

APA

Australia's energy
infrastructure partner

Integrated System Plan (ISP) Methodology Issues Paper

APA Submission

22 November 2024



Mr Daniel Westerman
Chief Executive Officer
Australian Energy Market Operator

Lodged by email: ISP@aemo.com.au

22 November 2024

RE: APA Submission to Integrated System Plans (ISP) Methodology Issues Paper

Dear Mr Westerman,

Thank you for the opportunity to comment on AEMO's Integrated System Plan (ISP) Methodology Issues Paper (Issues Paper). We appreciate the opportunity to contribute to these important issues.

APA is an ASX listed owner, operator, and developer of energy infrastructure assets across Australia. Through a diverse portfolio of assets, we provide energy to customers in every state and territory. As well as an extensive network of natural gas pipelines, we own or have interests in gas storage and generation facilities, electricity transmission networks, and 692 MW of renewable generation and battery storage infrastructure.

Aligning the ISP with the Gas Statement of Opportunities (GSOO) will improve the accuracy of gas supply and demand forecasts. Accurate forecasting is essential, as current ISP models may underestimate GPG demand, discouraging investment. Including realistic scenarios, such as renewable droughts and weather events in AEMO's modelling, will better reflect the energy system's needs and support the critical role of gas in ensuring system reliability.

We agree that AEMO should not be responsible for developing an optimal development path for gas. History tells us that gas infrastructure has been efficiently delivered by industry and the contract carriage model is working well. We support the Issue Paper's position that the costs and benefits from gas development paths should not be included in the optimal development pathway selection process.

The Issues Paper proposes developing a gas supply expansion model in response to the Energy Minister's Review of the ISP, considering pipeline, gas storage and production expansions with input from the industry. We agree with the Energy Minister's view that the ISP should not specify where generation and storage are needed, as doing so could hinder innovation and place unnecessary constraints on project developers.

If you have any questions about our submission, please contact me on 0435 898 022 or john.skinner2@apa.com.au.

Regards,



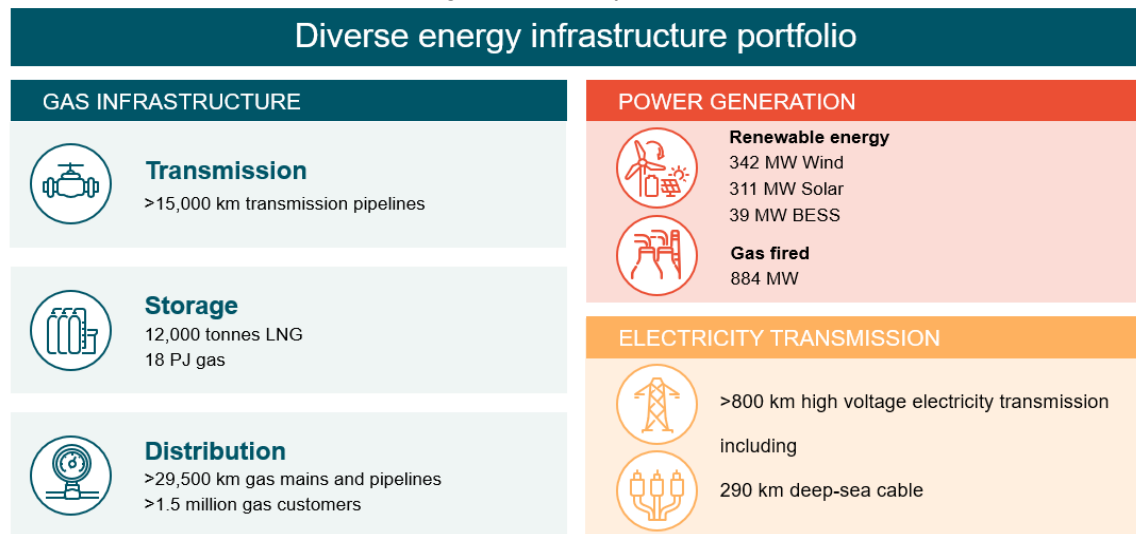
John Skinner
Senior Policy Manager
Strategy and Corporate Development

1. Submission

1.1. APA as a partner of choice in Australia's energy transition

APA is a leading ASX listed energy infrastructure business. Consistent with our purpose of securing Australia's energy future, our diverse portfolio of energy infrastructure delivers energy to customers in every Australian state and territory. For decades we have owned, operated, and maintained some of Australia's most important energy infrastructure.

