist and designer Nikita Ridgeway from Aboriginal design agency – Boss Lady Creative Designs, created the People and Community symbol.

Energy Security Target Monitor report 2025

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Secretary's foreword

New South Wales is leading a once-in-a-generation update of the electricity system to power our state with affordable, clean and reliable energy.

Electricity generation is still the leading greenhouse gas emitting sector in New South Wales. Transitioning our electricity system to one based on renewable energy is the single biggest action we can take to meet NSW's emission reduction targets in 2030 and 2035 and achieve net zero by 2050.

This urgency is underscored because we know coal-fired power is exiting the system. Three out of the 4 remaining coal-fired power stations in New South Wales are certain to close in the next 10 years and the services this infrastructure provides need to be replaced.

We need to be ready to meet our electricity needs now, and for generations to come.

As this transition progresses, the Energy Security Target Monitor (the Monitor) is responsible for monitoring New South Wales's energy security. As the Monitor, we assess whether New South Wales will have sufficient firm electricity capacity – including generation, firming, storage, and network infrastructure – to meet consumer demand.

I am pleased to submit the department's first Energy Security Target Monitor report to the Hon Penny Sharpe MLC, Minister for Climate Change, Energy, the Environment and Heritage.

The report shows an improved energy security outlook compared to previous years driven by the commissioning of new generation and storage projects. While coal-fired power stations continue to play a critical role in ensuring energy reliability and security, they are nearing the end of their operational lives. This is reflected in the Energy Security Target breaches forecast for 2027–28, 2033–34 and 2034–35 in this report's Central scenario when these coal power stations retire.

The report also shows that new energy infrastructure being delivered through the NSW Electricity Infrastructure Roadmap is adequate to resolve these forecast breaches, as long as it is delivered on time. This Energy Security Target Monitor report provides various scenarios and sensitivities impacting these forecasts.

The NSW Government plans to review the energy security target methodology to ensure that it remains fit for purpose to ensure energy security in a variable renewable energy dominated electricity system.

As New South Wales continues to transform our energy system, we know there will be numerous challenges and the analysis in this report is crucial to identifying and addressing these challenges. To improve our analysis, as the Monitor, I intend to gather more in–depth information from the key projects to inform the 2026 report.

My thanks to all those who provided input, including the Australian Energy Market Operator.

Anthony Lean
Secretary
NSW Department of Climate Change, Energy, the Environment and Water

20 October 2025

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Executive summary

Purpose of this report

The Energy Security Target Monitor's (the Monitor's) role is to forecast whether there is enough firm electricity capacity for the next 10 years to meet the energy security target. The energy security target is to have sufficient firm capacity to meet forecast maximum demand in summer, with a reserve to account for the unexpected loss of the 2 largest generating units in the state.

This report is the first report published by the Secretary of NSW Department of Climate Change, Energy, the Environment and Water as the Monitor. The report includes several distinct scenarios and sensitivities to demonstrate the impact to the forecast.

Energy security outlook in the Central scenario

The Central scenario uses the *2025 Electricity Statement of Opportunities* Step Change demand scenario. It forecasts available firm capacity from all generation, storage and transmission projects that the Australian Energy Market Operator (AEMO) categorises as existing, in-commissioning, committed and anticipated.[1]

It also includes projects which were successful in NSW Roadmap and Capacity Investment Scheme tenders, and the Hunter Transmission Project as it is a priority network infrastructure project.

Figure 1 shows firm capacity available in NSW in the Central scenario against the energy security target.

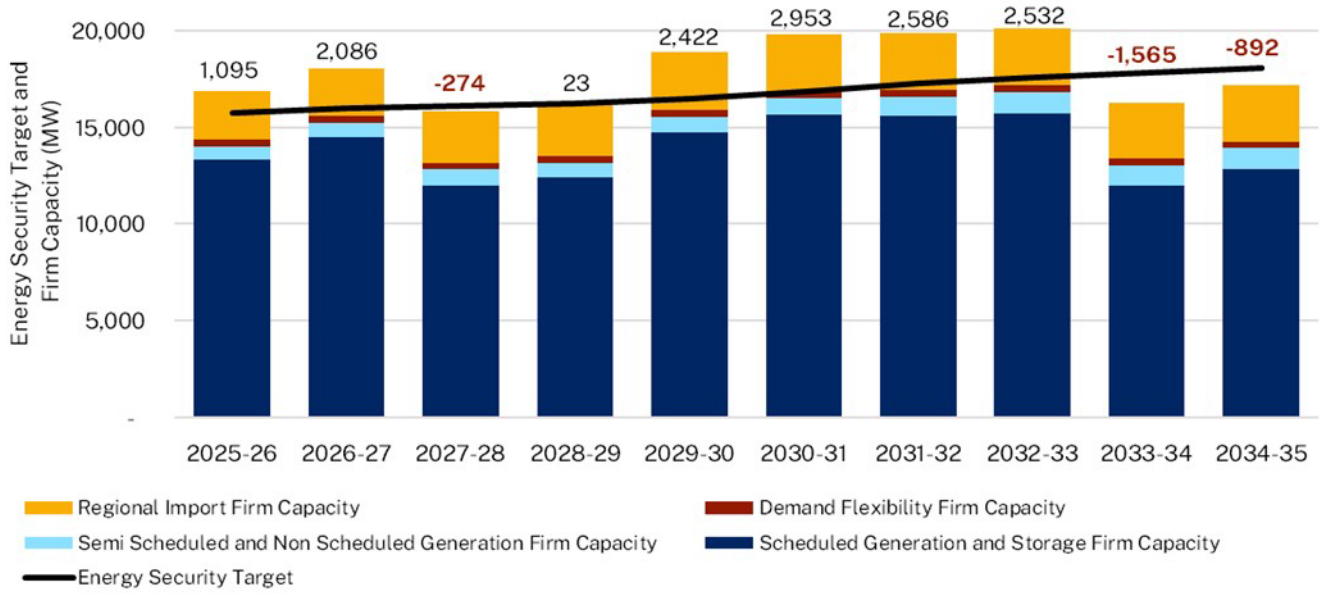

Figure 1: Forecast energy security target and firm capacity in the Central scenario

[1] Based on AEMO's project categorisation criteria for existing, committed and anticipated generation, storage and transmission projects.

Depending on the project's categorisation, the scenario assumes a delay to the expected commercial operation to account for risks in project development.

Sufficient firm capacity is forecast to be available until a breach occurs in 2027–28, in the Sydney–Newcastle–Wollongong subregion, following the assumed closure of Eraring Power Station in 2027.

The forecast assumes a number of committed and anticipated battery projects are then commissioned resulting in a small surplus in 2028–29. Sufficient firm capacity is forecast to be available from 2029–30 till 2032–33 due to the forecast commissioning of new generation, storage and the key transmission projects – HumeLink and the Hunter Transmission Project.

Following the expected closure of the Bayswater and Vales Point Power Stations, the Central scenario results in a much larger breach in 2033–34 that continues to 2034–35. The breach in 2034–35 is smaller due to the expected commissioning of a new storage project with a Long-Term Energy Service Agreement.

Compared with the 2024 report, this year's energy security target includes a change to the reserve margin in the subregional assessments from one unit to 2 units thereby increasing the target firm capacity needed in each subregion. This year's report includes for improved de-rating factors for battery energy storage projects compared to last year. However, firmness factors for solar projects have lowered in accordance with the calculation prescribed in the regulations.

This Monitor's report shows a reduced 2027–28 target breach compared with 2024 due to the envisaged commissioning of new battery projects in the Sydney–Newcastle–Wollongong subregion. This Report also shows greatly reduced firm capacity during 2028–29 caused by a forecast delay of the Hunter Transmission Project's full capacity release date by one year to 2029–30.

Impact of current government policy on energy security

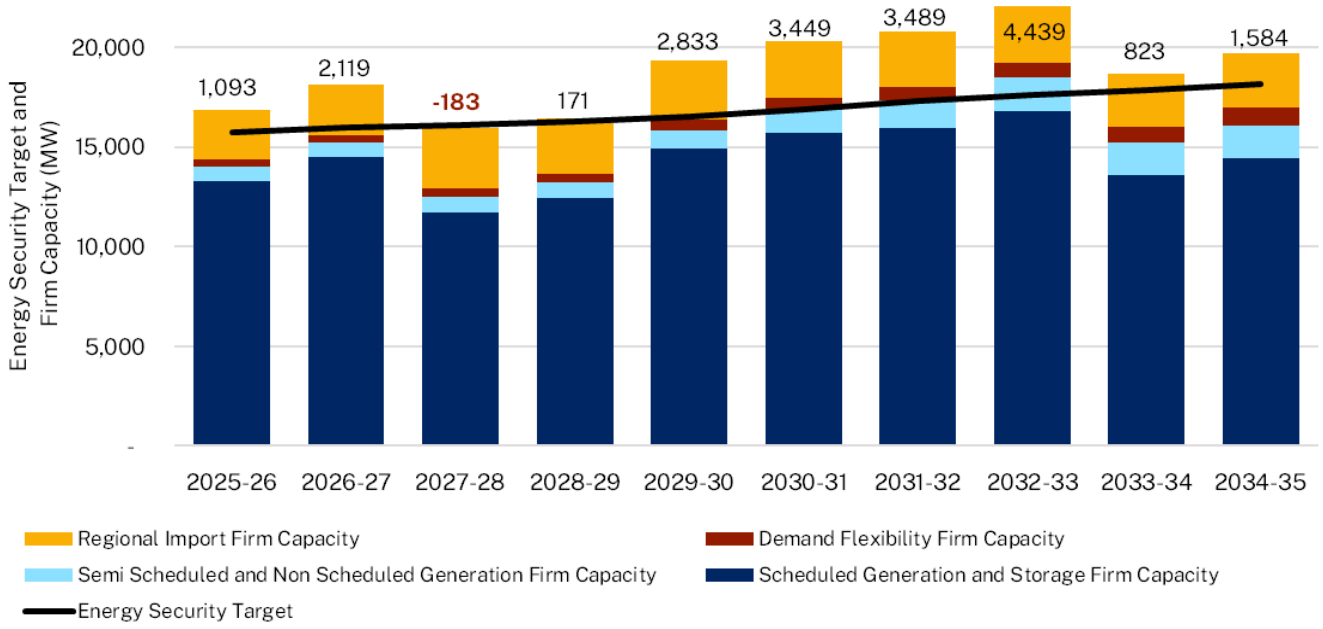

Figure 2: Forecast energy security target assessment for Government Scheme scenario

The Monitor's alternative Government Schemes sensitivity, shown in Figure 2 above, allows for an assessment of energy security outcomes if future projects that are eligible for government support from existing state and federal initiatives become operational in a timely manner. This assessment is important for determining whether these existing government initiatives are expected to facilitate the necessary new firm capacity to avoid future target breaches.

The additional sources of firm capacity that are included in this alternative sensitivity include projects that were granted access rights in state Renewable Energy Zones, new projects required to achieve the minimum objective for long-duration storage in the NSW *Electricity Infrastructure Investment Act 2020* and greater demand flexibility. It does not include the additional capacity from the recent Roadmap Tender 7 for firming infrastructure.

This sensitivity shows improved firm capacity levels across all forecast years and fully addresses the Central scenario's target breaches in 2033–35, though the surplus is modest in 2033–34.

Additional scenarios and sensitivities have been included to assess the impact of alternate operational demand and growth of flexible demand resources. Refer to section 2.2 of this report.

Emerging challenges to a reliable and secure electricity supply

The AusEnergy Services (ASL) *2025 Infrastructure Investment Objectives Report* highlights that as the electricity system transitions to wind and solar, the reliability risk may shift to times of year when energy is constrained in winter rather than the amount of firm capacity available to meet peak demand from consumers in summer. The energy security target method only assesses capacity adequacy. Therefore, it does not adequately assess risks to energy adequacy from lulls in weather-dependent resources.

AEMO's *2025 Electricity Statement of Opportunities* highlighted the risk of an energy shortfall during periods where existing generators are unavailable due to maintenance in the shoulder season. The energy security target assessment does not account for this lack of availability and the risk of an energy shortfall.

The analysis for the report applies a de-rating factor based on the battery duration and estimates on battery availability at peak demand periods. However, this may not accurately reflect the battery projects' bidding behaviour, which can change to suit high demand periods. More observation data is needed to account for this, and their benefit may not be accurately represented in this report.

The NSW government is considering updating the energy security target assessment method to address these emerging challenges of energy constraints in the future and as a response to action 6 of the *NSW Electricity Supply and Reliability Check Up*.

1 Purpose

The role of the Monitor is established in the Electricity Infrastructure Investment Act. It is the main source of accurate market intelligence to improve NSW's foresight on energy reliability during the energy transition. The Secretary of the NSW Department of Climate Change, Energy, the Environment and Water is the Monitor.

The Monitor assesses whether there is enough firm capacity in the NSW power system, during a 1-in-10-year peak demand period, to meet maximum consumer demand with a reserve margin. This is achieved by setting an energy security target for each of the next 10 years and assessing the projected firm capacity in NSW that can meet this target.

The Monitor publishes this assessment in a report which is prepared every year after AEMO publishes the annual Electricity Statement of Opportunities.

What is the NSW energy security target?

The energy security target in this forecast is the sum of 3 components:

- operational sent-out maximum demand with a 10% probability of exceedance during high-temperature conditions in summer (see Appendix A: 'Maximum demand' for more detail)
- generator auxiliaries accounting for the internal consumption by power stations at a time of maximum demand (see Appendix A: 'Maximum demand' for more detail)
- a reserve margin reflecting the potential loss of the 2 largest generating units in NSW (see Appendix A: 'Reserve margin' for details).

The firm capacity assessment includes the capacity from existing and new generation, storage, interconnectors, and demand-side participation sources that can be relied on to be available in NSW during times of maximum demand. This is a capacity assessment and does not assess sufficiency of energy supply to cater for periods of renewable energy lulls.

This energy security target assessment adopts the same inputs and assumptions from the *2025 Electricity Statement of Opportunities* and Inputs, Assumptions and Scenarios Report (IASR) published by AEMO.

Section 16(1) of the Electricity Infrastructure Investment Regulation 2021 requires the Monitor to take into account each scenario and associated sensitivity in AEMO's most recent Electricity Statement of Opportunities, to the extent they relate to NSW. The firm capacity is assessed for different demand scenarios, together with a range of closure dates for existing generators and operational completion dates for new generation, storage and transmission projects.

2 Assessment method

The scenarios and sensitivities in this report assess the implications to NSW energy security, if these outcomes were to occur.

2.1 Inputs and assumptions for the Central scenario

The Central scenario only considers existing projects and those considered committed or anticipated[2] in AEMO's July 2025 Generation Information publication. Appendix A: 'Firm capacity' provides details of the projects used in the firm capacity calculation.

The Central scenario uses the demand forecast from the *2025 Electricity Statement of Opportunities* Step Change scenario. In this scenario, there is demand growth over the horizon due to factors including economic and population growth, industrial electrification and data centres. This growth is moderated by increased energy efficiency, uptake of consumer energy resources and greater demand flexibility.

The Central scenario also includes:

- projects that have obtained Long-Term Energy Service Agreements (LTESAs) and Capacity Investment Scheme Agreements (CISAs). This includes projects from the Capacity Investment Scheme (CIS) Tender 3 announced in September 2025. CIS Tender 4 projects are not included as it was announced after the analysis was completed.
- the 500 MW 4-hour Tomago Battery Energy Storage System (BESS) as a committed project. AGL recently reached a final investment decision
- the 240 MW 4-hour Eraring BESS stage 2 as a committed project. This is to account for new information provided by Origin
- expected coal power station closure dates for Eraring Power Station in 2027, Bayswater and Vales Point Power Stations in 2033, and Mount Piper Power Station in 2040
- Waratah Super Battery is assumed to operate as a merchant battery in the wholesale electricity market for every year in the forecast except from 2027–28 to 2029–30 when it is assumed to operate as a System Integrity Protection Scheme (SIPS)
- committed and anticipated transmission projects listed in AEMO's July 2025 Transmission Augmentation Information
- Hunter Transmission Project with an expected commissioning date before the 2029–30 summer.

[2] AEMO categorises a developer's progress against 5 commitment criteria regarding land procurement, financial commitment, component contracts, relevant planning approvals and construction. Committed projects meet all 5 criteria and anticipated projects meet 3 out of the 5 criteria.

2.2 Material drivers in the 2025 assessment

The method for setting the energy security target and determining the firm capacity contributing towards the target is in accordance with the requirements in the Electricity Infrastructure Investment Act and regulations. Detail on this method, inputs and assumptions are provided in Appendix A: 'Inputs and assumptions'.

There are several material drivers in the methodology impacting the 2025 assessment, especially when compared with the 2024 assessment:

- significant new committed and anticipated projects compared with the 2024 report and changes to commercial operation dates consistent with AEMO's July 2025 Generation Information and Transmission Augmentation Information publications
- application of a delay to a project's commercial use date depending on their commitment status in AEMO's July 2025 Generation Information publication to account for a project delivery risk
- the incorporation of alternative commercial use dates to AEMO's July 2025 Generation Information publication based on information gathered by the Monitor
- increasing the subregional reserve margin from one to 2 units in the calculation of transmission constraints. This is to ensure there is an appropriate contingency in place to account for the increased risk of aging coal generators
- lower firmness factors for semi-scheduled generators (such as wind farms and large-scale solar farms) reducing the capacity available during peak demand periods. Refer to Appendix A: 'Existing semi-scheduled generation capacity' for further details
- Increased firmness factors for storage, when compared with the 2024 assessment, increasing their contribution during peak demand periods
- revised import capabilities for interconnectors, including increases in the import capability of Queensland–New South Wales Interconnector with the completion of transmission upgrades
- a lower peak statewide demand in the first 5 years of the 10-year forecast period and a higher peak statewide demand in the last 5 years. Refer to Appendix A: 'Maximum demand' for more information
- an increased subregional demand allocation to Southern NSW, leading to lower subregional demand in all the subregional assessments. Subregional factors were calculated utilising new AEMO forecasts of subregional demand. See Appendix A: 'Maximum demand' for more information
- demand-side participation now only including committed and existing projects. This leads to significantly lower demand-side participation being included in the assessment, particularly in later years. Refer to section 3 for further details.

Figure 5 in section 3.2 provides a chart to illustrate the impact of the above drivers in the assessment.

3 Central scenario

This section sets out the results for the Central scenario. Figure 3 below shows this assessment.

