

11 February 2025

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Dear Mr. Westerman,

Re: 2025 IASR Inputs, Assumptions and Scenarios Report, December 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 “2025 IASR Inputs, Assumptions and Scenarios Report, December 2024, Draft report” (the **Paper**) – which is the first of two consultation papers.

Given the Centre’s research expertise in the gas supply chain and the energy transition, I largely confine my comments to aspects of the IASR, and more broadly other AEMO reports and documents, related to gas supply, transport and gas-powered-generation (GPG). Comments here are relatively brief as there are important consultation topics in these broad areas that are held over to the second stage of consultation.

Notwithstanding I don’t have a full view of the content of the Stage 2 consultation paper, my view is that the current scenarios and parameters remain too optimistic in terms of the assumptions that GPG can play the role anticipated in the ISP without significant changes in the current project and investment trajectory. I base this on Centre research, AEMO’s own analysis reported through the Gas Statement of Opportunities (GSOO), and reporting by the Australian Competition and Consumer Commission (ACCC) that suggests such optimism would be misplaced.

If AEMO aren’t using the IASR process to shine a light on the difficulties in GPG fulfilling the role anticipated in the ISP then there is a risk the ISP, even if it does include greater gas analysis, will not fully engage with these challenges. AEMO hold an immensely powerful and unique role, and I believe it is critical that AEMO’s planning and reporting processes reflect downside risk in the ISP appropriately such that policy makers are left in no confusion as to the task ahead.

The Centre has ongoing research in this area and I would welcome the opportunity to engage further with AEMO in relation to any aspects of this submission.

Yours sincerely,



Professor David Close

# Submission on the '2025 IASR Inputs, Assumptions and Scenarios Report, December 2024'

**Professor David Close**  
**Director, Gas & Energy Transition Research Centre**  
**Submission date: 11/02/2025**



# Contents

<b>General Comments .....</b>	<b>3</b>
Scenarios should remain “Internally consistent, Plausible, Distinctive, Broad, and Useful”	3
Role and relative importance of gas .....	3
Interplay of IASR, AEMC rule change, and ISP Methodology .....	3
GSOO and ACCC Interim Report and supply risk and uncertainty .....	4
Hydrogen use and availability .....	5
Intergovernmental and government-industry cooperation and alignment risk .....	5
<b>Matters for consultation (from the Paper) .....</b>	<b>5</b>

## General Comments

### 1. Scenarios should remain “Internally consistent, Plausible, Distinctive, Broad, and Useful”

AEMO specifically call out “...the risks of over- and under-investment...” in the “Useful” objective. On reading the full consultation, this appears to be considered almost exclusively through the lens of ‘electricity supply’. Such a focus is, of course, not unreasonable given the historic objectives of the ISP. However, investment in fuels for fuel-based electricity generation sources (e.g. gas) is arguably functionally equivalent to investment in electricity supply for all intents and purposes. There is insufficient engagement with the various aspects of gas supply risk (expanded below).

### 2. Role and relative importance of gas

Absent investment, gas supply declines at a much faster rate than demand in virtually all scenarios. Gas supply is not infinitely flexible; however, the Paper assumes “...new gas production becomes available when required...” – this assumption is not well founded on the timescale of the ISP. There is already a need for “new gas production” to replace declining Gippsland Basin production, but it has not become available.

The ISP anticipates “flexible gas” to play an important backup role in the NEM, however, that it can do so is not guaranteed on the “period of development of the power system” to which the ISP relates. There will clearly need to be new investment in all aspects of the gas supply chain on the timescale the ISP considers. Although AEMO should form no view on specific projects or proponents, it should form a view in relation to the overall risk of supply and the potential for policy intervention to help alleviate or avoid risks manifesting as unmet gas and/or electricity demand.

The Gas Statement of Opportunities (GSOO) articulates supply risks, however, the ISP and IASR does not appear to have regard to the conclusions of the GSOO in relation to gas supply risk – at least not in IASR parameters. The IASR does recognise that a “Key uncertainty” is “...costs and potential infrastructure developments to maintain and improve Australia’s gas networks and markets” – but does not explore this uncertainty further. The supply, infrastructure and market settings required for future GPG are not reflective of the past – what settings are required to support the highly volatile gas demand forecast by the ISP? The risk of not having these settings is the risk of an unstable system and inadequate energy.

