28 April 2025

Mr Jonathan Spear
Chief Executive Officer
Infrastructure Victoria

Via online submission: https://engage.vic.gov.au/victorias30yearinfrastructurestrategy

Dear Mr Spear

Victoria's draft 30-year infrastructure strategy

Thank you for the opportunity to comment on *Victoria's draft 30-year infrastructure strategy* (the draft strategy).

Australian Gas Infrastructure Group (AGIG) is one of Australia's largest energy infrastructure groups with distribution, transmission and storage assets worth over $9 billion. Across every Australian mainland state, and the Northern Territory, our infrastructure delivers gas to over 2 million homes, businesses and industrial customers, and transports and stores gas that underpins the Australian economy.

In Victoria, we own the Australian Gas Networks (AGN) and Multinet (MGN) gas distribution networks. Our networks have been serving Victorians for more than 150 years and recent mains replacement activities means that our assets are of a high quality and are able to deliver energy to Victorians well into the future. We do this safely, reliably and in a cost-efficient manner for our customers. AGIG employs more than 500 people across the country and approximately 1,500 contractors who serve our two Victorian gas distribution networks.

We are supporting the energy transition by delivering the natural gas that is needed today and advancing low carbon solutions for the future. Our Net Zero Ambition and emissions reduction targets outline our ongoing dedication to a sustainable energy future. Our targets include reducing our Scope 1 and 2 emissions across all AGIG assets by 30% from 2020-levels by end-2030; tracking and reporting our material Scope 3 emission categories, with the aim of setting measurable targets by end-2027[1]; and continuing to work with customers and stakeholders to deliver and develop the energy infrastructure solutions essential to lowering emissions – including through natural gas, renewable gas and carbon capture and sequestration solutions.

We are also investing in the development of renewable gas projects and currently have three projects operating or under construction, as well as a pipeline of additional projects that will provide confidence in the deliverability of renewable gas to customers. In Victoria, we commenced construction on Hydrogen Park Murray Valley in December 2024. This project will produce renewable hydrogen, with the hydrogen produced being blended into the existing Wodonga gas distribution network at volumes of up to 10%. This project aims to allow large industrial customers to decarbonise through the use of Renewable Gas Guarantee of Origin certificates.

We believe that a range of energy solutions are needed to ensure the energy transition occurs as quickly as possible, and this includes a role for natural gas and renewable gas. There is a need to keep options open in the energy transition to mitigate risks, particularly while delivering infrastructure within budgetary constraints, and the uncertainty over the long-term 30-year planning horizon that the draft strategy seeks to address.

The draft strategy has overlooked the value of gas networks as critical infrastructure both today and in the future. Our existing gas networks in Victoria are underground, reliable and efficient. They can transport renewable gases, they are extensive, and they support diverse groups of customer and usage types.

[1] Refer to p23 of AGIG's 2024 ESG report: https://www.agig.com.au/~/media/Files/AGIG/ESG/Mar25/AGIG193-2024-ESG-Report_Digital-F8

Consistent with the draft strategy's stated aim of '*investigating ways to improve the use of existing infrastructure*'[2], the strategy should consider utilising the existing gas network infrastructure to meet long duration storage needs (our response to draft recommendation 32), while decarbonising networks by utilising them to enable renewable gas production at scale (our response to draft recommendation 33). Accelerating electrification by forcing Victorian consumers to replace their gas appliances will have minimal impact on emissions and supply, while having negative impacts on reliability, security and cost (our responses to draft recommendation 34).

Our recommendations for the draft strategy's recommendations are therefore, as follows:

Draft recommendation 32: should recognise and support a role for utilising existing gas network infrastructure to meet energy storage needs.

Draft recommendation 33: should support increased production and supply of natural and renewable gases including through a state-legislated renewable gas target. We do not support the draft recommendation to prepare plans for the decommissioning of gas network infrastructure on the basis that it does not respond to energy users' needs and is inconsistent with the draft recommendation in support of renewable gases.

Draft recommendation 34: should support consumer choice and consider technology neutral approaches to whole-of-system planning, as an alternative to forced electrification which risks negative outcomes on consumer cost and security and reliability issues for the electricity grid.

Our recommendations in response to the draft strategy's recommendations are outlined in greater detail in the remainder of the submission.

In addition, the research conducted by Jacobs and Aurora Energy Research for this draft strategy provides valuable and highly relevant insights for Victoria's energy transition planning. However, these contributions do not appear to be referenced in the main body of the report or explicitly considered alongside the broader findings. We believe this research is important and should be reconsidered in the context of the recommendations presented in the report.

Once again, we thank you for the opportunity to comment on Victoria's draft 30-year infrastructure strategy. Should you have any queries about the information provided in our submission, please contact Shawn Tan, Manager Policy, at [redacted]

Kind Regards

Cathryn McArthur
Executive General Manager, Customer & Strategy

2 Refer to page 14 of the draft strategy.

Draft recommendation 32: "Determine long duration energy storage needs - determine the most efficient policy or investment options to provide enough long duration energy storage to meet Victoria's needs"

Summary of our responses to draft recommendation 32

Draft recommendation 32 should recognise the potential for existing gas network infrastructure to meet energy storage needs. This should be considered together with our response to draft recommendation 33, in which we recommend utilisation of existing gas network infrastructure to enable and deliver renewable gases.