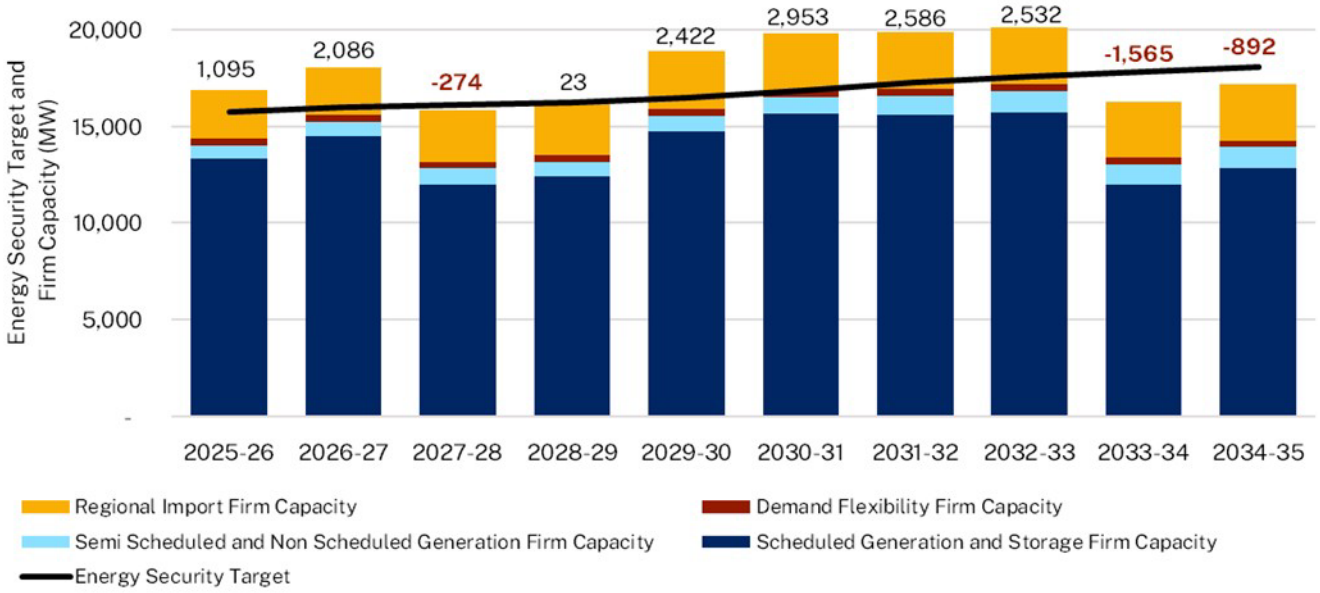

Figure 3: Forecast energy security target and firm capacity in the Central scenario

A surplus in firm generating capacity is forecast for the 2025–26 and 2026–27 summer periods. This is due to the forecast commissioning of the 660 MW Hunter Power Station before the 2025–26 summer and the Eraring BESS stages 1 and 3 with a combined capacity of 460 MW and duration of 4 hours being commissioned before the 2026–27 summer.

While Eraring BESS stages 1 and 3 may be available by the 2025–26 summer, it is treated as a committed project which applies a 6-month delay to the developer's provided full commercial use dates, consistent with how all other committed projects have been treated in this analysis.

There is a forecast breach of 274 MW driven by shortfall in the Sydney–Newcastle–Wollongong subregion due to Eraring Power Station's assumed closure in 2027. In the 2024 energy security target assessment, a higher breach was forecast for the 2027–28 summer.

The commissioning of HumeLink by 2028–29 and Hunter Transmission Project by 2029–30 facilitates surplus firm capacity until the expected closure of Bayswater Power Station and Vales Point Power Station results in another energy security target breach, in the Central NSW and Sydney–Newcastle–Wollongong subregions, from 2033–34.

The 2033–34 shortfall continues into 2034–35 at a reduced level due to the forecast commissioning of new replacement firm capacity in that year, not fully alleviating the shortfall.

3.1 Intraregional transmission constraints

The firm capacity calculation is impacted by constraints in intraregional transmission. These constraints limit the amount of power available to different regions within NSW. The impact of these constraints is assessed by dividing the state into subregions and reviewing the constraints on transmission between each subregion. Figure 4 shows the intraregional transmission constraints for the Central scenario.

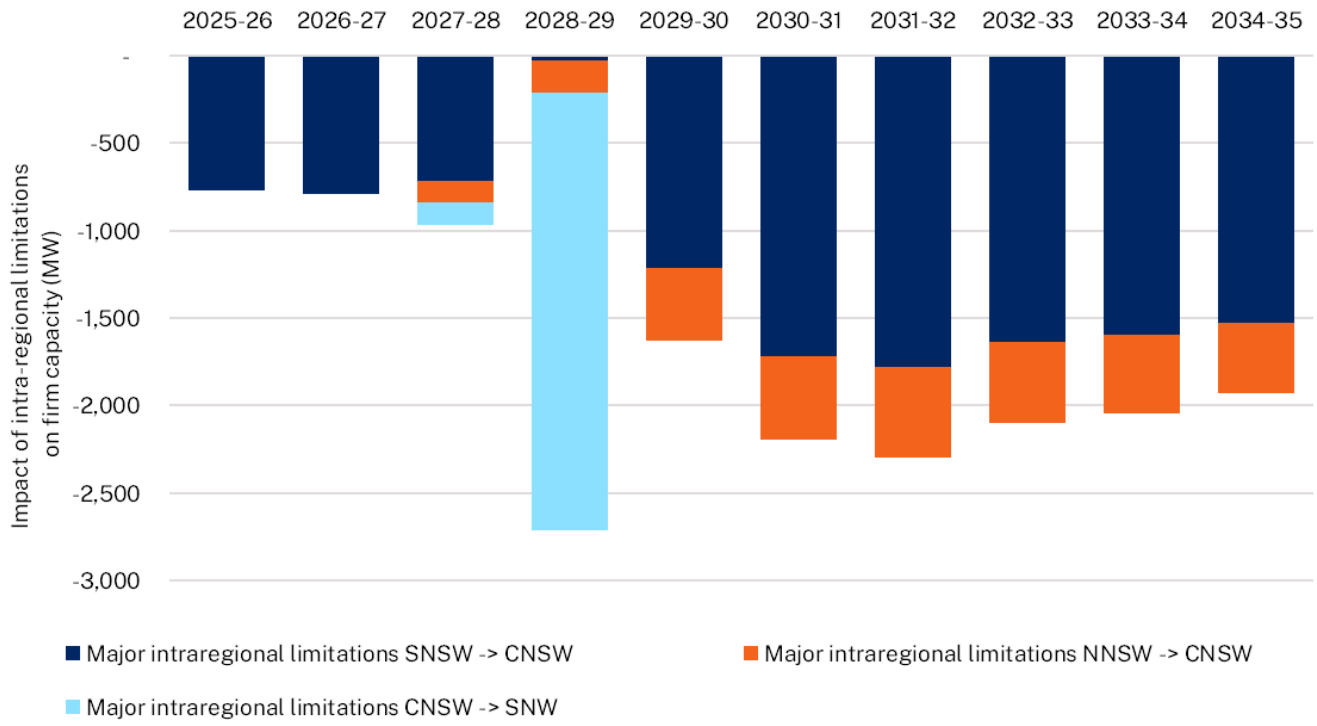

Figure 4: Forecast of subregional transmission limits on firm capacity

During the forecast period, a large amount of firm capacity becomes available in NSW but is unable to reach the major load centre in Sydney–Newcastle–Wollongong as shown in Figure 4. In 2027–28, 717 MW of firm capacity is constrained between Southern NSW (SNSW) and Central NSW (CNSW).

This constraint is resolved in 2028–29 with the assumed commissioning of HumeLink. However, the constraint shifts to be between Central NSW and Sydney–Newcastle–Wollongong (SNW) subregions where 2,501 MW of firm capacity is constrained.

The assumed commissioning of Hunter Transmission Project in 2029–30 resolves these constraints. If HumeLink were delayed by a year, the 23 MW surplus in 2028–29 would remain. The constraint would then shift to be between Southern NSW and Central NSW.

Figure 4 shows that after both HumeLink and Hunter Transmission Project are commissioned, there are still intraregional constraints in NSW. This is due to significant additional firm capacity from Snowy 2.0, the south-west renewable energy zone and interconnection with Victoria and South Australia using HumeLink capacity from 2029–30, resulting in ongoing constraints.

Constraints between Northern NSW (NNSW) and Central NSW also appear from 2027–28 to 2034–35 with the commissioning of new generation and storage projects in the Northern NSW subregion.

As shown above, timely delivery of both HumeLink and Hunter Transmission Project are critical to ensuring sufficient firm capacity is available as existing coal generators retire. Appendix B: ‘Transmission Delay sensitivity’ provides the sensitivity analysis should these projects be delayed.

3.2 Comparison with the 2024 assessment

The section below shows how the 2025 results for the Central scenario compares with the results from last year's report.

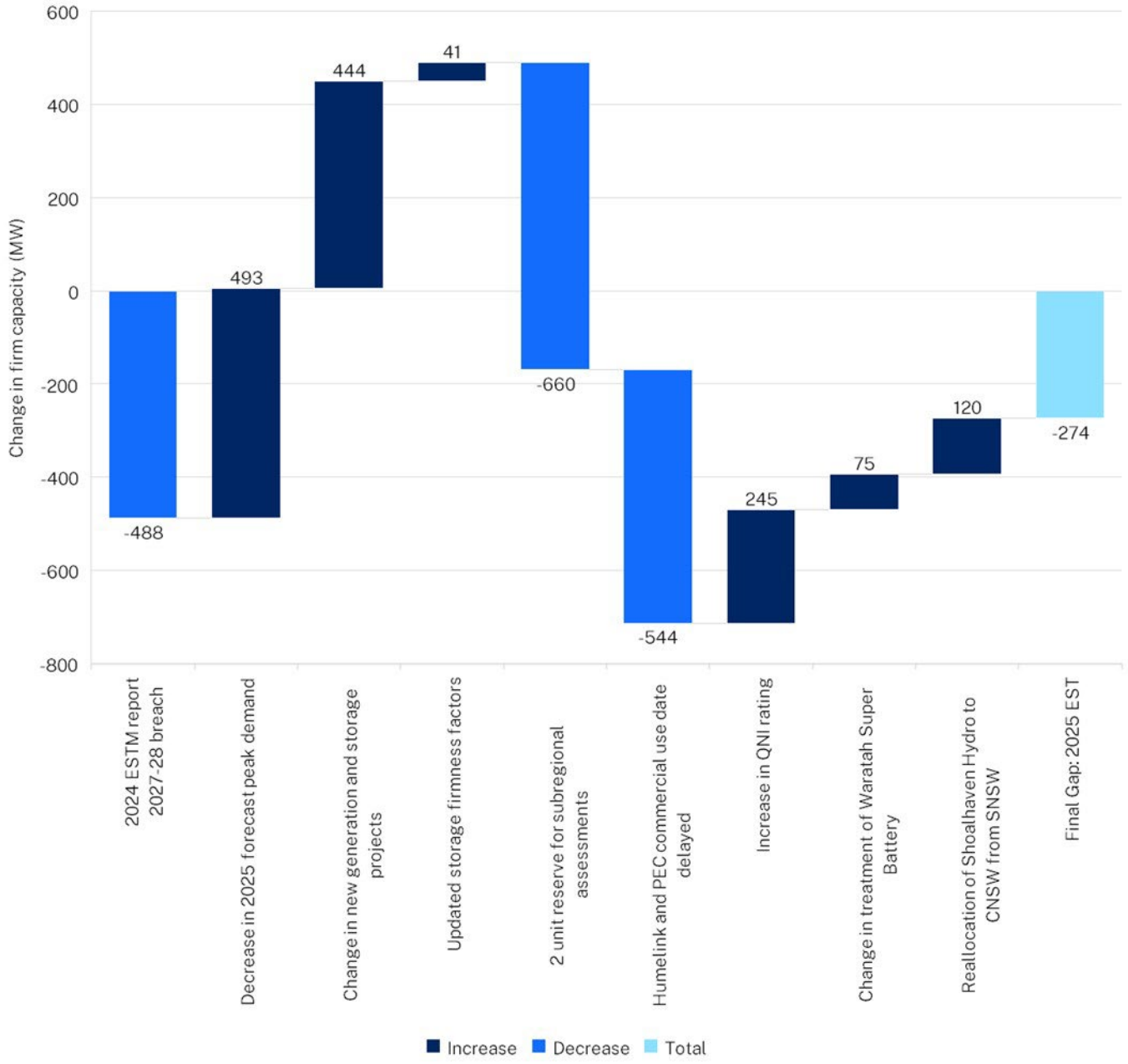

Figure 5: Change in the forecast 2027-28 breach from the 2024 report for the Central scenario

Figure 5 explains why the size of the forecast breach in 2027–28 is lower in the 2025 report when compared with the same assessment last year.

In the 2024 report, the Central scenario had forecast a 488 MW breach in 2027–28 for the same reason as explained in this report. However, in this report, there are several changes, as explained in section 2.2, that result in a lower forecast for 2027–28.

The lower peak demand results in a 493 MW increase to firm capacity. New generation and storage projects that have been accounted for 2027–28 result in another 444 MW increase while updating the storage firmness factors contributes a further 41 MW increase.

The change to include a higher subregional reserve has the largest impact by decreasing firm capacity by 660 MW, followed by the commercial use date for HumeLink and Project EnergyConnect (PEC) decreasing firm capacity by a further 544 MW.

The change to the interconnector rating, explained in Appendix A: 'Existing and proposed interconnector capacity', results in a 245 MW increase in firm capacity. The treatment of Waratah Super Battery this year compared with last year and the subregional allocation of Shoalhaven Hydro results in a lower forecast breach this year.

4 Sensitivity analysis

Sensitivity analysis was performed on the Central scenario to assess the impact of changes to inputs and assumptions on the energy security forecast.

4.1 Sensitivities for the breach in 2027–28

We have tested the sensitivity of the forecast breach in 2027–28 by changing a range of assumptions. The results of this sensitivity analysis are in Figure 6 and explained below.

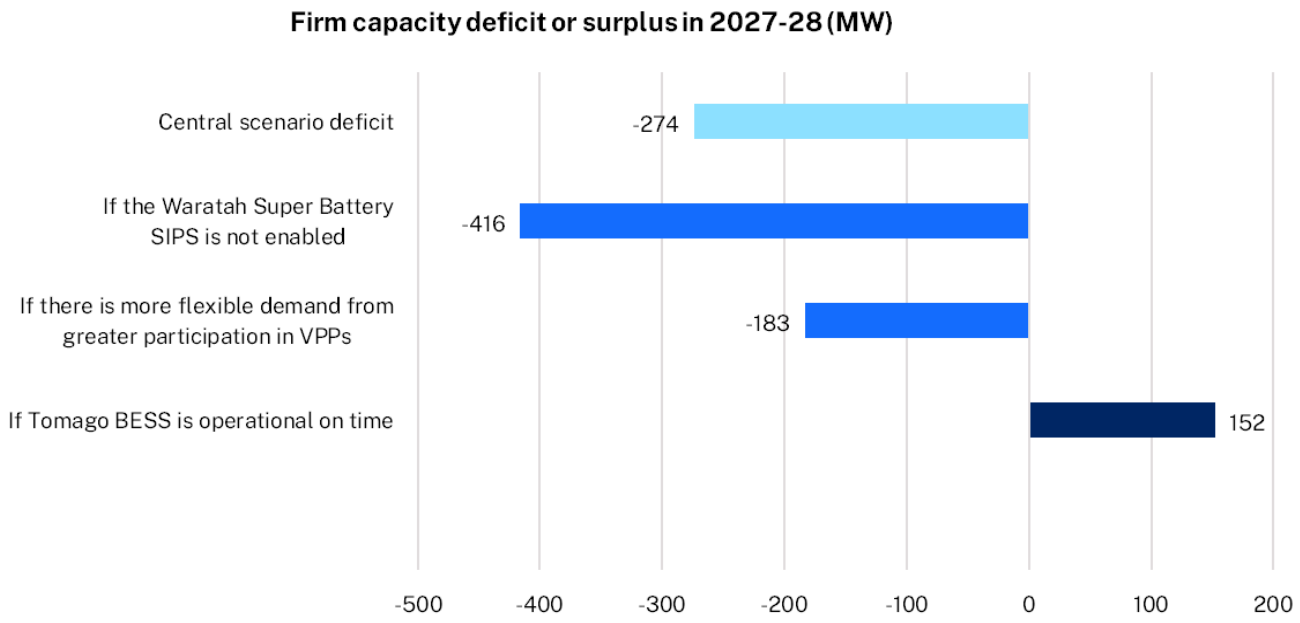

Figure 6: Sensitivities for firm capacity in 2027–28 compared with the Central scenario forecast

If the System Integrity Protection Scheme (SIPS) functionality is not enabled, then Waratah Super Battery's full capacity would be treated as a merchant battery. Since it has a 2-hour duration, its capacity is de-rated for the energy security target assessment as explained in Appendix A: 'Existing storage capacity'. With this assumption, the energy security target breach in 2027–28 would increase to 416 MW.

The Step Change demand scenario only accounts for committed projects that provide demand flexibility (refer to Appendix A: 'Demand flexibility' for more information).

There has been a large uptake in residential batteries through the Australian Government's Cheaper Home Batteries Program. In addition, the NSW government's Peak Demand Reduction Scheme (PDRS) provides an upfront incentive to residential customers with solar and a battery to join a virtual power plant, allowing these batteries to be orchestrated.

Figure 6 shows a forecast reduction of the breach in 2027–28 to 183 MW if AEMO's projection for demand-side participation and virtual power plant participation includes for committed and projected developments. This comprises an additional 31 MW of demand-side participation and an additional 154 MW 2-hour duration of virtual power plant partipication.

If the virtual power plant sign-up rate increases and customer retention within a virtual power plant is high together with more evidence to support this orchestration, then greater contributions from virtual power plants may be considered in future energy security target assessments.

For the Central scenario, a 6-month delay was applied to the developer's full commercial use date for Tomago BESS, which makes this project unavailable as a source of firm capacity in 2027–28. If the Tomago BESS (500 MW 4-hour) project is commissioned as per the developer's public commitment of 2027, then there will not be an energy security target breach in 2027–28.

4.2 Sensitivities for the breach in 2033–34

In the 2033–34 forecast year, 3 out of the 4 coal power stations are expected to have exited. This section shows the sensitivities impacting the size of the breach and how delivery of new projects can address this gap.

