

2 June 2023

[REDACTED]
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Via email: [REDACTED]
cc: [REDACTED]

Dear [REDACTED]

AGIG Response to Infrastructure Victoria – Draft State of Infrastructure Assessment – Energy Sector

On behalf of the Australian Gas Infrastructure Group (AGIG), we welcome the opportunity to comment on Infrastructure Victoria's next 30 year strategy.

AGIG is the largest gas distribution business in Australia, and in Victoria we reliably distribute gas to over 1.4 million customers through over 21,000km of distribution network. Through Australian Gas Networks (AGN) (VIC & Albury) and Multinet Gas Networks (MGN), we serve much of Victoria including the Melbourne CBD; the northern, eastern and south-eastern suburbs; and much of eastern and central Victoria extending north to Wodonga and east to Bairnsdale.

We are committed to being a part of Australia's clean energy transformation through the provision of renewable gases, including green hydrogen and biomethane, to homes, businesses and industry. Our Low Carbon Vision targets 10% renewable gas (hydrogen and/or biomethane) in our networks by no later than 2030, with full decarbonisation of our networks by 2050, with 2040 as a stretch target.

Overview

In planning for the transition to a renewable energy future, the cost and time associated with building new electricity generation, transmission and distribution infrastructure is one of the key considerations. It is arguably one of the biggest challenges of the transition with the universal goal to deliver renewable energy as quickly and affordably as possible, minimising the cost impact on the consumer who ultimately funds the investment in the new infrastructure.

AGIG's existing energy infrastructure is significant: it's far-reaching, with a large capacity and is maintained to a world-class standard. Importantly, it's well-established and the majority is ready to transport renewable gas today.

We are pleased that Infrastructure Victoria's draft report considers the importance of utilising existing infrastructure to its full value. We are also pleased that the report addresses the complexity of Victoria meeting the state's emissions reduction targets. Our position is that it will be unlikely that a single energy source will be able to meet the diversity of energy needs of customers as we move to net-zero emissions by 2045. There are multiple options for the zero emissions pathway being actively explored, with their cost-benefit yet to be fully understood. We are therefore supportive of Infrastructure

Victoria's approach of remaining open to various technological solutions and outcomes, including the value that may be realised by repurposing existing infrastructure to support lower carbon gas, including hydrogen and biomethane.

In the draft report, Infrastructure Victoria envisages that *"by the early 2030s a decision will need to be made as to whether infrastructure supporting natural gas should be repurposed to support hydrogen and/or biomethane, or whether further electrification should be pursued. By the 2040s, remaining infrastructure will need to be repurposed or decommissioned"*.

We have taken the lead in demonstrating the potential of the use of the existing gas distribution network to support hydrogen and/or biomethane: through funding and operating renewable gas demonstration projects; and supporting research into hydrogen production and the capacity of the existing gas distribution network infrastructure to transport it as a credible, alternative and cost-effective solution.¹

This includes several hydrogen projects and research activities already being undertaken, including:

- \$14.5M invested in Hydrogen Park South Australia² in May 2021 to deliver gas with up to 5% hydrogen by volume, now delivering to over 3000 customers;
- \$53.2M allocated to Hydrogen Park Murray Valley³, planned to deliver gas with up to 10% hydrogen (by volume) to 40,000 business and residential customers and to ~20 industry customers;
- \$4.2M in Hydrogen Park Gladstone⁴, planned to deliver gas with up to 10% hydrogen (by volume) to over 770 customers (residential, commercial, industrial); and
- The Australian Hydrogen Centre (AHC)⁵ research project, which undertook a rigorous and independent economic and commercial assessment on decarbonising gas consumption in Victoria and South Australia (with a focus on blending 10% renewable gas into gas networks and converting gas networks to 100% renewable gas). This research consortium is due to release its findings shortly.

Furthermore, biogas to biomethane has an existing, well-developed supply chain and international frameworks; and Europe has set biomethane production targets from 130PJ/annum in 2021 to 1,300PJ/annum in 2030⁶, demonstrating policymakers support for its potential to decarbonise gas networks. At AGIG, we are working on both hydrogen and biomethane solutions to facilitate the decarbonisation of gas distribution networks. Our focus is on pathways that limit impacts on consumers, ensuring a smooth transition. We are engaging in continuous research and development and working with regulators to ensure that the transition is safe, efficient, and minimally disruptive.

