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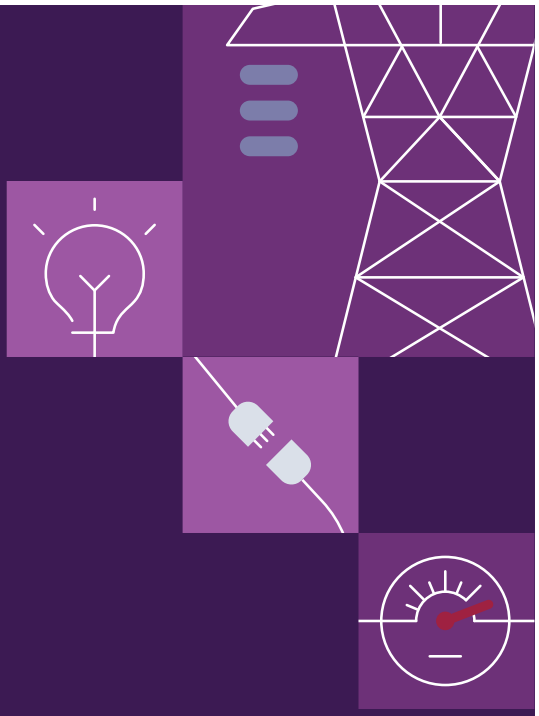

2025 IASR Scenarios Consultation

Consultation Summary Report

Published: 11 December 2024

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New South Wales | Queensland | South Australia | Victoria | Australian Capital Territory | Tasmania | Western Australia

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1. Stakeholder consultation process

AEMO typically applies a scenario planning approach when executing its forecasting and planning functions. The use of scenario planning is an effective practice when planning in highly uncertain environments, particularly through disruptive transitions.

AEMO consulted on the scenarios to be used in its forecasting and planning activities in 2024-25 and 2025-26. These scenarios, published in detail in the Inputs, Assumptions and Scenarios Report (IASR) are used in executing AEMO's electricity and gas statutory functions in the National Electricity Market (NEM), including the *Electricity Statement of Opportunities* (ESOO), *Gas Statement of Opportunities* (GSOO) and *Integrated System Plan* (ISP).

On 17 July 2024, AEMO released a paper to commence initial consultation on scenarios for AEMO's Draft 2025 IASR. The purpose of this consultation was for stakeholders to provide feedback on how the 2023 IASR scenarios should evolve to best fit the purpose of modelling Australia's energy future. This 2025 IASR Scenarios Consultation Summary Report provides AEMO's response to material issues raised by stakeholders, and provides transparency on how the feedback received has influenced the scenario collection (and other relevant issues) in the Draft 2025 IASR.

Table 1 demonstrates AEMO's consultation process for this consultation, as well as planned activities to apply these scenarios into the IASR. AEMO's consultation webpage[1] contains relevant papers and reports, stakeholder submissions, and other consultation documents or reference material.

Table 1 Consultation process and timeline

Consultation steps	Dates
Consultation paper published	17 July 2024
Forecasting Reference Group presentation and discussion	31 July 2024
Submissions closed on consultation paper	13 August 2024
Consultation Summary Report and Draft 2025 IASR Stage 1 published	11 December 2024
Submissions on Draft 2025 IASR Stage 1 close	11 February 2025
Draft 2025 IASR Stage 2 published	February 2025
Submissions on Draft 2025 IASR Stage 2 close	March 2025
Final 2025 IASR published	July 2025

AEMO received submissions from 50 stakeholders across a diverse range of sectors including Consumer, Community, Environment or Climate Group (30%), Academic, Consultant or Individual (28%), Associations, Market Bodies & Participants (18%), Electricity or Gas Network (18%), Generator, Retailer or Developer (6%). A list of submitters is provided in Table 2 below, demonstrating the diversity of interested stakeholders.

[1] At https://aemo.com.au/consultations/current-and-closed-consultations/2025-iasr-scenarios-consultation.

