

Submission to Infrastructure Victoria

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Q1. A bit about you. Who is writing this idea? If you are submitting on behalf of an organisation please also identify this here.

AusNet submission attached

Q2. What matters to you?

Q3. Your proposed ideas: What strategic idea/s are you proposing for the 30-year infrastructure strategy that will achieve your desired outcomes?

Q4. Why do you think your proposed ideas are better than the other options you might have considered?

Q5. What sources of information do you think Infrastructure Victoria needs to consider when developing the 30-year Infrastructure Strategy for Victoria?

<https://engage.vic.gov.au/dash/project/1223/submission/survey/1108036/attachment/dXBsb2FkOjIwMjMtMDItMTIUMTE6MDg6MjEuNTMxWg==0-ausnet-submission-to-infrastructure-victoria-30-year-strategy-review.pdf/download>

Q6. How are the documents or information you have shared relevant to your idea?

Please see attached AusNet's submission to Infrastructure Victoria's review of their 30-year Strategy.

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Dear [REDACTED]

AusNet welcomes the opportunity to provide this submission to Infrastructure Victoria on their 30-year strategy.

AusNet is the largest diversified energy network business in Victoria—we own and operate three core regulated networks: electricity distribution, gas distribution and the state-wide electricity transmission network, delivering energy to over 6 million Victorian households and businesses.

This review comes at a time of a significant transition in the energy sector, as we have seen a significant step up in ambition to rapidly reduce emissions by moving to renewable sources of energy generation. This is supported by further uptake in consumer energy resources (CER) (rooftop solar, batteries and electric vehicles). Infrastructure Victoria's revised strategy must enable a path to meet the ambitious emissions reduction targets legislated by the Victorian Government, along with clear consideration of the long-term interests of energy users and support for Victorians in their energy choices, while maintaining access to reliable and affordable electricity and gas.

Energy networks play a critical role in enabling the decarbonisation of electricity, gas and transport. The strategy should focus on delivering Net Zero through efficient investment and utilisation of energy infrastructure, including unlocking value from consumer energy resources. Additionally, we need to adapt and ensure energy networks are resilient to the impacts of climate change and major disruptions.

Enable rapid transition to a 100% renewable grid

The electricity sector will deliver the greatest emissions reductions for Victoria in the near term and this will flow on to enable full decarbonisation of other sectors such as transport and gas. Therefore, a key infrastructure priority must be ensuring the electricity grid can transition to renewable as quickly as possible. This will require rapid deployment of the generation, network and storage infrastructure to ensure the grid remains reliable and secure as it decarbonises.

The Australian Energy Market Operator's (AEMO) latest draft Integrated System Plan (ISP) projects all 4.8 GWs of Victoria's brown coal fleet is likely to retire by 2032¹. Victoria must also replace this retiring coal with renewable generation and storage to meet our energy needs, which is dependent on the development of new transmission capacity.

Transmission investment is foundational to delivering the renewables required to smoothly decarbonise our energy system. AusNet strongly supports prudent and timely transmission investment decisions being made by the Victorian Government through its transmission related policies.

Historically, it takes approximately 8 years from development to commissioning to deliver a transmission project and Victoria could become a net importer of electricity from other States if the grid is not transformed in time. The rapid exhausting of Victoria's transmission network capacity and the timeframes for transmission builds mean that in planning for Victoria's decarbonisation for 2035 and beyond, planning for and delivering the enabling transmission should be a top priority.

Additionally, investment in Victoria's sub-transmission (66kV) and distribution (22kV) networks represents an untapped opportunity to unlock grid-scale renewables. This is a significant opportunity and means to overcome capacity constraints on the transmission network. Sub-transmission and distribution connections have a significantly smaller footprint and a simpler and faster network development process. We have connected more

¹ AEMO 2022 Integrated System Plan

than 650MW of large-scale (excluding rooftop PV) energy or storage projects across our network and currently have a pipeline of close to 4GW. These projects range from 5 MW to 120 MW in size and are predominantly located within Victoria's Gippsland, Central North and Ovens Murray REZs.

A collaborative approach with government, industry and regulators aiming at removing any barriers and minimising delivery risk of these projects is essential to ensure Victoria can achieve its emissions targets and speed required by the transition which will deliver the benefits of renewable energy for all Victorians.

