

Review of the Integrated System Plan Framework: Consultation Paper

Submission to Australian Energy Market
Commission

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DATE: 19/02/2026



Feedback on the ISP Framework Review Consultation Paper

Energy Consumers Australia (ECA) is the national voice for household and small business energy consumers. We advocate for a fair, affordable and reliable energy system – one that meets everyone’s needs and leaves no one behind on the journey to net zero.

Thank you for the opportunity to provide feedback on the consultation paper *Review of the Integrated System Plan framework*. The Integrated System Plan (ISP) plays a critical role in influencing the future of Australia’s electricity system, and in shaping the costs and opportunities available to consumers. We support any efforts to improve the ISP, make it robust and transparent, and instil stakeholder confidence. We aim to make suggestions that will improve the clarity of the ISP and strengthen its focus on consumers.

The ISP will be most effective at delivering long-term consumer benefits when:

- Its purpose is clearly defined and consistently applied.
- Demand-side and supply side options compete on an equal footing.
- The Consumer Panel is supported to interrogate increasingly technical aspects of the modelling.
- An examination of how forecasts and assumptions evolve *across* ISP iterations is included.
- Modelling inputs, assumptions, and techniques used are as transparent as possible.

To achieve these goals, we recommend that the rules are updated to ensure that:

1. The ISP’s purpose is clarified, with a clear demonstration of how different parts of the rules relate to the purpose.
2. Demand-side resources are considered as an equal alternative to supply-side resources within scenario modelling, helping to ensure that the ISP meets its purpose as a “whole-of-system” and “integrated” plan for the “efficient development of the power system.”
3. AEMO establishes an independent technical panel to work in tandem with the ISP consumer panel, enabling deeper scrutiny of modelling assumptions and methods.
4. The ISP includes a statement of judgement on the likelihood that policy assumptions used in the ISP scenarios are borne out, helping to draw a distinction between the purpose of the ISP as a plan, and the misuse of the ISP as a forecast.
5. Each ISP includes a simple retrospective analysis comparing equivalent scenarios across previous ISPs, with transparent explanation of material changes in forecasts and assumptions.
6. The modelling framework (including input forecasts such as for residential solar and batteries) use open-source tools and employ academic standards of replicability.

We appreciate the AEMC’s consideration of our views and look forward to ongoing engagement on the future of the ISP framework. More detail is provided below in the form of responses to some of the consultation paper’s most relevant questions for consumers.

Yours sincerely

A handwritten signature in black ink that reads "Ben Willey".

Benjamin Willey
Manager, Analysis and Advocacy



Do you consider that the purpose of the ISP is accurately reflected in the rules?

At its core, the ISP is a large mathematical optimisation exercise. Whether elements of the National Energy Objective (NEO) operate as **constraints** (hard limits that must be satisfied) or as components of the **objective function** (factors to be optimised) materially affects the investment pathway that emerges. The current rules do not make this distinction sufficiently explicit.

We suggest that the National Electricity Rules (NER) and the ISP be explicit about whether and which clauses in the NEO are constraints in the optimisation, and which clauses are part of the objective function. This could be done by adding an additional clause to NER 5.22.3 specifying a *priority order* for the power system needs, emissions reduction targets, and governmental policies that are applied to the ISP.

Do you distinguish between the purpose and role of the ISP?

According to the NER¹:

“The purpose of the Integrated System Plan is to establish a whole of system plan for the efficient development of the power system that achieves power system needs for a planning horizon of at least 20 years to contribute to achieving the national electricity objective.”

However, some public bodies, stakeholders and media outlets appear to incorrectly view the ISP as a *forecast* of the future of the NEM, missing reference to the policy assumptions that underpin the scenarios. For example, Energy Magazine characterises the latest ISP as a *prediction*, stating that:

“It predicts two-thirds of the remaining coal fleet would close by 2035, in many cases earlier than publicly announced closure dates, with all due to retire by 2049.”²

Statements like these inform public expectation of the future of the electricity market. AEMO should therefore take care to make the distinction clear in their ISP publications to avoid misuse and misinterpretation of the Optimal Development Plan (ODP) and the ISP scenarios.