Table 2 List of submitters

APA	Clean Energy Council (CEC)	James Taylor, Independent Engineers, Scientists and Professionals	Electrical Trades Union (ETU)	Rainforest Reserves Australia
Ausgrid	Clean Energy Investor Group (CEIG)	Jemena	Energy Flex	Roderick J. Sinclair
Ausnet	Climateworks Centre	Justice and Equity Centre (JEC)	Environment Victoria	Rondo Energy
Australian Conservation Foundation (ACF)	ElectraNet	MarinusLink	Etrog Consulting	Save the Mary River Coordinating Group
Australian Energy Council (AEC)	Electric Vehicle Council (EVC)	Origin Energy	Ian McDonald	The Next Economy
Australian Gas Infrastructure Group (AGIG)	Essential Energy	South Australia Power Networks (SAPN)	Lesley Crowden	The Superpower Institute
Australian Hydrogen Council (AHC)	Hydro Tasmania	Transgrid	Martin Kamener	Tracie Davies
Australian Pipelines & Gas Association (APGA)	Iberdrola Australia	ZEN Energy	Nexa Advisory	University of Melbourne
Centre for Independent Studies (CIS)	Institute for Energy Economics and Financial Analysis (IEEFA)	Australasian Centre for Corporate Responsibility (ACCR)	Queensland Conservation Council	University of Queensland Gas & Energy Transition Research Centre
Centre for New Energy Technologies (C4NET)	ISP Consumer Panel	Canberra Data Centres (CDC)	Queensland Energy Users Network (QEUN)	World Wide Fund for Nature (WWF) Australia

AEMO thanks all stakeholders for their feedback on the consultation, which has been considered in preparing the Draft 2025 IASR, and looks forward to further constructive engagement in the Draft 2025 IASR and other relevant opportunities for engagement.

2. Background

2.1. Context for this consultation

The 2025 IASR scenarios will inform the performance of AEMO's forecasting and planning functions, including the preparation of the 2025 ESOO, 2025 GSOO and 2026 ISP.

AEMO notes that its scenarios are used beyond its planning functions and may provide a reference for stakeholders to use for regulatory, investment and planning purposes. Given this, AEMO recognises the critical importance that the scenarios play in supporting the energy transition, and the importance of collaborating with stakeholders in their development.

2.2. The National Electricity Objective

Within the specific requirements of the National Electricity Rules (NER) applicable to this report, AEMO will seek to make decisions that are consistent with the National Electricity Objective (NEO) and, where considering options, to select the one best aligned with the NEO.

The NEO is expressed in section 7 of the National Electricity Law as:

> *to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:*
>
> *(a) price, quality, safety, reliability and security of supply of electricity; and*
>
> *(b) the reliability, safety and security of the national electricity system; and*
>
> *(c) the achievement of targets set by a participating jurisdiction—*
>
> *(i) for reducing Australia's greenhouse gas emissions; or*
>
> *(ii) that are likely to contribute to reducing Australia's greenhouse gas emissions.*

3. List of material issues

The material issues arising from submissions or consultation meetings are listed in Table 3.

While many submissions focused on the suitability of the scenarios, and changes that may be appropriate for the scenario collection, a high number of submissions also provided insights on various input parameters including consumer energy resources (CER), policy considerations, hydrogen, and decarbonisation.

Table 3 List of material issues

No.	Issue	Section
1.	Scenarios, variations and principles	Section 4.1 and 4.2
2.	Consumer energy resources (CER)	Section 4.3
3.	Policy	Section 4.4
4.	Additional scenario parameters	Section 4.5
5.	Other topics	Section 5

4. Discussion of material issues – scenarios

4.1. Number of scenarios and variations to the scenarios

4.1.1. Issue summary and submissions

In the consultation paper, AEMO proposed to maintain three scenarios; "*AEMO recognises the value of scenario continuity in planning processes that are refreshed frequently (annually in many instances) and proposes to broadly retain the scenario collection that was defined in the 2023 IASR*."

Some stakeholders agreed with this approach to support comparability between ISPs. Others suggested increasing the number of scenarios to broaden consideration of uncertainties in the ISP, or conversely, removing the *Progressive Change* scenario. Additionally, some stakeholders supported the scenario collection's breadth of variations, particular with regards to the decarbonisation commitments in each scenario.

Where stakeholders suggested adding a fourth scenario, suggestions included greater consideration of the following uncertainties:

- The role and scale of hydrogen development
- Balancing ambition with challenges that may be faced in the transition
- Greater focus on achieving an electricity sector transition that appropriately contributes to limiting temperature rise by 2100 to 1.5°C
- The pace of the transition itself, with greater regard for a slower transition
- The pace and breadth of potential electrification
- The scale of electricity demand that is expected, including the pace of the switch from other fuels to electricity (with faster and slower suggestions from stakeholders)
- The role of consumers and distribution investments in the transition, with suggestions to include higher use of CER and other assets connected to the distribution system
- Difficulties that may be experienced in achieving various policies that are driving the energy transition in the scenarios.