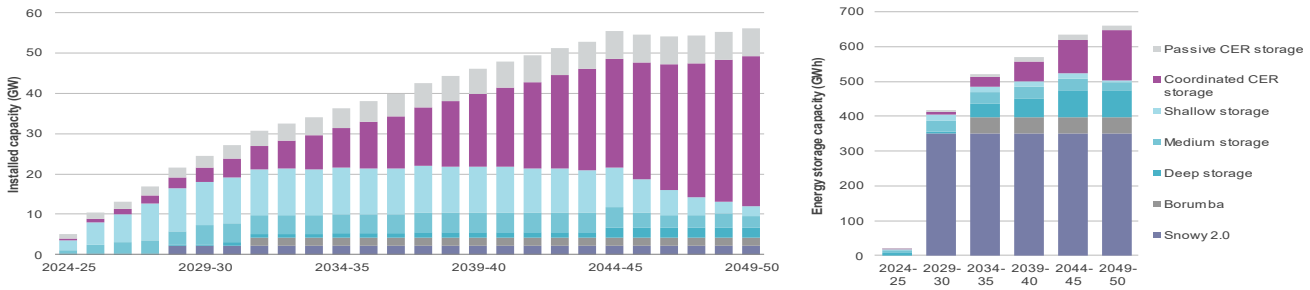
Utilising the existing gas network to transport renewable gases provides an efficient option to meet peak demand efficiently while achieving emissions reduction ambitions. Existing gas network infrastructure already has adequate capacity to meet winter peak demand, and is modern, reliable and efficient, with little to no further investment needed to deliver natural and renewable gases, particularly at times of peak demand.

Storage needs are due to increasing winter peaks

The draft strategy has identified that a lack of long duration energy storage is a high risk for Victoria's energy transition (p108 of the draft strategy). Storage is needed at times of high peak demand, particularly as there are increasing levels of renewables in the system, and as noted in the draft strategy, *"sometimes Victoria has several cloudy and windless days in a row"*. We note that AusNet Services has forecasted 18% growth in winter peak demand over the 2026-31 regulatory period in its electricity distribution network and has forecast that it will be a winter peaking network by 2027[3].

We therefore agree that energy storage is needed, especially for days with high winter peak demand after several cloudy and windless days in a row[4]. AEMO has forecasted in its Integrated System Plan (ISP)[5] that several technologies will play a role in meeting this peak – including grid scale batteries, coordinated consumer energy resources (household batteries), gas and hydropower. This is illustrated in Figure 1 (reproduced from AEMO's 2024 ISP) below.

Figure 1 AEMO's 2024 ISP's Figure #20 - Storage installed capacity and energy storage capacity, NEM (2024-25 to 2049-50, Step Change)



[3] See p275 of AusNet's Regulatory Proposal for 2026-31: AusNet EDPR 2026-31
[4] This is commonly referred to in industry terms as "dunkelflaute". See https://www.energynetworks.com.au/news/energy-insider/2021-energy-insider/its-dark-its-still-its-dunkelflaute/
[5] Refer to Figure 20 of the AEMO 2024 Integrated System Plan. https://aemo.com.au/-/media/files/major-publications/isp/2024/2024-integrated-system-plan-isp.pdf?la=en

However, there are a range of challenges in meeting these energy storage needs. These include:

- The contribution of utility scale batteries to meeting peak demand appears overstated in AEMO's forecasts. In consultation for the 2026 ISP, AEMO has identified that, particularly in times of long winter periods of high residual demand, suboptimal dispatch outcomes may occur with utility scale batteries, effectively leading to an over-estimation of the actual contribution of batteries during these periods[6].

- The contribution of consumer energy resources to meeting peak demand may be overstated. The coordination of consumer energy resources and its contribution to supplying peak demand is highly dependent on harnessing consumer behaviour through third-party control. The Centre for New Technologies (C4NET), a consortium of electricity distribution networks, universities and the Victorian Government, undertook research on Victorian homeowners[7]. This research indicated that respondents preferred to maintain full control of their consumer energy resources, relinquishing some control only to trade-off for energy bill savings through a market-based mechanism. Notably, homeowners indicated that this decreased intentions to adopt electric space heating. Further, equity issues have previously been raised by groups such as Energy Consumers Australia (ECA) in relation to market-based mechanisms[8]. The ECA notes *"the households more likely to reduce heating or cooling to avoid higher prices tended to be poorer"*, and that a survey of consumers found most households did not — or could not — respond to surge prices by cutting back on heating or cooling, which make up the majority of energy use.

- Electricity distribution networks will need to make significant investments to cope with increased peak demand. Proposals by electricity distribution networks also indicate that there will need to be significant increases in capital expenditure, for example AusNet Services have proposed a 72% increase in capital expenditure in its 2026-31 proposal compared to its 2021 to 2026 regulatory period[9].

- The challenges are acknowledged by the analysis undertaken by Jacobs for Infrastructure Victoria. The analysis indicates that the risk of inadequate long duration storage is rated as "High", with major impacts to emissions, affordability, reliability, security, and safety, and rated as "Likely" to occur[10].

Given the scale of the challenge and the critical importance of addressing it quickly and cost-effectively, it is essential to consider all available options to mitigate these well-documented risks.

The draft strategy does not recognise an existing solution in gas distribution networks

Existing gas distribution networks already have sufficient capacity to deliver energy during winter peaks. Gas distribution networks consistently provide energy to their users during times of winter peak demand when storage needs are highest – when demand is high for heating and weather conditions mean there are low levels of renewable electricity being generated and/or stored.

The capacity of the existing gas network to meet energy requirements during winter peaks was demonstrated on 15 July 2024, which was noted by AEMO as being a 17-year winter record for maximum electricity demand at 6PM[11]. Weather observations that day indicated a relatively cold day, with a low of 7.3 degrees Celsius, and a high of 12.1 degrees Celsius preceded by a week of relatively high cloud cover[12].