In contrast to the lack of IASR parameters specific to natural gas supply (production, transport, storage) there are specific parameters for renewable gases such as hydrogen and biomethane. (e.g. “Renewable gas blending” and “Hydrogen use and availability”). Renewable gases will likely play a role in the NEM, but for some time they are likely to pale into insignificance in importance relative to any material supply shortage of natural gas.

If gas supply and distribution capacity are not considered in the IASR, will the ISP Methodology have sufficient flexibility to accommodate the possibility of unserved demand (electricity and gas)?

### 3. Interplay of IASR, AEMC rule change, and ISP Methodology

With the introduction of the “Better integration of gas and community sentiment into the ISP Rule 2024” rule change, there is a need for the 2026 ISP to provide greater analysis of the impact of gas sector developments on power system needs. That the ISP Methodology consultation and review is happening in parallel with this consultation makes it somewhat difficult to comment on whether there are substantial gaps in the scenarios and parameters, and methodology.

The final rule does not require an ODP for gas or that AEMO develop policy positions on gas developments; but as the rule change seeks to improve the analysis of the gas system I would interpret that the rule change would anticipate scenario parameters associated with gas supply.

I understand that “AEMO is considering changes to the ISP Methodology to consider the impact of gas sector developments on power system needs, and does not consider that the scenario design warrants specificity of these in the scenario” – however, for any external stakeholders to comment on this consideration requires greater information than is currently available. I would argue that including parameters such as the following would be reasonable and provide greater flexibility in finalising the 2026 ISP, when greater gas analysis is required:

- i. Investment in upstream gas production (to ensure a system that sporadically deliver very high rates, at very short notice) is insufficient in quantum or is unsuccessful in achieving production objectives;
- ii. Investment in gas transport and storage is insufficient to supply GPG at the level required to maintain electricity supply during periods of low variable renewable energy generation.
- iii. The existence or scale of the east coast gas export industry – this is particularly relevant for the interplay with GenCost assessments as the unit cost of gas and the maximum daily quantity (MDQ) that can be delivered into the east coast gas market will both be highly dependent on whether and to what extent gas exports remain material.

#### 4. GSOO and ACCC Interim Report and supply risk and uncertainty

The 2024 GSOO states very plainly:

- i. “New investment is urgently needed if gas supply from 2028 is to keep up with demand from homes and businesses, and for gas-powered electricity generation.”
- i. “Southern regions are also forecast to be at risk of shortfalls on some days from 2025 under extreme peak demand conditions. Careful management of gas storages in such extreme conditions may be needed. Reducing the demand for GPG (through demand response or alternative fuels) may mitigate shortfall risks. From 2026, potential small seasonal supply gaps are forecast in each winter

The December 2024 ACCC Gas Inquiry Interim Report also provide substantial detail regarding gas shortfall risk.

The GSOO notes that import terminals, increased north to south pipeline capacity, increased southern supply, and additional southern storages all delay forecast supply gaps – however, as far as I can tell the IASR makes no mention of any of these major infrastructure investment categories being considered as parameters. If analysis of such investments can be accommodated in the ISP without the IASR parameters then this is probably of little consequence, although arguably a missed opportunity to highlight an important risk. If, alternatively, the absence of associated IASR parameters limits the ISP Methodology or implementation then this would be a poor outcome.

The “Gas Supply Adequacy Methodology Information Paper”, which supports the GSOO, states that:

- i. “In the gas model, reserves and resources are consumed over the GSOO outlook period based on estimates of annual and daily supply availability, assuming 100% conversion to production is possible... relies on continued investment to identify, prove, and then exploit gas reserves and resources...When forecasting gas production, uncertainties on both technical and commercial grounds must be considered.”

This is further AEMO recognition of uncertainty, and in relation to the 100% conversion of resources a substantial risk. I would argue these statements also support that specific parameters and/or scenarios are included in the IASR that reflect these key gas supply risks and uncertainties.

