

# DRAFT 2025 INPUTS ASSUMPTIONS AND SCENARIOS CONSULTATION | CONSULTATION

Australian Energy Producers | 4 April 2025

Australian Energy Producers welcomes the opportunity to provide feedback on the Australian Energy Market Operator's (AEMO) 2025 draft Inputs, Assumptions and Scenarios Report (IASR) that will inform the 2025-2026 forecasting and planning activities in the 2026 Integrated System Plan (ISP).

**Natural gas is essential for reaching net zero in Australia** | Natural gas supports the transition away from coal, provides the firm dispatchable energy required to unlock large-scale renewable energy deployment, and powers Australian industries across the economy including manufacturing, mining and critical minerals processing. The oil and gas industry is central to delivering key emissions reduction technologies such as carbon capture, utilisation and storage (CCUS) and low-carbon hydrogen.

**“Under all credible net zero scenarios, natural gas is needed through to 2050 and beyond” | Future Gas Strategy.** The Australian Government has recognised the critical emissions reductions role of natural gas across the economy. This recognition is consistent with net zero analysis from the International Energy Agency (IEA), the Intergovernmental Panel on Climate Change (IPCC), and Net Zero Australia, all of which show an important and ongoing role for natural gas in the net zero economy.

**The IASR should focus on the least cost, system-wide approach to emissions reductions that aligns with the Future Gas Strategy, rather than emphasising the need for “fuel switching from fossil fuels.”** | The IASR identifies “fuel switching from fossil fuels” as a pillar of decarbonisation which is inconsistent with the important and ongoing role of natural gas across the economy as outlined in the Future Gas Strategy. Undervaluing the future role of gas in the IASR risks distorting in the analysis and in-turn undermining government policy and investment signals.

## Key recommendations:

- **The long-term importance of natural gas across the economy should be recognised** and reference to “fuel switching from fossil fuels” as a pillar of decarbonisation removed from the IASR.
- **The role of CCUS in decarbonising industry, producing low-carbon hydrogen, and addressing regional emissions should be recognised.** CCUS has a key role to play in reaching net zero in Australia which is currently not reflected in the IASR.
- **The status and costs of natural gas “alternatives” must be accurately reflected.** An overly optimistic approach to select technologies, such as renewable hydrogen, undermines the analysis and risks delaying and increasing the costs of reaching net zero.
- **The benefits of a diversified emissions reductions approach should be recognised**, that includes renewables, energy efficiency, natural gas, CCUS, low-carbon hydrogen, etc. A diversified approach has strategic benefits and helps mitigate technology and supply chain risks.

Australian Energy Producers looks forward to providing further input into the IASR and the development of the Integrated Systems Plan 2026. Further comments and recommendations follow.

## COMMENTS AND RECOMMENDATIONS

### **The IASR should recognise the long-term importance of natural gas across the economy**

**The IASR should reflect the importance of natural gas to reaching net zero in Australia, in line with the Government's Future Gas Strategy** | Natural gas has a key role to play in net zero, including in power generation to provide the backup necessary for large scale renewable deployment and in industry where it provides a critical feedstock and high temperature heat. The IEA Net Zero Emissions scenario and net zero scenarios in the IPCC 6<sup>th</sup> Assessment report all show a significant ongoing role for natural gas as part of a net zero global energy system. The Future Gas Strategy is clear that natural gas will form a key part of Australia's net zero transformation and highlights the need for "continued investment in, and development of, gas supply and transport infrastructure to get us through the energy transition with thriving industries."<sup>1</sup>

The IASR approach to natural gas, based on the position that "fuel switching from fossil fuels" is a pillar of decarbonisation, is inconsistent with the Future Gas Strategy and broader net zero analysis. The role of gas seen in the Future Gas Strategy should be reflected across the IASR including in scenario design, modelling inputs, and long-term forecasts. Misalignment between the IASR and the Future Gas Strategy risks undermining national policy coherence, distorting investment signals, and limiting planning value of the analysis that is underpinned on the IASR. This in-turn risks impacting energy security, energy reliability and emissions reductions progress in Australia.

**The IASR assumptions around the role of LNG in the region need to be updated** | In the IASR Progressive Change Scenario, it is suggested that LNG exports align with the IEA Stated Policies Scenario (STEPS) and that "LNG export consumption stays flat post 2035". The 2024 World Energy Outlook<sup>2</sup> STEPS scenario sees global LNG demand increasing significantly, reaching over 150 per cent of 2023 levels globally in 2050. The Asian region – where the overwhelming majority of Australia LNG is exported – grows faster still reaching over 170 per cent of total's levels in 2050. The IASR should be updated to reflect the IEA's findings.

### **The role of CCUS in decarbonising industry, producing low-carbon hydrogen, and addressing regional emissions should be recognised.**

**The IASR should more accurately reflect the status of CCUS in Australia and its role as a key element of the least cost approach to net zero** | Today over 51 million tonnes of CO<sub>2</sub> is captured per year using CCUS globally.<sup>3</sup> Australia hosts two of the largest CCUS projects operating globally – the Chevron Gorgon CCS project and the Santos Moomba CCS project – which together capture and store over 2.5 million tonnes of CO<sub>2</sub> per year. The IEA identifies CCUS as one of the lowest cost pathways to decarbonising a range of hard-to-abate industrial sectors, including steel, cement, ammonia, and methanol production.<sup>4</sup> The 2024 National Hydrogen Strategy<sup>5</sup> identifies hydrogen from natural gas with CCUS as the lowest cost pathway for low-carbon hydrogen today.