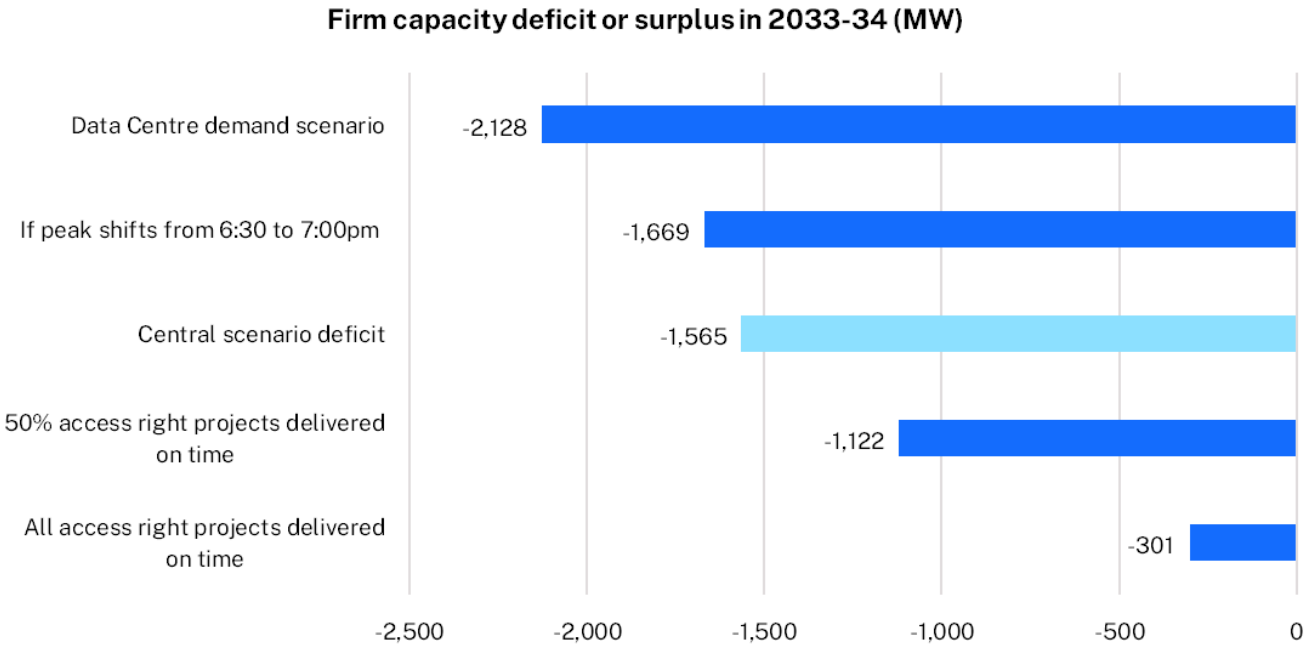

Figure 7: Sensitivities for firm capacity in 2033–34, compared with Central scenario's forecast

The Central scenario does not include renewable energy zone projects that have been awarded access rights, unless these projects have reached committed or anticipated status, or received government underwriting through a Long-Term Energy Service Agreement or Capacity Investment Scheme Agreement.

Figure 7 shows that if all these projects were delivered and become operational on time then the 2033–34 breach would reduce to 301 MW. However, if only a 50–70% proportion of these projects were delivered on time, then the breach would not reduce as much. Many of these projects are still seeking planning approvals and are in the early stages of project development and Figure 7 shows that they are important sources of firm capacity when the majority of NSW coal generators retire.

The following sections provide further detail on how the shifting of peak demand to a later time of day and NSW experiencing faster data centre growth would increase the forecast breach in 2033–34.

4.2.1 Shifting of the time for peak demand

The timing of maximum demand is shifting to a later time of day due to the increased adoption in consumer energy resources such as rooftop solar and residential batteries. The impact of the peak demand period shifting to later in the evening was simulated by changing the peak period used to determine variable renewable energy firmness factors from 6:30 pm to 7:00 pm, National Electricity Market time.

The change in firmness factors is shown in Table 1. While solar firmness drops from 8.3% to only 1.8% at 7:00 pm, wind firmness increases from 12.4% at 6:30 pm to 16.7% at 7:00 pm. Appendix A 'Existing semi-scheduled generation capacity' provides more information on the calculation of the firmness factors.

Under these conditions, the 2027–28 forecast breach remains the same at −274 MW. Figure 7 shows that in 2033–34, while both solar and wind generation capacity are increased, there is an increase in the breach from −1,565 MW to −1,669 MW due to the assumed later peak. This is due to constraints limiting the ability for solar and wind generation to reach the Central NSW and Sydney–Newcastle–Wollongong subregions.

Table 1: Assumed variable renewable energy firmness factors (National Electricity Market time)

Variable renewable energy firmness factor	6:30 pm peak	7:00 pm peak
Solar	8.3%	1.8%
Wind	12.4%	16.7%

4.2.2 Data centre growth impact on maximum demand

Under the *2025 Electricity Statement of Opportunities* demand forecast, the maximum operational demand in NSW is forecast to remain relatively flat initially before increasing rapidly from 2030 to 2033. Thereafter demand continues at a steadier rate. However, there is significant uncertainty in demand growth for the 5-to-10-year horizon.

Figure 8 below shows the difference in peak demand forecast for NSW between the *2024 Electricity Statement of Opportunities* and the *2025 Electricity Statement of Opportunities* publications. The 2025 demand forecast is lower than 2024 in the first 2 to 3 years driven by subdued business consumption forecasts and lower-than-expected electrification. The forecast demand rises significantly from 2030 onwards because of the inclusion of much higher growth of data centre demand.

At this stage, AEMO assumes data centre demand has a flat load shape and does not include any demand-side participation in their assessment, therefore contributing significantly to peak demand.

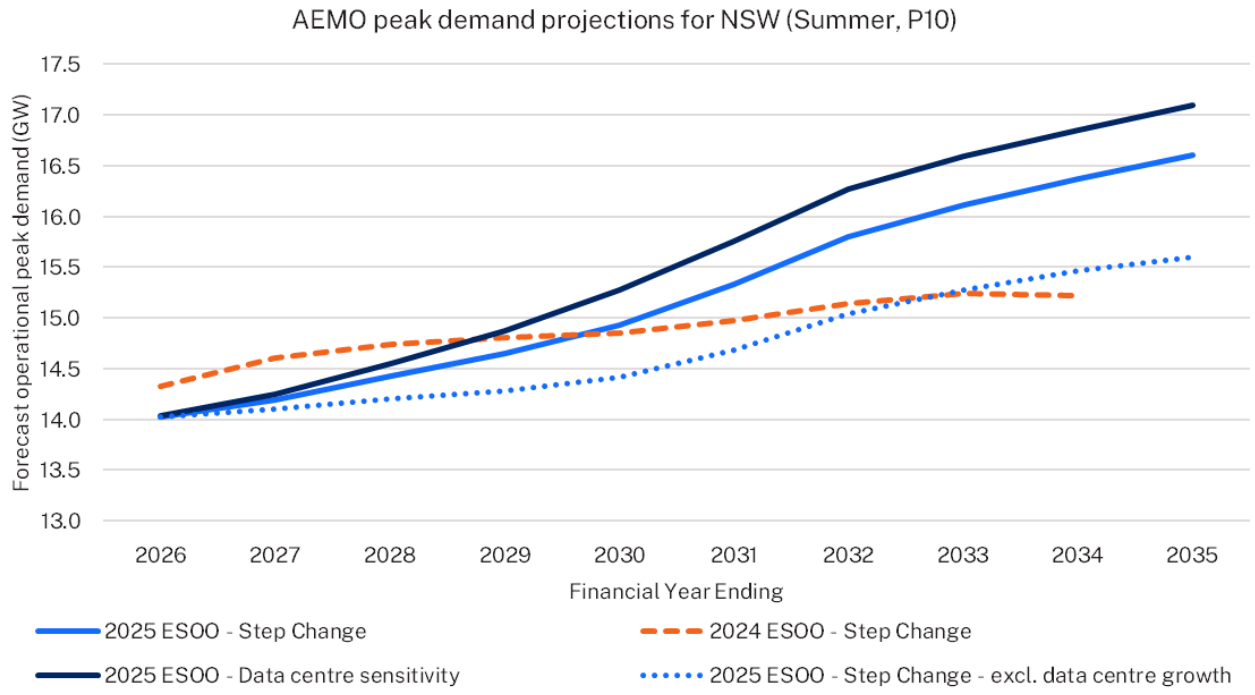

Figure 8: Comparison of Electricity Statement of Opportunities maximum demand forecasts for NSW (summer, P10)[3]

By 2033–34, a total of 900 MW of additional peak demand from data centres is included in the *2025 Electricity Statement of Opportunities* Step Change demand scenario. AEMO also included a data centre sensitivity to test for faster data centre growth, which includes an additional 480 MW of data centre load above the Step Change scenario by 2033–34. See Appendix B: 'Data Centres' for more details on this energy security target assessment.

The adoption of artificial intelligence has the potential to accelerate demand beyond current data centre sensitivity forecasts and therefore there is significant uncertainty in peak demand over the next 10 years and beyond.

Within the energy security target assessment, the impact of AEMO's data centre growth demand forecast sensitivity has been included in the analysis of the 2033–34 breach year. See Appendix B: 'Data Centres' for further details.

4.3 Government Scheme sensitivity

A Government Scheme sensitivity is included to assess the impact of current policy settings on long-term energy security. This energy security target assessment is shown in Figure 9 below. Maintaining all the assumptions in the Central scenario, this scenario also accounts for:

- commissioning of all renewable energy zone projects that have been awarded access rights but have not yet met the criteria to be categorised as a committed or anticipated project
- achieving the long-duration storage minimum objectives for 2030 and 2034 under the Electricity Infrastructure Investment Act on time
- greater demand flexibility as specified in AEMO's *2025 Electricity Statement of Opportunities*, which includes greater virtual power plant growth.

[3] AEMO *2025 Electricity Statement of Opportunities*.

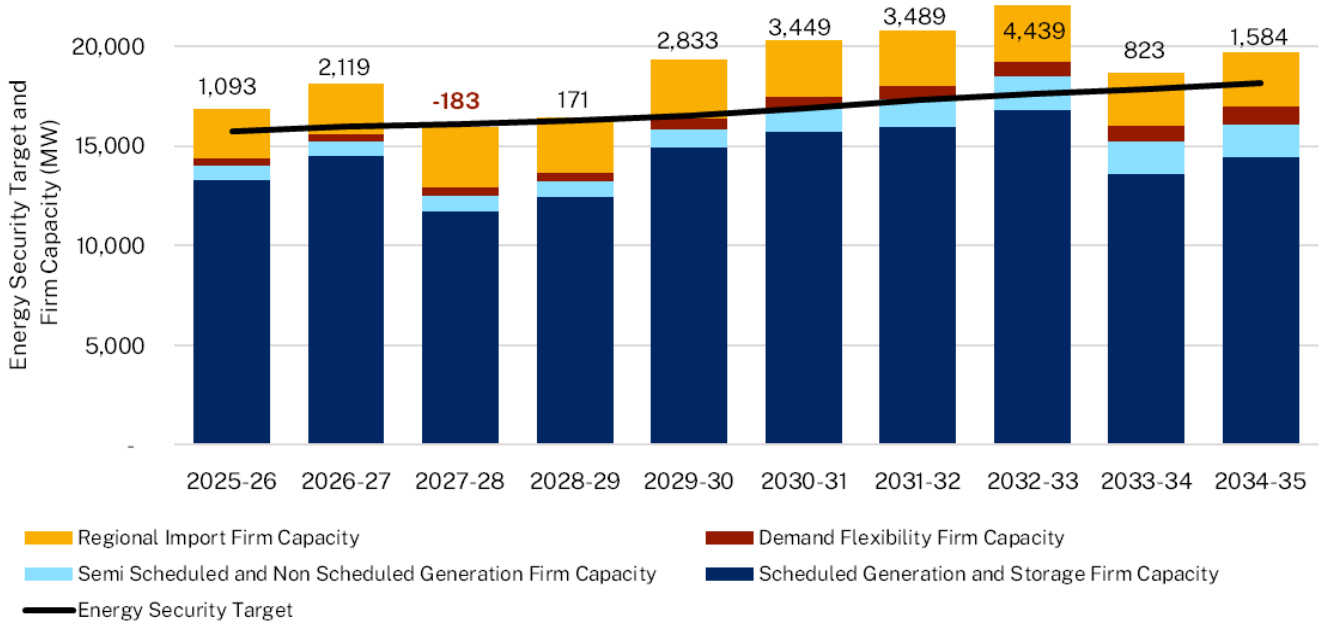

Figure 9: Forecast energy security target assessment for Government Scheme scenario

This Government Scheme sensitivity retains the delay applied to the commercial use date of committed and anticipated projects. Appendix B: 'Government schemes scenario – on time delivery' shows the impact if these projects are delivered on time.

The inclusion of greater demand flexibility results in a lower energy security target breach in 2027–28 and a larger surplus from 2028–29. Accounting for the long-duration storage minimum objective being achieved and renewable energy zones access rights projects results in a forecast surplus of firm capacity in 2033–34. This highlights the potential of government policies and programs to meet the summer peak demand if projects are delivered on time.

The sensitivity of the forecast surplus in 2033–34 was tested by changing a range of assumptions. The results for this sensitivity analysis are in Figure 10 and explained below.

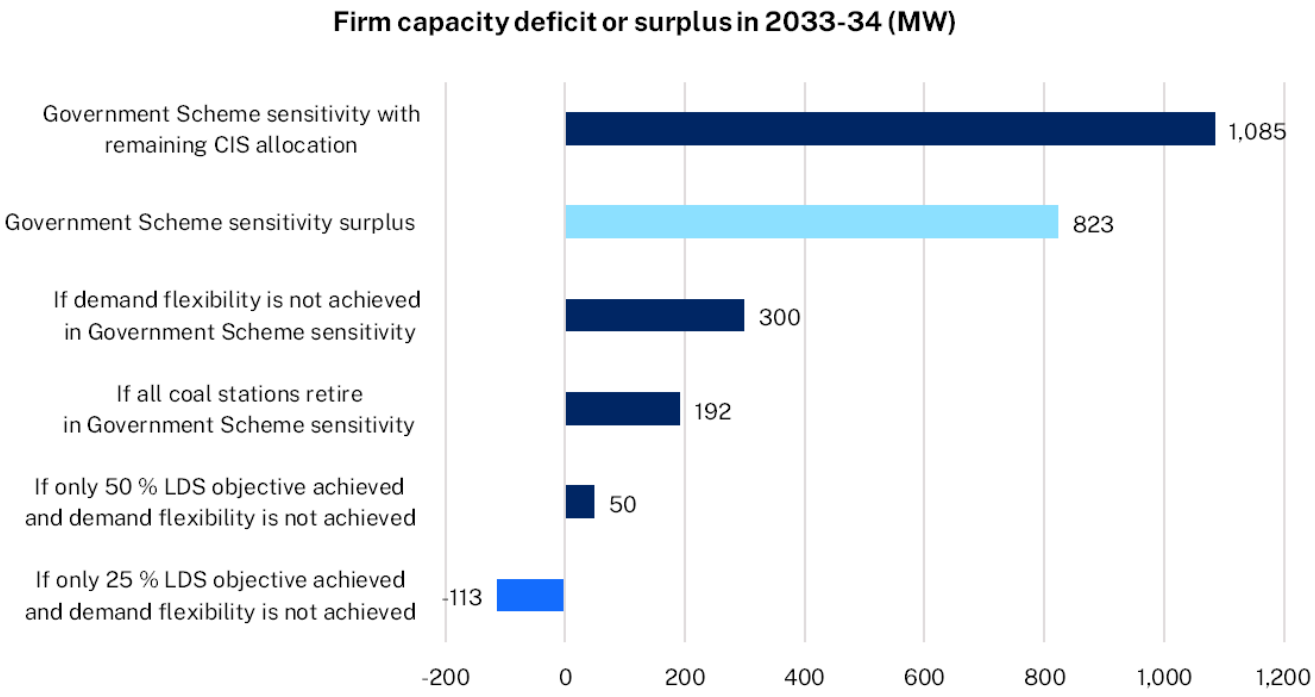

Figure 10: Sensitivities for firm capacity in 2033–34, compared with the forecast in the Government Scheme sensitivity

Greater demand flexibility is a large contributor of firm capacity by 2033. Figure 10 shows that if the expected demand flexibility in the Government Schemes sensitivity is not delivered then the surplus in 2033–34 is reduced from 823 MW to 300 MW.

Figure 10 demonstrates the importance of delivering on the government's policy objectives under the Electricity Infrastructure Investment Act and the NSW Consumer Energy Strategy. These will have a material impact on the sufficiency of firm capacity by 2033–34.

The Australian Government has agreed to allocate 7.1 GW of new generation capacity to NSW through the Capacity Investment Scheme. A significant portion of this was allocated in Capacity Investment Scheme Tender 1. Figure 10 shows the increase in surplus firm capacity when the remaining allocation is awarded to projects in NSW.

This sensitivity does not include the additional capacity from the recent Roadmap Tender 7 for firming infrastructure.

5 Monitoring strategy and next steps

The assessments presented in this report are largely based on information shared publicly by project developers and existing generator operators. As the power system progresses towards a system dominated by renewables and storage, closer monitoring and more detailed information is required from both existing and new electricity projects to develop an improved forecast and reduce the large uncertainties in the forecast shown in Figure 10.

The Monitor identified the most influential projects and generators based on the assessments in the 2025 report with the intent to build a more detailed monitoring. The monitoring strategy may use the Monitor's information gathering powers in the Electricity Infrastructure Investment Act.

The department is also considering updating the energy security target assessment to capture emerging energy security risks that are not captured by the current assessment method and as a response to action 6 of the *NSW Electricity Supply and Reliability Check Up* on this matter.

Table 2 shows the list of generation and storage projects which have been identified for more detailed monitoring and information gathering.

Table 2: List of generation and storage projects for monitoring and information gathering

Category	Project
Existing coal generator	Eraring Power Station
Existing coal generator	Mount Piper Power Station
Existing coal generator	Bayswater Power station
Existing coal generator	Vales Point Power Station
Existing gas generator	Colongra Power Station
Existing gas generator	Smithfield Energy Facility
Existing gas generator	Tallawarra A and B Power Station
Existing gas generator	Uranquinty Power Station
Existing gas generator	Hunter Power Station
New pumped hydro storage	Snowy 2.0
SIPS functionality	Waratah Super Battery
New battery storage project	Smithfield Battery
New battery storage project	Eraring Big Battery
New battery storage project	Liddell Battery

Category	Project
New battery storage project	Tomago Battery
New battery storage project	Orana Battery

Table 3 shows the list of transmission projects which have been identified by the Monitor for continued monitoring and information gathering.

Table 3 List of transmission projects for monitoring and information gathering

Planning status	Project name	Proponent
Approved	Central West Orana REZ Network Infrastructure Project	EnergyCo
Approved	HumeLink	Transgrid
Approved	Hunter Transmission Project	EnergyCo
Approved	Project EnergyConnect – Stage 2	Transgrid
In planning	New England REZ Network Infrastructure Project Stage 1	EnergyCo
In planning	New England REZ Network Infrastructure Project Stage 2	EnergyCo
In planning	VNI West	Transgrid

5.1 Limitations with the current assessment method

The Energy Security Target method is deterministic in that it makes simplifying assumptions and presents results as a single point estimate rather than a range or potential outcomes. This means the method is limited in its ability to assess reliability risks.

This section sets out reliability risks that are not captured and makes recommendations for further work to understand and assess these risks.

5.1.1 Reliability risks from energy constraints in winter rather than peak demand in summer

ASL's *2025 Infrastructure Investment Objectives* report highlighted that as the power system becomes dominated by renewable energy, it will shift from being capacity constrained to being energy constrained. This report shows, for some sensitivities, sufficient firm capacity in 2033–34 and 2034–35, which does not align with the reliability risk.

