13 August 2024

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Mr Daniel Westerman
Chief Executive Officer
Australian Energy Market Operator
Lodged by email: forecasting.planning@aemo.com.au

Dear Mr Westerman

Submission to Draft 2025 IASR Consultation Paper

The Centre for Independent Studies (CIS) appreciates the opportunity to provide a submission to the Australian Energy Market Operator on its Draft 2025 Inputs, Assumptions and Scenarios Report Consultation Paper.

The CIS is a leading independent public policy think tank in Australia. It has been a strong advocate for free markets and limited government for more than 40 years. The CIS is independent and non-partisan in both its funding and research, does no commissioned research nor takes any government money to support its public policy work.

We submit that the 2025 IASR scenario collection should be expanded and recalibrated around a more plausible central scenario to represent renewables trajectories that are broad and distinctive enough to be useful for guarding against the risk of both over- and under-investment. This is necessary given the implausibility of the federal 82% renewables by 2023 target being achieved. AEMO's adherence to the key principles of ensuring scenarios are broad, distinctive, plausible and useful is inconsistent with the current approach of universal scenario adherence to unrealistic government policies.

AEMO should instead remove the now-implausible *Green Energy Exports* and retain *Step Change* as a high 'bookend' scenario that meets all government targets. This would be sufficient to meet the NER requirements that AEMO "consider" relevant government policies. For scenarios with central and low renewables trajectories, similar trajectories to those used in the 2020 ISP's *Central* and *Slow Change* should be used. Plausible policy changes that would greatly impact transmission investment, such as a nuclear plant rollout, should also be considered in the set of scenarios.

Additionally, CER should be co-optimised with large-scale generation, not treated as an input. This is crucial given the reliance of (particularly coordinated) CER on government subsidies and incentives and the large proportion of storage it represents in most scenarios.

Yours sincerely

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Director, Centre for Independent Studies Energy Program

Since the 2023 IASR publication, what changes (such as environment, social, policy) do you consider most impact scenario development for the 2025 IASR scenarios?

There is now a significant possibility of a major shift in government policy following the next federal election. This could result in the federal government removing interim targets and incentives for renewables and beginning the process of building nuclear power plants. AEMO should account for this possibility in scenario development.

It has become increasingly clear that the federal 82% by 2030 target is unlikely to be achieved. This has been confirmed by the Grattan Institute,[1] Energetics,[2] and Nexa Advisory.[3] The likelihood of such targets being missed makes it imperative that AEMO considers such developments in scenario design, as explained in the next section.

There is also a significant possibility that the federal government as well as the New South Wales, Queensland and South Australian state governments will change their hydrogen policies following Fortescue's recent shift away from pursuing a green hydrogen target.[4] While it is prudent for AEMO to shift focus away from hydrogen exports in the *Green Energy Exports* scenario in light of these developments, the proposed new focus on "emerging opportunities in 'green' industry developments such as minerals processing, manufacturing and other emerging industrial developments" does not appear to be any more plausible or useful.

Recent announcements of suspended or reduced operations from nickel and lithium producers in Western Australia have highlighted the challenges of growing critical minerals processing industries in the high-cost economic environment of Australia.[5] Similarly, concerns have been raised by the Productivity Commissioner and others over whether an Australian solar panel manufacturing industry is viable, and whether this would increase the cost of local renewable energy.[6] A recent study commissioned by ARENA suggests that adding even another $6.8 billion on top of the $1 billion Solar Sunshot program would still leave Australian-made solar panels internationally uncompetitive, despite substantial subsidies and procurement incentives.[7]

The current selection of three scenarios is insufficient to guard against the risk of over-investment in transmission. This is because of both the potential federal government policy changes and the failure of emerging industries to grow as quickly as expected. Therefore, the proposed scenarios are not plausible, distinctive, broad or useful enough to satisfy the scenario principles.

Is AEMO's proposal a suitable evolution of each scenario's parameters that will effectively support AEMO's functions in planning the transition?

Scenarios do not sufficiently guard against the risk of over-investment

AEMO's proposal to keep the existing three scenarios from the 2023 IASR with only minor adjustments fails to protect consumers from the risk of over-investment in transmission. This is because the proposed scenarios all assume a very rapid rollout of renewable energy and do not address the significant possibility that government targets are missed, moderated or removed. The 2025 IASR scenario collection should not be universally bound by government targets. Instead, the scenario collection should be expanded and recalibrated around a more plausible central scenario, representing renewables trajectories that are broad and distinctive enough to be useful for guarding against the risk of both over- and under-investment.