Figure 1: APA's portfolio



Our 15,000 kilometres of natural gas pipelines connect sources of supply and markets across mainland Australia. We operate and maintain networks connecting 1.5 million Australian homes and businesses to the benefits of natural gas. We also own or have interests in gas storage facilities and GPG.

We operate and have interests in 692 MW of renewable generation and battery storage infrastructure, while our high voltage electricity transmission assets connect Victoria with South Australia, New South Wales with Queensland and Tasmania with Victoria.

APA actively supports the transition to a lower carbon future. In September 2024, we published our FY24 Climate Report, detailing our progress against our Climate Transition Plan. This plan outlines our commitments to support Australia's energy transition and pathway to net zero operations emissions by 2050.

In early 2023, APA established an Electricity Transmission business unit with a focus on electricity transmission infrastructure across Australia. We have recruited a team of established industry professionals to lead APA in playing a pivotal role in the energy transition. In line with our strategic focus, we have also announced a partnership with leading global infrastructure organisation EDF Group. This partnership synergises EDF's global experience in electricity transmission delivery and operations, with APA's strong local experience in the construction and operation of linear energy infrastructure.¹

¹ APA, 'APA Group and EDF Group to pursue electricity transmission projects' (Media Release, 31 October 2023).

With our extensive portfolio of assets and expertise across gas, electricity and renewables, APA is well-placed to support the energy transition towards net zero.

1.2. Gas development projections can enable market opportunities but should not dictate them.

The following section addresses Questions 1 + 2.

1. Do you consider that the proposal to develop a gas supply expansion model appropriately addresses the action in the Energy Ministers' response to the Review of the ISP for additional gas analysis to be incorporated in the ISP? If yes, why? If not, why not, and how could this action otherwise be achieved?
2. Do you agree with the proposal for AEMO to develop at least one gas development projection per ISP scenario, and apply the projection as an input to the capacity outlook model? If yes, why? If not, what method would you recommend for the inclusion of gas development projections in the ISP?

Energy Ministers' response to the Review of the ISP (Energy Ministers' response) outlined an action to expand its consideration of gas market conditions and include development projections for the gas sector in the 2026 ISP with the **sole aim of optimising electricity infrastructure developments in the ISP.**²

We agree that AEMO should not be responsible for developing an optimal development path for gas. History tells us that gas infrastructure has been efficiently delivered by industry and the contract carriage model is working well. We support the Issues Paper's position that the costs and benefits from gas development paths should not be included in the optimal development pathway selection process.³

In the 2024 ISP, AEMO improved its assessment of gas infrastructure capacity limitations on GPG within the capacity outlook model.⁴ This included adding a daily gas consumption constraint for the southern regions of the NEM to reflect historical gas availability for electricity generation. Additionally, a new constraint was introduced to account for the use and cost of on-site secondary fuels and their storage.

In the Issues Paper, AEMO proposes to develop and apply a gas supply expansion model, in response to the Energy Minister's review of the ISP.⁵ The proposed model will account for pipeline, gas storage and production augmentations, informed by industry feedback.

We support enhanced consideration of generation and storage in the ISP methodology. Gas and electricity forecasts should be better integrated to ensure more realistic outcomes and recognise the interaction between both markets. We agree with the point made in the Energy Ministers' response to the Review of the ISP that the ISP should not be more explicit about where generation and storage are required.⁶ This would risk

² Energy and Climate Change Ministerial Council, *Response to the Review of the Integrated System Plan, 2024*, p6

³ AEMO, *ISP Methodology Issues Paper*, November 2024, p20.

⁴ AEMO, *Integrated Systems Plan 2024*

⁵ AEMO, *ISP Methodology Issues Paper*, November 2024

⁶ Energy and Climate Change Ministerial Council, *Response to the Review of the Integrated System Plan, 2024*.

stifling innovation and remove the onus on project proponents to find the most efficient location for their energy projects.