However, the IASR does not consider CCUS as an emission reductions pathway for low-carbon hydrogen production or with respect to low-carbon steel, ammonia or methanol production. The IASR modelling should include for a more accurate consideration of CCUS across a range of industrial sectors, as well as low-carbon hydrogen production from natural gas with CCUS, as part of a least-cost approach to emissions reductions.

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<sup>1</sup> Department of Industry, Science and Resources, [Future Gas Strategy](#), 2024

<sup>2</sup> IEA, [World Energy Outlook 2024](#), 2024

<sup>3</sup> Global CCS Institute, [Global Status of CCS 2024](#), 2024

<sup>4</sup> IEA, [Is CCUS too expensive?](#), 2021

<sup>5</sup> Department of Climate Change, Energy, the Environment and Water, [National Hydrogen Strategy 2024](#), 2024

**The status and costs of natural gas “alternatives” must be accurately reflected.**

**Renewable hydrogen will be an important complement to natural gas but is yet to be deployed at scale and is more expensive than natural gas today** | According to the IEA, global renewable hydrogen production is around 85,000 tonnes per year,<sup>6</sup> or around 11 PJ per year. Global renewable hydrogen production therefore equates to around three days of Australian domestic natural gas demand. The National Hydrogen Strategy estimates the current cost of renewable hydrogen is around \$5 to \$10 per kilogram<sup>7</sup> which translates to the around \$42 to \$83 per GJ – compared to around \$10 to 14/GJ for natural gas in Australia. If renewable hydrogen is used in place of natural gas combustion, a price of \$5 to \$10 per kilogram would equal a CO<sub>2</sub> abatement cost of around \$570 to \$1,380 per tonne of CO<sub>2</sub> avoided, based on the National Hydrogen Strategy analysis that finds that using renewable hydrogen instead of combusting natural gas avoids 6.2 tonnes of CO<sub>2</sub> per tonne of hydrogen and a natural gas price of \$12/GJ.

The 2025 IASR should avoid overestimating the status and scalability of renewable hydrogen and underestimating the costs, as this risks distorting the analysis and undermining the planning and policy-making value of the findings.

**The benefits of a diversified emissions reductions approach should be recognised.**

**Advancing a diversified portfolio of emissions reductions technologies mitigates against technology and supply chain risks** | Taking a diversified approach to emissions reductions, that draws on a broad portfolio of technologies and fuels including natural gas, CCUS, and natural gas and CCUS-based low-carbon hydrogen, is the best way to mitigate technology and supply chain risks associated with any single technology. If Australia’s energy planning and policies are overly reliant on any single technology, it presents a significant risk to energy security, energy affordability and emissions reductions if that technology does not progress as expected. The IASR should recognise the benefits of a diversified approach to emissions reductions.

**The IASR should consider a constrained renewables scenario to further explore the technology and supply chain risks associated with Australia’s approach to net zero** | All three IASR scenarios include strong assumptions around the deployment of renewables, including the assumption that an 82 per cent share of renewable generation will be reliably achieved by 2030 across all scenarios. This assumption is then coupled with optimistic assumptions about the production of renewable hydrogen which increases Australia’s reliance on renewable power further. The development of an alternative scenario or sensitivity where the growth of renewable energy is constrained would represent a prudent risk management tool that would strengthen the IASR and help understand the benefits of diversified emissions reductions approach.

**The scenario analysis in the IASR should clearly state the assumptions being made and follow best-practice modelling approaches.**

**The IASR methodology should take into account for the broader role of gas power generation in the electricity system** | The IASR is based on the GenCost<sup>8</sup> analysis which relies heavily on levelised cost of energy (LCOE) rather than full-system cost metrics, which risks overlooking the broader benefits of gas power generation. Gas powered generation provides dispatchable power supply (particularly peaking and backfilling functions), enhanced system reliability, improved integration of variable renewable energy, and least-cost emissions abatement – none of which are captured in a LCOE assessment.

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<sup>6</sup> IEA, [World Energy Outlook 2024](#), 2024

<sup>7</sup> Department of Climate Change, Energy, the Environment and Water, [National Hydrogen Strategy 2024](#), 2024

<sup>8</sup> CSIRO, [GenCost 2024-25](#), 2024

**The IASR should clearly outline the assumptions driving emissions reductions in each scenario** | Future energy investment depends on multiple interrelated factors and extends beyond AEMO's modelling of inputs such as LCOE and projected gas prices. Investment is also contingent on future carbon price expectations and future development of baseline thresholds of the Safeguard Mechanism, which is designed to support the achievement of net zero emissions by 2050. Market-determined carbon price signals are also expected to play an increasing role in shaping future marginal investment and operational decisions by businesses, investors, and consumers. These signals, in-turn, substantially influence future investments in all energy sources and therefore should be clearly outlined in the IASR.

**The IASR should disclose the likelihood of each scenario in determining the ISP's Optimal Development Path (ODP)** | The three scenarios in the IASR are not equally likely. It would be beneficial for AEMO to clarify how probability weightings for each scenario will be applied in the ISP to help strengthen the understanding of the analysis and the planning value of the outcomes.