In recognising the importance of scenario planning, stakeholders provided various reflections on the narratives for each scenario, and by extension the appropriateness of the scenario collection to AEMO's scenario planning activities. Regarding the scenarios themselves, stakeholders provided:

- Diverse views regarding the role of hydrogen, with some considering it an implausible scale of development, and others recognising support for the potential of renewable hydrogen and biomethane in addressing the energy demands of both electricity and gas systems, particularly in a high economic growth scenario. Stakeholders also provided suggestions on the technical parameters for hydrogen, such as reducing the blending available with gas networks to recognise the challenges associated with the interaction with gas pipelines and consumer appliances with blended hydrogen. Some stakeholders also suggested that the focus of the *Green Energy Exports* scenario should be less focused on the role for exports.
- Support that all scenarios modelled in the ISP are consistent with Australia achieving its renewable energy and emissions reduction targets. Some stakeholders though recognised that there should

be increased insight for credible paths for investors and policy-makers to achieve temperature rise no more than 1.5°C.

- Support to maintain the pace of transition in *Step Change*, although some suggestions that parameters within *Step Change* should most often be set to 'moderate' settings to ensure a more 'middle' scenario. Other stakeholders considered *Step Change* was already the most plausible 'bookend' scenario, rather than *Green Energy Exports*.
- Insights that gas infrastructure will continue to be an important part of the energy transition, particularly considering the current cost and time limitations associated with transitioning gas demand to electrification.
- Suggestions to remove the *Progressive Change* scenario and replace it with a 'distributed energy scenario', and other suggestions to reduce the assumed industrial load closures in *Progressive Change*.

Some stakeholders also considered that AEMO should improve the explanation provided of the base case or counterfactual in the 2026 ISP, and should present a base case alongside each scenario as a reference point for comparison.

4.1.2. AEMO's response

While stakeholders provided a breadth of feedback on the scenarios and a mixture of perspectives on the suitability of the number of scenarios, AEMO has decided to maintain three scenarios in the Draft 2025 IASR, consistent with the 2023 IASR. AEMO considers that this continues to strike an appropriate balance between the detail required to explore development opportunities in each scenario, and the capacity to explore additional uncertainties through sensitivity analysis. AEMO also recognises that scenario planning relies on a tractable number of scenarios considering the complexity of the analyses that are deployed for each scenario. Given the sophistication that exists within AEMO's modelling approach, particularly for the ISP, expanding the scenario collection would materially reduce the capacity to apply sensitivity analysis, which is an important consideration when determining the robustness of development paths in the ISP, for example.

The Draft 2025 IASR does not provide an explicit list of sensitivities for the 2026 ISP, however the ISP will continue to apply sensitivities that enable enhanced consideration of additional uncertainties, to test the resilience and appropriateness of the development opportunities in the ISP. Most commonly, this would involve change to a single variable at a time, although change to multiple variables may also be deployed if deemed appropriate.

Regarding the breadth of suggestions provided on the possibilities for a fourth scenario, these may be considerations for sensitivity analysis. Historically AEMO has explored similar analyses such as the pace and breadth of electrification potential (in the *electrification alternatives* sensitivity of the 2024 ISP), the impact of a faster transition (in the *rapid decarbonisation* sensitivity of the 2024 ISP), and the role of consumer investments and CER coordination (in the *low CER orchestration* and *reduced energy efficiency*). AEMO expects to continue to apply similar sensitivity analysis in the 2026 ISP, and considers that the three scenarios enable insights into the impact of the overall transition's pace and impact in the scenarios, as well as additional insights via sensitivities.

While AEMO is not introducing a fourth scenario, AEMO has recognised that stakeholders have mixed views on the appropriate settings for AEMO's most ambitious 'green energy' scenario. In considering the range of stakeholder feedback regarding the appropriateness of hydrogen exports to be a key

influence on identifying power system needs, the Draft 2025 IASR proposes two variations of the scenario, and seeks stakeholder feedback on the most appropriate variant to apply as the scenario:

- *Green Energy Exports* – includes development of a hydrogen industry, focusing on value-add hydrogen products such as green iron and steel, for domestic and export. Also includes significant opportunity for hydrogen production and associated manufacturing users to develop products for export, including hydrogen as an energy carrier.
- *Green Energy Industries* – includes development of a hydrogen industry, focusing on value-add hydrogen products such as green iron and steel, for domestic and export. The variant excludes those developments that are expected to support hydrogen exports as an energy carrier, thereby representing a materially smaller hydrogen impact on investment requirements than the *Green Energy Exports* variant.

