

16 February 2024

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Submitted via: ISP@AEMO.com.au

Dear Mr Westerman,

Draft 2024 Integrated System Plan (ISP)

Nexa Advisory welcomes the opportunity to share its views and insights on the AEMO Draft 2024 Integrated System Plan (the Draft).

The ISP is a critical process and roadmap that shapes planning and system design. It is a vital tool for investors, policy makers and the broader industry as we progress in Australia's transition to a clean energy economy.

Nexa Advisory supports the broad scope and direction of the Draft, particularly the emphasis on the urgency of transmission line delivery. We also welcome the analysis that shows that coal-fired power stations are likely to close much, much earlier than anticipated.

We believe that a key finding of the analysis in the ISP is AEMO's identification¹ that we are behind in assessing the techno-physical requirements of the new clean power system, so that industry participants can develop and deliver the ancillary services that will be needed to keep the electricity system stable and secure. Internationally, most advanced power system operators (e.g. Ireland, UK) have already done this assessment, and they are now developing the new services that will underpin the transition to a net zero power system in collaboration with industry participants and the demand side.

As such, AEMO needs to expedite the assessment process for transitioning the NEM, and provide the technical specifications that will allow participants to progress the market services. This is also important to reducing the risks inherent in transition and managing a 100% renewable power system.

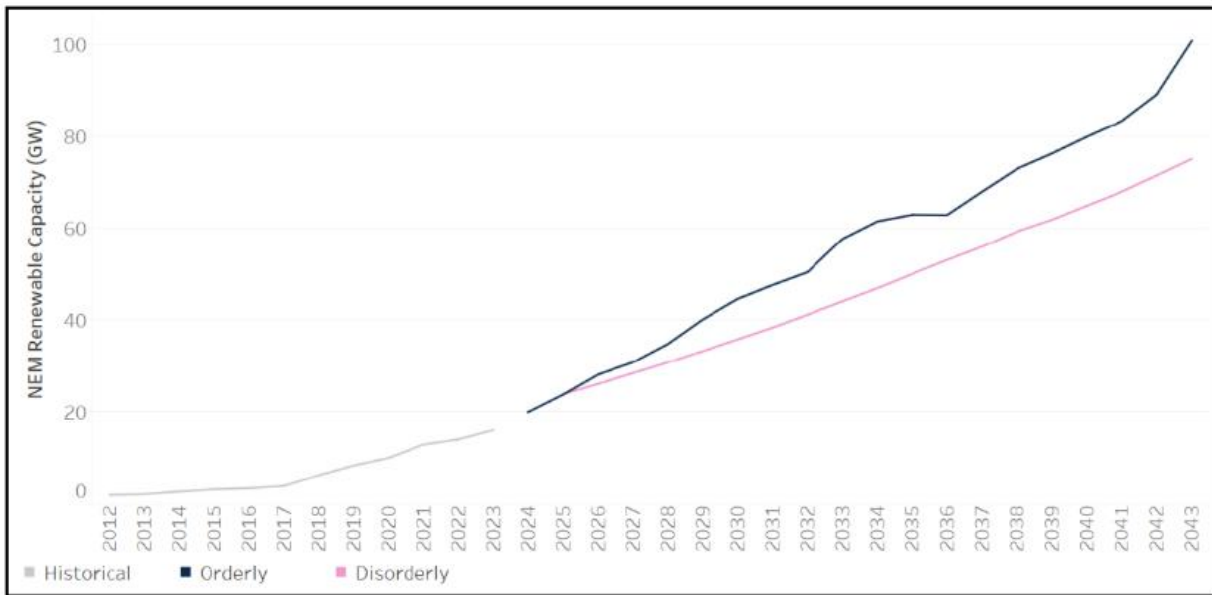
Australia's electricity system is transitioning rapidly away from high carbon generation to clean renewable generation and storage, that transition is not occurring fast enough. This is impacting consumers, and our ability to meet legislated and other targets.

The regulatory framework acts as a serious blocker to delivering new transmission², generation and storage. If we continue on this current slow trajectory there will be a 26 GW shortfall in required renewable generation and storage capacity by the early 2040s³, resulting in higher emissions and costs for customers.