Efficient electrification through flexible demand and utilisation of CER

There will be significant growth in electricity demand through the transition to 2050, driven by electrification of transport and natural gas, and to produce green hydrogen. There are many levers to consider to manage this demand, including a mix of large scale generation, orchestration of CER including rooftop solar and batteries, and energy efficiency.

According to the Australian Energy Market Operator's (AEMO) 2022 Electricity Statement of Opportunities (ESOO), electricity consumption is forecast to double by 2050² which will require a significant uplift in network investment to accommodate. Simultaneously, AEMO forecast 5 times growth in CER³. Therefore, investment in electricity networks should be combined with measures to improve demand flexibility and unlock value from CER to achieve better customer outcomes.

Investment in rooftop solar has resulted in a change in the typical demand profile of the average customer, with low demand periods during the middle of the day (and high energy exports for customers with solar rooftop), and peak demand in the evenings and mornings. Without a change in how and when energy is consumed, customers may not get the performance benefits of solar generation during the middle of the day while potentially paying more for energy use during evening and morning peaks. It also requires more network investment to accommodate for a growing divergence between high and low demand periods.

Flattening the average demand profile requires flexibility in how energy is used and ability for shifting of demand during the day. Incentives such as time-of-use tariffs and flexible demand programs encourage customers to use electricity at times when renewable generation is high and low cost, while allowing networks to manage costs by alleviating pressure from the grid during peak times. While these programs and incentives may not reduce demand on average, they provide benefits to consumers by reducing network and generation costs and providing financial rewards for flexibility.

AusNet is already providing flexible demand incentives and unlocking more value from CER, though:

- **Cost reflective and time of use tariffs**—our commercial and industrial (C&I) network tariffs are cost reflective and provide additional financial incentives to customers to reduce demand on highest peak days, through critical peak demand (CPD) incentives. From July 2021, we have also introduced new time of use tariffs for residential customers, creating a strong signal to shift demand away from peak periods. These are mandatory for customers that we are aware have electric vehicles.
- **EDGE trial**—AusNet has partnered with AEMO for a 3-year industry-leading Energy Demand and Generation Exchange (EDGE) trial, that pilots a platform for the exchange of flexible network and market services between networks, aggregators and AEMO. This includes rewarding customers in Virtual Power Plants (VPPs) for flexible demand and export management, as well as providing system strength services. The trial is due for completion in 2023.
- **Flexible Exports trial**— Flexible exports are an alternative to fixed exports, which limit the amount of excess solar that can be exported to the grid. Solar flexible exports allow network operators to monitor and adjust rooftop solar exports in real time. This method provides more opportunity for Victorian solar customers to export their excess solar without putting pressure on the network. This trial will allow participating households to export up to 5kW of excess solar energy to the grid. Using smart solar inverters, we can balance exports against local network supply and demand to reduce excess strain on the network.

² AEMO 2022 Electrical Statement of Opportunities

³ AEMO 2022 Integrated System Plan

- **Grid-scale storage**—AusNet has also trialled the use of coordinated DER and grid-scale energy storage systems to provide demand management and network support through community storage and microgrid trials. This includes rewarding battery owners for flexible network services, as well as investing in our own flexible storage solutions to manage network congestion.

Energy flexibility and orchestration of CER, which can be facilitated through options such as those mentioned above, will be a key feature of the network's transition to the role of the Distribution System Operator (DSO) which will ultimately benefit all consumers in the long term.

Energy resilience is key to Victorian communities adapting to climate change

Investment in energy resilience should be a key feature of Victoria's approach to adapting to climate change and extreme weather events. Energy resilience has a flow on impact to other essential infrastructure and services including health.

Community resilience to prolonged power outages caused by climate driven extreme weather events has emerged as a high priority issue for our customers following the 2019/20 bushfires and the severe storms of June and October 2021. For each event, we responded to assist our customers quickly as possible. This includes restoring power to our customers through replacement network infrastructure and providing a broad range of support measures (e.g. establishing community relief hubs, working with government to administer meaningful financial assistance).

Going forward the frequency and severity of extreme weather events impacting Victoria's distribution network is expected to increase further. Network resilience will need to be a key consideration in planning decisions. This could lead to different and additional investments being undertaken due to the resilience benefits provided by alternative solutions. For example, the use of microgrids to support critical community infrastructure during prolonged power outages.