This could be done in two ways:

1. AEMO should state its assessments of the relative likelihood of key policy assumptions embedded into each scenario. This would help indicate to the reader whether assumed measures reflect legislated commitments or more speculative statements made by the government.
2. AEMO should provide bounding scenarios that provide a notional upper and lower limit on the likely future of wholesale prices in the NEM.

¹ As per National Electricity Rules (5.22)

² Energy Magazine, How the industry reacted to AEMO's Draft 2026 ISP, Dec 2025



Do you think the rules provide for meaningful stakeholder engagement to inform the development of the ISP?

Not completely. We highlight two ways to improve stakeholder engagement in the ISP process.

Independent Technical Panel

We recommend establishing an independent technical panel consisting of members who are required to have consumer-related experience as well as modelling or technical expertise. This could be most easily carried out by amending NER 5.22.7(b) (related to the make-up of the Consumer Panel) to require that at least six members are appointed by AEMO and at least three of them have mathematical or modelling training or experience.

This panel would:

1. Provide an independent assessment of the assumptions and models used in the ISP.
2. Convene with the Consumer Panel to ensure their ability to engage with the technical aspects of the modelling is enhanced.

At its heart, the ISP consists of several large optimisation models. Ever since 2018, the amount of modelling required within and as an input to the ISP has greatly increased, and it will continue to increase as demand-side resources are more accurately valued. Our recommended amendment to the rules would improve stakeholder engagement by assisting the Consumer Panel with the more technical aspects of the ISP.

For example, consider how the possible generators are encoded as part of setting up the modelling framework in **Plexos**. This knowledge is required to know what corresponding characteristics of demand-side options need to be known to encode them in the same way. Without that technical literacy, it is difficult to assess whether demand-side resources are genuinely competing on equal footing in the modelling.

Bill of the Future

The NEO makes clear that the long-term interests of consumers are of central importance when an ODP is produced as an output from the ISP process. In practice, however, the ISP process and documentation is largely oriented towards industry and government stakeholders. The rules should therefore require AEMO to clearly articulate the process and output of the ISP directly to consumers and consumer representatives.

One useful way to do this would be to produce a representative **bill of the future** for a chosen future reference year, and load pattern, in each scenario. This would provide a valuable guide for consumer advocates on how each scenario is likely to change the costs that residential and business consumers face.



What reforms do you think the Commission should prioritise through the Review?

Demand-side and supply side options must compete on an equal footing.

The current rules require the ISP to identify a plan for the efficient development of the power system, with the constraint that the plan must achieve Australia's emissions targets and achieve the reliability standard. No position is taken on whether our energy needs are met by increasing supply or by reducing or reshaping demand.

Again, clause 5.22.2 of the National Electricity Rules states that:

“The purpose of the Integrated System Plan is to establish a whole of system plan for the efficient development of the power system that achieves power system needs for a planning horizon of at least 20 years to contribute to achieving the national electricity objective.”

Despite this statement, the ISP still functions primarily as a transmission investment plan. It does not “establish a whole of system plan”. It covers only a relatively small portion of Australia's overall energy infrastructure.

We suggest two ways to redefine the clause to help address this:

Firstly, we recommend that the term **least cost plan** is included explicitly, rather than (or in addition to) the phrase “efficient development of the power system”.

Secondly, the clause currently depends on the following definition of the term **power system**:

“The electricity power system of the national grid including associated generation and transmission and distribution networks for the supply of electricity but excluding regulated SAPS, operated as an integrated arrangement.”

This definition blatantly excludes consumer energy resources, including energy efficiency, which are key components in delivering an efficient electricity system. Either the phrase *power system* needs to be redefined to clarify that it includes consumer energy resources or it needs to be replaced with another phrase that is appropriately defined.