Moreover, the gas supply model includes annual and daily field production limits, estimated from gas industry participants and AEMO analysis. This assumes adequate and high levels of ongoing investment and is highly uncertain on the time-frame of the ISP. Arguably insufficient emphasis is placed on this risk given the relative absence of recent investment in eastern Australia, and the southern states in particular, in the 'traditional' explore-develop-produce model that is required for depletive resources. This, when coupled with the broader assumption "that new gas production becomes available when required" is dangerous for the ISP. Since we have had an underinvestment in 'new supply' for several years, intentionally in part through policy settings in Victoria and NSW, we can already forecast that new gas production will not become available "as required".

Given the recognised gas supply risks and uncertainties, the IASR scenarios should explicitly contemplate single or multiple gas supply risk parameter(s), which is/are a function of upstream supply, pipeline transport capacities, storage capacities and locations, and gas import facility capacities and locations; or as per outlined in (3) above.

## 5. Hydrogen use and availability

On the timeframe 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 timeframe. Therefore, "Green Energy Industries" is preferred as a variant for the Green Energy Scenario.

On this basis, the following sentiment "...Hydrogen developments may, however, be significant in affecting the needs of the power system..." is arguably not well founded and won't lead to a more predictive or useful set of scenarios and/or parameters.

## 6. Intergovernmental and government-industry cooperation and alignment risk

Notwithstanding the competition for gas-investment capital with jurisdictions which have a clearer policy support for gas in the transition (and lower costs of supply), one of the major contributory factors to the risks and uncertainties of future gas supply in the east coast gas market is state and federal government gas and energy policies, alignment of those policies, approval process and the willingness of industry participants to proceed with investments given the foregoing. For instance, according to media reporting the Victorian Labor Party voted to oppose the federal (Labor) government's Future Gas Strategy. This is just one relatively recent example of the kind of misalignment that increases the gas supply risk on the timescale of the ISP.

AEMO could use a specific scenario parameter regarding government cooperation to shine a light on this risk and help consumers and other stakeholders hold government(s) to account in their role to deliver the NEM transition successfully.

## Matters for consultation (from the Paper)

1. Are the scenarios, and the scenario collection, suitable for use in AEMO's planning publications including the 2026 ISP? Does the scenario collection support the exploration of a diverse range of possible futures that could occur over the planning horizon?
  - a. *No further comments to the general comments above.*
2. Which of the two described scenario variants for the Green Energy scenario is the more appropriate variant for application as the scenario in AEMO's 2025 IASR scenario collection (depending on the planning analysis, AEMO may apply the alternate variant in sensitivity analysis).
  - a. *Green Energy Industries (as stated above in the general comments section).*

3. Are the scenarios parameters, and parameter values, clear and suitably aligned with their respective narratives?
  - a. *No specific comments.*
4. What uncertainties are valuable to explore with sensitivity analysis?
  - a. *No specific comments, however, as always I remain enthusiastic to engage and support gas system uncertainty analysis from my privileged position of industry experience with no industry alignment or commercial interest.*
5. Will these weather stations provide appropriate weather information to apply to the NEM sub-regions when forecasting consumers' electricity use, including annual aggregate electricity consumption and importantly the peak maximum, and minimum, demand conditions?
  - a. *Work done by colleagues at the Centre provides a strong basis to support increasing the number of years/decades included in AEMO weather analysis as the current data do not capture Autumn/Winter capacity factor down-side that is relevant to modelling and estimates of required dispatchable sources.*
6. Are the CER forecasts suitable for their respective scenarios? What strategic factors do you consider may influence CER projections?
  - a. *The amount of money that is prepared to be allocated to consumers for them to make their assets available.*
7. The model outputs that will be explicitly used to inform this 2025 IASR include:
  - a. Future energy consumption trends and fuel-switching opportunities, particularly the electrification of other sectors of Australia's economy. Energy consumption trends may also be adopted as long-term drivers for forecast business mass market and LIL growth.
  - b. National and NEM emissions pathways (see Section 3.2.3 for further details), including forecast needs for emission sequestration via land use sequestration, direct air capture (DAC), and carbon capture and storage (CCS).
    - i. *Until Stage 2 is released it is not possible to make any detailed, specific comments with regard to broader aspects of NEM emissions pathways and the potential for CCS and/or DAC to play a role*



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