Further information on the two variants, and the opportunity for stakeholders to continue to engage with AEMO on these variants, is outlined in the Draft 2025 IASR.

Beyond the *Green Energy* scenario's variants, AEMO has considered the variation suggestions to the scenarios and broadly considers that the adjustments from the 2023 IASR scenario parameters to the 2025 IASR scenario parameters proposed in the Draft 2025 IASR reasonably captures appropriate change to address some of the stakeholder feedback. For example, the moderation of hydrogen development in both variants and the moderation of some components of *Step Change* through either parameter change of acknowledging the slower progress in some areas than was forecast (for example, the slower pace of CER coordination).

Regarding the importance of gas infrastructure, AEMO agrees with the suggestion that gas infrastructure will be a key contributor to the transition, and that electrification will not necessarily be straightforward in many industries. AEMO's Draft 2025 IASR will provide updated views on the pace of electrification in the second stage release, reflecting that hard-to-electrify sectors will have different solutions than easier-to-electrify sectors such as households. The *ISP Methodology* is also considering greater means of considering gas sector investments when developing the generation, storage and network development needs in the ISP.

Regarding the base case and/or counterfactual description, AEMO intends to provide greater clarity on the counterfactual as part of the updated ISP Methodology. AEMO does not agree that it would be appropriate, given the ISP rules, to develop an alternative base case that examines future investment needs without regard to the breadth of policy drivers influencing the power system needs; evaluating the overall benefits of individual or collective policies is best conducted by each government which has greater opportunity to consider broader costs and benefits inside and outside the energy system.

4.2. Scenario principles

4.2.1. Issue summary and submissions

In the 2025 IASR Scenarios consultation paper, AEMO explained the key principles on which scenarios are based. These included: Internally consistent, Plausible, Distinctive, Broad and Useful.

In response to the principles, some stakeholders suggested additional considerations:

- Having equally plausible, and therefore, equally likely scenarios.

- Consideration of the ‘tension’ between some of the principles in application between “internally consistent” and “broad".
- Recognise that while broad scenarios considering a range of factors is useful, there is also an important role for sensitivity analysis to consider specific uncertainties.

While not a principle of scenario design, stakeholders also noted that more clarity could be provided by AEMO on how scenario probability and weightings are determined and applied to scenarios.

4.2.2. AEMO’s response

The use of scenario planning is an effective practice when planning in highly uncertain environments. Scenarios are a critical aspect of forecasting, enabling the assessment of future risks, opportunities, and development needs in the energy industry. Scenarios are designed to cover the reasonable breadth of potential and plausible futures impacting the energy sector and capture the key uncertainties and material drivers of these possible futures in an internally consistent way. AEMO uses a scenario planning approach to assess system adequacy with existing and expected investments, and (coupled with cost benefit analysis) to determine economically efficient ways to provide reliable and secure energy to consumers through the energy transition.

While some scenarios may be more likely than others, no single scenario is expected to be the definitive version of the future that will occur. The scenario collection helps to build understanding for the potential benefits or regrets of developments when investing amidst uncertainty, and to identify various risks to the energy transition.

AEMO’s proposed three scenarios are developed to cover the breadth of different possible futures, while acknowledging that no single scenario is expected to be the definitive version of the future that will occur. AEMO’s scenarios are purposefully designed to not be equally likely, as doing so may compress the breadth of the scenario collection, and/or reduce the clarity and distinctiveness of the scenarios.

Regarding feedback on scenario breadth and internal consistency, AEMO recognises that breadth could be understood to refer to the scenario collection as a whole, and/or the breadth of individual scenarios. AEMO considers the scenario principle relating to breadth primarily in relation to the scenario collection as a whole, and considers that the scenario collection does explore a diverse range of possible futures that could occur over the planning horizon. AEMO does not consider that the future worlds that are explored in each scenario are themselves internally inconsistent, noting that the scenario narratives provide qualitative descriptions on how each component is generally driven. For each component, AEMO provides detailed descriptions of the component trajectories for each scenario in the Draft 2025 IASR, complemented with the Draft 2025 Inputs and Assumptions Workbook, and further complemented by AEMO’s consultants’ reports where applicable.

Individual scenario narratives need to strike a balance between being specific enough to be distinct, and broad enough to consider the over-investment and under-investment risks in the transition. AEMO considers the scenarios do strike this balance.

