

3 June 2022

Martijn Wilder AM
Chair Independent Expert Panel
A Victorian Emissions Reduction Target for 2035

Via: <https://engage.vic.gov.au/climate-action-target-2035>

Dear Mr Wilder,

Energy Networks Australia's Response to A Victorian Emissions Reduction Target for 2035

Energy Networks Australia (ENA) welcomes the opportunity to engage in the Victorian Government's public consultation on setting a greenhouse gas emissions reduction target for Victoria for 2035 under Victoria's Climate Change Act 2017.

ENA is the national industry body representing Australia's electricity transmission and distribution and gas distribution networks. Our members provide more than 16 million electricity and gas connections to almost every home and business across Australia.

Networks delivering a net zero energy system.

The mandate to decarbonise is clear. Governments, investors and consumers across Australia and globally are driving a target of net zero by 2050. The energy sector will need to move earlier, accelerating pathways for other sectors to decarbonise.

ENA's Energy Vision seeks to define a single vision of how transmission, distribution and renewable gas networks will work together in the energy grid of the future to enable greater customer choice and flexibility and support system security and reliability to enable energy decarbonisation at lowest possible cost to customers.

The shared vision will allow networks to articulate a collective pathway to net zero, identifying the activities, investments and timeframes necessary to reliably and affordably deliver the future energy system.

Electricity transmission challenges

Augmenting existing transmission network and building new transmission is critical to enable more renewable generators on the grid. Prudent and timely transmission investment is needed to support Victoria's renewable targets.

The Victorian Government developed a Draft Renewable Development Plan to help facilitate the development of the grid to connect more renewables. Transmission networks have longer lead-times to deliver compared to renewable generation and it

is important that they well co-ordinated. There are significant risks for consumers if transmission is not delivered when it is needed.

To enable further electrification of industry and transport, ensuring the right development of transmission and renewables is essential. As we have seen coal generation may retire earlier than expected and may also fail. It is essential that policies are prepared to deal with these scenarios and both renewables and transmission projects are delivered on time. It is also crucial to get the sequencing of the needed transmission projects right to ensure proponents have the ability to procure the labour and equipment that will inevitably be in high demand.

Governments have a role to help facilitate timely state planning and environmental processes, to openly support transmission projects to help frame community and landowner expectations. This must include consideration of diversity of all generation, maintaining the least total system costs through the transition and fairly compensating those that are directly impacted by transmission developments.

Finding the right balance for a reliable and secure power system

The AEMO Draft 2022 ISP indicates that Victoria will transition from a significant exporter to a net importer of electricity. Victoria and SA have seen some outages in recent times when solar drops off late afternoon and still, hot conditions mean no wind. Pumped hydro, battery or gas may be useful in these times and essential when there is no longer any dispatchable coal generation left in Victoria. However, as we have seen in recent weeks with the cold snap and overcast conditions on the east coast, there may be insufficient solar to fill batteries each day and meet supply overnight.

Investment in transmission must ensure that the right projects proceed in a timely manner, that Victoria can meet reasonable levels of supply reliability in all weather conditions and that Victoria is able to operate a secure power system. Significant new investment in both transmission and generation is needed to meet the emissions reductions required across the economy.

Gas networks delivering renewable gas

While the decarbonisation journey for electricity, including the need for investment in networks to enable new renewables to connect, is well known, it is less well known that gas networks are on their own decarbonisation journey. Customers tell us that they are seeking a clean energy future and are engaged in achieving emission reductions from gas use.

New renewable fuels, such as hydrogen and biomethane, can use existing energy infrastructure. Our gas networks are leading the development of renewable gas projects and blending renewable hydrogen in the Adelaide and Sydney gas distribution networks, with further projects under development for Victoria, Western Australia and Queensland.

Gas Vision 2050 outlines a pathway for the gas sector to decarbonise. The aim is to reach 100 per cent renewable and decarbonised gas in the 2040 to 2050 timeframe.

There are already renewable gas blending projects delivering renewable gas blends to customers in South Australia and NSW and more projects are being built.

Individual gas networks are progressing detailed plans to fully decarbonise¹. A joint plan has been developed by ENA, which used at least a 10 per cent renewable gas blend by 2030 as an interim step to reaching net zero in the years thereafter. This 10 per cent target reflects the opportunity to blend in networks before a conversion to 100 per cent hydrogen is required, but higher blend targets may be possible.

Australian gas distribution networks are continuing to complete testing with Future Fuels CRC for networks materials and components on hydrogen blends and 100 per cent hydrogen. Within Victoria, there are no constraints to gas networks providing a blend of up to 20 per cent hydrogen. Testing of appliances in Australia has been completed up to 10 per cent and has found that these appliances can safely continue to perform with a blend of 10 per cent hydrogen. Gas networks in Australia are already blending renewable gas

Australia's gas distribution networks are leading the development of renewable gas demonstration. Both renewable hydrogen and biomethane projects are under development. Of particular interest are the following projects:

- » **Hydrogen Park, SA²:** Renewable hydrogen is produced using a 1.25MW electrolyser with water and renewable electricity. The renewable hydrogen is blended with natural gas at volumes of up to 5 per cent and supplied to nearby homes (over 700 homes) via the existing gas network. This project is already demonstrating that renewable gas can be provided to customers.
- » **Western Sydney Green Hydrogen Hub³:** Hydrogen is carbon neutral and a 500kW electrolyser installed as part of the Western Sydney Green Gas Project produces renewable hydrogen and blends that into Jemena's gas network to approximately 250 homes. The project is expected to reach 23,500 residential customers, 100 commercial customers, and seven industrial customers. The project will also supply green hydrogen for use by transport from early 2022.
- » **Malabar Biomethane Project⁴:** This project located in Sydney aims to produce renewable biogas from wastewater. This biogas will be upgraded to meet the specifications of natural gas allowing it to be injected and blended into the natural gas distribution system. The project is currently under construction with a planned operation date in early 2022 when renewable biomethane will be injected into Jemena's natural gas network. At the same time, GreenPower is developing a pilot certification scheme to verify that this biomethane is a renewable gas.

