21 November 2024

Mr Daniel Westerman
CEO
Australian Energy Market Operator

Submitted via: ISP@aemo.com.au

Dear Mr Westerman,

ISP Methodology Issues Paper

Nexa Advisory welcomes the opportunity to share our views and insights on AEMO's Integrated System Plan (ISP) Methodology Issues Paper.

Nexa is a 'for purpose' advisory firm. Our unwavering focus is accelerating the clean energy transition in a way that provides secure, reliable, and affordable power for consumers of all types. Nexa Advisory is a team of experienced specialists in the energy market, policy and regulation design, stakeholder engagement, and advocacy. We work with public and private clients including renewable energy developers, investors and climate impact philanthropists to help them get Australia's clean energy transition done.

The ISP remains a critical planning and system design roadmap for the National Electricity Market (NEM) and a vital tool which informs investors, policy makers and broader industry as we progress Australia's clean energy transition. However, given recent contention around this roadmap, there is a clear need for AEMO to improve the robustness of its modelling to deliver a high conviction forward view of the energy system and ensure the lowest-cost pathway to achieve this.

We support the AEMC in upholding the purpose of the ISP as a planning document, rather than to inform or set policy. This reflects the importance of AEMO remaining independent within its system planning and operation roles, and policies of the state or federal governments being informed by their own cost-benefit assessments.

The key proposed changes to integrate gas and demand-side factors into the ISP are welcome amendments. There is a clear opportunity for AEMO to provide a clearer view of distribution-scale and Consumer Energy Resource (CER) solutions. It is critical that the Methodology clearly outlines how the costs of both the proposed gas supply expansion, as well as demand-side solutions are identified and incorporated into the electricity market modelling.

We are concerned by two proposed amendments to the Methodology - the 'restart timing' for actionable transmission projects and the perfect foresight changes. We believe the restart timing undermines the intention of the ISP to provide a clear roadmap of the development of the electricity system, as it creates uncertainty around transmission network development. Additionally, while we support the intention to better reflect operational dynamics and

imperfect foresight of storage assets, the approach to achieve this must be technology agnostic and accurately reflect the capabilities of storage assets.

The remainder of our submission further details the above amendments.

Integrating gas into the ISP

We support the need for improved gas analysis in the ISP to support a more robust Optimal Development Path (ODP) for electricity. However, as discussed in our recent submission to the AEMC's *Better integration of gas into the ISP* consultation[1], AEMO must retain the current electricity sector modelling focus and ensure that the scope does not expand to provide investment planning (or an ODP) for gas infrastructure.

The impact of gas infrastructure costs on the electricity sector must be reflected in gas development projections

The ISP must consider the most appropriate method of reflecting gas infrastructure developments – and their associated costs on the electricity sector. AEMO must balance the integration of gas network investments without a full co-optimisation as this would embed the role of gas in the energy transition of the NEM, undermining the opportunities for electricity demand-side response and electrification as well as the emission reduction component of the National Energy Objectives.

AEMO must clearly provide an overview of gas infrastructure development costs and articulate how these are incorporated into the cost analysis of the ISP. For example, the capital costs of gas infrastructure developments identified in the gas expansion model could be reflected through increased gas costs for gas-powered electricity generation. The proposed gas cost database is the first step to achieving this, but AEMO must further detail the methodology for reflecting these costs through the interaction between the gas supply expansion model, the capacity outlook and time-sequential models.

We understand that a key driver of gas infrastructure developments is the prevalence of 'constrained' gas supply during periods of high gas demand and coincidental high electricity demand. As such, as part of the development of the gas expansion model, it is critical that AEMO can articulate the opportunity for the electrification of gas demand. This should explicitly allow for the comparison of cost information between these solutions, and how this would impact the decision-making around gas infrastructure investments.

AEMO's engagement must remain transparent and consultative with a broad range of stakeholders

We are concerned by the focused engagement exclusively with the gas sector in forming a view of gas infrastructure developments – including the fixed and modelling inputs to the gas supply expansion model. This engagement must be undertaken broadly and with full transparency to all stakeholders. Additionally, AEMO should leverage the extant engagement and publicly

[1] Nexa Advisory, Better integration of gas and community sentiment into the ISP rule change (ERC0395): draft determination, November 2024

available information collected through the development of the Gas Statement of Opportunities (GSOO) to minimise any reliance on new and/or commercially sensitive information.