[6] See section 4.4 of the 2025 Draft ISP Methodology consultation. consultation-paper---draft-isp-methodology.pdf. Also refer to WattClarity article (April 2025) for a more detailed discussion on the issue of "imperfect foresight": The challenge of imperfect foresight: Storage operation in a highly renewable NEM - WattClarity

[7] Consumer perceptions of policies targeting consumer energy resources (CERs): Third-party control and managing imports/exports – July 2024, Better Consumption Lab, Deakin University as part of C4NET: https://c4net.com.au/wp-content/uploads/2024/07/C4NET-Consumer-perceptions-of-CER-policies-3rd-party-control-July-2024.pdf

[8] Consumer group ECA says surge power pricing largely ineffective and inequitable - ABC News

[9] See p95, section 6.3 of AusNet's Regulatory Proposal for 2026-31: AusNet EDPR 2026-31

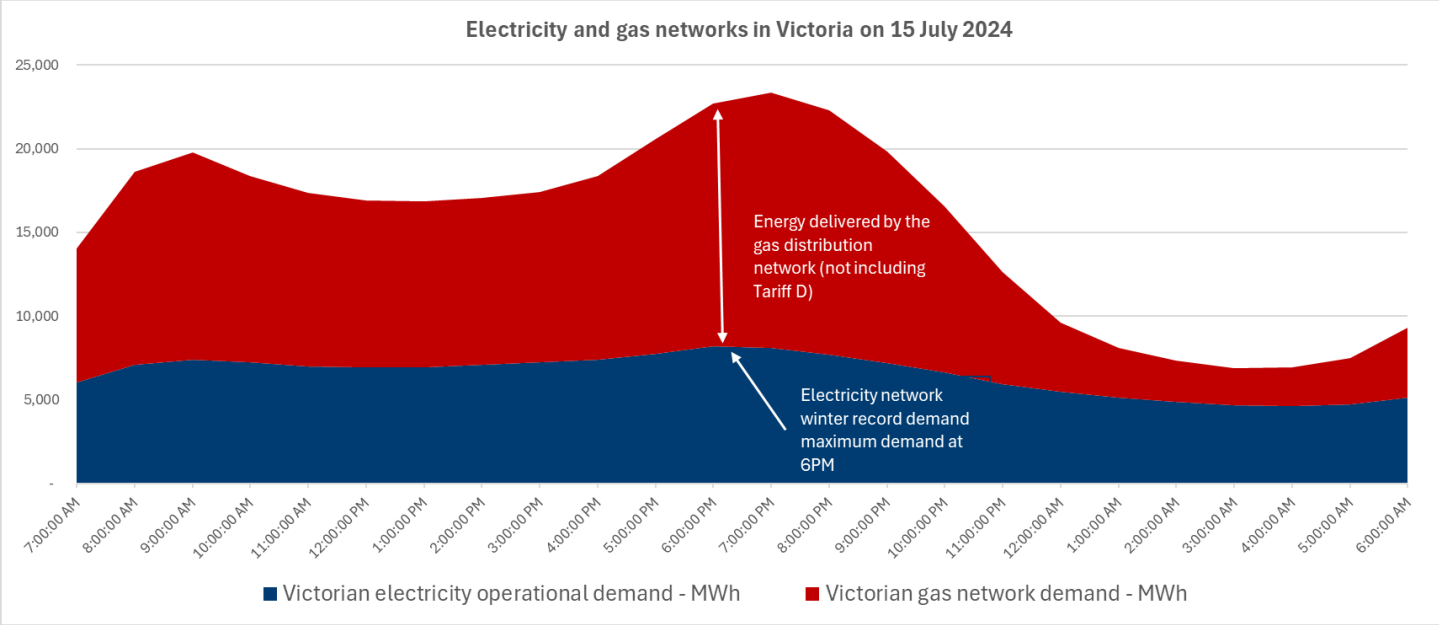
[10] See p116 of Jacobs, Victoria's energy transition risks and mitigation actions – Final Report August 2024 https://engage.vic.gov.au/download/document/38878

[11] Refer to the NEM Data Dashboard for 15 July 2024 at https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/data-nem/data-dashboard-nem. See also Australian Energy Market Operator on Linkedin: https://www.linkedin.com/posts/australian-energy-market-operator_a-cold-snap-sweeping-southeast-australia-activity-7218790297130946562-oTpM/?utm_source=share&utm_medium=member_desktop

[12] See Bureau of Meteorology – July 2024 Daily Weather Observations for Melbourne, Victoria Melbourne, Vic - July 2024 - Daily Weather Observations

Figure 2 below demonstrates that between 5pm to 9pm on that peak day, the gas network delivered around 1.8 times the energy delivered through the electricity network.

Figure 2 Electricity and gas networks in Victoria on 15 July 2024



In addition to the capacity that they can deliver, gas distribution networks are inherently reliable[13], efficient and already underground. For example, during widespread outages that occurred in Victoria in February 2024[14], fewer than five of our 1.4 million customers in Victoria were without gas supply. Our safety-driven mains replacement program has also ensured that our networks in Victoria are largely modern and ready to transport renewable gases[15].

Contrary to the comments on page 14 of the draft strategy, the draft strategy does not seek to investigate ways to improve the use of existing infrastructure by recognising either (i) the existing value of the distribution network in providing for long term, resilient energy capacity, or (ii) its potential to contribute to decarbonisation via transport of renewable gas. Instead, draft recommendation 33 makes proposals regarding decommissioning without a full understanding of the physical characteristics of the network. We address this point in our response to draft recommendation 33 below.

To encourage efficient investment, we therefore encourage Infrastructure Victoria to amend the recommendations to incorporate use of existing gas network infrastructure as a relatively low cost and reliable way to meet energy storage requirements for a growing population, particularly during winter peaks. Opportunities to decarbonise the gas distribution network are outlined in further detail in our discussion on draft recommendation 33 below.