¹ https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/draft-2024-isp-consultation/draft-2024-isp.pdf?la=en, page 15

² <https://nexaadvisory.com.au/site/wp-content/uploads/2022/04/Removing-transmission-roadblocks-discussion-paper-080422.pdf>

³ <https://nexaadvisory.com.au/site/wp-content/uploads/2023/07/Nexa-Advisory-Eraring-can-be-closed-on-schedule-Report-24072023.pdf>



Required renewable generation (dark blue) in the NEM as recommended in the 2022 ISP Step Change scenario versus projected future delivery of renewable generation (pink) based on past delivery rates (grey) showing the significant and escalating shortfall in delivering renewable generation required.

We are behind on not only in delivering the new firming renewable generation we need, but also on delivering the critical transmission that will connect clean energy to customers.

Work by Nexa Advisory identified the key blockers⁴ to new transmission, and modelling work in 2022 highlighted that even short delays to commissioning will have a significant impact on consumers bills⁵. Those short delays in building transmission have eventuated, and are likely to be prolonged further. A refresh of the analysis of the impact of delays will be released shortly.

In addition to this, Nexa Advisory has undertaken analysis that suggests that delivery of new transmission under the current regulatory framework, with a dependence on the regulated monopoly Transmission Network Service Providers (TNSPs), will result in up to \$13 billion⁶ of avoidable costs, when compared with a competitive market approach that allows participation by experienced major international entities.

Finally, the ISP has a critical role in identifying the key transmission projects needed to facilitate the clean energy transition. It is an essential roadmap for industry, government, investors, and consumers. As such, it is important that it includes a plausible scenario that represents a pathway that would meet Australia’s international commitments and the emissions objective in the NEO ie. The route that the NEM needs to take to transition away from fossil fuels, including gas, and be ready to operate as a 100% clean electricity power system.

⁴ <https://nexaadvisory.com.au/site/wp-content/uploads/2022/04/Removing-transmission-roadblocks-discussion-paper-080422.pdf>

⁵ https://nexaadvisory.com.au/site/wp-content/uploads/2022/06/Report-Modelling-Electricity-bill-impact-due-to-transmission-delay_2022-06-07.pdf

⁶ https://nexaadvisory.com.au/site/wp-content/uploads/2023/06/Nexa-Advisory_Transmission-Contestability-in-Australia-Research-Report-June-2023.pdf

Key Points & Recommendations for the Draft

- AEMO should identify the techno-physical requirements of the future 100% renewable electricity system especially as AEMO foresees potential risks to power system operations⁷. This will allow industry participants to develop the new services and solutions needed to support operation of the clean power system.
- AEMO should emphasise more clearly the risks associated with lack of certainty of coal closure dates⁸ and the impact that has on the transition including delays to required investment.
- AEMO needs to provide more clarity and transparency on the expanded role it anticipates for gas, particularly the need for new gas plants, in the face of declining utilisation and need.
- AEMO should apply a 1.5 °C temperature constraint to the Step Change scenario, in order to understand what is needed to meet our commitments and goals, in terms of investment and build out.
- AEMO needs to assess the sensitivity of the ISP Step Change scenario to limited orchestration of Distributed Energy Resources (DER), as part of the work for the final 2024 ISP.
- AEMO should emphasise the impact of transmission delays more clearly in the Draft to ensure that this is front and centre for policy makers and the federal and state governments.

Strong support for earlier closure of coal certainty

We agree with AEMO's analysis that coal-fired power stations will close much earlier than anticipated or than currently stated. This means that accelerating the construction, connection and commissioning of new renewable generation and storage, plus the transmission to connect it, is critical.

Certainty on the coal-fired power station closure dates is essential to investors in renewable generation and storage. It is also important for AEMO as the system operator, it having already highlighted the risks to reliability and prices that may arise from disorderly or short-notice closures.⁹

Furthermore, the Orderly Exit Management Framework¹⁰ that seeks to allow political interventions to prolong the life of already underperforming and unreliable coal-fired power stations will exacerbate uncertainty. The existing reporting process for the coal owners and operators, administered by AEMO, is also not sufficient to provide the certainty that is needed.

It is critical that a mechanism is put in place that will underpin an orderly closure. This should include clearly signposted dates, incentives, and penalties for failure to meet the timetable.

