

To: Australian Energy Market Operator

21 November 2024

Integrated System Plan (ISP) methodology consultation

We appreciate the opportunity to comment on the ISP methodology update. Our feedback is limited to the proposed changes for integrating gas in the ISP.

About Environment Victoria

Environment Victoria is the leading not-for-profit environmental advocacy organisation in Victoria. With 40 grassroots member groups and over 200,000 individual supporters, we've been representing Victorian communities on environmental matters for over 50 years. Through advocacy, education and empowerment, Environment Victoria seeks significant and enduring solutions that will safeguard the environment and future wellbeing of all Victorians.

Greater focus on demand

The ISP should move towards co-optimisation of supply and demand, for both electricity and gas. With regard to gas, the proposed methodology enhancements continue AEMO's emphasis on supply-side issues. In order for energy to be delivered most affordably to customers, it is imperative that the ISP consider energy end-uses being served by the most efficient energy source.

In the case of gas, inefficiency prevails. The most obvious example is that half of Victoria's gas use is wasted in the residential sector to serve end-uses such as space heating and water heating, for which far more efficient electric alternatives exist.¹ This leads to supply shortfalls and price pressure for users who cannot electrify so easily.

AEMO's role is to plan and operate energy systems that most efficiently serve the needs of consumers – energy consumption is the means, end-uses are what customers need and desire. In this era of consumer energy resources, participation and prosuming it is not appropriate for AEMO to maintain disinterest in demand. We strongly urge AEMO to move towards a co-optimisation model.

¹ Victorian Government, 'Victoria's Gas Substitution Roadmap Update', December 2023.

Plausibility of options and stakeholder consultation

It is good to read AEMO using the word ‘plausible’ in reference to supply and infrastructure options for gas. However, it is worrying that AEMO continues to reference implausible options such as hydrogen blending and network conversion to 100% hydrogen. Gas industry cost estimates for hydrogen blending and conversion routinely leave out major considerations, including but not limited to:

- Gas network owners’ actual knowledge of their underground assets, versus assumed knowledge that will be corrected after they are funded
- The cost of excavating and remediating roads, pavements and other surfaces to access underground pipes
- The cost of assessing and replacing joints, gaskets and other components
- The cost of replacing and multiplying the number of valves necessary to safely transport hydrogen
- The cost of new compressors necessary to handle additional gas volume due to the much lower energy content of hydrogen
- Internal abrasion of pipes through welding and normal use, exposing bare metal to hydrogen
- Safety issues of managing residual hydrogen and condensate inside pipes
- Accurately representing appliances that have been tested for hydrogen blends (noting the common use of ambiguities such as “up to x% hydrogen”) versus those that must be replaced
- Other issues²

It is imperative that AEMO’s consultation is broader than gas industry stakeholders, as is currently proposed. AEMO will not meet its own requirement for plausibility if its consultation is limited to self-interested parties such as the gas industry and researchers significantly funded by the gas industry. This is a due diligence issue.

Demand substitution with alternative fuels

In some cases, large energy users that face technical barriers to electrification will find their best solution is to switch their operations to green hydrogen or biomethane, including gas produced locally or on site. In these cases AEMO should, again, adopt a co-optimisation lens by considering efficient opportunities for substitution at the point of end use. AEMO should survey large gas users and model the parts of the gas network in which large gas users can substitute with renewable gases and liberate fossil gas supply for other users, with due regard to technical and economic constraints.

You are welcome to contact me on the details below, should you wish to discuss this submission in more detail.

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² Sara Baldwin and Dan Esposito, ‘Assessing The Viability Of Hydrogen Proposals: Considerations For State Utility Regulators And Policymakers’, accessed 21 February 2024, <https://energyinnovation.org/publication/assessing-the-viability-of-hydrogen-proposals-considerations-for-state-utility-regulators-and-policymakers/>.