[13] See section 4.3.4, p71 – AER 2024 Electricity and gas networks performance report, September 2024. 2024 Electricity and gas networks performance report
[14] See February 2024 Storm and Power Outage Event, Victorian Government. network-outage-review-report.pdf
[15] Refer to section 4 of 100% Hydrogen Distribution Networks: Victoria Feasibility Study – Australian Hydrogen Centre, May 2023. AHC-100-Hydrogen-Distribution-Networks-Victoria-Feasibility-Study.pdf

Draft recommendation 33: Develop regional energy plans, guide transition from fossil gas and maintain reliable gas supply - Develop an energy plan for electrification and gas use that meets each region's needs and prepare gas infrastructure decommissioning for homes and some businesses. Secure gas supplies to meet demand. Set a renewable gas target and support renewable gas production."

Balanced policy that ensures there is sufficient supply of renewable gas and renewable electricity before transitioning off natural gas is needed, rather than trying to rush electrification

As the draft recommendation acknowledges, there is a need to secure gas supplies and to support renewable gas production. A range of energy users are reliant on gas and are unable to replace it with electricity, and so decarbonised renewable gases are expected to be the most likely way that these users will be able to transition to lower-emissions energy forms. This is acknowledged by AEMO in its ISP, which reflects an increased role for gas and renewable gases into the future, and by recent proposed changes to the National Greenhouse Energy Reporting (NGER) Scheme, which will allow the emissions reduction from renewable gases delivered through shared infrastructure to be recognised in Safeguard Mechanism entities' emissions liabilities[16]. It is therefore essential that Victoria encourages the production and supply of both natural and renewable gases, and that this is reflected in its infrastructure strategies.

We agree with the draft recommendation's acknowledgement of the need to encourage increased production of natural gas supply. This is best encouraged by providing positive investment signals and the right regulatory environment to encourage producers to bring on more supply, rather than demand destruction policies which do not solve ongoing structural gaps in supply. Additionally, the production of renewable gases can also add further to supply.

Renewable gases are in their infancy stages of commercialisation in Australia and require support to mitigate early-mover risks and undeveloped supply chains. This should occur through a state-legislated renewable gas target, which the Victorian Government commenced consultation on through a Renewable Gas Directions Paper in early 2025, proposing a 4.5 PJ target by 2035 for renewable hydrogen and biomethane[17]. We commend the Victorian Government for supporting renewable gas – doing so through a target also provides this energy certainty as many users will continue to need gaseous energy for decades to come. Government support for this, and enabling it through a Victorian renewable gas target, provides that policy certainty and will help establish the renewable gas industry to decarbonise natural gas use.

It is acknowledged that customers will continue to require gaseous fuels. These customers are diverse in location and needs, as we outline in further detail below. The role of networks in balancing the above needs has been missed, and the role of locational diversity currently supported by the existing network is key to enabling more natural and renewable gas supply, reducing risks for all parties in the supply chain and accelerating development of further supply. Rather than making plans for decommissioning networks, the draft strategy should be considering how we can better use them, particularly given the challenges of building new infrastructure outlined in the draft strategy.

Decommissioning also closes off options - distribution networks are critical for safe and reliable energy supply today, and their use could be expanded to innovative uses further in the future, including through supplying biomethane from source to end-use mobility sectors (such as biofuels), or used to supply distributed power generators to meet peak day demands.

Measured policy approaches are needed to support investment signals for adequate gas supply

[16] See National Greenhouse and Energy Reporting (NGER) Scheme, April 2025. National Greenhouse and Energy Reporting (NGER) Scheme - Department of Climate Change, Energy, Environment and Water

[17] See Victoria's Renewable Gas Directions Paper | Engage Victoria

Measured policy which considers long-term, whole-of-system outcomes will provide the confidence that investors need to continue to invest in developing new supply. This includes the development of new reserves, expansion of existing reserves and investment in infrastructure that can transport large amounts of gas from the north of Australia. Recent announcements to this effect include:

1. Two projects in the Gippsland basin involving ExxonMobil, Woodside, and consortium partners - Turrum Phase 3, which involves 5 new gas wells; and the Kipper 1B project, which will drill and install one subsea well into the Kipper field, and involve significant upgrades to the West Tuna platform[18];
2. Two projects in the Otway basin – 6 new gas wells from ConocoPhillips, and Amplitude Energy and O.G., who target producing an additional 90 TJ/day from 2028[19]; and
3. APA's East Coast Gas Grid Expansion plan, which is planned to deliver an approximate 24% increase in north-to-south gas transport[20]; and
4. Jemena's Eastern Gas Pipeline reversal project, which will bring up to 200TJ/d of new gas to Victoria by winter 2026[21].

We believe that policy uncertainty or initiatives that artificially disrupt the supply-demand balance may undermine investor confidence and potentially threaten the adequacy of gas supply in Victoria. We discuss this further in our response to draft recommendation 34 below.

Renewable gases offer a decarbonisation opportunity, but must be developed at scale

We are supportive of the draft recommendations to set a renewable gas target and help enable renewable gas production. The Victorian Government has been consulting on its Renewable Gas Directions Paper throughout 2023 and 2024 and has proposed a renewable gas target of 4.5 PJ per annum by 2035. We are supportive of the step to encourage renewable gas production and consider this to be a good start, but for it to be effective the target needs to be significantly more ambitious and aim for renewable gases to be produced at commercial scale for them to be a cost-effective and viable decarbonisation tool.

There is significant potential for renewable gases in Victoria, with Blunomy analysis of biomethane potential estimating 18.8 PJs per annum of biomethane is potentially recoverable from sources in the vicinity of AGIG's Victorian networks alone. We consider that this warrants a more ambitious target of 14.5 PJs per annum and encourage the draft recommendation to incorporate recommendations from submissions to the Renewable Gas Directions Paper that call for more ambitious targets to enable development of the industry[22].