As per the expert below from the Issues Paper, the gas supply expansion model would look to find locations for supply or infrastructure options and consider the most cost-efficient of these options. This information would then be used to establish gas development projections based on optimised outputs, with at least one being included per ISP scenario.

This gas supply expansion model would test a suite of potential gas development options informed by industry engagement to determine where supply and infrastructure options or augmentations could be located to meet ISP development pathways under different scenarios and to maintain appropriate adequacy of gas supplies in the East Coast Gas System.

AEMO envisions the gas supply expansion model will be used to:

- *Consider cost-efficient gas supply and transportation expansion options identified through gas industry stakeholder engagement to meet forecast gas consumption for electricity generation from the time-sequential model.*
- *Establish gas development projections based on optimised outputs. This would include at least one projection per ISP scenario.*

While gas development projections would enable stakeholders (including governments, market bodies, regulators, financiers and market participants) to have better visibility over the important role of gas in the transition, these 'projections' also risk dictating which projects the market should invest in and deliver. There is also the risk that governments may rely on AEMO's identified gas development projections to 'pick winners.' Instead, the market should be left to determine the best outcomes including the technology solutions and risk, market participants are prepared to take.

Dictating where the market should invest in the east coast gas market risks distorting the efficient allocation of risk between service providers and their customers, as it stands today. End customers would increasingly bear the risk associated with large infrastructure investment, particularly if that investment is being driven by parties other than the service providers and their customers. This may expose customers to additional risks and costs.

This ultimately equates to a risk that the development projections will go beyond the intended scope of the Energy Minister's action to solely optimise electricity infrastructure developments, rather than gas infrastructure developments.

Considering the above, we propose the following:

- AEMO should consider gas/GPG demand at greater granularity, to the extent it impacts factors relating to servicing energy supply under the ISP scenarios. This includes the impact of renewable droughts on gas Maximum Hourly Quantities (MHQ) and aggregated demand for GPG over extended periods, thereby understanding how this might change the gas demand profile for GPG and essentially "stress testing" the system.

- AEMO's gas supply expansion model should not go as far as specifying a design of gas infrastructure projects considered most likely under different scenarios. This interpretation is consistent with both the Energy Ministers' response and the Issues Paper ruling out developing an optimal development path for gas infrastructure.
- Instead, developing gas development projections should have the aim of better understanding expected gas demand to realise the scale of investment required across the gas value chain. Following, the market will be expected to solve challenges in meeting any generation and infrastructure gaps, as it has successfully done to date via the contract carriage market.

1.3. Alternative approaches for enhancing the incorporation of gas in the ISP.

The following section addresses Question 3.

3. What alternative approaches should AEMO consider for enhancing the incorporation of gas in the ISP to address the action in the Energy Ministers' response?

In the AEMC's June 2024 Consultation paper *Enhancing the Integrated System Plan to Support the Energy Transition*, the AEMC consulted on the inclusion of gas information received under the NGR for the purposes of developing the ISP. A wide range of information is already collected and analysed under the NGR – including but not limited to gas capacity outlooks, actual gas flows, long term maintenance plans, utilisation, proposed gas and storage augmentations and investments. Where appropriate, and where the data cannot be de-identified, data aggregation or confidentiality requirements should be strictly observed.

APA supports existing information provided under the NGR being utilised for the purpose of developing the ISP. This would include data as provided under:

- Part 10 and Part 18A information transparency
- Part 15 GSOO
- Part 19 Victorian Gas Planning Review (VGPR)
- Part 18 Gas Bulletin Board
- Part 27 East Coast Gas System.

We propose that formal information provided should be used for the purpose of developing the ISP, but not gas information that AEMO receives informally as part of its role as system operator of the Declared Transmission System (DTS). Operation of the gas systems, assets and investments outside of the DTS is owned and managed by facility operators and therefore data provision should be limited to formal requirements as outlined in the NGR.

In addition, APA supports AEMO utilising and analysing information it captures from managing the facilitated markets such as the Short-Term Trading Market, Declared Wholesale Gas Market, Gas Supply Hub, Capacity Trading & Auction market.

