



# APA submission

## Draft 2023 Inputs, Assumptions and Scenarios Report (IASR)

*16 February 2023*





Daniel Westerman  
Chief Executive Officer  
Australian Energy Market Operator

**Lodged via email: [forecasting.planning@aemo.com.au](mailto:forecasting.planning@aemo.com.au)**

16 February 2023

**RE: APA Submission to Draft 2023 IASR**

Dear Mr Westerman,

Thank you for the opportunity to comment on the Draft 2023 Inputs, Assumptions and Scenarios Report (Draft IASR) published by AEMO in December 2022.

APA is an ASX listed owner, operator, and developer of energy infrastructure assets across Australia. 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 593 MW of renewable generation infrastructure, including 88 MW under construction.

We support the transition to a lower carbon future and actively support the energy transition taking place across Australia. In August 2022 we published our inaugural Climate Transition Plan which outlines APA's pathway to net zero operations emissions by 2050. Through APA's Pathfinder Program, we also continue to grow our experience and expertise in hydrogen generation and other clean fuel technologies which support a lower carbon future.

The purpose of the IASR is to inform AEMO's forecasting and planning activities, including the Integrated System Plan and other publications that inform electricity and gas markets. In our submission below, we provide views on the important role of gas in the energy market transition and some challenges associated with the Draft IASR scenarios' strong reliance on electrification.

### **Gas' role in Australia's energy transition**

As recognised by Energy Ministers in their December 2022 when consulting on changes to the national energy objectives, gas will play a crucial role in the energy transition. Energy Ministers went further and stated that the continuing use or repurposing of gas infrastructure could therefore be important for both gas and electricity users.

The transition Australia faces in displacing aging thermal generation with large volumes of renewable energy is not without its challenges. As the penetration of renewable energy sources increases, and aging coal power stations retire, GPG will be critical in meeting electricity demand and maintaining the security of the system. This role will become critical if there are delays in building the necessary transmission and storage which supports renewable energy projects.



Events in Queensland (the failure of a generation unit at Callide) and Victoria (flooding at Yallourn Power Station) in mid-2021 demonstrated the flexibility and security offered by gas infrastructure. Following both these events, GPG stepped up to help provide crucial electricity generation in both Queensland and Victoria. GPG doubled its output while not increasing overall emissions. The ability of gas turbines to quickly ramp up and provide long term dispatchable generation shows they will be a critical part of the energy system for many years to come.

In finding the most efficient pathway to decarbonisation, the benefits and efficiency of gas infrastructure should be considered in the scenarios. For example, out of the four scenarios in the Draft IASR, three limit hydrogen blending in gas networks to 10 percent. With limitations placed on blending natural gas with hydrogen, this assumes dependence on electrifying domestic gas use as opposed to realising more opportunities for renewable hydrogen.

The IASR should formally recognise other viable options to decarbonise the gas sector that do not rely so heavily on electrification. By broadening the options available for the gas sector through the transition, this may provide more insights into: investment needed to ensure energy security through the transition, efficient options to decarbonise the gas sector including the repurposing of gas infrastructure, and consumer costs.

### **Challenges associated with the electrification pathway**

AEMO is seeking views on whether the scenarios presented in the draft IASR are plausible and consistent. While the scenarios assume some opportunities for the use of hydrogen and biomethane, all four scenarios rely heavily on electrification to reduce emissions.

There are significant challenges associated with pathways which rely predominantly on electrification:

- **Increases in network costs:** the cost savings associated with electrification usually overlook the significant cost of electricity infrastructure upgrades and the cost of new transmission and generation. The cost of this new transmission, along with augmentation at the distribution level, will push up network charges for all customers across the National Electricity Market (NEM)
- **Household and business retrofitting costs:** a June 2022 study by Frontier Economics investigated the potential cost of converting different households from gas to electricity. The study found that the upfront cost of electrifying a house could be as high as \$40,000 per household, based on the need to retrofit whole of house heating and potentially install new switchboards. In many scenarios, Frontier found that replacing existing appliances with hydrogen ready appliances could be a cheaper option.
- **The timely delivery of new transmission:** recent experience across the NEM has demonstrated that there are significant challenges to the timely delivery of new transmission infrastructure. Most of the 10,000km of new transmission identified by the 2022 ISP was targeted to be delivered before 2030. Any delays to this timeframe will impact the speed at which new renewable generation can be connected to the NEM.

### ***Impact of consumer behaviours on modelling energy transition scenarios***

When observing the Orchestrated Step Change and Diverse Step Change scenarios, there is a strong reliance on consumer investment for the development and uptake of relevant

technologies. For example, the Draft IASR describes the Orchestrated Step Change scenario as *'Electrification is high... Consumers switch from gas to electricity to heat their home.'*

AEMO should further delve into the impact of consumer choices/behaviours involved in such a significant energy infrastructure transition. The Draft IASR assumes rapid transformation of the energy sector will be enabled by cost reductions in consumer energy resources. However, energy (i.e. gas) consumers may be reluctant or unable to rapidly electrify their gas usage.

As highlighted above, there is significant consumer investment required for the initial installation of renewable energy technologies. This presents challenges for both ends of society. On one side of the spectrum, lower income households may not have sufficient funds to invest in the energy transition. On the other side, consumers may elect to continue using gas appliances/infrastructure if there is no material cost benefit to them and their familiarity with gas appliances causes more unwillingness to transition.

Cost barriers aside, energy consumers may be further reluctant to embrace the energy transition if they lack knowledge or awareness around the long-term benefits of favouring renewable energy technologies. Facilitating widespread adoption through learning processes is viewed as an important contributing factor in the deployment of renewable energy sources that can result in performance improvement and climate change mitigation efforts.

The Draft IASR should recognise the significant barriers present for consumers to convert their households from gas to electricity. Models should incorporate multi-faceted inputs which aim to better understand consumer behaviours/demographics through an energy transition, including but not limited to:

- Financial capacity to invest in the energy transition
- Willingness of consumers to convert from gas to electricity
- Extent to which cost reductions/incentives influence consumer choices
- Time required for households to convert appliances
- Understanding/awareness of the long-term benefits of the energy transition.

If you have any questions about our submission, please contact our Policy Manager, John Skinner, on 02 9693 0009 or [john.skinner2@apa.com.au](mailto:john.skinner2@apa.com.au).

Regards



**Ed Stephan**  
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