AEMO agrees with stakeholders on the important role for sensitivity analysis to consider specific uncertainties. AEMO has not outlined a specific set of sensitivities that will be explored in the Draft ISP within the Draft 2025 IASR, preferring to identify and analyse key uncertainties identified within the modelling, or that are most relevant given developments at that time.

Finally, AEMO recognises the importance of probability weightings for certain planning publications. Scenario weightings are not an upfront design influence, and AEMO prefers to examine scenario

likelihood at a point closer to when these scenario weightings are applied, to ensure that the latest market or policy developments are incorporated into this consideration.

AEMO will identify stakeholder engagement opportunities prior to assessing scenario weightings, to ensure interested stakeholders are kept informed of the key milestones for this particular scenario 'input'. AEMO will identify and communicate stakeholder engagement opportunities in relation to scenario weightings, during the lead up to the Draft 2026 ISP.

4.3. Consumer energy resources (CER) coordination and parameters

4.3.1. Issue summary and submissions

CER, and CER coordination, were key features of the forecasts of the 2024 ISP. Therefore, before preparing the next round of CER forecasts, some stakeholders suggested:

- In relation to CER uptake and coordination, that AEMO consider:
  - a higher estimate for CER uptake in some scenarios, especially for rooftop solar, although some stakeholders suggested that greater regard to 'weaker economic circumstances' be considered in the context of CER uptake and investment by households.
  - a more realistic starting point for the proportion of CER that is coordinated and recognition of the need to actively drive policy that can improve on this.
  - reviewing the high CER coordination trajectory in some scenarios, which some stakeholders considered is ambitious, while other stakeholders considered that a greater share of vehicle-to-grid (V2G) electric vehicle charging is appropriate. Further, to reflect that the social licence needed to coordinate CER remains unsecured and is a key uncertainty affecting coordination.
  - advising policy-makers of means of incentivising consumer participation in line with the scenarios.
- In relation to EVs, that AEMO consider:
  - assuming that EVs will not charge during peak demand times.
  - applying different weightings for the individual parameters for CER uptake and coordination, including CER technology (such as PV, V2G EVs, batteries).
- In relation to other CER themes, that AEMO consider:
  - time of use tariffs, and their incentivisation, as the primary method for temporal load shifting, and as an alternative to demand response.
  - a 'consumer flexible load' or 'consumer response' parameter, in addition to demand response.
  - the ongoing increases of National House Energy Rating Scheme (NaTHERS) requirements in determining the uptake of CER and the downward pressure that improved energy performance will place on demand.
  - distribution network service providers' (DNSPs') ability to maximise CER compared to current constraints.

4.3.2. AEMO's response

Regarding CER uptake and coordination:

AEMO recognises that the scenario collection recognises the uncertainty facing the scale and degree of coordination of the various tpyes of CER, with a relatively wide spread for each provided in the Draft 2025 IASR. AEMO notes that the starting point of all forecasts is the latest actuals data, and recoginses in the forecasts that current economic conditions impact investments in the near-term, recognising that the transition to a moderate or high growth economy in the long term from the current economy is not immediate.

In response to stakeholder feedback, the CER coordination parameter has been reduced to moderate in *Step Change* in the Draft 2025 IASR. AEMO also recognises that the National CER Roadmap[2] sets out an overarching vision and plan to unlock CER at scale across Australia through effective coordination.

AEMO recognises that the IASR and ISP processes include a broad range of engagement with government stakeholders, allowing for insights to help drive policy, although it is the role for governments to determine specific means to incentivise a desired level of consumer participation in CER (and other consumer investments), if governments choose to support consumers in this way.

Regarding Electric Vehicles (EV):

AEMO thanks stakeholders for submitting feedback on EVs as part of the CER parameter. AEMO will be applying different parameters for uptake and coordination. However, since each of the technologies that make up CER have their own trajectories AEMO considers that adding individual parameters is not useful in differentiating between scenario narratives.

AEMO recognises that social acceptance of coordinated vehicular charging (that is, V2G arrangements) is still unclear, and allows for uncertainty via a varying level of participation across the scenarios.

Regarding Other CER themes:

Regarding additional feedback on demand shifting, AEMO includes time of use tariffs when forecasting demand as well as including various demand side activity through Demand Side Participation (DSP) forecasts, and considers that CER itself will lead to load shifting (to best use, or store, consumer-generated electricity). See AEMO's Electricity Demand Forecasting Methodology and DSP forecasting methodology[3] for more details.

The influence of NaTHERS and similar requirements on CER uptake are considered in the consultant forecasts that AEMO uses to develop the CER forecasts. .