In the Consultation Paper, AEMO cites the NER as the reason for applying all government policies to all scenarios:

> "As required under the National Electricity Rules (NER), for the ISP's purposes, all scenarios in the scenario collection apply relevant policies that meet public policy criteria, including international commitments (such as to the Paris Agreement) and legislated policies that are quantifiable within AEMO's modelling scopes… AEMO is bound by the NER to consider policies that meet the relevant public policy criteria, and considers that identifying the necessary investments to achieve these policies is an appropriate and important insight from the scenario planning process. Applying the scenarios to identify investments or actions that are optimal in the event of policy failure, or project execution delay, are not appropriate for AEMO's planning functions, under the Rules and Guidelines that AEMO is required to meet."

In the recent Forecasting Reference Group meeting on the 2025 IASR, NER 5.22.3 was specifically cited by AEMO. However, the NER does not require AEMO to apply all policies to all scenarios. Critically, the Rules do require AEMO to consider the risks to consumers arising from uncertainty (which includes policy uncertainty). This means that not only is it appropriate for AEMO to use scenarios to identify optimal investments in the event of policy failure, but there is a strong argument that the NER requires AEMO to do so as part of its planning functions.

In 5.22.3, the NER states:

> "b) In determining power system needs and in determining how the Integrated System Plan would contribute to achieving the national electricity objective, in relation to participating jurisdictions, AEMO:
>
> (1) must consider the emissions reduction targets stated in the targets statement; and
> (2) may consider a current environmental or energy policy of a participating jurisdiction, including an emissions reduction target which is not set out in

the targets statement, where that policy has been sufficiently developed to enable AEMO to identify the impacts of it on the power system and at least one of the following is satisfied:

(i) a commitment has been made in an international agreement to implement that policy;
(ii) that policy has been enacted in legislation;
(iii) there is a regulatory obligation in relation to that policy;
(iv) there is material funding allocated to that policy in a budget of the relevant participating jurisdiction; or
(v) the MCE has advised AEMO to incorporate the policy."

The requirement placed on AEMO regarding government policies is that AEMO "must consider" policies in the targets statement and "may consider" other government policies. There is no requirement under the NER that all policies must be applied to all scenarios, as AEMO has claimed. In fact, not considering the possibility of policy failure or delay in scenario design represents a failure on AEMO's part to exercise its responsibilities to protect consumers from under-investment and premature investment, as per 5.22.10:

"(a) In preparing an Integrated System Plan, AEMO must…
(5) consider the following matters…
(ii) the risks to consumers arising from uncertainty, including over investment, under-investment, premature or overdue investment …"

In the Consultation Paper, AEMO asserts that "scenarios need not be normative, that is, describing visions of preferred futures". However, AEMO's decision to bind all scenarios to meet all relevant targets functionally means the scenarios have been used to describe visions of the preferred futures of governments at the expense of meeting key principles of scenario design.

Outlined below are the current ways in which the proposed scenario collection fails to meet the key principles of scenario design.

1. Internally consistent – the underpinning assumptions in a scenario must form a cohesive picture in relation to each other

The assumptions introduced around industrial load closures do not appear to maintain internal consistency in each scenario.

The rationale for the specific inclusion of industrial load closures in *Progressive Change* because of "weak economic conditions" is unclear when international examples show that they are likely to occur alongside aggressive growth in renewables. In Germany, a majority of German companies in the mechanical engineering, industrial goods, and automotive sectors have relocated a moderate to very large portion of their operations abroad due to escalating energy prices.[8]

Since *Progressive Change* is still bound to meet the 82% renewables by 2030 target, it appears that industrial load closures are being introduced to this scenario to help with demand destruction, which would make this target easier to reach.

Weak economic conditions and a slower renewables rollout does not necessarily entail broad-scale industrial load closures.

Industrial load closures should therefore be removed from this scenario. To ensure a sufficiently broad set of scenarios with respect to this parameter, the scenario collection could be expanded to include scenarios with high and low renewables trajectories with and without industrial load closures.

2. Plausible – the potential future described by a scenario narrative could come to pass.

Plausibility is defined as considering "the likelihood and significance of the impact of the uncertainties on planning outcomes, and the degree of stakeholder interest".

As shown in the response to the previous question, the likelihood of the 82% renewables by 2030 target being missed is significant, and this would have a large impact on planning outcomes. This has already been seen in the case of HumeLink, which was recently approved based on the ISP's recommendation. AEMO stated in Appendix 6 of the 2024 ISP that the 82% target, along with the carbon budget restraints placed on the ISP model, is the biggest driver for the need to deliver HumeLink.