Over time, properly valuing network resilience investments could support customers and their communities to transition to a 100% renewable future while minimising or avoiding future loss of energy supply. For example, accelerate the investment in local microgrids, stand-alone power systems, solar PV, battery storage and EV charging infrastructure, which provide for energy self-sufficient communities.

Minimise disruption from transition away from natural gas

Gas infrastructure and customers face greater uncertainty of the speed and path to decarbonation due to the economic and technological maturity of renewable gases and therefore absence of the policy environment and interim targets as seen in the electricity sector. AusNet supports a transition of gas networks to net-zero by 2045 and recognises there are various pathways available to reduce gas emissions in the future. For example, displacing natural gas use through electrification or renewable gas including green hydrogen.

We also acknowledge the significant role gas plays in Victoria's energy mix today and the difficulty and disruption transitioning away from natural gas will have on customers and industries. There is significant work and investment currently underway by businesses and industry to decarbonise gas. However, further policy can accelerate the viability of scaling up renewable gas in the short term and support Victoria's emissions targets.

When considering pathways to decarbonise gas, the costs and reliability impacts for both electricity and gas customers need to be carefully considered. It is essential the Victorian Government provide industry with enough time to respond to any decisions about the long-term future of gas to manage these impacts and minimise disruption to customers. The path chosen should aim to maximise efficiency, minimise disruption and avoid adverse outcomes for customers unable to switch from natural gas, including industrial customers.

Challenges include:

- Significant upfront capital investment to switch away from natural gas appliances and difficulty coordinating mass customer switching across Victoria, noting that there are approximately 2 million Victorian gas customers.



- Potential for increasing gas network charges for those unable to switch away from gas, including hard to abate industries and customers experiencing vulnerability. This is due to network costs being relatively fixed and still needing to be recovered from a declining group of remaining gas customers. Currently residential customers contribute 96% of AusNet's gas network revenue, while accounting for 51% of consumption, and industrial and commercial customers largely pay for their connection assets upfront.
- If switching is not coordinated, the impacts on gas and electricity networks will be more challenging to forecast leading to greater uncertainty for investment decisions. Rapid electrification of gas load would require a material investment in electricity distribution networks to accommodate localised peak demands, noting transport electrification is also likely to ramp up during this period. Although some loads may be flexible, customers may be less likely to move their cooking and heating outside peak periods. In addition, electrification will require the delivery of major transmission infrastructure to unlock renewables required to support natural gas displacement. Therefore, a coordinated and manageable rate of customers electrifying their natural gas load prior to 2045 would be required to ensure customers have reliable and resilient supply of electricity as their dependency on electricity increases (i.e. for cooling, heating, and transport).
- Additionally, the production of green hydrogen may also have implications for electricity network investment and there needs to be careful consideration and coordination of where and how to produce, transport and consume green hydrogen to maximise efficiency utilising existing network infrastructure and lower the cost to customers.

It is likely that technological advances and social changes over the next decade will bring clarity to what is best for the future of gas. AusNet recognises that 'no regrets' actions taken by government and industry to keep future options open are only prudent for a period, and at some point, must be followed by stronger commitments towards a particular gas future. However, planning and investment decisions for Victoria's gas networks to support either decarbonisation pathway require long lead times (~10-15 years). Given the significant challenges outlined above, it is critical that the Victorian Government provide industry with enough time to respond so that reliability and affordability impacts to customers can be carefully managed.

Addressing vulnerabilities to deliver an equitable transition

It is essential to ensure vulnerabilities are not exacerbated or created through the energy transition. Barriers prohibiting some customers to uptake of low emissions technologies could increase the financial burden as fuel and infrastructure costs rise. Monitoring and ensuring customers are not disadvantaged by lack of information or opportunities must be a focus of policy through the energy transition.

As providers of an essential service, we are committed to managing energy vulnerability and designing policies and tariffs that are suitable for a range of customers and their circumstances. We are working collaboratively with our stakeholders and customers on future investment needs and network tariff reform, which includes targeted policies and tariffs for customers with potential vulnerabilities. As the energy sector continues to evolve, it is important we maintain the affordability and accessibility of essential services, while continuing to improve the flexibility and the efficiency of energy supply.

AusNet welcomes any further consultation on the development of the strategy. If you have any questions regarding this submission, please contact [REDACTED]

Sincerely,

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AusNet Services

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