Today, the ISP articulates a pathway for decarbonising the economy through the power system, which is why there are clear forecasts on electrification of gas use and transport. These inclusions point to the need to be clear about whether the ISP serves only as a plan for the electricity sector or for the broader energy system. One issue we can identify today is that while the ISP identifies the need to build transmission networks somewhat based on the need to meet future electricity needs from electrification of gas and transport, there is no follow-through into the gas rules. Accordingly, while the ISP identifies new infrastructure requirements to be met due to the elimination of gas use, gas network businesses simultaneously propose new infrastructure requirements based on an assumption that gas use will continue. The result is that energy consumers are required to pay for two different versions of the future. This is not an acceptable outcome from what should be an “integrated plan”.

Ultimately, the ISP should focus on delivering consumer energy needs at least cost, and accordingly be agnostic to whether that is achieved through building out generation assets or running consumer energy resource programs (or some combination of the two). The modelling framework must treat these pathways symmetrically.



ECA have consistently advocated for the promotion of consumer energy resources in the way we plan for the future of the NEM.³⁴⁵ Treating supply-side and demand-side solutions asymmetrically may have been appropriate for a centralised system dominated by coal and gas – but as the system becomes more decentralised, and consumers have more control and awareness of how they can generate their own energy and control their demand for energy, this asymmetry becomes less acceptable.

Demand resources *are* currently considered, but the ISP cannot call itself a whole-of-system plan until they are encoded in the modelling framework in a manner equivalent to supply-side resources.

We are encouraged by the recent *Electricity and Energy Sector Plan*, that mentions the development of a demand-side statement of opportunities (DSOO).⁶ We therefore expect that in future versions of the ISP the development plans required to achieve each scenario will contain both demand-side and supply-side projects (so that the ODP will do the same).

As you may be aware, ECA has commissioned CSIRO to develop a methodology for determining the costs of various consumer resources, primarily more efficient and/or flexible appliances, such as heat pump water heaters and electric vehicle charging. Named **FlexCost**, this project aims to create a demand-side equivalent to **GenCost** that can be used to help clarify assumptions about various consumer resources to enable them to be later modelled into the ISP.

Our understanding is that FlexCost will be an important element of the DSOO. We are certain it should also be an important element of the ISP or the Inputs, Assumptions and Scenarios Report. We are happy to share more information about FlexCost with the AEMC should you have any questions.

Retrospective analyses must be included as part of the ISP process

Producing the ISP is an increasingly complex modelling task. The recognition of it as essentially an ensemble of mathematical models is sometimes lost in the documentation, which tends to focus on outlining the *outputs* of the models and not scrutinising the models themselves and how the modelling framework changes between successive ISPs.

As we can see in Figure 1, there can be significant differences between the key inputs used in consecutive ISPs. These differences may be due to:

1. Differences in the underlying family of models used.
2. Differences in the quality of the data available.
3. Differences in the parameters of the chosen model.
4. Additional data available such as updated information on jurisdictional policies, technology costs or consumer behaviour.

