

13 August 2024

AEMO

Via: forecasting.planning@aemo.com.au

Dear Madam / Sir,

Re: 2025 IASR Scenarios, Consultation paper, 17 July 2024

I am the Director of the Gas & Energy Transition Research Centre (the **Centre**) at the University of Queensland (UQ). The Centre conducts multi-disciplinary research across a range of themes relevant to the gas, resources and energy industries and is co-funded by the University and industry partners. This letter represents my personal views, unless expressly stated otherwise, and does not necessarily represent the views of UQ or the Centre partners.

The purpose of this submission is to comment on the "IASR Scenarios, Consultation paper" (the **Paper**) and if/how the 2023 IASR scenarios should be modified to remain appropriate and relevant.

Given the Centre's research focus on the role of gas in the energy transition, I largely confine my comments to aspects of the IASR, and more broadly the ISP, related to gas supply, transport and gas-powered-generation (GPG). Broadly, my feedback is similar to that provided through the Draft 2024 ISP and AEMC rule change consultations.

At the Centre we are using a NEM model based on high-quality, open-source dispatch/expansion software, and novel tools, to test various energy transition scenarios for sensitivities to weather, gas supply and other uncertainties. I believe this research stream, coupled with our understanding of the gas supply and transport sector, provides us a relatively unique basis from which to make this submission.

I would also encourage AEMO to give consideration to a broader discussion regarding scenario analysis and selection, and the concept of an "Optimal Development Pathway". I believe there is a path dependency risk and also a risk of limiting the solution space for some of the specific challenges that face the NEM over the coming years and decades. Although there are multiple consultation pathways open, they appear focused on parameters and methodology within the previously identified scenario set and, therefore, don't encourage the broader discourse I believe would be valuable.

I would welcome the opportunity to engage further with AEMO in relation to any aspects of this submission.

Yours sincerely,



Professor David Close
Director, Gas & Energy Transition Research Centre

General Comments

Gas Volatility Challenges

1. The ISP anticipates substantial (15 GW) gas-powered generation (GPG) capacity to "...back-up supply during long periods of 'dark and still' renewable droughts...".
2. The ISP explicitly states that the GPG is a "strategic reserve for...reliability and security, so is not forecast to run frequently..." at "...just 5% of its annual potential...".
3. A 15 GW GPG "strategic reserve" would require substantial investment.
4. It is anticipated that gas supply to this fleet of GPG could be required in historically high volumes in the southern states during renewable droughts. However, with the decline of Gippsland Basin fields and corresponding output from the Longford Gas Plant it is possible that due to pipeline constraints from Queensland these demand peaks won't be met.
5. I believe it would be appropriate to consider a scenario parameter that considers the risk of gas supply being insufficient to meet peak demand in the southern states. Given the current policy settings are not to support capacity investments in gas (or any fossil fuels) these seems like an appropriate sensitivity to explicitly include.

Scenario Comments

Proposed scenario parameters (1/2)

Parameter	Comments
National decarbonisation target	None
Global economic growth and policy coordination	There is evidence that coordination at even the national level will be limited – take for instance gas development and approach to carbon dioxide removal technologies such as carbon capture and storage or CCS. AEMO should consider whether electricity transmission and gas transport projects that help other states within the NEM are politically challenged.
Australian economic and demographic drivers	There is the possibility of demand destruction if power and gas prices remain high (relative to historical averages rather than any international benchmark) and volatile, this could lead to demand destruction. Such decreased demand may show as a positive in terms of reduced risk of unmet demand, but it will be important for AEMO to flag the knock-on economic impacts if such assumptions are baked into future scenarios.
Electrification	AEMO should consider if it includes a slower electrification scenario in Victoria where residential gas users may avoid electrifying if from 2025-26 onwards there are regular winter blackouts resulting from insufficient means to supply gas to GPG in the southern states during renewable droughts and cold weather periods. Residential gas users are likely to have their supply prioritised meaning that domestic gas users may have an advantage vs electrified households in relation to heating and/or cooking and/or hot water.
Emerging commercial loads	None
Industrial Load Closures	See comments above regarding "economic drivers"

Proposed scenario parameters (2/2)

Parameter	Comments
Demand side participation uptake	This requires further research to understand how to best incorporate into modelling scenarios and to test the broader economic consequences of assumptions.
Consumer energy resource investments (batteries, PV and EVs)	If AEMO is to maintain “High” as the parameter for the Step Change scenario, I’d recommend AEMO make recommendations for policy makers about ways to incentivise high participation from consumers. Early data from utilities do not support the contention that consumers will voluntarily cede control of their energy resources behind-the-meter without (substantial?) incentives.
Energy efficiency	None
Hydrogen use and availability	On the time-frame of the ISP I believe including an assumption of hydrogen for power generation is not well founded. There is little evidence to suggest that there will be the supply, transport and storage options for hydrogen to contribute meaningfully to power generation on a 20-25 year time-frame.
Renewable gas blending in gas distribution network	As per above in relation to hydrogen. As this is the only parameter that mentions “gas distribution network” I add here the recommendation that the IASR should anticipate that the proposed Rule Change 1 (regarding further analysis of gas) from the recent AEMC consultation is adopted. This will require further analysis within the 2026 ISP of the gas...
Supply chain strength influencing demand forecasts	None
Global/domestic temperature settings and outcomes	None
IEA 2021 World Energy Outlook scenario alignment	None