Notwithstanding, new technologies need time for commercial maturity⁷ to achieve economies of scale in production and supply chains. This can be significantly expedited by supportive policy frameworks from government. To facilitate reaching a decision by the 2030s on whether infrastructure supporting natural gas should be repurposed to support hydrogen and/or biomethane, or whether further electrification should be pursued, as prescribed by Infrastructure Victoria's draft plan, we suggest that government policy support in the form of a renewable gas target, or similar market framework, would provide a significant boost in achieving the outcome of meeting Victoria's emissions targets in an efficient and reliable manner that utilises existing assets. We understand that the Victorian

1 https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131

2 <https://www.agig.com.au/hydrogen-park-south-australia>

3 <https://www.agig.com.au/hydrogen-park-murray-valley>

4 <https://www.agig.com.au/hydrogen-park-gladstone>

5 <https://www.agig.com.au/australian-hydrogen-centre>

6 https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131

7 For example, the first utility scale wind farm in Australia opened in 1987 - <https://www.synergy.net.au/Blog/2018/07/History-of-wind-farms-in-WA>. In 2020, CEC estimates that wind formed 9.9% of total electricity generated

<https://www.cleanenergycouncil.org.au/resources/technologies/wind>

Government intends to consider the merits of establishing renewable gas targets⁸ in an upcoming consultation process and we look forward establishing the merits of this type of policy and the contribution it could make to meeting decarbonisation targets and consumers' energy needs. The remainder of our submission focuses on detailed comments and suggestions for the Infrastructure Strategy.

Planning and assessment should further integrate the relationship between electricity and gas networks to take a system-wide view

Gas infrastructure serves a wide variety of needs today, playing a pivotal role in Victoria by providing a reliable source of energy for homes, businesses and for power generation. Gas represents approximately 21% of the total energy consumption in Victoria⁹. Electricity and gas infrastructure are already heavily integrated through gas-fired power generation, which relies on high pressure gas transmission pipelines.

In the future, integration is likely to be further embedded as electricity generation and renewable gas production become closely coupled. The relationship between electricity and gas infrastructure, particularly where it relates to renewable gas, is complex, and it is beneficial for impacts on the supply chains and systems to be fully understood.

For example:

- Renewable gas production can mitigate times of minimum demand on the electricity grid (for example, in the middle of the day when too much solar is being exported into the grid) as a load.
- Renewable gas can provide generation and firming to the electricity grid as a supply input into generation.
- Renewable gas being used in end-use in residential and small commercial connections can also replace the critical role natural gas currently plays in managing demand peaks where winter gas and electricity demand peaks coincide.

We suggest that it will be beneficial for the final report and future planning assessments to further explore the relationship between the electricity and gas systems, and its supply chains. This should occur with a view to integrating infrastructure planning and assessment across renewable electricity, hydrogen and biomethane production to better understand the costs and benefits of alternative solutions across an integrated system view.

In our opinion, factoring in various scenarios for infrastructure planning, including renewable gas alternatives, and understanding its cost benefits as an option that allows for the utilisation of existing high-quality infrastructure, would provide for more comprehensive infrastructure planning and assessment.

⁸ p56, Victoria's Gas Substitution Roadmap: <https://www.energy.vic.gov.au/renewable-energy/victorias-gas-substitution-roadmap>
⁹ <https://www.energy.gov.au/sites/default/files/Australian%20Energy%20Statistics%202022%20Table%20C.xlsx>

Planning and assessment should consider utilising existing assets effectively to meet future needs, including emissions reduction goals

We consider that the utilisation of existing gas network infrastructure should be considered as an attractive proposition to meet future energy needs, including emissions reduction goals.

The total value of AGIG's assets is approximately \$3.4 billion¹⁰, with most of this existing network underground and resilient to natural disasters and shocks. The network is reliable and is valued by customers; with respect to their satisfaction over the past 5 years, 93% of customers were very satisfied or satisfied with the reliability of their gas supply¹¹. Whatever scenario emerges to achieve net-zero emissions, investment will continue to be needed for decades to ensure this reliability is maintained throughout the transition.