We believe the draft recommendation should be expanded to acknowledge the role that distribution networks play in enabling renewable gas. Our distribution networks are already largely compatible with renewable gas as a result of our mains replacement program[23], and can enable renewable gas production to reach a wider market and de-risk offtake, which is crucial for getting initial projects in a nascent industry off the ground. Networks also enable renewable gases to get to market quicker and at lower cost; utilising networks also allow the best renewable gas prospects to be developed across extensive existing networks, and to reach customers across the state, removing the need for co-location of demand and supply, accelerating development.

AGIG's renewable gas projects are demonstrating how the existing distribution network can deliver renewable gases. In Victoria, we commenced construction of our 10 MW Hydrogen Park Murray Valley in late 2024, which is expected to be completed in late 2025. We are actively pursuing plans to use GreenPower's Renewable Gas Guarantee of Origin (RGGO) certificates to allow industry to decarbonise their natural gas usage. This model is

[18] See ExxonMobil Australia, Woodside approve final investment decision for $221 million gas project | Reuters and Esso, Mitsui and Woodside to invest nearly $200 million into the Gippsland Basin I ExxonMobil Australia

[19] See ConocoPhillips Australia gets approval to drill gas wells in Otway Basin - ABC News and AEL:ASX Announcement - Execution of Otway Basin Joint Venture Agreements - 24 Mar 2025

[20] See APA's East Coast Gas Expansion Plan

[21] See Jemena takes crucial next step to avoid gas shortfall | Jemena

[22] Submissions | Victoria's Renewable Gas Directions Paper | Engage Victoria

[23] Refer to footnote 15. While end-user appliances require modification beyond a 20% volume hydrogen blend, the pipes, their components, and constituent materials in the distribution network are generally compatible and have the capacity to transport 10% and 100% hydrogen supply with minimal modifications. The required modifications to the network are already well advanced as part of our planned asset upgrades to new generation polyethylene (plastic pipes) suitable for transporting 100% hydrogen. Biomethane is interchangeable with natural gas and is a "drop-in" fuel.

being scaled up from our initial learnings in our demonstration plant, Hydrogen Park South Australia, which commenced blending of renewable hydrogen to parts of our Adelaide network in 2021 and now supplies up to a 10% renewable hydrogen blend.
This allowed the plant to eventually provide hydrogen supply to offtakers such as Transport SA for its hydrogen bus trials, and industrial user BOC. We are further replicating similar models in other projects in areas where we own distribution networks, such as Hydrogen Park Gladstone (operational as of late 2024), and proposed projects in Adelaide and Wagga Wagga.

We also recently signed a formal agreement to connect the first biomethane project into our South Australian network[24]. Biomethane connections to existing gas distribution networks have been used internationally to successfully enable the uptake of biomethane, and support incentives to encourage the production of biomethane such as in countries such as the United Kingdom and Denmark. In Victoria, there is significant potential for biomethane in northern agricultural regions in areas such as Shepparton. The Shepparton region, which is a large user of gas, offers an opportunity to utilise feedstocks from agricultural production to enable biomethane production and transport. Greater detail on these case studies are available in our submission to the Victorian Government's Renewable Gas Directions Paper[25].

Energy users need various options to decarbonise – including renewable gases

Energy is used in diverse ways by people and businesses across Victoria, so expanding access to a wider range of options - including renewable gases and various methods of accessing them - will help mitigate risks associated with the energy transition. The draft recommendation that proposes the decommissioning of networks may remove the ability of existing customers who require gaseous fuels from accessing natural or renewable gases. It may also result in new customers not being able to access renewable gases.

We undertook customer research in July 2024 on the decarbonisation plans and perspectives of Victorian businesses through a series of interviews with commercial and industrial gas users in Victoria[26]. This found that:

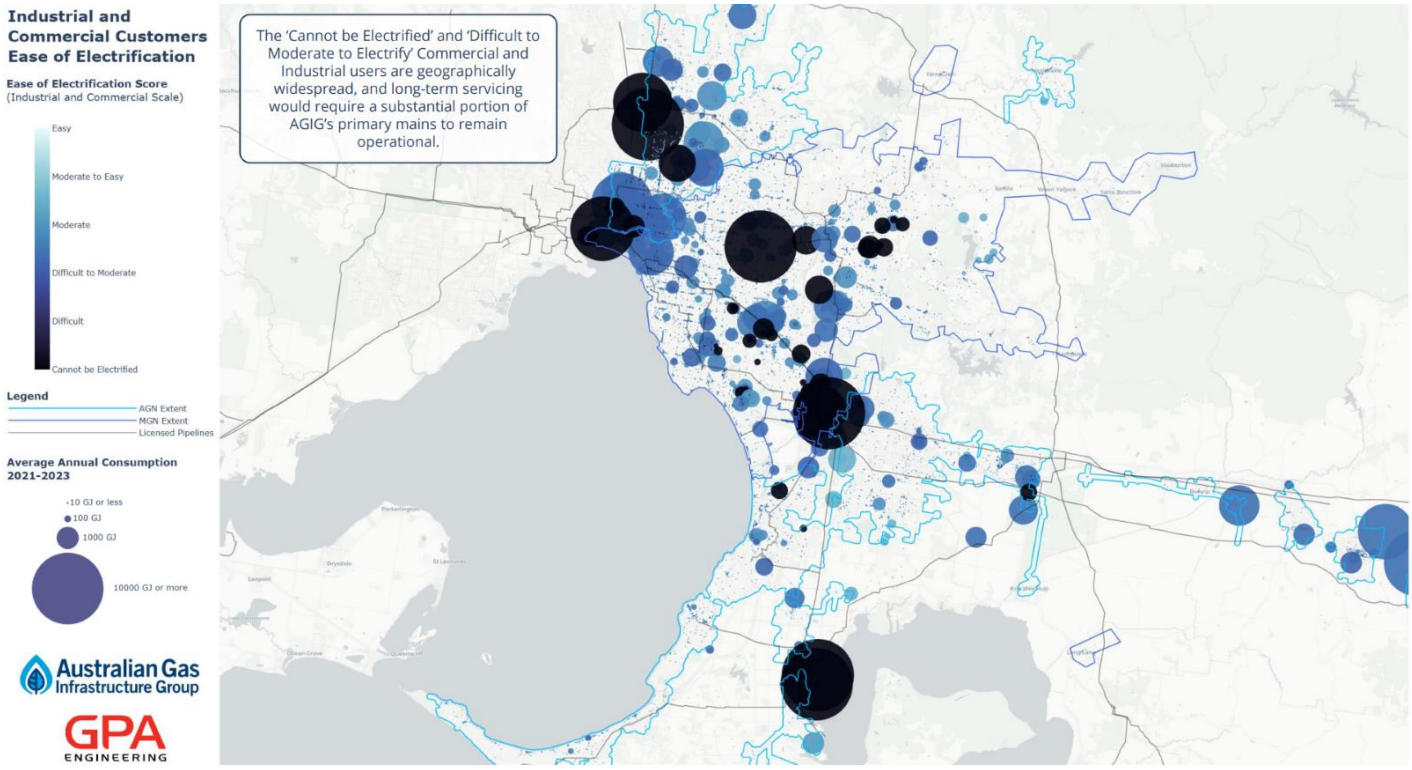
- Businesses are diverse in their operations and industrial processes; and even those in the process of electrifying some of their operations remain reliant on gas for parts of their production processes.
- Around half of the businesses that had planned asset replacements intended to replace their assets with a like-for-like replacement that would run off natural gas or biomethane, with the main reasons cited being cost, performance and reliability.
- Most interviewees were supportive of renewable gas blending in the network provided costs remained similar. Interviewees that had considered producing biomethane behind-the-meter (BTM) found it uneconomic and had a preference to focus on their core business. This indicates that customers are supportive of renewable gas being blended into the existing network, allowing them to decarbonise through certificates at a pace that suits them.

The diverse use of energy, and characteristics of the users on our distribution networks also means that any draft recommendations in the draft strategy relating to decommissioning must be carefully considered. Analysis of our distribution networks undertaken by GPA Engineering also confirmed that usage varies significantly between customer groups – there is further significant diversity in usage within the same connection type (i.e. when comparing one commercial user to another, or one residential user to another). 28 broad user types account for over 90% of commercial and industrial customer gas use - larger commercial and industrial consumers, such as dairies, buildings, high temperature product manufacturing, food product manufacturing and hospitals, are just as prominent as smaller users, like restaurants, cafes, laundromats, and breweries, particularly in the metropolitan outskirts of Melbourne. Residential customer profiles also vary significantly by dwelling type, gas usage, and financial wellbeing[27]. Rather, the diverse use of energy needs to be met by a diverse range of options to decarbonise.

[24] Refer to AGIG website for more details. New Agreement Paves the Way for AGIGs First Biomethane Connection | AGIG
[25] Refer to AGIG's submission to the Renewable Gas Directions Paper consultation, February 2025. https://www.agig.com.au/-/media/files/agig/media-release/rg-directions-paper--agig-submission-070225-final.pdf
[26] Decarbonisation Pathways for Victorian Business: Experiences of Commercial and Industrial Gas Users. KPMG report prepared for AGIG, July 2024
[27] See p6. AGIG Victorian Distribution Network Overview Summary Report – GPA Engineering, December 2024 240899-INT-003-r1-AGIG-Victorian-Distribution-Network-Overview.pdf

To fully maximise the use of existing assets, we strongly encourage Infrastructure Victoria to update its draft recommendation by undertaking further work in partnership with gas distribution networks such as AGIG. Analysis conducted by GPA Engineering below shows that different customer types (residential, commercial businesses, and large industrial users)[28] are geographically and physically dispersed and intertwined across our Victorian and metropolitan Melbourne networks. The metropolitan Melbourne network is demonstrated below in Figure 3. Further charts providing further detail on our Victorian networks and specific regions, for example Shepparton in regional Victoria, and Sydney Road in inner-city Melbourne, are available in GPA Engineering's analysis[29].

Figure 3 Physical dispersion of customers across metropolitan Melbourne



Removing one customer group through policies has an impact on the fixed costs and economics of transporting natural gas, and renewable gases, to users on the network. Decommissioning parts of the network, as suggested in the draft recommendation, is physically complex and likely to have impacts on other customers.

As an example, we estimated that the Building Electrification Regulatory Impact Statement (RIS)[30] released in December 2024, which proposes to create an effective ban on replacing gas appliances like-for-like (except for gas cooktops) and accelerate electrification, would potentially increase gas network costs for Victorian homes and businesses by between 16% and 20% per annum[31].

We therefore consider the draft recommendation regarding decommissioning problematic without a full understanding of the physical characteristics of the network outlined above. This is also at odds with recommendations to enable renewable gases and supporting industrial users who continue to need gas. Instead,

[28] Large industrial users consuming above 10TJ p.a. are referred to as "Demand Tariff" customers (Tariff D), and business customers consuming <10TJ p.a. are referred to as "Volume Tariff" customers – also commonly referred to as commercial customers. It should be noted this reflects the scale and volume of consumption, rather than the way that they use gas – there is significant overlap between the two. This is outlined in greater detail in the GPA Engineering report.