The current energy security target method assesses sufficiency of firm capacity for peak demand in summer, but there is a risk that the energy security risk will shift to low energy generation in winter. These risks are more evident with more variable renewable energy generation and storage projects contributing to firm capacity and a likely issue from 2033 onwards. At this point, most of the coal-fired power stations in NSW will have closed. The work by ASL indicates there is an increased risk from insufficient supply of energy from lulls in weather-dependent resources.

The energy security target method is not designed to assess this risk and so may not indicate the need for greater investment in unconstrained firm generation, such as well-located gas fired power stations.

The Australian Energy Market Commission's Reliability Panel also considered these issues in its 2024 review of the form of the reliability standard and administered price cap. This review found the current form of the National Electricity Market's reliability standard is fit for purpose for the changing risk profile of the electricity system. However, this review relied on reliability analysis which assumed greater amounts of gas fired power station capacity in line with AEMO's Integrated System Plan.

We recommend the minister seek further advice from ASL on the future reliability risks from lulls in renewable energy before determining the response to this report.

5.1.2 Generator maintenance scheduling

Previous reliability forecasts from AEMO did not account for planned maintenance outages for generation and transmission assets during summer. This analysis assumed these outages would only occur in shoulder seasons of spring and autumn.

The *2025 Electricity Statement of Opportunities* highlighted a risk to reliability from generators if there are coincident planned outages.

The energy security target is a capacity measure and captures the risk of unplanned outages with a reserve margin. However, it is not clear if this reserve margin adequately captures the risk of planned and unplanned outages.

We recommend further work to assess whether the existing reserve margin adequately captures the risk of coincident planned and unplanned outages.

5.1.3 Availability of interregional supply

The current assessment method assumes that inter-regional supply is fully available for the peak demand event. This may not be the case as other regions in the National Electricity Market are also transitioning and existing generators in those regions are also exiting. There is also a risk that climate change leads to coincident heat waves in multiple regions. This risk to interregional supply is not accounted for in this assessment method.

We recommend further work to assess whether the energy security target method is appropriate to capture the risk that interstate supply is not available to NSW when required.

Appendices

Appendix A: Inputs and assumptions

To conduct these assessments, the Monitor adopted inputs and scenarios from AEMO's *2025 Electricity Statement of Opportunities* and the *2025 Inputs, Assumptions and Scenarios Report* (IASR) workbook, unless otherwise stated.

Some variations and simplifications are included to express energy security targets as deterministic calculations. Key assumptions are outlined in the following sections.

Maximum demand

In calculating the maximum demand for a financial year, consistent with s12 of the Electricity Infrastructure Investment Act and clause 13 of the Electricity Infrastructure Investment Regulation, the assessment:

- considered the most recent forecast of maximum operational demand as sent out in NSW in summer, as published by AEMO in the *2025 Electricity Statement of Opportunities*
- applies the Step Change demand scenario in the Central scenario, consistent with the *2025 Electricity Statement of Opportunities*. This scenario is considered to be the most likely
- included generating unit auxiliaries to reflect auxiliary demand from generating units at the time of maximum operational demand in summer
- considered the forecast use of consumer energy resources in NSW, consistent with each of the scenarios and sensitivities published in the *2025 Electricity Statement of Opportunities*.

Maximum operational demand means the highest level of electricity drawn from the grid in any 30–minute period in a financial year. In the *2025 Electricity Statement of Opportunities*, maximum operational demand is forecast to occur in summer in NSW for each of the forecast financial years included in this energy security target assessment, where summer is defined as the period from November to March. The 10% probability of exceedance forecast indicates that the forecast is expected to be exceeded once in every 10 years.

Please refer to AEMO's *2025 Electricity Statement of Opportunities* report section 1.5 for demand definitions and further details.

The demand forecasts used to assess the energy security target incorporated assumptions around energy efficiency investments, uptake and operation of consumer energy resources including distributed photovoltaic (PV) (including rooftop solar panels), battery storage systems and electric vehicles (EVs), as well as projected generator auxiliary load.

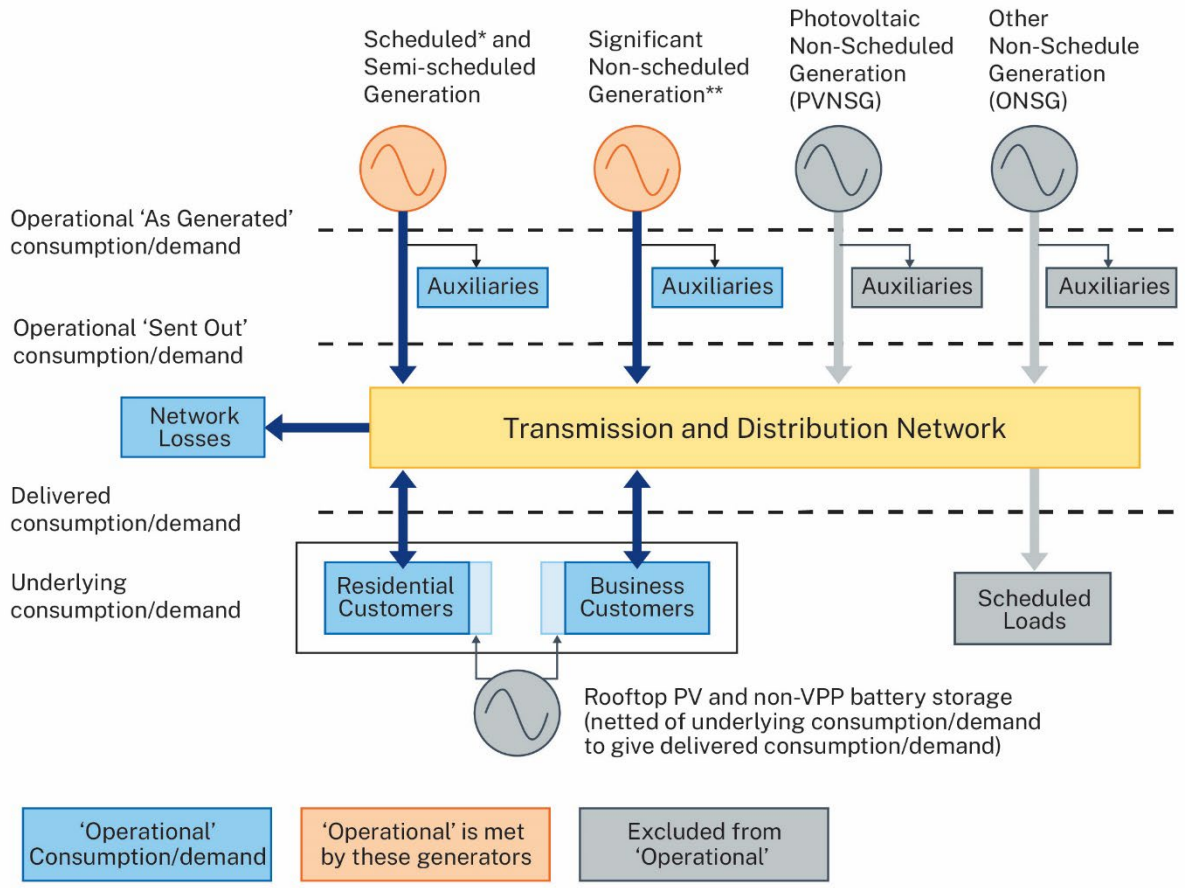

Figure 11 AEMO demand definitions[4]

The consideration of maximum demand for different subregions of NSW for assessment of intra-regional limitations as considered in Electricity Infrastructure Investment Regulation clause 13 (2A) is described in Appendix A: 'Major intraregional transmission limits'.

The previous Energy Security Target report included the Peak Demand Reduction Scheme[5] in demand-side participation growth forecasts. This has now been removed as a source of demand flexibility, consistent with the treatment in the *2025 Electricity Statement of Opportunities*. Its past inclusion was based on an assumption that the Peak Demand Reduction Scheme provided incentives for event-driven demand response.

While the Peak Demand Reduction Scheme provides incentives for consumers to register a battery with a virtual power plant, the Peak Demand Reduction Scheme has mostly encouraged energy efficiency and battery installation activities. The Peak Demand Reduction Scheme has therefore been removed as a component of the demand-side participation forecast, to reflect reduced impact on peak demand reduction which would support reliability outcomes or price-responsive demand-side participation triggers. Its impact continues to be captured in the underlying demand forecast.

Firm capacity

The Electricity Infrastructure Investment Regulation, clauses 14 and 15, provide that the calculation of firm capacity for the energy security target must take into account scheduled (including battery storage), semi-scheduled, and appropriate non-scheduled generation from existing and new

[4] AEMO *2025 Electricity Statement of Opportunities*.

[5] Refer to the Peak Demand Reduction Scheme webpage.

sources. All significant non-scheduled generation defined by AEMO as part of the calculation of operational demand have been included in this energy security target assessment.

Firm capacity for an energy security target forecast year must also account for forecast interconnector capacity and demand flexibility, which is considered likely to be available during peak demand periods. This section describes how each of these elements of the firm capacity calculation were determined.

Existing scheduled generation capacity

The available firm capacity of scheduled generators was taken to be the summer peak rating for each unit from the July 2025 Generation Information publication.[6] This incorporates temperature de-rating of the units based on their expected response to high temperatures during 10% probability of exceedance demand conditions.

Existing storage capacity

Electricity Infrastructure Investment Regulation clause 15(5) allows the Monitor to consider a variety of factors when assessing the firmness of capacity. Consistent with this regulation, reduced firmness factors for short-duration energy storages are applied which better reflects the likely availability of these short-duration storage units during periods of NSW maximum demand.

These factors:

- were applied to storage units based on their duration
- were calculated based on analysis which identified the additional battery capacity required to reduce expected unserved energy (USE) to the Interim Reliability Measure (IRM) in NSW for the year 2031–32. Storage firmness factors were calculated as the ratio of the additional capacity required to meet the Interim Reliability Measure relative to the estimated additional short-duration storage capacity required to meet the Interim Reliability Measure.

While the basis of calculation for the analysis is different to that required for the energy security target, the Monitor considers it a reasonable proxy to calculate a firmness factor that the storage is able to dispatch to at time of maximum demand for the purposes of energy security target, given that shorter duration storages have a reduced probability of being able to dispatch at times of maximum demand.

The firmness factors used for the 2025 energy security target assessments are shown in Table 4.

[6] See the AEMO *Generation information* webpage.

Table 4: Storage firmness factors

Storage capacity (hours)	Firmness factor
1	14%
2	43%
3	63%
4	85%
5	94%
6	98%
8+	100%

Existing semi-scheduled generation capacity

Clause 15(2) of the Electricity Infrastructure Investment Regulation stipulates that the firm capacity of semi-scheduled generators (such as wind farms and large-scale solar farms) must be estimated considering:

- the amount of electricity produced at times of peak demand in summer over the past 3 financial years
- the amount of electricity likely to be produced at times of peak demand in summer by generating units forecast to be available.

For this purpose, peak contribution factors are calculated for wind and solar technologies in NSW representing the level of generation that can be relied on from semi-scheduled generators at times of peak demand.

To have confidence that this capacity is firm, the peak contribution factors were based on a 25% probability of exceedance calculation; this method meant that 3 times out of 4, wind farms and large-scale solar farms could be expected to generate at or above the assumed firm capacity during peak demand periods.

To derive these peak contribution factors:

- the top 10 days of maximum operational demand during each of the last 3 summers (2022–23, 2023–24, and 2024–25) were identified. Ten days were chosen for each year for the 2025 energy security target assessment to ensure a reasonable sample size of high demand days. For this purpose, the peak summer period for electricity demand was defined as the period from December to February due to high temperatures and increased cooling loads
- observed aggregate semi-scheduled and significant non-scheduled capacity factors (generation as a proportion of the summer typical rating) was identified for each half hour of the day for wind and solar generators on these top 10 days for operational maximum demand
- the 25th percentile of these observed aggregate capacity factors per half hour (meaning that 75% of observed aggregate capacity factors exceeded this percentile).

Figure 12 shows the calculated peak contribution factors derived using the above method for the typical times of peak demand across the collection of peak demand days. Factors derived for solar trend downwards to zero from 5:00 pm, showing the decrease in likely solar generation later in the evening as the sun sets. Factors derived for wind technologies trend slightly upwards between 5:00 pm and 8:00 pm, ranging from 9.5% to 19.1%.

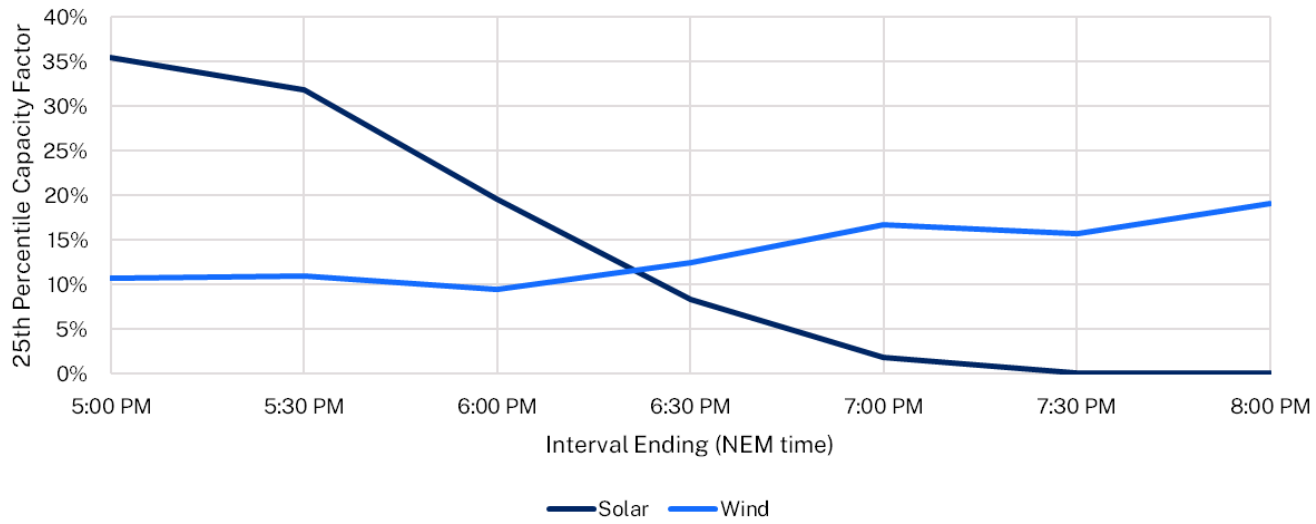

Figure 12: Wind and solar 25th percentile capacity factors for top 10 summer days[7]

Note: National Electricity Market time is the same as AEST time.

Figure 13 shows the probability distribution of forecast maximum demand for the NSW summer, in local time. The timing of when maximum demand is expected to occur in future years remains a key uncertainty, influenced by the evolution of consumer demand trends including the contribution to peak demand from consumer energy resources.

[7] Chart plotted from information in AEMO *2025 Electricity Statement of Opportunities*.

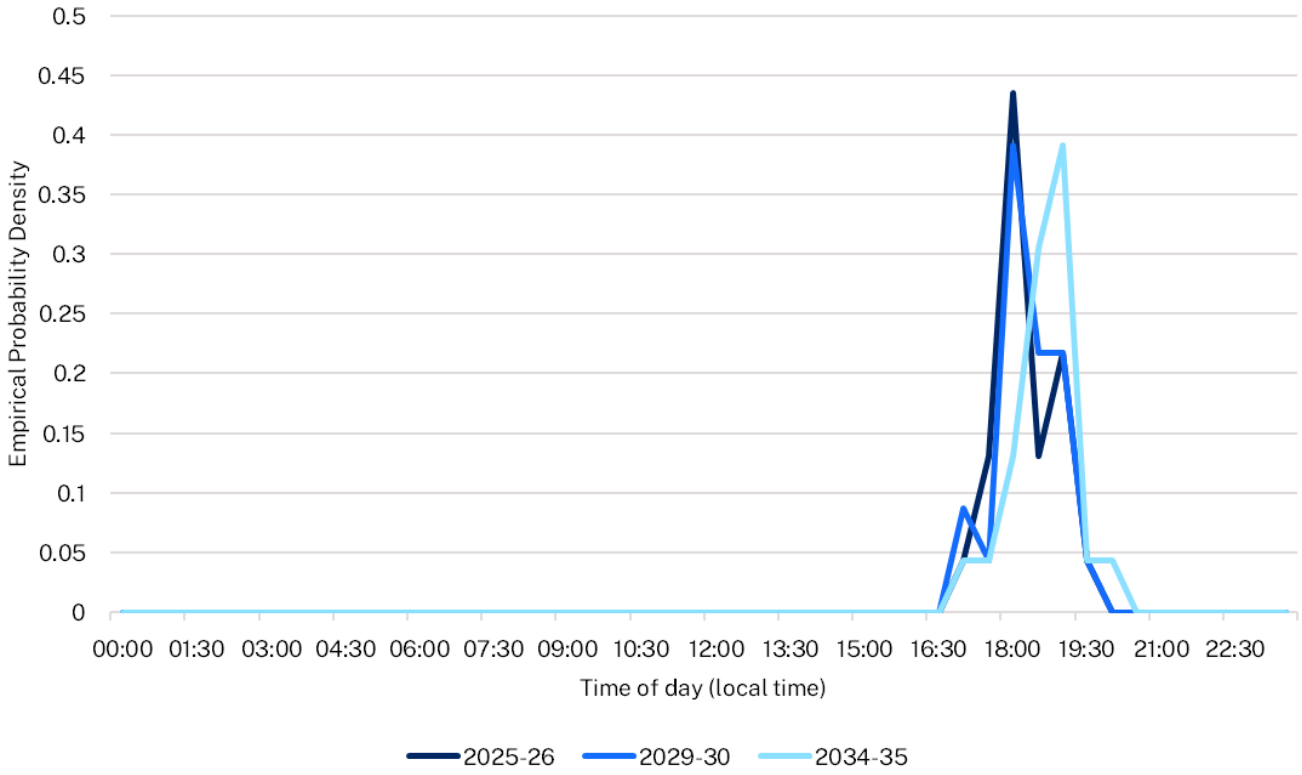

Figure 13: Change in distribution of time of 50% probability of exceedance summer maximum demand in NSW, 2025–26 to 2034–35[8]

For the purposes of the 2025 energy security target assessment, the Monitor selected the 6:30 pm National Electricity Market time (7:30 pm local daylight savings time) interval to represent the maximum demand interval for the entire forecast horizon. This corresponds to the average time of the peak demand over the horizon, as per Figure 13. This has not changed since the 2022 assessment.

Based on the above assumptions, the peak contribution factors applied in this 2025 Energy Security Target Monitor report compared to the 2024 assessment are shown in Table 5.

Table 5: Variable renewable energy firmness factors

Variable renewable energy type	2025 firmness factor	2024 firmness factor
Solar	8.3%	11.0%
Wind	12.4%	12.3%

While the 2025 wind firmness factor is similar to that used in the 2024 assessment, the solar firmness factor differs from the 2024 assessment largely due to the newly included 2024–25 financial year having lower solar capacities than the 2021–22 financial year that has rolled off.