Improving considerations of demand-side factors

We support the intention to better incorporate demand-side factors in the ISP. This would improve the robustness of modelled outcomes by co-optimising investments across the distribution network, better justifying the uptake of CER (particularly behind-the-meter storage) given the expected significance of its role in the future electricity system, and the high degree of contention around CER uptake forecasts.

Co-optimisation would improve the robustness of the ISP

We have recently discussed[2] that there is growing concern around AEMO's current approach of including CER projections despite these being developed by reputable providers such as the Commonwealth Scientific and Industrial Organisation (CSIRO) and Green Energy Markets (GEM), and broadly consulted on as part of the ISP consultation process. These concerns were exemplified during the recent Select Committee[3] through questions around the robustness of the current approach, including whether CER investments included in the ISP were realistic, or if they would require government support (e.g., battery subsidies) to be realised.

We consider that the inclusion of distribution developments within the ISP (through co-optimisation) would:

- improve transparency of distribution network developments in system planning, reducing information asymmetry which currently exists in the market; and
- provide a whole-of-system lowest cost development pathway which bolsters the robustness of existing network development plans published by distribution networks through DAPRs.

This would address the concerns around the ISP mentioned above and show that the ODP (including distribution-scale investments and CER) is the most cost-effective pathway forward.

Transparency around sub-regional distribution augmentation is overdue

We have previously discussed the current lack of transparency of distribution network information as a key roadblock to the uptake of CER and other distributed, or non-network solutions. As such, we welcome any progress towards improved visibility or joint planning between Distribution Network Service Providers (DNSPs) and AEMO.

AEMO's proposed approach is an important step in modelling the whole-of-system costs of distribution augmentations – including non-network solutions. We consider the inclusion of distribution developments within the investment roadmap will also stand to 'cross-check' the

[2] Nexa Advisory, Improving consideration of demand side factors in the ISP draft determination submission, November 2024

[3] Select Committee on Energy Planning and Regulation in Australia – Parliament of Australia

existing network development plans published by distribution networks through Distribution Annual Planning Reports (DAPR).

For example, the AER recently highlighted that the average electricity distribution network utilisation is 43%[4]. The 'cross-check' within ISP modelling would stand to provide transparency around whether continued capital investment is needed in the distribution network to minimise costs for electricity consumers across the NEM, or whether non-network solutions (including network-level or behind-the-meter CER) would provide a lower cost outcome.

Assessing the timing of actionable ISP projects

We have previously discussed that although the ISP provides a plan of the key transmission project we need, there remains no accountability to deliver these projects in line with the optimal timing identified by AEMO[5]. Our previous work outlined that delivery dates of actionable ISP projects have continued to slip from when they have been originally identified – by an average of 3 years[6]. We have argued that these changes to timings reflect a lack of accountability for Transmission Network Service Providers (TNSP) to deliver on time.

The ODP provides a transmission network development outlook which maximises net benefits for consumers and remains robust across the range of modelled scenarios. These timelines are not 'nice-to-haves' but are needed to connect the renewable generation and storage capacity that will replace coal-fired power stations and ensure energy reliability after their closure. That is, uncertainty around the timing of transmission delivery remains a key investment risk and a major roadblock to ensuring an orderly and timely energy transition for Australian electricity consumers.

In addition to investment uncertainty, the risk of delayed delivery of actionable ISP projects also flows through to consumers. We have previously discussed that the delays result in higher wholesale electricity prices than 'on time' delivery, flowing through to higher consumer bills.

It is critical that AEMO clearly identifies the cost impacts of any delays in the timing of actionable projects, if expected timing continues to slip. While this is not intended to directly inform policy decisions, it is a clear signal that the failure to deliver transmission projects on time must be addressed[7,8].