[29] AGIG Victorian Distribution Network Overview Summary Report – GPA Engineering, December 2024 240899-INT-003-r1-AGIG-Victorian-Distribution-Network-Overview.pdf

[30] Building Electrification – Regulatory Impact Statement. December 2024. Access here: Building Electrification – Regulatory Impact Statement | Engage Victoria

[31] For detailed analysis please refer to our submission on the Building Electrification Regulatory Impact Statement in February 2025 – available on the AGIG website. https://www.agig.com.au/-/media/files/agig/media-release/rental-ris/250307-building-electrification-ris-submission_agig-final-v2.pdf

we recommend that further work be undertaken to understand users on the distribution network in partnership with distribution network owners. We also recommend that instead of pursuing decommissioning, the existing network should be utilised to enable renewable gas production.

It should also be noted that the National Gas Law requires gas pipelines be provided with a reasonable opportunity to recover at least the efficient costs of providing and services and incurred in complying with a regulatory obligation. Draft recommendations should reflect compliance with the National Gas Law and be developed in collaboration and partnership with gas distribution networks.

Draft Recommendation #34: "Speed up household energy efficiency and electrification - Require efficient electric space heating and hot water when people replace their heaters at end-of-life and support low-income households to go all-electric. Complete social housing energy upgrades, including electrification. Require Victorian homeowners to disclose the energy efficiency of their homes at the time of sale or lease"

We note the Victorian Government undertook consultation recently on the draft recommendation to *"require efficient electric space heating and hot water when people replace their heaters at end-of life"* in its Building Electrification Regulatory Impact Statement (RIS)[32] released in December 2024, proposing to create an effective ban on replacing gas appliances like-for-like (except for gas cooktops) and accelerating electrification.

In our submission to this RIS[33] we noted that impacts to energy reliability, security, supply and network cost increases to Victorians, including businesses, needed further consideration. The upfront capital costs of electrification are not insignificant to households during a cost-of-living crisis.

Several reputable analyses, including analysis conducted by Aurora Energy Research for Infrastructure Victoria, expect that the increased electricity demand on the energy system at a time when coal retirements are occurring, will result in higher wholesale energy costs, while lowering reliability and security. Furthermore, as users leave the gas distribution network, costs will also increase for the remaining users on the network – who are likely to be businesses who continue to need gas, or households who cannot electrify.

These are outlined in greater detail below.

Draft recommendations should support choice and information provision on energy efficiency

We encourage the draft recommendations to instead support consumer choice and consider technology neutral approaches to whole-of-system planning, rather than forcing Victorian consumers to undertake costly works to electrify that has potentially negative cost, reliability and security impacts on the electricity grid. The recently concluded Residential Electrification inquiry concluded that *"consumers must be given genuine choice about the electrification upgrades they wish to make, and the most affordable option in the short term will be to maintain their gas appliances – consumers should not be unduly prevented from maintaining gas appliances."* [34]

Draft recommendations should also consider focusing on objective and impartial, industry-led information provision. We are in-principle supportive of the recommendation for Victorian homeowners to disclose the energy efficiency of

[32] Building Electrification – Regulatory Impact Statement. December 2024. Access here: Building Electrification – Regulatory Impact Statement | Engage Victoria
[33] Refer to footnote 31.
[34] Para 6.17 of the Residential electrification inquiry report, March 2025 – Parliament of Australia. Access here: Residential electrification – Parliament of Australia

their homes at the time of sale or lease, noting that this is part of a suite of changes already being pursued by the Federal government in changes to its Nationwide House Energy Rating Scheme (NatHERS) in 2024[35].

Acceleration of electrification will have system impacts on Victoria's electricity grid

A proposal to force households to electrify their appliances at end-of-life is likely to increase peak demand on the electricity system currently, exacerbating the storage needs discussed in draft recommendation 32. This is best illustrated by a study undertaken by Griffith University, which predicts that policies which accelerate electrification would see annual Victorian gas consumption fall from 257.0 PJ pa to 196.2PJ pa, while maximum demand rises from 1,785 TJ per day to 1,823 TJ per day which means the reliance on gas remains through the electrification of homes due to the use of gas fired power generation instead of through the reticulated gas network[36].

The acceleration of electrification also has implications for the electricity grid. As outlined in Victoria's Renewable Energy Targets, the decarbonisation roadmap of the Victorian electricity grid involves replacing coal fired power stations (which serviced 61.7% of Victoria's electricity demand over 2025[37]) with accelerated uptake of offshore wind, onshore wind, utility scale solar and batteries. It is expected that this is supported by increased transmission and management of additional loads and flows on electricity distribution networks.

Modelling by L.E.K. Consulting, commissioned by Energy Networks Australia, who represent electricity and gas distribution networks, examined the whole-of-system impacts of the RIS proposal to force households to electrify their appliances at end-of life on Victorian customers. This analysis included wholesale electricity prices, gas market impacts, network costs, customer costs of electrification, and subsequent impacts on emissions. It found that wholesale electricity prices would be around $5/MWh higher on average under the government's proposed regulations. It also found the proposal would add a further $22 billion in increased energy system costs from FY25 to 2045[38], including from building additional energy infrastructure and the cost associated with constrained electricity supply.

Increasing demand at the same time on an electricity grid which is facing several "Very High" and "High" risks to implementing these initiatives, as outlined by Jacobs in its analysis for Infrastructure Victoria[39], puts the transition at risk and therefore has implications for Victorian consumers through its impacts on energy reliability, security, supply and cost.