³ ECA, Submission to AEMO on the 2022 Draft ISP, Feb 2022

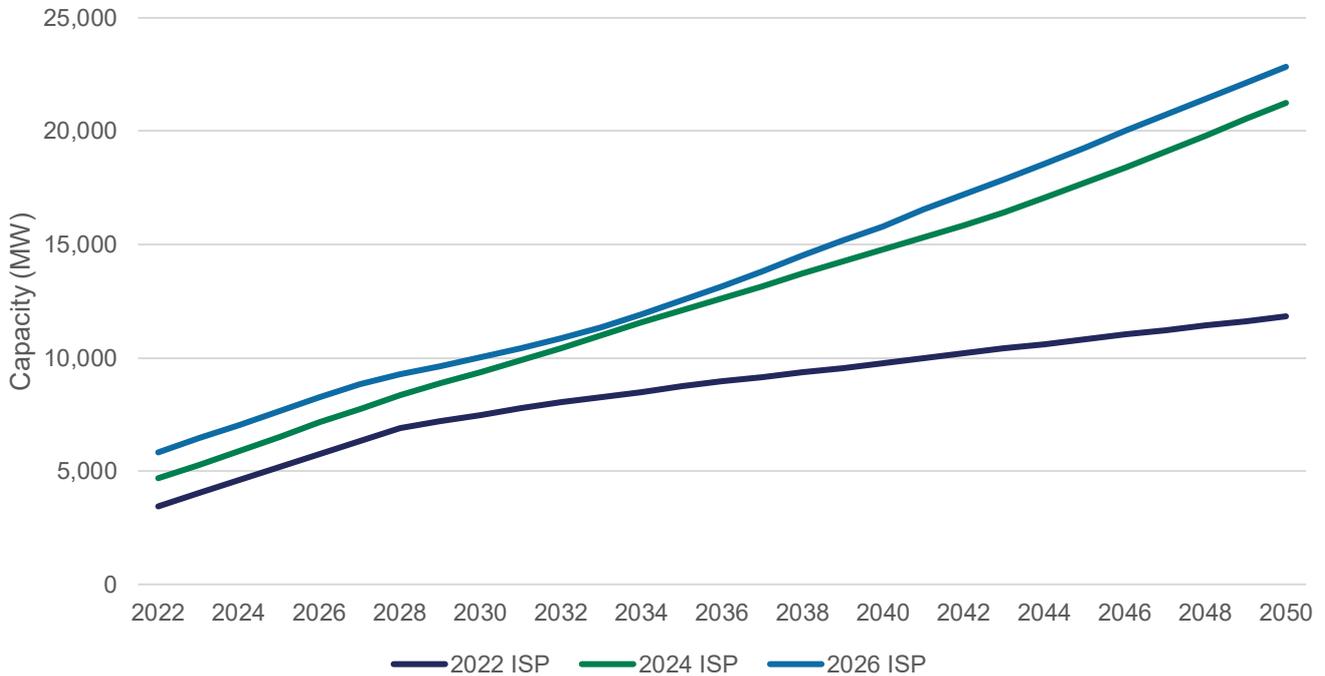
⁴ ECA, Submission to AEMO on the 2023 Draft IASR, Feb 2023

⁵ ECA, Submission to AEMC on Enhancing the ISP to Support the Energy Transition, July 2024

⁶ DCCEEW, Electricity and Energy Sector Plan 2025, Sep 2025



Figure 1: Forecasted rooftop solar capacity by differing ISPs (Step Change Scenario)



Source: AEMO, 2022 ISP, 2024 ISP and 2026 Draft ISP.

We recommend including a formal retrospective analysis within each new ISP, by means of a rule change adding to clause 5.22.4 of the NER requiring that an **ISP retrospective report** be produced in the ISP Timetable. This would be considered a health check on the historical modelling, and include:

1. A comparison of equivalent scenarios (for example, the **step change scenario**) between ISP iterations.
2. A comparison of the previous ISP scenarios’ forecasts with the measurable outcomes over the two-year intervening period.

Improve the transparency of the ISP

As Louis Brandeis (U.S Supreme Court Justice) observed, “sunlight is the best disinfectant”. Much like sunlight kills bacteria, ECA believe that stronger transparency and public scrutiny are the most effective ways to eliminate poor decision making and build trust in the ISP process.

To achieve this, AEMO should strive for replicability in their modelling. An independent researcher should, in principle, be able to construct the same scenarios as AEMO by following the same methods. In particular, the modelling used must provide detailed methodology information to allow others to repeat it. This would allow for independent validation of aspects of the modelling and improve the scientific validity of the process as well as increase public confidence in the ODP.

The ISP should also do more to aid transparency of the process. There are excellent examples of open and transparent electricity modelling. For example, CSIROs Simple Electricity Model (SEM) was



designed to be a minimum viable product in forecasting the electricity market.⁷ The data and code are open source, with the upfront aim of clarity.

Our specific recommendations related to scenario modelling are as follows. We suggest that these requirements also propagate down to consultants used to conduct modelling on behalf of AEMO:

1. The objective function and list of constraints for each optimisation should be published, along with definitions of the variables.
2. Open-source software should be used as much as possible.
3. Non-proprietary, anonymised data sets used in the modelling should be provided.
4. Schemata for proprietary data sets, or data sets that cannot reasonably be anonymised, should be provided.
5. A parametrisation of the input models – such as those used for solar and battery forecasting – should be easily accessible.

⁷ CSIRO, Simple Electricity Model (SEM), Jan 2026

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