The scenario collection should be altered to reflect the most plausible renewables trajectories. *Step Change* (which adheres to all government targets, including 82% renewables by 2030) should be used as a high 'bookend'. Retaining *Step Change* is enough to fulfil AEMO's requirements to "consider" government policy. For scenarios with central and low assumptions for renewables penetration, trajectories similar to those used in the 2020 ISP *Central* and *Slow Change* scenarios should be used, as these are more plausible trajectories than the 2024 ISP's *Step Change* and *Progressive Change*.

Green Energy Exports is not sufficiently plausible for inclusion and should be removed. AEMO's proposal to replace the scenario's focus on (now implausible) hydrogen assumptions with a focus on "emerging opportunities in 'green' industry developments such as minerals processing, manufacturing and other emerging industrial developments" does not solve the plausibility problem.

The Consumer Panel stated in its submission to the 2023 IASR:

> "Hydrogen production and export projects should not be cross-subsidised by other energy users …Current cost recovery arrangements for shared transmission do not support a beneficiary-pays approach to funding the transmission required for future large hydrogen projects. The above observations cast doubt over whether the ISP should countenance the inclusion of transmission for hydrogen facilities at all, or at least in the absence of reforms (or committed government funding) that avoid imposing the high costs of transmission for future speculative hydrogen on consumers."

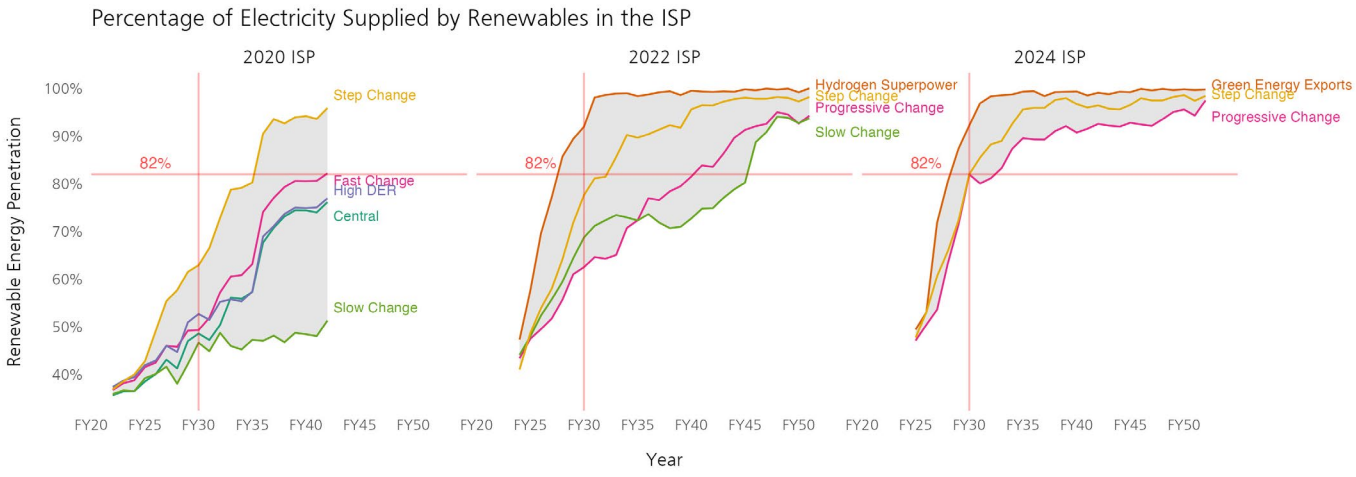
These issues remain regardless of whether *Green Energy Exports* focuses on hydrogen or other 'green' industries. Consumers should not be expected to fund transmission projects only required for potential future industry developments that rely on unproven technologies (or technologies that are not a competitive advantage for Australia). It is unclear why other 'green' industry developments are any more plausible than assumptions made about the hydrogen industry in the 2023 IASR, given the latter have since been found to be far too optimistic.

A better approach for considering a future that includes the development of high-growth green industries would be using a sensitivity analysis, rather than retaining *Green Energy Exports,* which is not sufficiently plausible to warrant inclusion in the set of scenarios, and is not useful for consumers.

As well as recalibrating the scenario collection to a more plausible range of renewables trajectories, plausible changes in government policy should be considered. This is particularly true in the case of the ban on nuclear power being lifted and a nuclear plant program being implemented by the federal government. Given the significant possibility of this policy change, the large impact it would have on planning outcomes and the high degree of stakeholder interest, AEMO should consider such a scenario in the 2025 IASR.