Impacts to energy reliability, security, supply, emissions and cost

Forcing consumers to electrify their appliances has both upfront and longer-term cost impacts which Victorians may not want to pay, or indeed be unable to afford. In addition to replacing appliances, many households – DEECA estimates this as one-in-five – will face the upfront cost of between $2,525 and $12,250 to upgrade switchboard and electrical supply when changing out gas appliances for electric appliances[40]. A policy of forced electrification is also likely to have the effect of increasing gas network costs for remaining customers of between 16% to 20% per annum, as we outlined in our response to draft recommendation 33. When taken together, these cost impacts are significant for many Victorians and need to be fully appreciated as part of any recommendation to force consumers to electrify their homes.

[35] Consultation on the Home Energy Ratings Disclosure Framework – Version 2. Department of Climate Change, Energy, Environment and Water. July 2024. Access here: Consultation on the Home Energy Ratings Disclosure Framework – Version 2 - Department of Climate Change, Energy, Environment and Water

[36] Simshauser, P. & Gilmore, J, Griffith University, Policy Sequencing: On the Electrification of Gas Loads in Australia's National Electricity Market (December 2024). Access here: https://www.griffith.edu.au/__data/assets/pdf_file/0023/2064560/2024-10-NEM-Electrification-07.01.pdf (Griffith University, December 2024)

[37] OpenNEM – Victoria, for the 12 months preceding the dispatch week ending 20 April 2025. Accessed 17 April 2025 Open Electricity: Victoria

[38] L.E.K Consulting Report, Impacts of Forced Electrification on the Victorian Energy System, Costs and Emissions. February 2025, p.12. Access here: L.E.K-Consulting-Impacts-of-Forced-Electrification-on-the-Victorian-Energy-System-Costs-and-Emissions-February-2025.pdf

[39] Refer to Tables 3-1 and 3-2 in Jacobs (for Infrastructure Victoria), Victoria's energy transition risks and mitigation actions, Final REPORT August 2024. Available at: https://engage.vic.gov.au/download/document/38878

[40] Cost of switching from gas to electric appliances in the home – Frontier Economics. June 2022. Access here: Frontier-Economics-Report-GAMAA.pdf

The proposed regulations also estimate that its preferred option will reduce emissions by 3.3 million tonnes of CO_{2e} per annum (Mtpa) – just 4% of Victoria's total annual emissions of approximately 80 Mtpa[41]. This reduction comes at a high cost. The L.E.K. Consulting research referred to earlier estimates a cumulative savings of 18 Mt CO2e at a total consumer cost of $22 billion, which equates to $1,222 per tonne of CO2e saved[42]. For comparison, $1,222 per tonne is approximately 4 times the social cost of carbon in 2045 at $305 as determined by the Australian Energy Regulator, which provided a structured framework for incorporating emissions reduction benefits into energy sector decision-making and regulatory processes[43]. Further, the average price of an Australian Carbon Credit Unit (ACCU) in November 2024 was $34-$36 per tonne of CO2e abated, while the VEU certificates traded around $108 per tonne of CO2e abated in February 2025[44].

Appendices to Infrastructure Victoria's draft strategy provide evidence of further costs that are likely to be realised through a policy of forced electrification. The analysis undertaken by Aurora Energy Research[45] predicts the cost of wholesale electricity will more than double from $50/MWh to more than $110/MWh when Yallourn coal power station closes in 2028, as a result of delays in replacing the supply currently provided by coal power stations with wind, solar and transmission projects at the same time electricity demand is increasing. These price increases are modelled in the absence of the proposal in this RIS, which, if implemented, would further exacerbate the price hike by shifting an even greater burden (current gas users) onto the electricity system. Although the cost impacts are outlined in the appendices of the draft strategy, they are not reflected in the main report nor clearly considered in the recommendations. We encourage Infrastructure Victoria to better integrate these elements to support more informed decision-making.

Further, a policy of forced household electrification has been modelled to have only marginal impact to gas supply, with "savings" from gas usage on the gas network being used in gas powered generation to produce electricity at times of winter peak demand. The modelling to support the proposed regulations outlines that a significant and structural gas shortfall of approximately 145 PJ per annum still exists in 2043[46].

The Griffith University report discussed above also finds that with respect to Victoria, policies which accelerate electrification would see annual Victorian gas consumption fall from 257.0 PJ pa to 196.2PJ pa, while maximum demand rises from 1,785 TJ per day to 1,823 TJ per day[47] which means the reliance on gas remains through the electrification of homes. The modelling by L.E.K. mentioned above also further highlights this issue, noting that during a period of increased electricity demand due to forced electrification policies in Victoria, approximately 27% of the additional electricity demand that arises must be met with gas peaking generation[48].

As detailed in our responses to draft recommendation 33, we consider that a gas supply shortfall is best addressed by accelerating the development of natural and renewable gas supply, rather than providing negative investment signals by artificially reducing demand.

[41] Building Electrification RIS, December 2024, p.10
[42] L.E.K. Consulting Report, February 2025, p.6
[43] Australian Energy Regulator (AER), *Valuing emissions reduction, AER guidance and explanatory statement*, May 2024, Table 1: Interim values of emissions reduction, p. 4. Available at: https://www.aer.gov.au/system/files/2024-05/AER%20-%20Valuing%20emissions%20reduction%20-%20Final%20guidance%20and%20explanatory%20statement%20-%20May%202024.pdf
[44] Clean Energy Regulator, *Quarterly Carbon Market Report,* September Quarter 2024. Available at: *https://cer.gov.au/markets/reports-and-data/quarterly-carbon-market-reports/quarterly-carbon-market-report-september-quarter-2024/australian-carbon-credit-units-accus* and Demand Manager, Available at: https://www.demandmanager.com.au/certificate-prices/
[45] Aurora Energy Research (for Infrastructure Victoria), Energy Transition Analysis, November 2024. Available at: https://engage.vic.gov.au/download/document/38877
[46] Refer to footnote 32.
[47] Refer to footnote 36 – Fig.17 of the report.
[48] Refer to footnote 38 – p14.