AEMO notes stakeholder interest in how distribution network limitations may impact the growth and operation of CER. A key recommendation within the Energy and Climate Change Ministerial Council's (ECMC) Review of the ISP was to consider how distribution network investments, programs and plans may impact CER and distributed resources development.

[2] See https://www.energy.gov.au/energy-and-climate-change-ministerial-council/working-groups/consumer-energy-resources-working-group/national-cer-roadmap

[3] See section 3.1 of https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/dsp-forecasting-methodology-and-dsp-information-guidelines-consultation/final-stage/2023-dsp-forecast-methodology.pdf

The National CER Roadmap[4] is providing renewed focus on the challenges and opportunities to integrate CER into the power system, and AEMO is consulting on potential changes to its *ISP Methodology* to explore distribution network interaction with CER operation.

AEMO will consider changes to the ISP Methodology, incorporating stakeholder feedback received in that consultation, ahead of the 2026 ISP.

4.4. Policy

4.4.1. Issue summary and submissions

On the topic of policy consideration and achievement of policy targets, a number of stakeholders submitted recommendations regarding the manner in which policy should influence the scenario collection and/or modelling and forecasting approach, including to:

- Model pathways that are consistent with Australia meeting its renewable energy and emissions reduction targets.
- Model a range of policy variations to reflect the reality of changing policy over time, including both government and opposition policies.
- Include government subsidies as a driver of consumer behaviour.
- Align relevant forecast components with jurisdictional policies, or where needed, clearly communicate the rationale for any differences in inputs and assumptions, so that stakeholders can reconcile across planning documents that underpin the energy transition.

Stakeholders also provided various suggestions on explicit policies, programs and schemes that should be included in AEMO's approach

4.4.2. AEMO's response

The framework in the National Electricity Rules that underpins the ISP recognises that policy settings are a key influence on identifying future power system needs. NER 5.22.3(b) requires that AEMO must consider policies that are within the Australian Energy Market Commission's Emissions Targets Statement, and that AEMO may consider policies that have received sufficient government commitment by meeting at least one of five eligibility defined in NER 5.22.3(b)(2).

AEMO recognises that Australia's governments have a critical role in influencing the pace and breadth of the energy transition through policy direction and international commitments. Efficient investments in the energy transition therefore must have visibility of, and regard to, the direction that is provided through government policy.

The Draft 2025 IASR provides improved clarity on:

- The framework for how AEMO identifies policy to be considered,
- How AEMO includes policies in the ISP, and

[4] See Section 5.1 at https://www.energy.gov.au/sites/default/files/2024-07/national-consumer-energy-resources-roadmap.pdf.

- The specific policies that are meeting the relevant NER requirements for consideration, including the technical details of these implementations within the *Draft 2025 Inputs and Assumptions Workbook*.

AEMO thanks stakeholders for their submissions regarding policy considerations, and anticipates that this new information in the Draft 2025 IASR will increase understanding on AEMO's policy treatment, and the requirements under the NER.

Regarding some stakeholder suggestions to consider additional policies, or changes to current policies, or adjustments to the manner in which generators are meeting AEMO's commitment criteria, AEMO considers that ISP rules provide sufficient clarity regarding the appropriate criteria for policy consideration, and AEMO will monitor and engage with jurisdictions to ensure eligible policy is considered appropriately. For generation developments and transmission augmentations, AEMO has regular review processes to assess the degree of commitment of these projects against established criteria described in the *Generation Information* and *Transmission Augmentation Information* datasets.

Regarding the suggestion to align to jurisdictional policies, as described in the Draft 2025 IASR and as required by the NER, AEMO does include eligible jurisdictional policy within all scenarios. See Chapter 3.1 of the Draft 2025 IASR for further information. For other planning analyses than the ISP, such as the Electricity Statement of Opportunities, AEMO's published methodologies describe how it considers committed, anticipated or uncertain developments (that may be incentivised by policy developments). These tend to enable consideration of policy's influence on the evolution of demand-side factors, while limiting the supply or network developments to only those that are sufficiently advanced to meet AEMO's commitment criteria for committed or anticipated projects.