In response to AGN and MGN's 2023 to 2028 draft Access Arrangement proposals, 89% of customers told AGIG they were comfortable with our proposed approach to preparing the networks for renewable gas^{12 13}. This involves undertaking mains replacement activities that would have been undertaken in regular asset maintenance cycles to ensure the safety and integrity of the network and existing assets, but with a view to future proofing these assets by replacing gas distribution network equipment and components with parts that are compatible with hydrogen and renewable gas, taking a prudent and incremental approach to making the network 'hydrogen ready'¹⁴.

Gas distribution networks are well-placed to provide zero and net-zero emission gases; a majority of AGIG's networks are already capable of transporting hydrogen in blends, and biomethane can already be transported and used via existing distribution pipelines. Through this mains replacement process, AGN's network is now completely renewed and is largely ready to accommodate 100% hydrogen; and based on current plans it is expected MGN will reach a similar state in approximately five years.

There are several studies or evidence that support further understanding of renewable gas playing a key role in decarbonisation of the energy system:

- The Australian Hydrogen Centre (AHC), supported by the Australian Renewable Energy Agency (ARENA) and the Victorian Government, undertook a study on decarbonising gas consumption in Victoria and South Australia on AGN's networks. This report is expected to be released shortly, providing further evidence and support in demonstrating the feasibility of renewable gas in distribution networks. We would be pleased to discuss this in further detail with you when it is available.
- The recently released National Hydrogen Infrastructure Assessment (NHIA)¹⁵ indicates that moving molecules of gas (hydrogen) via pipelines is generally more efficient than moving electrons via electricity transmission. Hydrogen is likely to be produced within Victoria's Renewable Energy Zones and delivered to demand centres via pipelines (both new and, potentially, existing). Several public modelling studies show that by 2050 there is a possibility of hydrogen being produced and transported to key demand centres in Victoria for competitive prices close to \$2 p/kg¹⁶, emphasising the need for a system view for infrastructure planning during this timeframe.

¹⁰ <https://www.agig.com.au/australian-gas-networks>

¹¹ https://www.aer.gov.au/system/files/AGN%20%28Victoria%20%26%20Albury%29%20-%20Attachment%205.3%20-%20KPMG%20Final%20Report%20-%20AGN%20Customer%20Engagement%20Program%20July%202022_0.pdf

¹² Ibid, footnote 8

¹³ <https://www.aer.gov.au/system/files/MGN%20%28Vic%29%20-%20Attachment%205.3%20-%20KPMG%20Final%20Report%20-%20MGN%20Customer%20Engagement%20Program%20-%20July%202022%20PUBLIC.pdf>

¹⁴ <https://www.aer.gov.au/system/files/MGN%20%28Vic%29%20-%20Attachment%209.7%20-%20Distribution%20Mains%20and%20Services%20Strategy%20-%20July%202022%20PUBLIC.pdf>

¹⁵ <https://www.dceew.gov.au/energy/publications/national-hydrogen-infrastructure-assessment#:~:text=The%20National%20Hydrogen%20Infrastructure%20Assessment%20aims%20to%20support,could%20be%20best%20prioritised%20to%20achieve%20maximum%20impact.>

¹⁶ <https://www.cefc.com.au/media/nkmljvkc/australian-hydrogen-market-study.pdf>

<https://www.dceew.gov.au/sites/default/files/documents/state-of-hydrogen-2022.pdf>

- In addition, AGIG’s preliminary internal biomethane potential studies are favourable, showing potential biomethane volumes growing above the high potential scenario (24.9 PJ per year) and below the Theoretical potential scenario (80.6 PJ per year) noted in Sustainability Victoria’s report¹⁷.

Thank you for the opportunity to contribute to this consultation process. We would welcome the opportunity to have a more detailed discussion with Infrastructure Victoria during the process. If a meeting is possible, please contact [REDACTED] to arrange a time.

Yours sincerely,

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¹⁷ <https://assets.sustainability.vic.gov.au/susvic/Report-Energy-Assessment-of-Victorian-biogas-potential.pdf>