3. Distinctive – individual scenarios must be distinctive enough to provide value to AEMO and stakeholders.

The scenarios included in the ISP have become increasingly less distinctive over time. As shown in the figure below, trajectories of renewables penetration in the 2024 ISP scenarios have very little variance in the short to medium term compared to the 2020 and 2022 ISPs, and in the long term compared to the 2020 ISP. This illustrates the lack of distinctiveness that arises from requiring scenarios to adhere to all relevant government policies.



AEMO must expand the renewables trajectories in the proposed scenario collection to ensure scenarios remain sufficiently distinctive, as exemplified by the 2020 ISP.

4. Broad – the scenarios explore a diverse range of possible futures that could be achieved over the planning horizon.

Similar to the lack of distinctiveness outlined above, the three proposed scenarios do not explore a diverse range of futures, particularly with respect to renewables penetration and CER uptake.

As the 2024 Consumer Panel stated in its submission to the Draft 2023 IASR, "For the ISP to be of most value, scenarios need to reflect both the range of potential future outcomes and mix of public policy settings". This comment clearly shows that the requirement for broadness in the scenario collection should apply to government policies just as it applies to other parameters.

Another issue is that there is no scenario AEMO has proposed in which there is broad-scale rejection of coordination of CER, which is a significant possibility given consumer disinterest in VPPs, as outlined in AEMO's Project EDGE report.[9] Revising down the *Green Energy Exports* expected levels of coordination from "Higher" to "High" (and *Step Change* from "High" to "Moderate") is prudent in light of these challenges (although, as stated above, it would be better to drop *Green Energy Exports* altogether). However, it does not follow that *Progressive Change* should have its coordination levels revised up from "Lower" to "Low". Furthermore, testing lower CER coordination through sensitivities does not give sufficient weight to this likely future in determining system needs.

To ensure the scenarios represent a diverse range of possible futures that could be achieved, the lower end of CER coordination should depict a future in which modest or no government incentives for VPP participation result in very few battery owners signing up to VPPs.

5. Useful – particularly for AEMO's ISP planning requirements, the scenarios explore the risks of over- and under-investment.

All scenarios being bound to government policy greatly reduces their usefulness in exploring the risk of over-investment.

The following hypothetical example illustrates the problem with AEMO's opposition to planning for contingencies arising from missed government targets. Say the Victorian and NSW governments legislate a target of 90% renewables plus the forced closure of all coal plants by 2027. These policies, being aimed at reducing emissions, are included in the targets statement. AEMO, following current procedure, binds the model in every ISP scenario to meet these targets. AEMO does not consider any possibility of these targets being missed, despite the targets being practically impossible to meet.

The ISP therefore recommends the fast-tracking of several transmission projects, which go through the approval process prior to 2027. In 2027, the 90% targets have still not been met and the NSW and Victorian governments change the legislation at the last minute to prevent coal plants closing and the associated widespread electricity shortages. But it is too late to stop billions in extra transmission costs being passed onto consumers for projects that the grid does not end up requiring, which could have been at least partially avoided had AEMO considered the possibility of government targets being missed or removed.

To make the set of scenarios more useful in exploring the risk of over-investment in the likely event of policy failure or change, the scenario collection should be expanded and recalibrated. *Green Energy Exports* should be removed, *Step Change* should be retained as the most ambitious scenario, and scenarios with similar renewables trajectories to the 2020 ISP *Central* and *Slow Change* scenarios should be included. A scenario considering the likely possibility of a policy shift to nuclear power should also be included, as this would be critical for guarding against over-investment in transmission currently being built to support the 82% renewables by 2023 target.

What additional changes should be considered?

CER should be co-optimised

Changes need to be made to the way CER is treated in the model. CER needs to be co-optimised alongside large-scale generation and storage rather than included as an input.

AEMO states:

> "AEMO does not consider that the scenarios should be defined by technology outcomes (such as a high development of electrical storage, or a specific and isolated focus on CER)."

However, AEMO has effectively defined technology outcomes for all scenarios by pre-determining the amount and level of coordination of CER in each scenario. If CER were co-optimised along with large-scale generation and storage, this problem would be avoided, as the model could recommend the amount of CER that should be incentivised for each scenario. As it stands, the model is forced to assume a certain trajectory which may be far from optimal for a particular scenario, driving up overall system costs.

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