⁷ https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/draft-2024-isp-consultation/draft-2024-isp.pdf?la=en, page 75

⁸ https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/draft-2024-isp-consultation/draft-2024-isp.pdf?la=en page 75

⁹ https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/draft-2024-isp-consultation/draft-2024-isp.pdf?la=en, page 75

¹⁰ <https://www.environment.nsw.gov.au/news/ensuring-the-orderly-phase-out-of-coal-during-the-nsw-transition-to-renewables>

Recommendation:

AEMO to add a new risk emphasising more clearly the impact that lack of certainty about the closure dates for coal-fired power stations has on the transition, including delays to required investment.

Role of gas is transitional and diminishing

The Draft 2024 ISP Step Change scenario included nearly double the “flexible gas” capacity indicated in the final 2022 ISP (16.7 GW versus 9.4 GW), and more gas generation than is currently connected to the power system (10 GW¹¹).

However, this is inconsistent with indications from AEMO that the utilisation of gas plant has been falling year-on-year and the role of gas is already changing from “baseload” to “peaking” and/or winter operation^{12 13}, and the reality that batteries development is already cost-competitive with gas peakers.¹⁴

AEMO also makes clear in Appendix 4¹⁵, that NEM-wide weather situations that impact all supply are rare and that interconnection, plus solar generation in the Australian interior, will allow demand to be met, without any unserved energy, in both winter and summer.

Recommendation:

AEMO needs to provide more clarity and transparency on the expanded role it anticipates for gas, particularly the need for new gas plants, supported by case studies and examples, in the face of declining utilisation and need.

Limiting temperature rise

There was strong support for the inclusion of a 1.5 °C sensitivity analysis in the ISP, across stakeholder submissions to the ISP Methodology and Inputs, Assumptions and Scenario consultations. As such, the sensitivity analysis of the Step Change scenario in the Draft is welcome (Appendix 2¹⁶). However, it is limited in detail and we don’t believe it goes far enough.

The stated purpose of the ISP is to establish a whole-of-system plan, with a horizon of at least 20 years, to support efficient development in the long-term interests of power consumers.

We believe that the long-term interests of consumers and communities includes living on a habitable planet and avoiding dangerous and irreversible changes to the climate. It is globally accepted that this means constraining temperature increases to be below 1.5 °C above pre-

¹¹ <https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-planning-data/generation-information>

¹² https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/draft-2024-isp-consultation/draft-2024-isp.pdf?la=en, page 66

¹³ <https://aemo.com.au/-/media/files/major-publications/qed/2023/qed-q3-2023-report.pdf?la=en&hash=165E68BF9A6DAF100B56CFAAC437CE20>

¹⁴ <https://assets.cleanenergycouncil.org.au/documents/resources/reports/battery-storage-the-new-clean-peaker.pdf>

¹⁵ https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/draft-2024-isp-consultation/appendices/a4-system-operability.pdf?la=en, pages 12-15

¹⁶ https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/draft-2024-isp-consultation/appendices/a2-generation-and-storage-development-opportunities.pdf?la=en, page 54-55

industrial levels. This also aligns with the Australian Government's commitments to the Paris Climate Accord.¹⁷

Recommendation:

The Green Energy Exports scenario includes the constraint of keeping global temperatures within 1.5 °C. AEMO should apply the same constraint to the Step Change scenario, in order to understand what is needed in terms of investment and build out to meet that same goal (without the green energy exports).

Distributed Energy Resources are a key contributor to the energy transition

We welcome AEMO's recognition of the increasing role of Distributed Energy Resources (DER) in the power system. Australians are embracing DER as a means to manage their energy costs and participate in the clean energy transition.¹⁸ DER comes at zero cost to the ISP, but represents a significant investment by Australians who are also being asked to pay for new transmission and utility-scale generation.

AEMO indicate that behind-the-meter battery capacity will grow from 3 GW today to 4.5 GW in 2025, 19 GW in 2030 and 57 GW in 2050. This means that batteries will represent 80% of total storage capacity in the NEM in 2050.¹⁹ This will likely be a mix of customer-owned stationary batteries and electric vehicle batteries. AEMO assume the bulk of this can be coordinated in a way that supports the power system.

However, the social licence needed to orchestrate DER has not yet been secured and there is significant work needed to gain the necessary trust and provide the anticipated benefits.