Restart timing creates further uncertainty around the delivery of key transmission projects

We consider that the proposed 'restart timing' approach of modelling the actionability of previously identified actionable projects could add further uncertainty and undermine the purpose of the ISP as a roadmap of Australia's energy transition. The need for AEMO to test

[4] AER, State of the energy market 2024
[5] Nexa Advisory, Supercharging Transmission Buildout, September 2024
[6] Nexa Advisory, We Plan and then Don't Build, May 2024
[7] Nexa Advisory, The Consumer Cost of Transmission Delays, July 2024
[8] Although not directly related to the ISP Methodology, this is an important consideration in AEMO amending their approach to actionable ISP project timing.

actionable projects through a 'restart timing' window is clearly a result of the inadequacy of the broader regulatory environment and national planning frameworks to deliver these projects on time.

As such, it is critical for the AEMO to provide a high conviction view of actionable project timings, and separately address these ongoing delays[9], rather than obfuscating optimal timing provided by the ISP.

Enhancing other element of ISP modelling - perfect foresight

Following the previously proposed approach of derating storage (which was not adopted following stakeholder feedback[10]), we consider the headroom / footroom reservation approach which has now been proposed by AEMO is another arbitrary measure which would under-represent the role of storage in the NEM, without accurately reflecting the market dynamics of imperfect foresight. This would over-emphasise the role of other dispatchable capacity such as gas generation.

A headroom approach may not accurately reflect operational dynamics over the ISP horizon

It is not clear that AEMO's proposed approach accurately reflects the actual operation or bidding behaviour of storage assets leading up to and during periods of tight supply-demand. Additionally, it is unclear how AEMO's proposed 'energy planning with error' will improve the modelling of storage devices.

While we recognise the difficulty of modelling bidding behaviour during these periods, we are concerned that this approach does not reflect the expertise and technological capability of large-scale storage assets. Given these assets earn a significant proportion of their revenue from energy dispatch during periods of tight supply-demand, optimising dispatch during these intervals is a key commercial imperative for storage proponents. This is likely to remain an area which will see competitive efficiencies, continuous learning and improvement for storage operators over the horizon of the ISP modelling. As such, an arbitrary headroom / footroom reservation would fail to recognise this dynamic and does not allow for a 'learning curve' for these assets over the modelling horizon.

Previously proposed dispatchable reserves have not been adopted

The proposed headroom reservation approach is similar to the performance requirement which was originally proposed for the dispatchable Capacity Investment Scheme. As originally proposed, this would have obligated contracted projects to bid a minimum of 50% of project

[9] As we discussed is possible through our recommendation to supercharge national coordination to create accountability and progress Critical National Projects in our Supercharging Transmission Buildout report

[10] AEMO, Consultation summary report – Update to the ISP Methodology, June 2023

capacity during a Lack of Reserve (LOR) 3 event[11]. This design element was removed following industry feedback which identified unintended consequences, including sub-optimal charging / dispatch which would worsen market conditions when an LOR event was already imminent (as storage assets could need to charge to meet this obligation). This would also have been difficult to commercially manage as it introduced a non-market signal which would have impacted bidding behaviour, which would have also impacted project revenues and by extension, bid prices.

Although there are some differences between this proposed CIS design element and the headroom / footroom reservation proposed by AEMO, we consider this provides a clear example of how arbitrary reserves driven by non-market obligations are not reflective of operational reality.

AEMO should consider a technology agnostic, market-based approach to reflect imperfect foresight

While we recognise the importance of periods of scarcity for storage assets, we have previously discussed that any treatment of perfect foresight or scarcity pricing must be technology agnostic[12]. As mentioned above, we consider the proposed approach could under-represent the role of storage assets - particularly in the periods leading up to tight supply-demand conditions – and over-emphasise the role of gas generation during these periods.

While a headroom / footroom reservation may have some merit for distributed storage, given consumer preferences which diverge from economically optimal usage (e.g., EV charging / vehicle-to-grid dispatch), AEMO should explore other approaches that may better reflect imperfect foresight in market dynamics.

Thank you for the opportunity to provide input to the Issues Paper. We welcome the opportunity to further discuss any aspect of our report or submission - please contact either myself or Jordan Ferrari, Director - Policy and Analysis, jordanferrari@nexaadvisory.com.au.

Yours Sincerely,
Stephanie Bashir
CEO and Principal
Nexa Advisory

[11] Australian Government, Department of Climate Change, Energy, the Environment and Water, Capacity Investment Scheme Public Consultation Paper, August 2023
[12] Nexa Advisory, Update to the Integrated System Plan Methodology, May 2023