4.5. Additional scenario parameters

4.5.1. Issue summary and submissions

Table 3 of the Issues Paper highlighted the key scenario parameters, and their proposed evolution from the 2023 IASR settings. In response to this table, stakeholders recommended that:

- Data centres be modelled as a specific parameter, with calls for bespoke growth drivers, and considering that data centre load forecasts may change significantly over time and should therefore be updated regularly.
- Additional focus be given to energy efficiency forecasts to allow all stakeholders to engage with the dynamics that will push forward or hold back energy efficiency and its impact on other parameters, including CER uptake.
- Electrification be correlated with economic conditions, rather than the "high" and "higher" levels that were outlined in the parameters table.
- Social licence, gas supply, distribution capacity and carbon budget should all be considered as additional scenario parameters.

4.5.2. AEMO's response

The scenario's parameters are a key means to communicate the scenario's primary dimensions, and thanks stakeholders for the suggestions provided for these.

Regarding data centres, AEMO agrees with stakeholder feedback acknowledging that data centres are a rapidly-growing sector, and has incorporated *emerging commercial loads* as a distinct scenario parameter. While the Draft 2025 IASR aligns the parameter to economic conditions in the descriptions, the separation of the parameter from the broader economic parameter will allow for bespoke consideration. AEMO is currently consulting on the methodology for forecasting data centres, to meet the parameters defined for each scenario. AEMO's draft Electricity Demand Forecasting Methodology paper[5] now proposes to separately forecast this sector for future forecasting publications, improving the transparency and insight in future electricity forecasts.

Regarding energy efficiency, AEMO has engaged two consultants, Strategy.Policy.Research (SPR) and CSIRO, to model energy efficiency forecasts for the 2025 IASR scenarios. SPR's approach considers policy-led energy efficiency savings (expected to be delivered by federal and state government measures) and market-led energy efficiency likely to occur without policy intervention. CSIRO's multi-sectoral modelling approach identifies the potential role of energy efficiency under varying decarbonisation pathways, using a combination of annual uptake rates by sector and technology[6], and scenario-specific variations based on relativities observed in the IEA WEO 2024 scenarios. SPR presented preliminary forecasts for the three scenarios to the Forecasting Reference Group in October 2024. Further modelling results that consider CSIRO's modelling will be published in Stage 2 of the Draft 2025 IASR.

AEMO also recognises that the ECMC's Review of the ISP recommended that AEMO include additional information on the opportunity and impact of demand-side factors. AEMO will consider the opportunities therefore to include further information on energy efficiency's role in the transition, and will consider whether additional sensitivity analysis can augment insights provided in the 2024 ISP.

Regarding electrification, AEMO does not consider that electrification will necessarily be perfectly correlated to economic drivers, although there will be positive correlation given that economic prosperity will provide the necessary investor confidence and capital to invest in fuel switching opportunities. The multi-sectoral modelling will identify the scale of electrification in each scenario, tuned to the current scenario parameters. AEMO considers that all scenarios will rely on an important contribution from electrification as a decarbonisation pillar, and the use of high/moderate/low settings will not provide sufficient insight on the relative contribution in each scenario. Rather, AEMO still considers that descriptions of higher/high/moderate provides greater transparency on the expected role.

Regarding the suggestion to include additional scenario parameters:

- AEMO typically has explored social licence impacts via sensitivity analysis, and still considers this to be appropriate.
- AEMO is considering changes to the ISP Methodology to consider the impact of gas sector developments on power system needs, and does not consider that the scenario design warrants specificity of these in the scenarios.

[5] Available at: https://aemo.com.au/consultations/current-and-closed-consultations/2024-electricity-demand-forecasting-methodology-consultation.

[6] Based on ClimateWorks Australia's (2014) Deep Decarbonisation Pathways Project, at https://www.climateworkscentre.org/wp-content/uploads/2014/09/climateworks_pdd2050_initialreport_20140923-1.pdf and ClimateWorks Australia's (2016) Low Carbon. High Performance: Modelling Assumptions, prepared for ASBEC (Australian Sustainable Built Environment Council), at https://www.asbec.asn.au/wordpress/wp-content/uploads/2016/05/160509-ClimateWorks-Low-Carbon-High-Performance-Modelling-Assumptions.pdf.

- AEMO's existing parameters on *national decarbonisation targets*, *global/domestic temperature settings and outcomes* and *International Energy Agency (IEA) 2024 World Energy Outlook scenario alignment* provide sufficient direction for carbon budgets, and have not considered any additional parameter is warranted.
- Regarding the capacity of the distribution network, AEMO is also considering the manner to which the ISP Methodology may incorporate the interaction between CER, distribution and transmission developments. AEMO does not consider it appropriate to define a new parameter for this component given the interaction with the ISP Methodology.