The Monitor applied these capacity factors to the summer typical capacity from the July 2025 Generation Information publication to determine the available equivalent firm capacity of existing semi-scheduled generators.

[8] Chart plotted from information in AEMO *2025 Electricity Statement of Opportunities*.

Existing significant non-scheduled generation capacity

Clause 14(1)(c) of the Electricity Infrastructure Investment Regulation states the energy security target should consider appropriate non-scheduled generation. Significant non-scheduled generators typically refer to wind and solar non-scheduled generators with a capacity greater than or equal to 30 MW.[9] These generators are included in the 'operational' demand definition so are considered appropriate to include in the energy security target. Table 6 outlines the NSW generators that are defined to fall within this category, and which were included in calculating this energy security target.

Table 6: Existing significant non-scheduled generators in NSW

Generator	Nameplate capacity (MW)
Capital Wind Farm	141
Cullerin Range Wind Farm	30

The Monitor calculated the available firm capacity of significant non-scheduled generators using the peak contribution factors of the relevant semi-scheduled and non-scheduled technology as outlined in the above section. It used a single contribution factor for semi-scheduled and non-scheduled generators, given that contribution factor is expected to vary by technology type rather than registration category.

Generator closures

Expected closure years for all existing generators were taken from the July 2025 *Generating unit expected closure year* file.[10] Several power stations have advised they expect to close in the 10-year energy security target assessment, including:

- Eraring Power Station is advised to close in August 2027
- Bayswater Power Station, Vales Point Power Station and Queanbeyan BESS are all advised to be retired in advance of the 2033–2034 summer period.

Mount Piper Power Station has an expected closure date of 2040, which sits outside the 10-year horizon that this report considers.

Proposed generation and storage projects

The Electricity Infrastructure Investment Act requires that the Monitor must consider whether proposed firm generation and storage capacity is likely to be available to supply NSW electricity customers at times of peak demand in the summer of each financial year of the assessment. Firm and equivalent firm capacity from proposed generation and storage projects was calculated using the same methodology as that applied for existing projects.

The following proposed projects were included in the calculation of firm capacity for the energy security target assessment as required by the Electricity Infrastructure Investment Regulation clause 14(2):

[9] AEMO *Generation and Load* webpage.

[10] AEMO *Generation information* webpage.

- projects that have made a formal commitment to construct according to AEMO's *Generation information* page, including all proposed projects that are classified as 'in commissioning', 'committed' or 'anticipated'[11] in the July 2025 Generation Information publication. Projects that are not yet 'in commissioning' are included with delays applied to the full commercial utilisation date provided by the project proponent, to reflect typical delays historically observed in project commissioning. More information on this approach is described in the *ESOO and Reliability Forecast Methodology Document*.[12]
- the 500 MW 4-hour Tomago BESS project, which was announced after the publication of the Electricity Statement of Opportunities has also been included as a 'committed' project in this assessment
- the 240 MW, 4-hour Eraring BESS stage 2 has been included as a 'committed' project based on information provided by Origin Energy and AEMO. The July 2025 Generation Information publication has classified this project as anticipated
- projects that will be constructed and operated under a long-term energy service agreement. The projects in Table 7 have been awarded long-term energy service agreements in Tender Rounds 1 to 5 for generation and long-duration storage infrastructure in NSW.[13]

Table 7: Projects awarded an LTESA sorted by tender round

Project	Tender	Technology	Assumed operational year	Nameplate capacity (MW)	Storage capacity (MWh)
Coppabella Wind Farm	Tender Round 1	Wind	2030–31	290	–
New England Solar Farm – Stage 1	Tender Round 1	Solar	Currently In service	400	–
Stubbo Solar Farm	Tender Round 1	Solar	2025–26	400	–
Limondale BESS	Tender Round 1	Battery	2026–27	50	400
Liddell BESS	Tender Round 2	Battery	2026–27	500	1,000
Orana BESS	Tender Round 2	Battery	2026–27	374	1,660

[11] For more information about these classifications see AEMO *Generation information* webpage.

[12] AEMO *ESOO and Reliability Forecast Methodology Document: August 2025* (PDF 1MB).

[13] Refer to https://aemoservices.com.au/tenders.

Project	Tender	Technology	Assumed operational year	Nameplate capacity (MW)	Storage capacity (MWh)
Smithfield BESS	Tender Round 2	Battery	2026–27	65	130
Virtual Power Plant[14] (VPP)	Tender Round 2	Battery	Not modelled explicitly	95	190
Uungula Wind Farm	Tender Round 3	Wind	2027–28	414	–
Culcairn Solar Farm	Tender Round 3	Solar	2026–27	350	–
Silver City Energy Storage	Tender Round 3	Battery	2030–31	200	1,600
Goulburn River Solar Farm	Tender Round 3	Solar	2027–28	450	–
Goulburn River Solar Farm	Tender Round 3	Battery	2028–29	49	392
Richmond Valley BESS	Tender Round 3	Battery	2029–30	275	2,200
Flyers Creek Wind Farm	Tender Round 4	Wind	Currently In service	140	–
Maryvale Solar Farm	Tender Round 4	Battery	2028–29	172	–
Maryvale Solar Farm BESS	Tender Round 4	Battery	2028–29	172	408
Phoenix Pumped Hydro Project	Tender Round 5	Hydro	2034–35	800	11,990

[14] This Virtual Power Plant project was not modelled explicitly as it is assumed that this is captured in the flexible demand forecast.

Project	Tender	Technology	Assumed operational year	Nameplate capacity (MW)	Storage capacity (MWh)
Griffith BESS	Tender Round 5	Battery	2029–30	100	800
Stoney Creek BESS	Tender Round 5	Battery	2030–31	125	1,000

- Projects that will be constructed under funding programs run by, or on behalf of, a NSW government or Australian Government agency. Table 8 includes details of all projects considered on this basis. This table includes 7 known projects that were not considered in the energy security target assessment as they are insufficiently advanced.

Table 8: Additional projects that will be constructed under NSW government or Australian government funding programs[15]

Project	Technology	Assumed operational year	Nameplate capacity (MW)	Storage capacity (MWh)	Included in assessment
Waratah Super Battery	Battery	2025–26	350, 850 or 600[16]	1,680	Yes
Wallgrove Grid Battery project	Battery	In service	50	75	Yes

[15] Note: data is derived from the department's Emerging energy program webpage, Cth DCCEEW's Capacity Investment Scheme tenders webpage, Australian Renewable Energy Agency's Darling Point Energy Storage System webpage, EnergyCo's Waratah Super Battery Project webpage.

[16] The modelling assumption is a 350 MW commercial battery for 2025–26, a 600 MW 2–hour battery during operation of the System Integrity Protection Scheme between 2027 and 2030, and an 850 MW commercial battery for all other years in the forecast including 2026-27.

Project	Technology	Assumed operational year	Nameplate capacity (MW)	Storage capacity (MWh)	Included in assessment
Sapphire Wind Farm Battery Facility	Battery	Not included	30	38	No
New England Solar Farm BESS	Battery	2027–28	200	400	Yes
Darlington Point Energy Storage System	Battery	In service	25	50	Yes
Glanmire Solar Farm	Solar	2029–30	60	–	Yes
Glanmire Solar Farm BESS	Battery	2029–30	52	104	Yes
Goulburn River Solar Farm	Solar	2027–28	450	–	Yes
Goulburn River Solar Farm	Battery	2028–29	49	392	Yes
Junction River	Wind	Not included	585	–	No
Junction River BESS	Battery	Not included	200	800	No
Sandy Creek Solar Farm	Solar	2032–33	700	–	Yes
Spicers Creek Wind Farm	Wind	2031–32	700	–	Yes
Thunderbolt Wind Farm	Wind	Not included	230	–	No

Project	Technology	Assumed operational year	Nameplate capacity (MW)	Storage capacity (MWh)	Included in assessment
Valley of the Winds	Wind	319 MW in 2030–31 Fully available in 2031–32	919	–	Yes
Liddell BESS	Battery	2026–27	500	1,000	Yes
Goldwind Australia's hybrid project	Battery	Not included	12	4	No
Goldwind Australia's hybrid project	Gas	Not included	72	–	No
SolarHub's Smart Distributed Batteries	Battery	Not included	6	Unknown	No
Bulabul 2 BESS	Battery	2030–31	100	406	Yes
Calala BESS 2	Battery	2027–28	150	300	Yes
Goulburn River BESS Standalone	Battery	2030–31	450	1,370	Yes
Mount Piper BESS	Battery	2030–31	250	1,000	Yes
Swallow Tail BESS	Battery	2030–31	300	1,218	Yes

In addition to the above projects, projects that had been awarded access rights under a NSW renewable energy zone access scheme were also included. The Central scenario only accounts for access right projects which are committed or anticipated or have received government funding. The government schemes scenario includes for all projects awarded access rights.

Table 9: List of projects awarded NSW renewable energy zone Access Rights

Project	Technology	Assumed operational year	Nameplate capacity (MW)	Storage capacity (MWh)
Birriwa BESS	Battery	2032–33	600	1,200
Birriwa Solar Farm	Solar	2032–33	600	–
Bullawah Wind Farm	Wind	2028–29	262	–
Cobbora BESS	Battery	2032–33	400	800
Cobbora Solar Farm	Solar	2032–33	700	–
Dinawan Energy Hub	Battery	2031–32	310	1,354
Dinawan Energy Hub	Solar	2031–32	300	–
Dinawan Energy Hub	Wind	2029–30	357	–
Dinawan Energy Hub	Wind	2032–33	350	–
Liverpool Range Wind Farm	Wind	2031–32	634	–
Liverpool Range Wind Farm	Wind	2032–33	698	–
Pottinger Energy Park	Battery	2030–31	405	1,620
Pottinger Energy Park	Wind	2030–31	831	–
Sandy Creek BESS	Battery	2032–33	700	1,400
Sandy Creek Solar Farm	Solar	2032–33	700	–
Spicers Creek Wind Farm	Wind	2031–32	700	–
Tallawang Solar Hybrid	Battery	2031–32	500	1,000
Tallawang Solar Hybrid	Solar	2031–32	500	–
Valley of the Winds	Wind	2031–32	165	–
Valley of the Winds	Wind	2030–31	319	–
Valley of the Winds	Wind	2031-32	452	–
Yanco Delta Wind Farm	Wind	2030-31	1,460	–

A summary of the delays applied to the full commercial use date full commercial utilisation date for new generation and storage projects is shown in Table 10.

Table 10: Delays to full commercial use date for new generation and storage projects

Project category	Delay applied (months)
Committed	6
Anticipated	12
Access rights	12
Government funded projects	12
Uncommitted allocations from government schemes	0[17]

Existing and proposed interconnector capacity

Interconnector import capacity, assumed to be operating under summer peak demand conditions, also contributes to firm capacity in the calculation of the energy security target.

This includes firm capacity from proposed interconnector augmentations, if considered likely to be available to supply electricity to NSW customers at times of peak demand in the summer of the financial year, including:

- interconnectors for which a revenue determination has been made under rule 6A.4 of the National Electricity Rules
- interconnectors for which a determination has been made under section 38 of the Electricity Infrastructure Investment Act
- interconnectors under a priority transmission infrastructure project to which a direction under the Electricity Infrastructure Investment Act, section 32(1)(b), relates.

The only project that meets the above requirements is Project Energy Connect, a new 800 MW interconnector between southern New South Wales and South Australia.

Import capability for existing and applicable new interconnectors has been taken from the *2025 Inputs, Assumptions and Scenarios Report*[18] and is summarised in Table 11. Electricity Infrastructure Investment Regulation clause 15(5) permits the Monitor to take into account additional factors when applying ratings rather than using those published in the most recent ISP assumptions. In this energy security target assessment, no adjustments to the interconnector capacities published are applied.

While interconnector limits are found to vary significantly within a year, and over the forecast horizon, supply in neighbouring regions is forecast to be adequate, and that further changes to interconnector capacities from the values published in the *2025 Inputs, Assumptions and Scenarios Report* were unlikely to be material in this 2025 report.

[17] A delay was not explicitly applied but these allocations were assumed to be operational in time to meet the target.

[18] AEMO *2025 Inputs, Assumptions and Scenarios Report*.

Table 11: Import capabilities between subregions at peak demand

Interconnector	New South Wales import capability (MW)
NNSW–SQ (Terranora)	130
NNSW–SQ (Queensland–NSW Interconnector [QNI])	1,450
Vic–Southern NSW (Victoria – NSW Interconnector [VNI])	870
Southern NSW–SA (Project EnergyConnect)	800 (From 2028–29 once Project EnergyConnect is fully commissioned. Part of this capacity is released earlier – there is 150 MW available in 2025–26 and 2026–27 due to stage 1 of the project, and a further 200 MW in 2027–28 due to the first part of stage 2.)

The import capability for Queensland–NSW Interconnector was updated as per the *2025 Inputs and Assumptions Workbook*. The limit has increased from values that were included in the 2024 Energy Security Target Monitor Report to include the completion of the Queensland–NSW Interconnector Minor project.

Major intraregional transmission limits

Major intraregional transmission limits can reduce the amount of electricity available to NSW customers from generation, storage and interconnector capacity. Consistent with clause 15(4) of the Electricity Infrastructure Investment Regulation, firm capacity for a financial year was calculated taking into account these constraints.

The impact of intraregional transmission limits on the ability for firm capacity to reach the majority of customer load in the Sydney–Newcastle–Wollongong areas are identified, which apply to discount the firm capacity accordingly.

As the energy security target calculation is intended to be a simplified, deterministic calculation that is relatively easy to understand, a subregional representation of the NSW transmission network was used to estimate the major network constraints as defined in AEMO's *2025 Inputs, Assumptions and Scenarios Report*.

Projects contributing to intraregional transfer

Transmission projects that increase intraregional transfer capacity and that are sufficiently progressed consistent with AEMO's commitment criteria as applied in the 2025 *Electricity Statement of Opportunities*, or those that would meet the criteria described in Appendix A: 'Existing and proposed interconnector capacity' are also included. The projects included in the Central scenario impacting transfer limits are:

- Hunter Transmission Project, which is a priority transmission infrastructure project, and
- HumeLink, which is considered 'committed' by AEMO.

Other scenarios or sensitivities may include further developments as specified in the scenario description.

Assessments to determine the transmission limits

The key NSW subregions are highlighted in Figure 14.

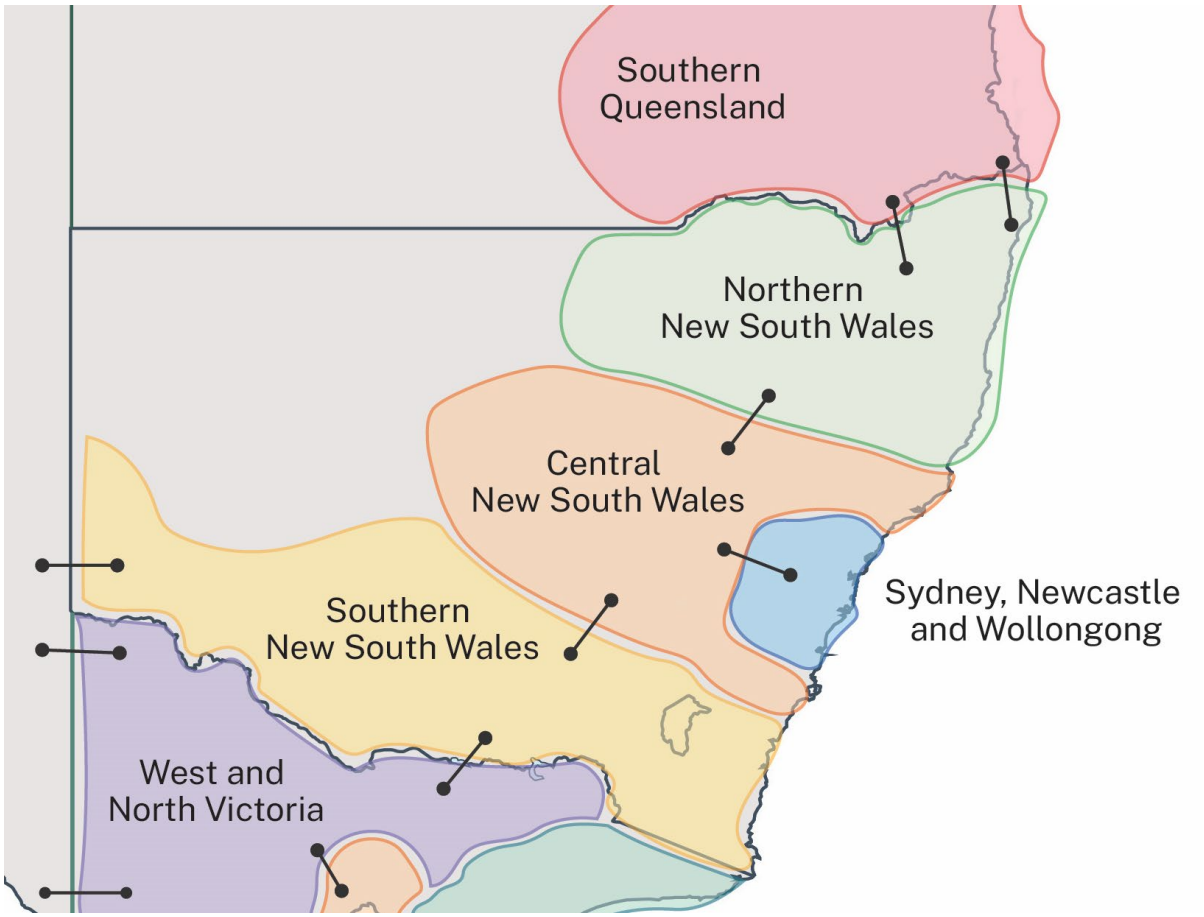

Figure 14: Subregional model[19]

[19] AEMO *2025 Inputs, Assumptions and Scenarios Report*.

The following intra-regional assessments were conducted to identify major network constraints:

- **Sydney–Newcastle–Wollongong** – this identifies any major transmission limits that may constrain supply from the Central NSW subregion into the major demand centre for NSW
- **Central NSW and Sydney–Newcastle–Wollongong** – this identifies any major transmission limits that may constrain supply from the NNSW and Southern NSW subregions into the Central subregion
- **Northern NSW, Central NSW and Sydney–Newcastle–Wollongong** – this identifies any major transmission limits that may constrain supply from Southern NSW subregion into the Central subregion.

Subregional assessments

To test whether these major transmission limits impact the energy security target assessment, the assessment first assessed the energy security target against each relevant subregion separately.

Subregional firm capacity plus imports up to the transmission limit must be sufficient to meet the maximum demand in that subregion, under the condition that the 2 largest units in the subregion are unavailable.