It is clear that Australians do not trust the electricity sector^{20, 21} and the imposition of export tariffs and emergency backstops on rooftop solar PV systems does not improve the situation²². As Project EDGE has identified, there are significant barriers to the majority of customers with DER wanting to work with aggregators to offer their assets to support the system²³.

The 57 GW of behind-the-meter battery storage in 2050 represents approximately an \$85 billion²⁴ investment by Australians and care will be needed to ensure social licence has been gained before seeking use these customer assets for the benefit of the system.

Recommendation:

AEMO undertake the orchestration sensitivity assessment on the Step Change scenario as part of the development of the Final 2024 ISP as this will clearly indicate the

¹⁷ <https://www.dcceew.gov.au/about/news/aus-delivers-key-paris-agreement>

¹⁸ <https://nexaadvisory.com.au/site/wp-content/uploads/2023/10/Nexa-Distributed-Energy-Resources-paper-and-recommendations-04102023.pdf>

¹⁹ https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/draft-2024-isp-consultation/supporting-materials/draft-2024-isp-chart-data.xlsx?la=en

²⁰ <https://www.edelman.com.au/trust/2023/trust-barometer#download>

²¹ <https://ecss.energyconsumersaustralia.com.au/sentiment-survey-dec-2023/sentiment-against-other-utilities-sentiment-dec-2023/>

²² <https://nexaadvisory.com.au/site/wp-content/uploads/2023/10/Nexa-Distributed-Energy-Resources-paper-and-recommendations-04102023.pdf>

²³ <https://aemo.com.au/-/media/files/initiatives/der/2022/community-perceptions-of-der-and-aggregation-services.pdf?la=en>

²⁴ Assuming stationary batteries of 10 kW each at a cost of \$15,000 installed

importance or otherwise of external control of DER for the Optimal Development Pathway.

Transmission projects delays impacting the energy transition

The failure to deliver new transmission continues to be the biggest risk and roadblock to the clean energy transition. Since the first ISP in 2018, AEMO has consistently identified a number of key new interconnectors. However, delivering them is taking too long, for a number of complex but resolvable reasons²⁵. These delays in building new transmission lines have negative consequences for electricity customers, with delays of just a year resulting in significant electricity bill increases²⁶.

Incremental changes to the regulatory framework in an attempt to incentivise the regulated monopoly TNSPs to exercise their exclusive right to build new transmission will not accelerate the delivery of new transmission. This is because the issues of obtaining social licence, securing supply chains and skilled resources, and expediting the planning process, also need to be resolved.

Contestability in the transmission market for ISP-related projects has the potential to deliver transmission at lower cost and at greater speed²⁷. The experienced market providers of transmission are already operating in Australia. The market just needs to be opened up for all new transmission, including interconnectors, in the way contestability has been adopted in Victoria for transmission and for REZ-related transmission in NSW.

Recommendation:

AEMO should emphasise the impact of transmission delays more clearly in the Draft to ensure that this is front and centre for policy makers and the federal and state governments.

Thank you for the opportunity to provide feedback on the draft 2024 ISP. We look forward to continuing to work with AEMO on the key steps needed to accelerate the transition to a clean power system. If you would like to discuss any of the issues raised in this submission, please contact me.

Yours Sincerely,

Stephanie Bashir
CEO and Principal
Nexa Advisory

²⁵ <https://nexaadvisory.com.au/site/wp-content/uploads/2022/04/Removing-transmission-roadblocks-discussion-paper-080422.pdf>

²⁶ https://nexaadvisory.com.au/site/wp-content/uploads/2022/06/Report-Modelling-Electricity-bill-impact-due-to-transmission-delay_2022-06-07.pdf

²⁷ <https://nexaadvisory.com.au/transmission-contestability-in-australia-enabling-the-clean-energy-transition/>

About Nexa Advisory

Nexa is a full-service advisory firm. We work with public and private clients including renewable energy developers, investors and climate impact philanthropists to help accelerate efforts towards a clean energy transition. We've been shaping the energy industry for over 20 years. With a proven track record across policy creation, advocacy, political risk assessment and project delivery, we're holistic in our approach and deliver solutions with commercial intent.

The Nexa Advisory team is a collaboration of passionate energy specialists, all committed to the successful transformation of Australia's energy markets. The team is focused on helping clients grasp the unpredicted opportunities the energy transformation will bring with trusted and innovative thinking and advice.