5. Other issues raised

5.1. Other suggestions

AEMO notes additional stakeholder suggestions to:

- Publish a heat map or analysis on how crucial each stakeholder segment is to enable each scenario.
- Address the issue of whole-of-life, whole-of-system emission estimations, including removal and replacement.
- Integrate more robust environmental protections into its planning process.
- Refer to storage capacity in gigawatt-hours (GWh).
- Discuss the possibility of energy consumers reducing their energy use if prices remain high.
- Run as many sensitivities as useful; computing power should not be a limitation on sensitivity analysis.

5.1.1. AEMO's response

AEMO recognises that while the IASR and ISP provide a significant amount of information for supporting critical decision-making, the document cannot examine or provide every possible insight. AEMO does not consider that it is the role of the ISP to provide a deep dive on the relative role of each stakeholder-cohort and the steps each can take in the transition, however considers that AEMO's forecasting publications tend to provide a useful degree of insight on the contribution that residential, commercial and industrial users will provide. Similarly, the multi-sectoral modelling provides insights on the contribution that other sectors of Australia's economy will play in each scenario, noting that the scenarios are not expected to exhaust all possible combinations.

Regarding environmental protections, AEMO will consider what additional planning inputs can be included in the ISP, as suggested by the ECMC ISP Review actions.

Regarding storage capacity, AEMO agrees with the critical importance to describe storage using both capacity (typically in megawatts, MW, or gigawatts, GW) and storage depth (typically in megawatt-hours, MWh, or GWh) metrics. AEMO is endeavouring to provide this representation each time storage outcomes are provided.

Regarding reduction in energy consumption in response to high prices, AEMO recognises the price-elasticity of demand already within its electricity demand forecasting methodology and its gas demand forecasting methodology.

Regarding the request to include as many sensitivities as useful, AEMO does examine a broad range of sensitivities during the Draft ISP and final ISP stages. Sensitivity analysis is critically important to exploring risks, particular when alternative options are similar in net market benefits. AEMO endeavours to select sensitivities considering the value of each, recognising that many potential sensitivities will not provide the same level of insight that others that are more central to identifying the optimal development path will be in the ISP.

Conducting sensitivity analysis is a time and resource-intensive exercise, and the most appropriate way to examine sensitivities is to consider the primary insights provided by the scenarios before identifying whether changes to specific variables can support additional insights. The development of sensitivity

analysis is therefore a combination of pre-identified risks, and dynamic considerations as outcomes from the scenarios are revealed. Considering time, complexity, and simulation resources, AEMO does not consider it reasonable, useful or genuine to suggest that material additional sensitivity analysis can be completed. AEMO also recognises though that stakeholder engagement on the Draft 2026 ISP may demonstrate the need for additional sensitivity analyses to address stakeholder feedback, and will consider such suggestions prior to finalising the ISP. Ultimately this means that AEMO is limited by a number of factors in the limited time available to produce each ISP, and therefore cannot promise an unlimited number of sensitivity analyses, but does endeavour to examine useful sensitivities.

5.2. Issues relating to other consultations

In addition to feedback on the IASR scenarios outlined in the consultation paper, AEMO received several suggestions which are relevant to, and will be determined in, other consultations, including:

- The purpose and scope of the ISP.
- Detailed ISP Methodology topics, including the potential role and investments in distribution networks.
- Modelling climate change resilience enhancements.
- Considering social licence and community sentiment relating to new infrastructure.

5.2.1. AEMO's response

The purpose and scope of the ISP is established in the relevant parts of the NER, and its evolution is best managed through the established rule-making and rule-changing processes.

AEMO will consider these suggestions where appropriate in other relevant consultations, including the ISP Methodology. This consultation provides opportunity for stakeholder engagement across two-stages. Interested stakeholders should consider the engagement opportunities specific to that consultation, available at https://aemo.com.au/consultations/current-and-closed-consultations/2026-isp-methodology.

6. Conclusion

Engaging with stakeholders and considering stakeholder perspectives is a cornerstone of forecasting best practice, and AEMO thanks all stakeholders for their submissions to this consultation. AEMO has considered the feedback, applying various adjustments to the scenarios and key parameters, and have reflected these in the first stage release of the Draft 2025 IASR, which is published alongside this consultation summary report. For feedback that extended beyond the scope of the consultation on the 2025 IASR Scenarios, AEMO will consider these in other relevant consultations.

The final 2025 IASR will be published in July 2025 with the finalised scenarios to be used in 2025 and 2026 forecasting and planning activities, including the 2026 ISP.