Reserves were calculated as the largest 2 generating units in the subregion, or the largest 2 generating units in the statewide assessment. Where the subregional reserve estimates resulted in a target surplus/breach that was lower/higher than the whole of the NSW energy security target surplus/breach, the difference was assessed as the impact of the major intra-regional transmission limit. If major intra-regional transmission limits were identified, all capacities were discounted evenly until the limitations evidenced by the sub-regional assessment were incorporated.

For the purposes of the calculation of a target surplus/breach for each sub-region, the following inputs have been used:

- Subregional 10% probability of exceedance maximum demand was calculated using the forecast Operational as Generated demands calculated for each subregion. AEMO has introduced explicit calculation of maximum demand for each sub-region for its forecasts for the first time in the 2025 *Electricity Statement of Opportunities* (previously only aggregate regional demands were calculated). The calculation of the sub-regional proportion used the average Operational as Generated demand proportion during the top 10 demand days during the summer period (defined as December to February for this purpose). This is a change from the methodology used in the 2024 Energy Security Target Monitor report. The subregional maximum demands are summarised in Table 12.
- Subregional auxiliaries were assumed as a ratio of maximum potential subregional aggregate auxiliaries to the maximum potential regional aggregate auxiliaries[20] based on the generator auxiliary load forecast for all years. The NSW auxiliary load forecast was calculated by multiplying auxiliary rates published in the *2025 Inputs, Assumptions and Scenarios Report* by the firm available capacity for each generator, then summing them.

[20] Forecast subregional auxiliaries are not published by AEMO. However, technology aggregates are used to scale the maximum potential generator auxiliaries to the Electricity Statement of Opportunities forecast for auxiliaries at time of maximum demand based on available generators in each subregion.

Table 12: Assumed subregional 10% probability of exceedance maximum operational demand Step Change with no virtual power plant growth forecasts (MW, as generated)

Year	Sydney–Newcastle–Wollongong	Central NSW + Sydney–Newcastle–Wollongong	Northern NSW + Central NSW + Sydney–Newcastle–Wollongong	All NSW
2025–26	10,677	12,151	13,038	14,373
2026–27	10,873	12,379	13,232	14,558
2027–28	10,993	12,492	13,345	14,674
2028–29	11,128	12,593	13,470	14,847
2029–30	11,244	12,722	13,640	15,054
2030–31	11,392	12,924	13,900	15,412
2031–32	11,964	13,454	14,397	15,846
2032–33	11,915	13,566	14,559	16,151
2033–34	12,034	13,747	14,783	16,411
2034–35	12,068	13,875	14,959	16,663

Table 13: Import capabilities between subregions at peak demand [21]

Intraregional limit	Intraregional import capability (MW)
From Southern NSW to Central NSW	2,700 MW plus an additional 250 MW from 2027–28 to 2029–30 due to the operation and augmentations of the NSW System Integrity Protection Scheme associated with Waratah Super Battery; and an additional 2,200 MW from 2028–29 due to HumeLink
From Northern NSW to Central NSW	930 MW
From Central NSW to Sydney–Newcastle–Wollongong	4,490 MW generation (Northern) and approximately 2,500 MW (Southern plus an additional 250 MW from 2027–28 to 2029–30 due to the operation and augmentations of the NSW System Integrity Protection Scheme associated with Waratah Super Battery and an additional 5,000 MW from 2029–30 due to the Hunter Transmission Project

Reserve margin

The reserve margin includes for the loss of the 2 largest available NSW generating units, shown in Table 14 for each financial year. This reserve margin is added to the maximum demand to set the energy security target in each year.

The 2 units from Mount Piper Power Station are the largest units over the forecast horizon. Mount Piper Unit 2 has a 675 MW summer peak rating in 2025–26 and increases from 705 MW from 2026 onwards, which is the same as Mount Piper Unit 1.

Table 14 also shows when the subregional assessment was the binding constraint and the associated reserve for this assessment. When these constraints occur, the largest units available to supply customers may be Vales Point Unit 1 and Unit 2.

Table 14: Reserve margin at whole of NSW for the Central scenario (MW, summer peak capacity)

Year	Largest units in NSW	Largest units after considering intraregional constraints	Reserve margin
2025–26	Mount Piper Unit 1 and 2	Mount Piper Unit 1 and 2	1,380
2026–27	Mount Piper Unit 1 and 2	Mount Piper Unit 1 and 2	1,410
2027–28	Mount Piper Unit 1 and 2	Mount Piper Unit 1 and 2	1,410
2028–29	Mount Piper Unit 1 and 2	Vales Point Unit 1 and 2	1,320
2029–30	Mount Piper Unit 1 and 2	Vales Point Unit 1 and 2	1,320
2030–31	Mount Piper Unit 1 and 2	Vales Point Unit 1 and 2	1,320
2031–32	Mount Piper Unit 1 and 2	Vales Point Unit 1 and 2	1,320

[21] AEMO *2025 Inputs and Assumptions Workbook*.

Year	Largest units in NSW	Largest units after considering intraregional constraints	Reserve margin
2032–33	Mount Piper Unit 1 and 2	Mount Piper Unit 1 and 2	1,410
2033–34	Mount Piper Unit 1 and 2	Mount Piper Unit 1 and 2	1,410
2034–35	Mount Piper Unit 1 and 2	Mount Piper Unit 1 and 2	1,410

Demand flexibility

Clause 14(1)(e) of the Electricity Infrastructure Investment Regulation states that the Monitor should consider capacity from demand response in calculating firm capacity. This section outlines the demand response assumed to occur over the 10-year horizon of the energy security targets.

Demand-side participation (DSP)

Demand response and demand-side participation are both considered as firm capacity in the calculation of the energy security target and were both included in AEMO's demand-side participation SP forecast, as published in the *2025 Electricity Statement of Opportunities*. The amount of demand-side participation assumed varies between demand scenarios. Demand-side participation increases, beyond those assumed committed, were not included in the Central scenario.

For the 2025 assessment, the Peak Demand Reduction Scheme was not included as a separate component of demand-side flexibility as explained in Appendix A: 'Maximum demand', rather it is included within the demand forecast.

Virtual power plant (VPP) and vehicle to grid (V2G) developments

Batteries which are coordinated through an aggregator or retailer under virtual power plant and vehicle to grid developments are considered in the energy security target. However, it was assumed that only batteries in existing or committed virtual power plant and vehicle to grid programs will be available to provide a coordinated response at times of maximum demand for the purposes of the Central scenario.

Projections from additional virtual power plant and V2G developments which are not currently 'committed' may be included in other sensitivities. Virtual power plant and vehicle to grid also had a de-rating factor applied in their firm capacity factor value as per those used for other short-duration storages.

Figure 15 shows values used for NSW flexible demand across all scenarios and sensitivities in this assessment.

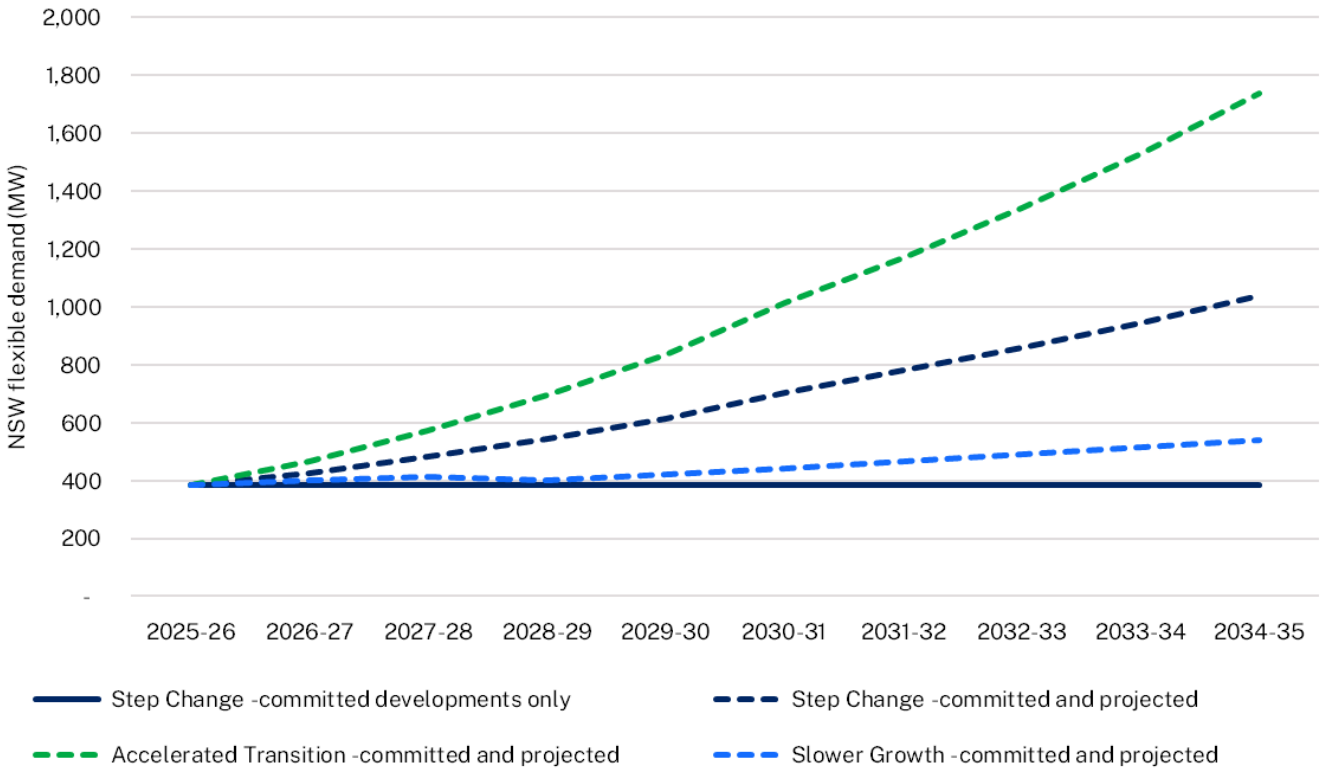

Figure 15: *2025 Electricity Statement of Opportunities* flexible demand applied in forecasts for the summer period in NSW, 2025–26 to 2034–35 (MW)

Demand scenarios

In preparing an Energy Security Target Monitor report, Electricity Infrastructure Investment Regulation clause 16(1) requires the Monitor to take into account each scenario and the sensitivities relating to each scenario, as specified in the most recent statement of opportunities, to the extent they relate to NSW.

As such, the Monitor has assessed each energy security target against each relevant sensitivity used in the *2025 Electricity Statement of Opportunities*, as applicable to NSW.

Three demand scenarios, summarised in Table 15 below, were considered in the *2025 Electricity Statement of Opportunities*, as well as a demand sensitivity to the Step Change demand scenario. Figure 16 shows the *2025 Electricity Statement of Opportunities*' 10-year maximum demand forecast for NSW for all 4 scenarios.

Table 15: Description of demand scenarios and sensitivity for the energy security target assessment

Scenario/sensitivity	Description
Step Change (*2025 Electricity Statement of Opportunities* reliability forecast scenario)	This scenario achieves the objectives of Australia's government policies in transitioning the energy system. The scenario experiences moderate economic conditions on average, with population growth that is also moderate, reflecting long-term average trends. Recent economic challenges and current economic conditions affect the starting conditions for the scenario. Consumers continue to provide a key role in the transition, with strong investments in electrification, consumer energy resources and energy efficiency measures. There is also strong transport electrification. Australia's businesses follow growth trends observed historically, with growing opportunities for emerging commercial and industrial loads. Data centres and electrification of transportation and larger industries, as well as the establishment of likely prospective industrials, lead to material new electricity consumption. There are 2 different variants of the Step Change scenario. Step Change **with no virtual power plant growth** includes only existing and committed virtual power plant (and is applied in the scenarios with committed developments only). Step Change with no virtual power plant growth is applied in the Central scenario. **Step Change** demand includes projected virtual power plant developments (and is applied in scenarios that apply actionable virtual power plant forecasts).
Accelerated Transition	This scenario reflects very strong decarbonisation activities domestically, resulting in rapid transformation of Australia's energy sectors, including a strong use of electrification. Higher economic growth internationally (and locally) increases technology developments, and the global demand for green energy is very high given the strong global appetite for low and zero emissions fuel sources. Australia's buoyant economy and renewable energy potential enables creation of emerging industries such as green commodity production. Consumers in this scenario continue to invest in consumer energy resources, with the greatest relative uptake of these assets, and the greatest relative acceptance of coordination opportunities.

Scenario/sensitivity	Description
Slower Growth	This scenario describes a world that aims to achieve Australia's current Paris Agreement commitments of 43% emissions reduction by 2030, and other government policies to support the energy system's transition, amid economic circumstances that are more challenging. The scenario features slower and weaker economic growth domestically, with consumers and commercial businesses facing greater investment environment challenges. In these circumstances, the industrial sector faces greater risk of closures.
Data Centres (sensitivity to the Step Change demand scenario)	Underlying assumptions the same as Step Change but assumes an increased investment in data centres.

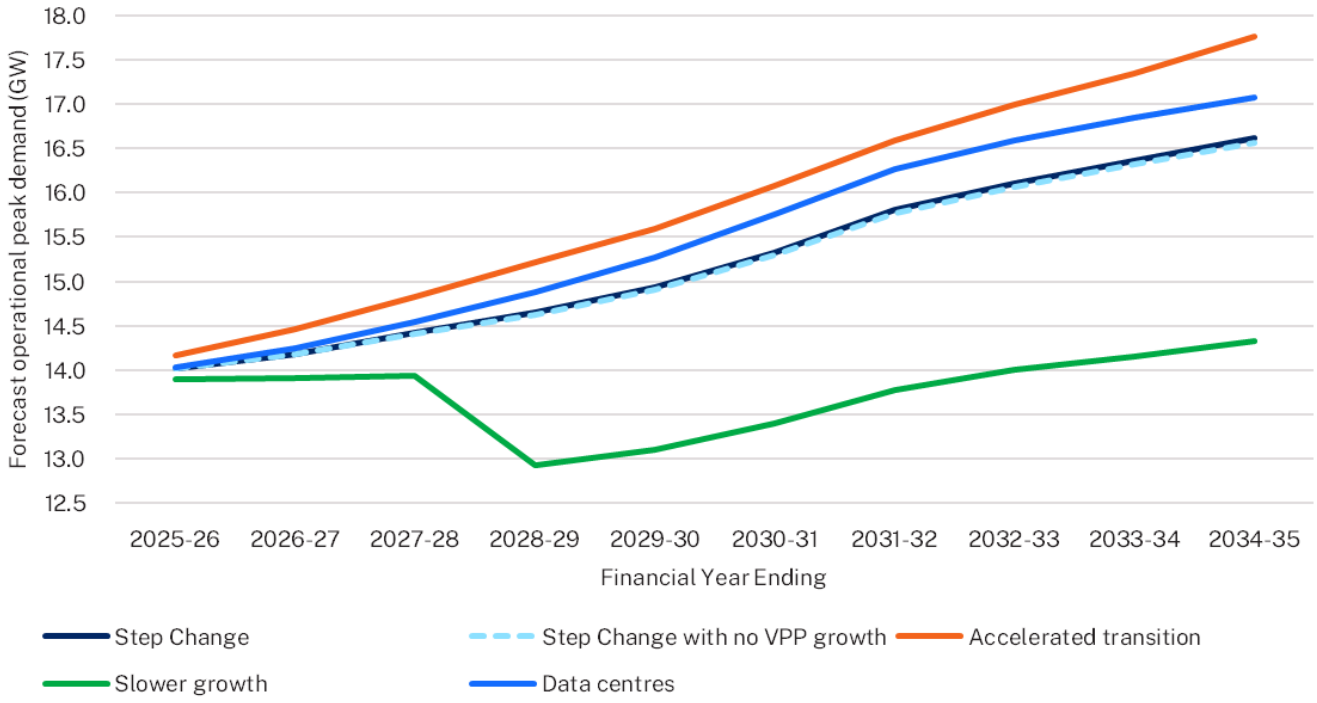

Figure 16 NSW 10% probability of exceedance maximum summer demand (operational sent out) forecast for various Electricity Statement of Opportunities scenarios[22]

[22] Chart plotted from information in AEMO's *2025 Electricity Statement of Opportunities*.

Appendix B: Alternative scenarios and sensitivities

In accordance with clause 16(1) of the Electricity Infrastructure Investment Regulation, the report must consider each scenario and their related sensitivities, as outlined in the *2025 Electricity Statement of Opportunities*, where they apply to NSW.

This appendix covers all the different demand scenarios from the *2025 Electricity Statement of Opportunities* and its related sensitivities in addition to some additional other sensitivities.

Alternate demand scenarios

The following sensitivities were tested on the Central scenario assumptions.

Slower Growth

This scenario uses the Slower Growth demand scenario of the *2025 Electricity Statement of Opportunities*. Refer to Table 15 for more information on the slower growth demand scenario.

As shown in Figure 17, there is surplus firm capacity in all years of the assessment period. In 2027–28, there is a small surplus even when Eraring Power Station retires.

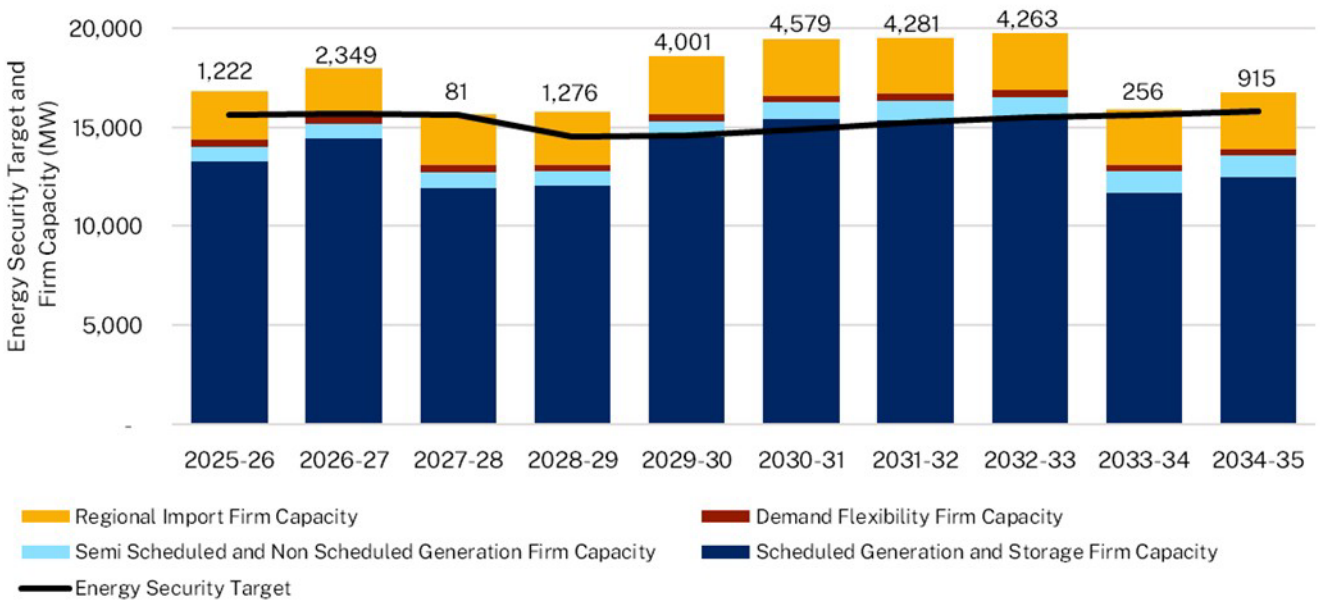

Figure 17: Forecast energy security target and firm capacity, Slower Growth demand scenario

Accelerated Transition

The energy security target assessment for the Accelerated Transition demand scenario is shown in Figure 18, with breaches in 2027–28, 2028–29, 2033–34 and 2034–35. Refer to Table 15 for more information on the Accelerated Transition demand scenario

This scenario forecasts energy security target breaches in 2027–28 and 2028–29 from the closure of Eraring Power Station, and 2033–34 and 2034–35 from the closures of Bayswater and Vales Point Power Stations. The forecast breaches in these years are larger compared to the Central scenario due to the higher demand forecast.