1.4. Aligning the ISP and the GSOO ensures greater accuracy in gas supply and demand forecasting

The following section addresses Question 4 and 5

4. What improvements could be made to AEMO's proposed approach to increase consideration of gas availability, considering gas transportation and storage capacity?
5. What improvements could be made to AEMO's proposed approach in its capacity outlook models to improve the representation of fuel usage for gas generation, particularly for mid-merit capacity?

Aligning the ISP with the GSOO will not only ensure there is greater accuracy in gas supply and demand forecasting but will also ensure AEMO can obtain information from market participants efficiently. We support the intention of the Issues Paper for the gas expansion model to draw on existing information provided through GSOO surveys, open submissions for gas development projects, or direct discussion with gas industry stakeholders.⁷

The GSOO forecasts supply, infrastructure developments and constraints across the gas value chain using information provided by:

- market participants,
- commercial analysis of gas reserves and resources (e.g. 2P reserve and 2C resource categorisation),
- upstream developments,
- midstream infrastructure projects,
- storage and;
- import terminal projects.

In addition, the GSOO flags anticipated constraints based on location of supply and demand for gas.

Greater accuracy in forecasting is essential. The 2024 ISP highlights the importance of renewables, firmed with storage and backed up by GPG as the lowest cost pathway to net zero.⁸

However, the current ISP under-estimates the importance of gas in the transition and consistently under forecasts the amount of GPG that is required in the NEM. Additionally,

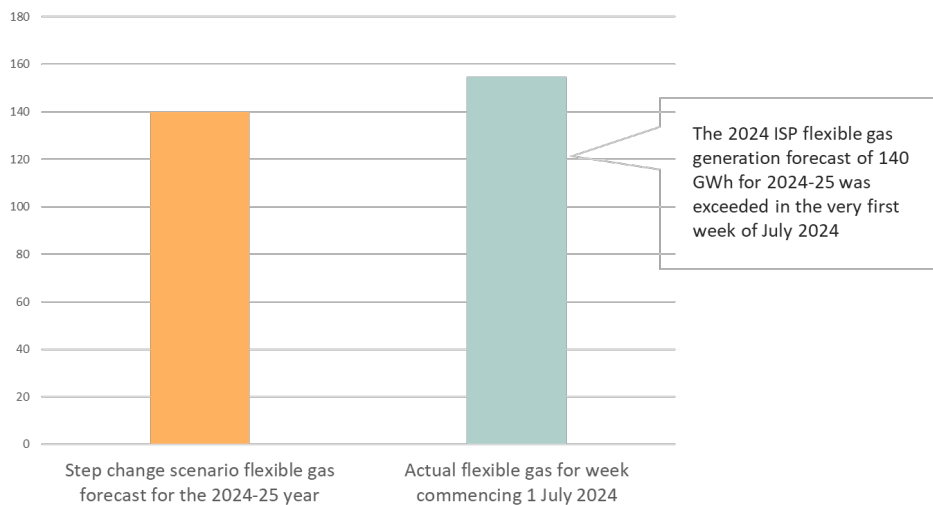
⁷ AEMO, *ISP Methodology Issues Paper*, November 2024, p18

⁸ AEMO, *2024 Integrated System Plan*, p6

the ISP only looks at demand for GPG, not overall gas demand, which significantly underestimates future gas volumes.

We only need to look at the first few weeks of 2024-25 to see the importance of accurate GPG forecasts. The *step change* scenario of the 2024 ISP forecasts 140 GWh of flexible gas in 2024-25.⁹ As shown in Figure 2 below, this forecast was exceeded in just the first week of the 2024-25 financial year, with the week commencing 1 July 2024 seeing 154 GWh of flexible gas supplied in the NEM.¹⁰

Figure 2: Flexible gas generation: ISP forecasts v actuals



Looking beyond the current year, modelling by AEMO may be too restrictive and potentially constrain either the gas or electricity market. The current graphs and models forecasting GPG consumption in the ISP may be discouraging investment by depicting the next decade as reaching its lowest point for GPG demand compared to historical and projected data.¹¹

Specifically, the forecast shows the 140GWh of flexible gas in 2024-25, followed by flexible gas forecasts of under 1,000 GWh each year until 2035.¹² These forecasts are likely to under-represent the firming role that GPG will be expected to play in the NEM, especially as coal-fired generation retires.