¹ Energy Networks Australia (2022), *Gas Vision 2050: Delivering the pathway to net zero for Australia – 2022 Outlook*, available from www.energynetworks.com.au/projects/gas-vision-2050/

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

³ <https://jemena.com.au/about/newsroom/media-release/2021/first-green-hydrogen-for-new-south-wales-homes-and>

⁴ <https://jemena.com.au/about/innovation/malabar-biomethane-project>

These projects are demonstrating a pathway to deliver renewable gas to homes and businesses.

The readiness of Victoria's gas distribution network to deliver a hydrogen blend and 100 per cent hydrogen.

Victoria's gas distribution network businesses, Australian Gas Networks, AusNet Services and Multinet Gas have been converting their cast iron mains to plastic alternatives since 2003. Replacing these pipes with modern alternatives will allow hydrogen to be safely delivered through the gas network to customers. The current proposals being assessed by the Australian Energy Regulator see AGN's conversion completed in 2022, MGN's by 2030 and Ausnet Services' by 2028. All these plans still need approval by the AER.

Additionally, Future Fuels CRC has an active research program with a high level of engagement and support from the industry to investigate whether 100 per cent hydrogen impacts the performance of plastic distribution networks⁵. Early testing results have shown some changes to some network materials but at a level unlikely to alter the overall risk profile when using hydrogen instead of gas. Moreover, the current safety controls in operating and maintaining gas networks can easily be adjusted to respond to changes in materials.

Modern plastic gas networks are already installed in many key growth areas in Victoria, for example Cranbourne or Wollert, which makes these areas ready for 100 per cent hydrogen and ideal candidates for a demonstration of a hydrogen home and an opportunity for Australia's first hydrogen suburb by 2030.

The availability of 100 per cent hydrogen appliances

A common concern expressed about the role of hydrogen is the availability, suitability and safety of hydrogen appliances. Existing gas appliances are only suitable to take a blend of hydrogen (up to 10 or 20% as mentioned above) and modifications to appliances will be needed for them to operate safely and efficiently on 100 per cent hydrogen.

The Hy4Heat program in the UK has developed certified household appliances that work on 100 per cent hydrogen. These appliances include cooktops, space heaters, boilers, hot water heaters and meters.⁶⁷⁸

⁵ https://www.futurefuelscrc.com/program_area/material-properties-and-performance-rp3-1/

⁹Australia's gas appliance manufacturers are actively engaged in the appliance research program¹⁰ at Future Fuels CRC and are also independently pursuing the development of hydrogen appliances for the domestic market.

A supportive policy environment to reduce emission

Setting emission targets for 2035 should recognise that transmission, distribution and gas networks are essentially enablers to delivering renewable energy, both as electricity and gas.

The following policy options would support Victoria's gas use contributing to the 2035 emission target.

- » Continue supporting demonstration and commercial scale projects of renewable gas.
- » Encourage market development via renewable and decarbonised gas targets, certifications schemes and incentives.
- » Enter into "reverse auctions" or "gas purchase agreements" for renewable gas to encourage its uptake in the market, similar to actions undertaken via the Victorian Renewable Energy Target and local council actions.
- » Enable gas networks to offer renewable gas opportunities in new residential developments, which will fast track the development of 100 per cent renewable gas and ensure gas costs remain affordable for all gas users.
- » Continue decarbonising electricity supply, which will be needed to produce renewable hydrogen.
- » Encourage technical regulators to work collaboratively with industry in developing safety cases for demonstration projects, similar to the process adopted by the Health and Safety Executive in the UK, which in an enabling regulator that works with industry to ensure renewable gas projects can be safely deployed.
- » Support hydrogen blending projects to gain technical and regulatory experience, customer acceptance and a pathway to commercial opportunities for hydrogen.
- » Support the development of renewable hydrogen to support decarbonisation of industrial processes.
- » Support local appliance manufacturers to provide accredited hydrogen appliances.
- » Enabling opportunities for network businesses to deliver hydrogen to new residential developments.
- » Identify the resource potential of biomethane, either from local biomass resources, or from interstate resources that can be shipped using existing transmission pipelines.

¹⁰ https://www.futurefuelscrc.com/program_area/compatibility-of-end-user-equipment-with-future-fuels-rp1-4/

- » Facilitate collaboration with gas networks, technology vendors, and resource provider to develop commercially viable biomethane projects.
- » Support policies to recognise the value of circular economy benefits.

Should you have any queries please contact ENA's Head of Renewable Gas, Dr Dennis Van Puyvelde, dvanpuyvelde@energynetworks.com.au or Head of Transmission, Ms Verity Watson, vwatson@energynetworks.com.au.

Yours sincerely,

A handwritten signature in blue ink that reads "A. Dillon".

Andrew Dillon
Chief Executive Officer