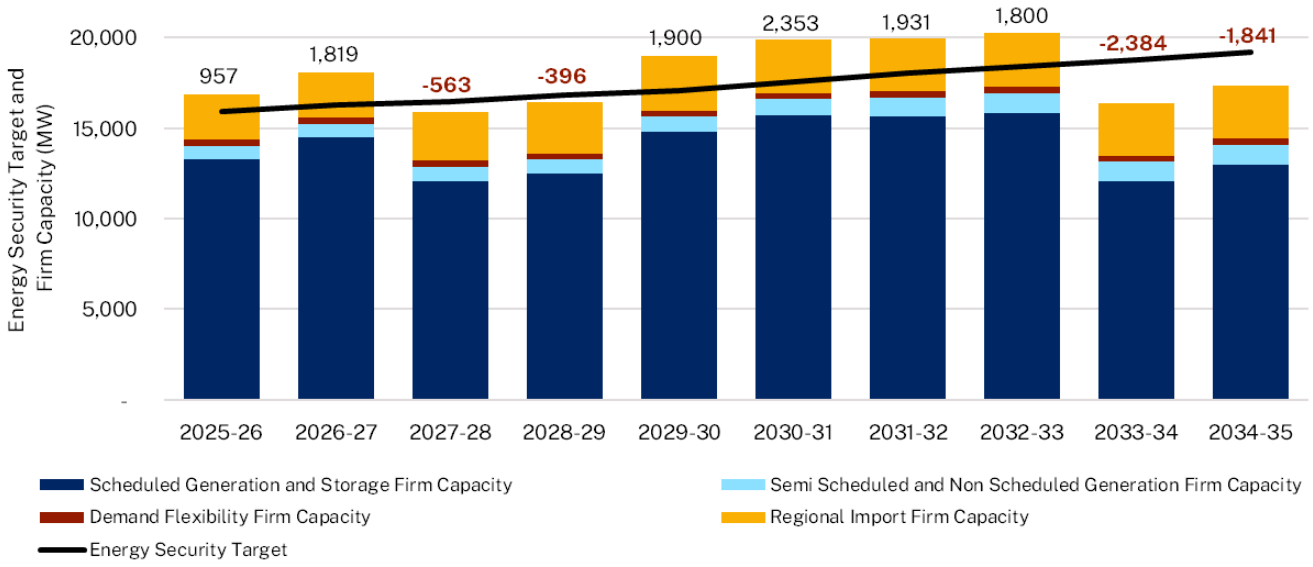

Figure 18: Forecast energy security target and firm capacity, Electricity Statement of Opportunities Accelerated Transition Demand scenario

Data Centres

This scenario uses the same assumptions as the Central scenario but applies the Data Centre demand scenario. It is designed to assess the impact of a 480 MW increase to demand, by 2033–34, due to increased investment in data centres. Refer to Table 15 for more information on the data centres demand scenario.

There are forecast energy security target breaches in 2027–28 and 2028–29, and 2033–34 and 2034–35. With increased data centre load, the energy security target breaches increase to 2,128 MW in 2033–34 and 1,454 MW in 2034–35.

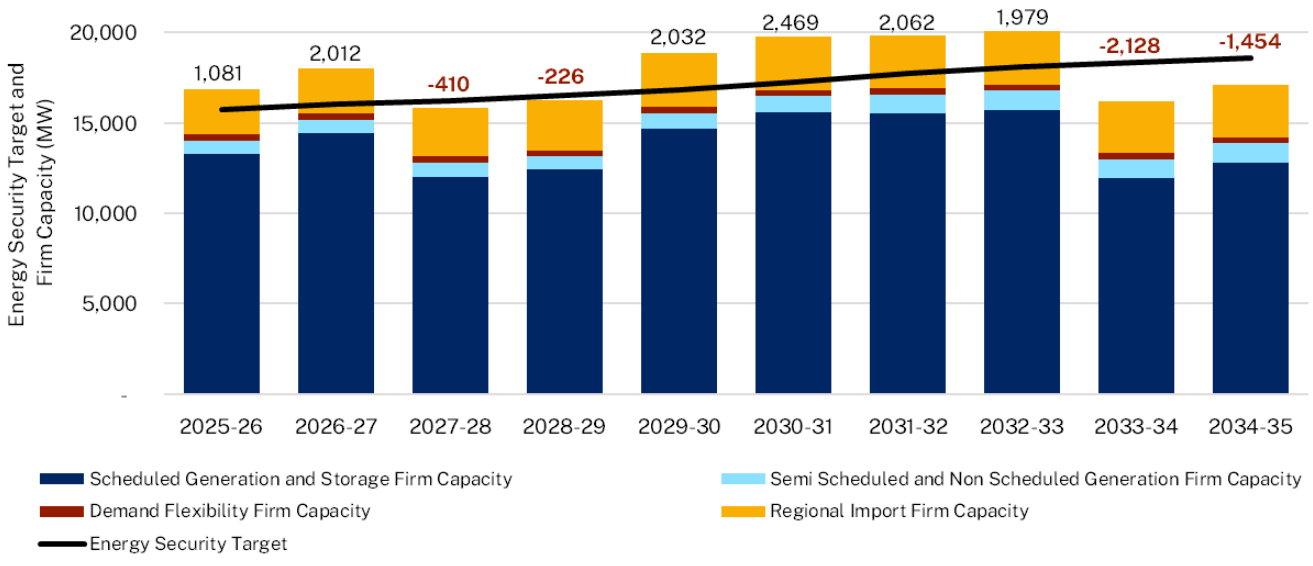

Figure 19: Forecast energy security target and firm capacity, Electricity Statement of Opportunities Data Centre Demand scenario

Applicable Electricity Statement of Opportunities scenarios

Strict Committed and Anticipated developments

This scenario is designed to correspond to the assumptions used in the *2025 Electricity Statement of Opportunities*. It uses the same assumptions as the *2025 Electricity Statement of Opportunities* Committed and Anticipated developments scenario, so it does not include projects awarded federal or state funding or those awarded access rights, unless they are considered committed or anticipated by AEMO. It also does not include Hunter Transmission Project capacity, which is considered an actionable project by AEMO.

The energy security target assessment under this scenario is shown in Figure 20, showing an energy security target breach in 2027–28 followed by much smaller surplus firm power in 2028–29. Thereafter, energy security target breaches are forecasted for all years from 2029–30.

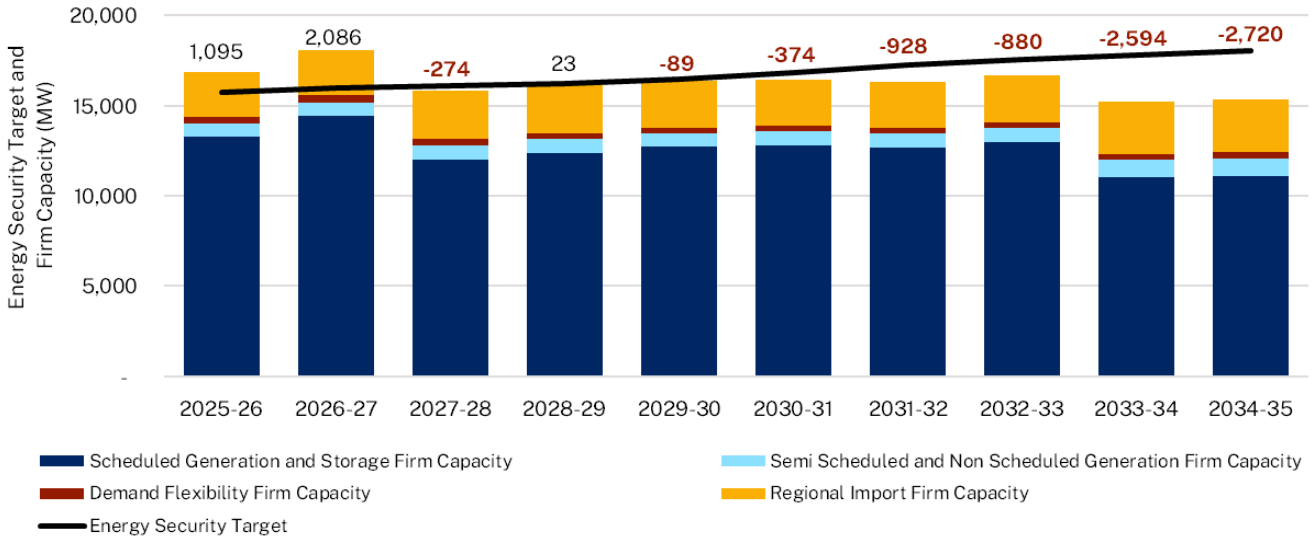

Figure 20: Forecast energy security target and firm capacity, Electricity Statement of Opportunities Strict Committed and Anticipated scenario

Government Schemes scenario – on-time delivery

This scenario is designed to correspond to the assumptions used in the *2025 Electricity Statement of Opportunities* Government Schemes and Actionable developments scenario. It is based on the Central scenario but also includes for the remaining unallocated target capacity additions from NSW and Australian government schemes. It also includes transmission projects categorised as committed, anticipated and actionable in AEMO's July 2025 Transmission Augmentation Information.

Delays to the full commercial use date provided by project developers are not applied. HumeLink is assumed to have capacity release on the date provided by the project developer (in advance of summer 2027–28), which is one year earlier than the date assumed in the Central scenario. The energy security target assessment for this scenario is shown in Figure 21.

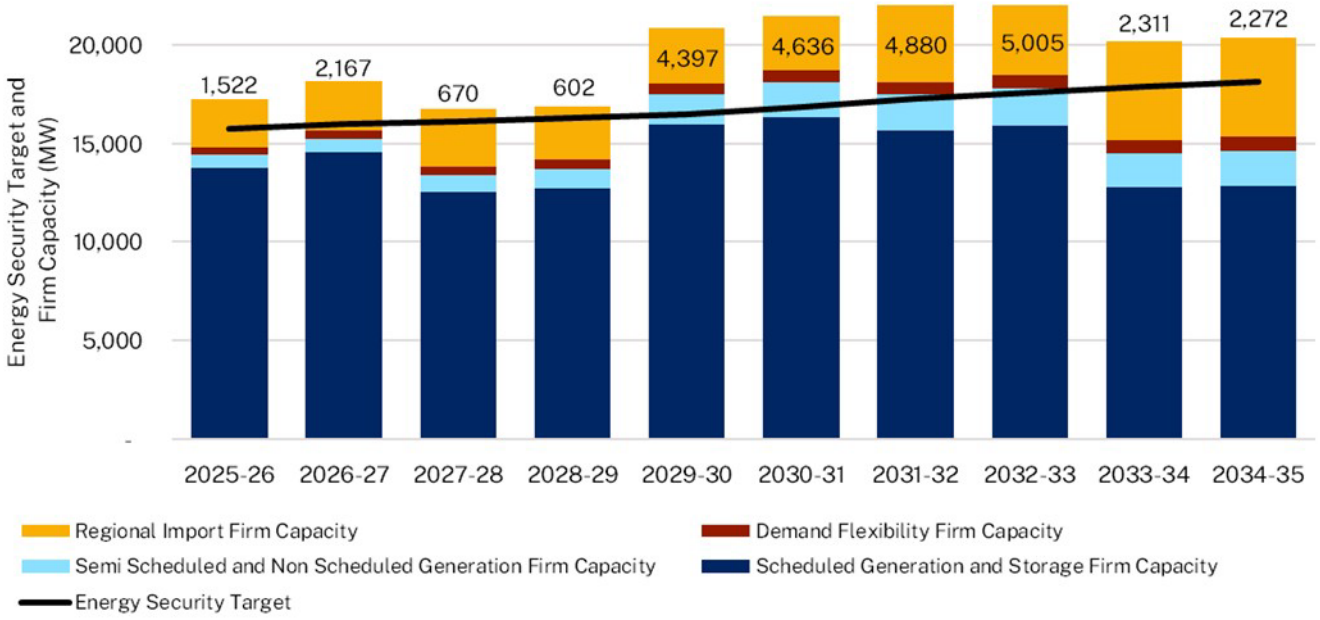

Figure 21: Forecast energy security target and firm capacity, Electricity Statement of Opportunities Government Schemes and Actionable Developments scenario

Transmission Delay sensitivity

HumeLink delay

This sensitivity is based on the Central scenario but assumes a 2-year delay in the completion of HumeLink. In this sensitivity HumeLink is commissioned by 2030–31, one year after Hunter Transmission Project (HTP). The results of this assessment are shown in Figure 22. This sensitivity has a much smaller 2029–30 surplus firm capacity forecast than the Central scenario, highlighting the importance of timely delivery of both the transmission projects to ensure sufficient firm capacity. All other years across the 10–year horizon have the same energy security target surpluses and deficits as the Central scenario.

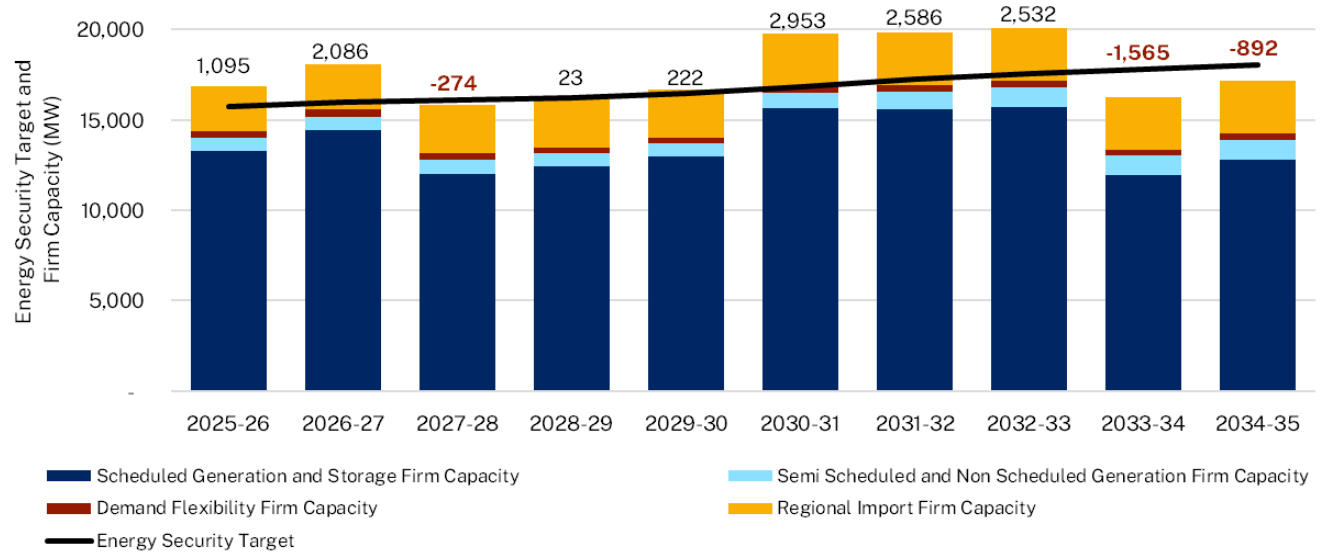

Figure 22 Forecast energy security target and firm capacity in 2-year delay to HumeLink sensitivity

No Hunter Transmission Project (HTP) sensitivity

This sensitivity to the Central scenario demonstrates the major impacts of transmission development delays to NSW's energy security. After 2028–29, each year that Hunter Transmission Project is not commissioned results in a breach to the energy security target over the forecast period as seen in Figure 23 below.

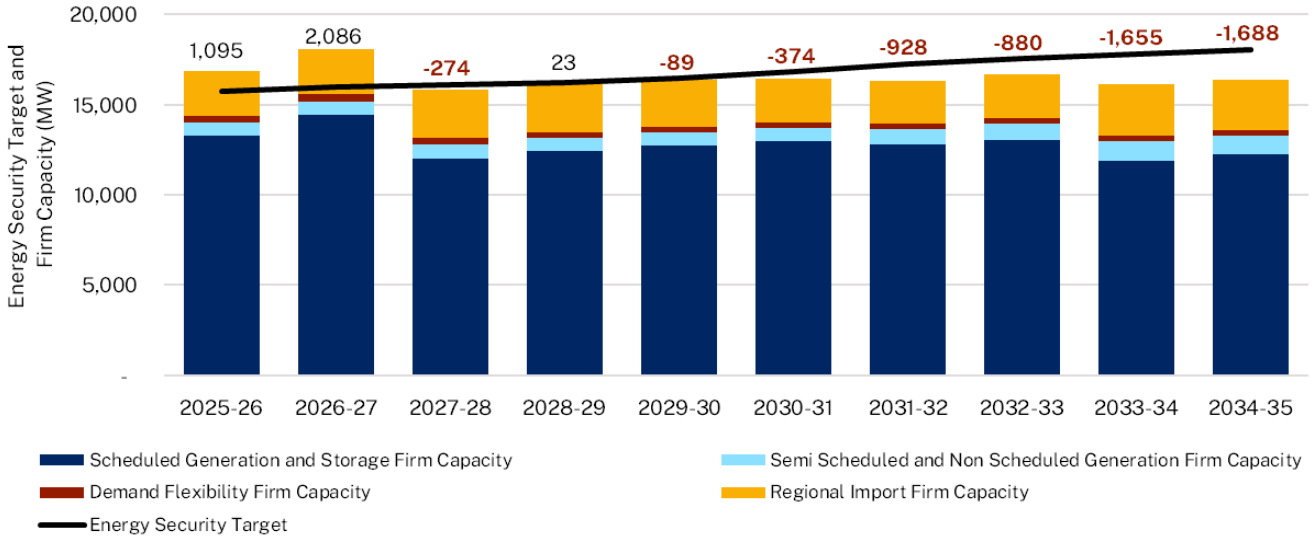

Figure 23: Forecast energy security target and firm capacity in no Hunter Transmission Project sensitivity

Appendix C: Target breach analysis

In accordance with s13 (3)(d) of the Electricity Infrastructure Investment Act, for any financial year where a target breach is identified, both the expected size of the breach (in MW) and the expected duration of the breach must be included in the Energy Security Target Monitor report.