One of the reasons why the role of GPG is likely to be understated, is because of the way AEMO accounts for renewable droughts and weather events. Including potential outages and periods of low renewable generation in the modelling will provide a more robust and realistic representation of the energy system's needs. This approach will better inform the demand for GPG during these periods. By implementing these improvements, we consider the accuracy and reliability of the capacity outlook models will be enhanced, better reflecting the critical role of GPG in supporting the energy transition and ensuring system reliability.

⁹ AEMO, '2024 ISP Results Workbook, CDP3 – Step Change least cost scenario' (Report, June 2024)

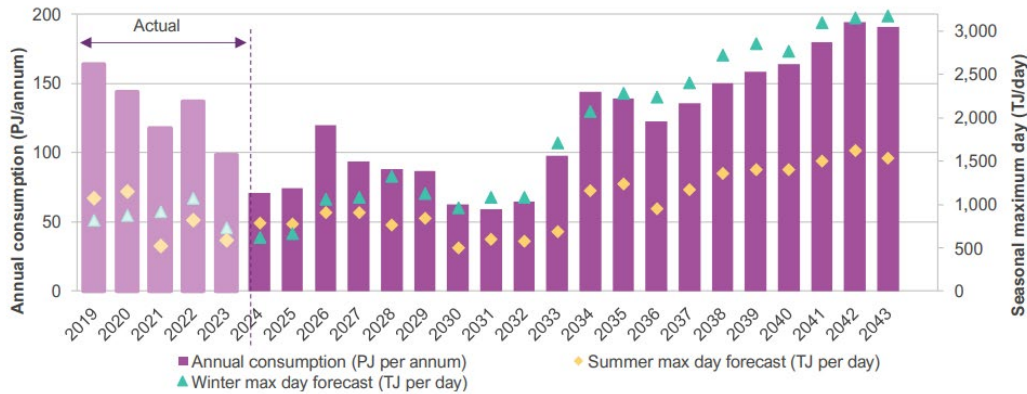
¹⁰ OpenNEM, NEM generation week commencing 1 July 2024 data.

¹¹ AEMO, 2024 Integrated System Plan, Figure 3, p30

¹² AEMO, 2024 Integrated System Plan, p30

AEMO publishes the GSOO on an annual basis and breaks down gas forecasts into individual sectors to achieve greater forecast accuracy. Figure 21 from the 2024 GSOO, for example, shows actual and forecast gas consumption for GPG across the NEM.¹³

Figure 21 Actual and forecast NEM and Northern Territory gas generation annual consumption (PJ per year [PJ/y]) and seasonal maximum daily demand (TJ/d), Step Change scenario, 2019-43



While we recognise the 2024 ISP has improved its mid-merit gas forecasts, more work is needed to reflect GPG’s role in ensuring energy security in the NEM – this includes flexible gas forecasts. Better aligning gas forecasts from the GSOO with the ISP would go some way to achieve this.

1.5. Refinement of proposed approach to system security cost

The following section addresses Question 11

11. Do you agree with AEMO’s approach for uplifting cost and modelling representation for system security services in the ISP? If not, what alternative methods would you recommend? Please provide any supporting evidence

APA supports updating the approach to enhancing the analysis of system security. However, APA considers AEMO’s proposed approach of considering only new synchronous condensers to replace synchronous machines to meet the minimum unit requirement to be overly narrow. APA proposes that the solution be broadened to include both new and repurposed existing hydro and gas generators fitted with a clutch to enable synchronous condenser mode. An example of this is Powerlink contracting Townsville Power Station to install a clutch to enable system strength provision in synchronous condenser mode.¹⁴

This approach is also applicable elsewhere, noting the technical and economic feasibility of utilising generators in synchronous condenser mode, as investigated in ARENA’s “Repurposing Existing Generators as Synchronous Condensers” report, which highlighted the broader approach’s feasibility.¹⁵ As such, AEMO should consider alternative options to synchronous condensers in meeting the minimum fault level requirement to enable the ISP to identify the optimal development path.

¹³ AEMO, *Gas Statement of Opportunities*, 21 March 2024, 39.

¹⁴ Powerlink, *Addressing System Strength Requirements in Queensland from December 2025*, p22

¹⁵ ARENA, *Repurposing existing generators as synchronous condensers*, 22 June 2023