Size of energy security target breach

Under the Central scenario, there are breaches forecast for the 2027–28, 2033–34 and 2034–35. Table 16 shows the size of the forecast energy security target breaches and thresholds calculated for the assessment period. The surplus breach is calculated as the firm capacity available minus the energy security target and is measured in megawatts (MW).

Table 16: Size of energy security target breach and threshold (MW)

Description	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Energy security target surplus/deficit	1,095	2,086	–274	23	2,442	2,953	2,586	2,532	–1,565	–892
Operational demand (sent out) threshold	No breach	No breach	14,140	No breach	No breach	No breach	No breach	No breach	14,756	15,666

Duration of energy security target breach

To estimate the duration of any target breach, the forecast firm capacity was compared against the 10% probability of exceedance demand trace, and we counted how many times operational sent-out demand for a 30-minute interval exceeded the following threshold in a given reference year:

Threshold = (Firm Capacity – Auxiliaries at Peak – Reserve)

If demand exceeded the threshold, this was considered ‘an incident’, meaning that reserves were below target.

Figure 24 shows the projected incident durations. The forecast duration of incidents is concentrated below 2.5 hours, with some longer durations occurring in 2033–34.

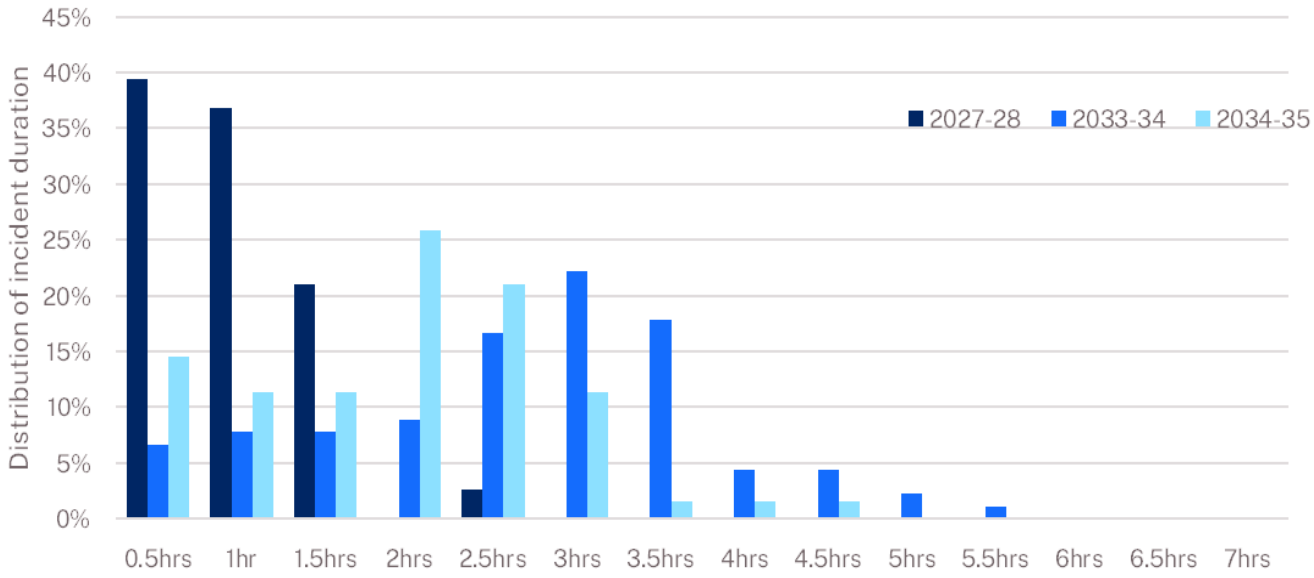

Figure 24: Projected incident duration

Appendix D: Energy security target assessment outcomes – tables

The energy security target assessment outcomes are shown in the following tables.

Table 17: Forecast energy security target and firm capacity assessment in Central scenario (MW)

Description	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Maximum demand (as generated)	14,373	14,558	14,674	14,847	15,054	15,412	15,846	16,151	16,411	16,663
Reserve margin	1,380	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410
Energy security target	15,753	15,968	16,084	16,257	16,464	16,822	17,256	17,561	17,821	18,073
Scheduled generation and storage firm capacity	13,303	14,467	11,996	12,409	14,716	15,631	15,569	15,734	11,957	12,828
Semi-scheduled and non-scheduled generation firm capacity	691	727	814	755	824	873	1,016	1,069	1,072	1,085
Demand flexibility firm capacity	367	368	362	329	354	346	344	348	341	345
Regional import firm capacity	2,486	2,491	2,638	2,786	2,992	2,925	2,913	2,943	2,886	2,922
Total firm capacity	16,848	18,053	15,810	16,280	18,885	19,775	19,842	20,093	16,256	17,181
Energy security target surplus/ deficit	1,095	2,086	–274	23	2,422	2,953	2,586	2,532	–1,565	–892

Table 18: Forecast energy security target and firm capacity in Government schemes sensitivity (MW)

Description	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Maximum demand (as generated)	14,374	14,567	14,682	14,862	15,077	15,441	15,881	16,190	16,458	16,716
Reserve margin	1,380	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410
Energy security target	15,754	15,977	16,092	16,272	16,487	16,851	17,291	17,600	17,868	18,126
Scheduled generation and storage firm capacity	13,303	14,469	11,690	12,409	14,917	15,716	15,926	16,798	13,556	14,425
Semi-scheduled and non-scheduled generation firm capacity	691	727	793	783	884	1,154	1,403	1,670	1,628	1,651
Demand flexibility firm capacity	367	408	442	466	559	611	668	747	790	880
Regional import firm capacity	2,486	2,491	2,984	2,786	2,959	2,820	2,783	2,823	2,716	2,753
Total firm capacity	16,848	18,096	15,909	16,443	19,320	20,301	20,780	22,038	18,690	19,709
Energy security target surplus/ deficit	1,093	2,119	–183	171	2,833	3,449	3,489	4,439	823	1,584

Table 19: Forecast energy security target and firm capacity, Electricity Statement of Opportunities Slower Growth Demand scenario (MW)

Description	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Maximum demand (as generated)	14,233	14,245	14,186	13,117	13,188	13,475	13,849	14,089	14,238	14,405
Reserve margin	1,380	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410
Energy security target	15,613	15,655	15,596	14,527	14,598	14,885	15,259	15,499	15,648	15,815
Scheduled generation and storage firm capacity	13,293	14,428	11,895	12,046	14,493	15,385	15,333	15,475	11,698	12,492
Semi-**scheduled and non-scheduled generation firm capacity**	690	725	807	733	811	859	1,000	1,051	1,049	1,057
Demand flexibility firm capacity	367	367	359	320	348	340	339	342	334	336
Regional import firm capacity	2,485	2,484	2,616	2,704	2,946	2,879	2,868	2,894	2,824	2,846
Total firm capacity	16,835	18,004	15,677	15,803	18,599	19,464	19,540	19,762	15,904	16,731
Energy security target surplus/ deficit	1,222	2,349	81	1,276	4,001	4,579	4,281	4,263	256	915

Table 20: Forecast energy security target and firm capacity, Electricity Statement of Opportunities Accelerated Transition Demand scenario (MW)

Description	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Maximum demand (as generated)	14,525	14,851	15,046	15,398	15,676	16,132	16,620	17,026	17,382	17,795
Reserve margin	1,380	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410
Energy security target	15,905	16,261	16,456	16,808	17,086	17,542	18,030	18,436	18,792	19,205
Scheduled generation and storage firm capacity	13,314	14,489	12,059	12,511	14,794	15,726	15,663	15,846	12,069	12,965
Semi-scheduled and non-scheduled generation firm capacity	691	728	818	761	828	878	1,022	1,076	1,082	1,097
Demand flexibility firm capacity	368	368	364	332	355	348	346	350	344	349
Regional import firm capacity	2,488	2,495	2,652	2,809	3,008	2,943	2,930	2,964	2,913	2,953
Total firm capacity	16,862	18,080	15,893	16,412	18,985	19,895	19,961	20,236	16,408	17,364
Energy security target surplus/ deficit	957	1,819	–563	–396	1,900	2,353	1,931	1,800	–2,384	–1,841

Table 21: Forecast energy security target and firm capacity, Electricity Statement of Opportunities Data Centre Demand scenario (MW)

Description	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Maximum Demand (As Generated)	14,385	14,622	14,808	15,093	15,423	15,872	16,341	16,672	16,936	17,180
Reserve Margin	1,380	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410
Energy security target	15,765	16,032	16,218	16,503	16,833	17,282	17,751	18,082	18,346	18,590
Scheduled generation and storage firm capacity	13,302	14,460	11,995	12,407	14,701	15,611	15,546	15,708	11,928	12,795
Semi-scheduled and non-scheduled generation firm capacity	691	727	814	755	823	872	1,014	1,067	1,069	1,082
Demand flexibility firm capacity	367	368	362	329	353	345	344	347	340	344
Regional import firm capacity	2,486	2,490	2,638	2,785	2,989	2,921	2,908	2,938	2,880	2,915
Total firm capacity	16,846	18,045	15,808	16,276	18,886	19,750	19,812	20,060	16,218	17,136
Energy security target surplus/ deficit	1,081	2,013	–410	–226	2,032	2,469	2,062	1,979	–2,128	–1,454

Table 22: Forecast energy security target and firm capacity, Electricity Statement of Opportunities Strict Committed and Anticipated Developments scenario (MW)

Description	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Maximum demand (as generated)	14,373	14,558	14,674	14,847	15,054	15,412	15,846	16,151	16,411	16,663
Reserve margin	1,380	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410
Energy security target	15,753	15,968	16,084	16,257	16,464	16,822	17,256	17,561	17,821	18,073
Scheduled generation and storage firm capacity	13,303	14,467	11,996	12,399	12,733	12,818	12,679	12,960	11,033	11,125
Semi-scheduled and non-scheduled generation firm capacity	691	727	814	757	719	765	816	825	949	956
Demand flexibility firm capacity	367	368	362	330	309	303	299	306	343	346
Regional import firm capacity	2,486	2,491	2,638	2,793	2,613	2,562	2,534	2,589	2,903	2,926
Total firm capacity	16,848	18,053	15,810	16,280	16,374	16,448	16,329	16,681	15,227	15,352
Energy security target surplus/ deficit	1,095	2,086	–274	23	–89	–374	–928	–880	–2,594	–2,720

Table 23: Forecast energy security target and firm capacity, Electricity Statement of Opportunities Government schemes, on time delivery scenario (MW)

Description	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Maximum demand (as generated)	14,374	14,567	14,682	14,862	15,077	15,441	15,881	16,190	16,458	16,716
Reserve margin	1,380	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410
Energy security target	15,754	15,977	16,092	16,272	16,487	16,851	17,291	17,600	17,868	18,126
Scheduled generation and storage firm capacity	13,728	14,524	12,541	12,737	15,980	16,323	15,627	15,880	12,758	12,855
Semi-scheduled and non-scheduled generation firm capacity	692	726	828	980	1,540	1,779	1,872	1,914	1,742	1,754
Demand flexibility firm capacity	368	408	438	452	535	603	616	689	690	764
Regional import firm capacity	2,489	2,486	2,955	2,706	2,829	2,783	4,056	4,121	4,989	5,025
Total firm capacity	17,277	18,144	16,762	16,875	20,884	21,488	22,171	22,604	20,178	20,398
Energy security target surplus/deficit	1,522	2,167	670	602	4,397	4,636	4,880	5,005	2,311	2,272

Table 24: Forecast energy security target and firm capacity in Central scenario, HumeLink 2-year delay sensitivity (MW)

Description	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Maximum demand (as generated)	14,373	14,558	14,674	14,847	15,054	15,412	15,846	16,151	16,411	16,663
Reserve margin	1,380	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410
Energy security target	15,753	15,968	16,084	16,257	16,464	16,822	17,256	17,561	17,821	18,073
Scheduled generation and storage firm capacity	13,303	14,467	11,996	12,409	13,002	15,631	15,569	15,734	11,957	12,828
Semi-scheduled and non-scheduled generation firm capacity	691	727	814	755	728	873	1,016	1,069	1,072	1,085
Demand flexibility firm capacity	367	368	362	329	312	346	344	348	341	345
Regional import firm capacity	2,486	2,491	2,638	2,786	2,643	2,925	2,913	2,943	2,886	2,922
Total firm capacity	16,848	18,053	15,810	16,280	16,685	19,775	19,842	20,093	16,256	17,181
Energy security target surplus/deficit	1,095	2,086	–274	23	222	2,953	2,586	2,532	–1,565	–892

Table 25: Forecast energy security target and firm capacity in Central scenario, no HTP sensitivity (MW)

Description	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Maximum demand (as generated)	14,373	14,558	14,674	14,847	15,054	15,412	15,846	16,151	16,411	16,663
Reserve margin	1,380	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410	1,410
Energy security target	15,753	15,968	16,084	16,257	16,464	16,822	17,256	17,561	17,821	18,073
Scheduled generation and storage firm capacity	13,303	14,467	11,996	12,409	12,759	13,001	12,813	13,062	11,891	12,234
Semi-scheduled and non-scheduled generation firm capacity	691	727	814	755	714	726	836	887	1,066	1,035
Demand flexibility firm capacity	367	368	362	329	307	288	283	289	339	329
Regional import firm capacity	2,486	2,491	2,638	2,786	2,594	2,433	2,397	2,443	2,870	2,787
Total firm capacity	16,848	18,053	15,810	16,280	16,374	16,448	16,329	16,681	16,166	16,384
Energy security target surplus/ deficit	1,095	2,086	–274	23	–89	–374	–928	–880	–1,655	–1,688

Abbreviations

Term	Description
AEMO	Australia Energy Market Operator
AI	Artificial Intelligence
ASL	AusEnergy Services Ltd
BESS	Battery Energy Storage System
CER	Consumer Energy Resources
CISA	Capacity Investment Scheme Agreement
CNSW	Central New South Wales
CWO	Central West Orana
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DSP	Demand-side participation
EII	Electricity Infrastructure Investment
ESOO	Electricity Statement of Opportunities
EST	Energy security target
ESTM	Energy Security Target Monitor
EV	Electric vehicle
FCUD	Full commercial use date
HTP	Hunter Transmission Project
IASR	Inputs, Assumptions and Scenarios Report
IRM	Interim Reliability Measure
ISP	Integrated System Plan
LDS	Long-duration storage
LTESA	Long-Term Energy Service Agreement
MP1	Mount Piper Power Station Unit 1

Term	Description
MP2	Mount Piper Power Station Unit 2
MW	megawatts
MWh	megawatt hours
NE	New England
NEM	National Electricity Market
NNSW	Northern New South Wales
PDRS	Peak Demand Reduction Scheme
PEC	Project EnergyConnect
POE	Probability of Exceedance
PV	photovoltaic
QNI	Queensland–NSW Interconnector
REZ	Renewable Energy Zone
SIPS	System Integrity Protection Scheme
SNSW	Southern New South Wales
SNW	Sydney–Newcastle–Wollongong
SQ	Southern Queensland
SW	South West
USE	Unserved Energy
V2G	Vehicle to grid
VNI	Victoria–New South Wales Interconnector
VPP	Virtual power plant
VRE	Variable Renewable Energy
WSB	Waratah Super Battery

Glossary

Term	Description
Access rights	Rights that a generator or storage project must obtain from NSW EnergyCo to connect to NSW renewable energy zone network infrastructure. The inclusion of projects with these rights in the Monitor calculations is based on the strong incentives for access rights holders to commence commercial operations in a timely manner.
Demand-side participation (DSP)	Reflects the capacity of demand-side resources to reduce operational demand during peak demand periods through either customer load reductions or the use of customers' embedded generators. The energy security target calculations include demand-side participation as an additional form of firm capacity.
Energy security target (EST)	The energy security target is made up of maximum demand and a reserve margin. An energy security target surplus means there is more than enough energy supply to meet demand, while an energy security target shortfall or breach means there is a risk of a lack of supply to fully meet demand.
Firm capacity	Defined in the Electricity Infrastructure Investment Act as the total number of megawatts of electricity expected to be available to NSW electricity customers at times of peak demand during the financial year
Firmness factor	This is a measurement used by the Monitor to account for the risk that generation or storage capacity may not be able to be fully used to supply energy when needed to meet demand. The Monitor uses these factors to reduce firm capacity measurements.
Full Commercial Use Dates (FCUDs)	A participant-provided date for when a new energy asset is expected to become fully operational
Interconnectors	For the Monitor's purposes, an interconnector is a high-capacity transmission line that either allows interregional transfers into NSW from neighbouring states or intraregional transfers between different NSW subregions
Long-Term Energy Service Agreements (LTESAs)	Long-term energy service agreements provide revenue certainty for new electricity projects. Their inclusion in the Monitor calculations is based on the strong incentives for LTESA holders to commence commercial operations in a timely manner.
Generator auxiliaries	Produced electricity that is used within power stations for their own operations instead of being sent to customers. The Monitor includes this electricity in the maximum operational demand figure.

Term	Description
Generation Information	Regular publications by AEMO on the capacity of existing and new generation projects
Operational sent-out maximum demand	This refers to electricity used by residential, commercial and large industrial consumers supplied by scheduled, semi-scheduled and significant non-scheduled generation. This excludes electricity generated by rooftop solar. A 'sent-out' demand measurement excludes generator auxiliary loads.
Probability of Exceedance (POE)	This is the statistical likelihood that a specific threshold such as demand will be met or exceeded in a given time period. A 10% probability of exceedance is an event that has a 1 in 10-year chance of occurring.
Reserve margin	This is included in the Energy Security Target calculation to ensure that there is enough electricity supply to cover the possible loss of major generating units during times of peak demand
Transmission constraints	Physical limitations on the capacity of transmission lines that restrict the flow of energy from its origin to its destination. For the Monitor's purposes, these constraints are incorporated as a reduction of the firm capacity available in the subregions of NSW that they affect.
Sensitivity	A sensitivity involves one or several minor changes to a scenario.
System Integrity Protection Scheme (SIPS)	The Waratah Super Battery participates in a System Integrity Protection Scheme involving coordinated operation of battery capacity with generators to increase transmission line capacity when a sudden transmission fault occurs
Unserved energy (USE)	This is a measurement of the amount of customer demand that cannot be met by available supply

References

- AEMO 2025 Inputs and Assumptions Workbook (XLS 17.4MB)
- AEMO Electricity Statement of Opportunities (ESOO) and Reliability Forecast Methodology Document (PDF 1MB)
- AEMO National Electricity Market (NEM) 2025 Electricity Statement of Opportunities
- AEMO NEM Generation Information July 2025 (XLS 956KB)
- AEMO *NEM* Transmission Augmentation Information July 2025 (XL 953KB)
- ASL 2025 Infrastructure investment objectives report
- NSW Peak Demand Reduction Scheme (PDRS) webpage

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