

12 September 2025

Commissioners Sterland and Stokie
Productivity Commission
4 National Circuit
Barton ACT 2600

Submitted via website

Dear Commissioners,

Submission on the *Investing in cheaper, cleaner energy and the net zero transformation – Interim report*

Infrastructure Victoria welcomes the opportunity to provide Infrastructure Victoria's submission to the *Investing in cheaper, cleaner energy and the net zero transformation – Interim report*.

Infrastructure Victoria is an independent advisory body established by the *Infrastructure Victoria Act 2015* and is responsible for:

- preparing a 30-year infrastructure strategy for Victoria, which we review and update every 3 to 5 years
- advising the Victorian Government on specific infrastructure matters, and
- publishing research on infrastructure-related issues.

Infrastructure Victoria focuses on infrastructure policies, reforms and projects that address the economic, social, and environmental needs of all Victorians.

Victoria's draft 30-year infrastructure strategy

In March 2025, we released *Victoria's draft 30-year infrastructure strategy* for public consultation. The draft strategy contains 43 draft recommendations to the Victorian Government and 7 future options that span across infrastructure sectors. The draft strategy updates the previous 2021 infrastructure strategy. It is available on our website at www.infrastructurevictoria.com.au/resources/draft-30-year-strategy.

We consulted Victorians on the infrastructure goals most important to them. They told us they want infrastructure to help them access opportunities and stay healthy and safe. They want it to help Victoria's natural environment to thrive. And they want it to enable a more productive economy, minimise the ongoing effects of climate change and protect them from risks.¹ Our draft recommendations to the Victorian Government align with these goals.

This submission draws your attention to relevant draft strategy recommendations. We aim to table the final strategy in Parliament by the end of 2025. We also refer to our research and advice on climate adaptation, the energy transition and reducing infrastructure-related emissions. We attach copies of these reports and the draft strategy for the Productivity Commission's consideration. All are available on our website at www.infrastructurevictoria.com.au.

Climate adaptation is becoming more urgent

Climate adaptation receives less attention compared to disaster response. Yet most of Victoria's infrastructure was not designed for the changing climate. As natural hazards become more frequent and severe, adapting and investing in more resilient infrastructure is urgent.² In the past, governments have waited until infrastructure fails and then spent large amounts of money to fix it.³ This has high economic, social and environmental costs.⁴ Early investment in adaptive action can reduce the costs of future damage.⁵

Many types of infrastructure might need climate adaptation. The Productivity Commission identifies housing as requiring specific attention in climate resilience efforts. We encourage a broader consideration of what makes housing resilient. Victorians rely on services provided by essential infrastructure connected or linked to their homes. This includes water, energy and communications. Roads also provide important access for homes. Disruptions to this infrastructure can have serious consequences for communities, businesses and governments.⁶

We agree with the Productivity Commission that governments should invest in public infrastructure and that planning systems need to consider climate risks.

In *Victoria's draft 30-year infrastructure strategy*, we make 3 draft recommendations to the Victorian Government that are aligned with the Productivity Commission's findings:

- **Draft recommendation 27: Better prepare infrastructure for climate change**
Fund high-priority, cost-effective infrastructure adaptation actions when climate adaptation action plans are updated in 2026. Produce an energy sector adaptation plan.
- **Draft recommendation 28: Use new flood maps to revise planning schemes**
Produce a common set of flood projections based on the latest climate data. Use this information to update flood studies and maps and apply them in planning schemes. Minimise building in areas at high risk of flooding.
- **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 and lease.

Draft recommendations 27 and 28 build on our research into adapting Victoria's infrastructure to climate change. Published in April 2024, *Weathering the storm* recommends changes for governments to better assess the benefits of adapting infrastructure to climate change and improve the resilience of infrastructure to climate-related risks. Our research focused on state government owned or regulated infrastructure for different sectors and hazards. These included electricity supply failure due to storms, extreme rainfall damages to roads and flood damage to hospitals.

In *Weathering the storm*, we make recommendations that will allow the Victorian Government to select wise and prudent investments that reduce the risks climate change poses to infrastructure. These might equally apply to the Australian Government. We found that some adaptation measures returned over \$5 in benefits for every \$1 spent.⁷ However, government systems and requirements need to evolve to help infrastructure agencies to consider and act on climate risks to infrastructure in their asset, risk and financial management duties.

Similar to your interim report, we found the need for:

- boosting priority and accountability for infrastructure adaptation, including regularly publishing a progress and evaluation report on adaptation actions

- coordinating and standardising climate projections, which includes delivering training and ongoing support for infrastructure managers to apply the data to climate risk assessments
- providing guidance on how to assess climate-related risks to infrastructure
- updating business case guidelines, technical guidelines and templates to include the risks and impacts of climate change
- build confidence that good adaptation measures will receive funding.

Our research also demonstrated methodologies for making infrastructure adaptation business cases that use climate risk data. The *Weathering the storm* report and supporting technical reports can be found on our website: <https://www.infrastructurevictoria.com.au/resources/weathering-the-storm>.

Speeding up approvals for new energy infrastructure

The Productivity Commission identifies speeding up planning and approvals processes, including by reforming national environmental laws, facilitating regional planning, providing greater access to environmental data, and establishing assessment “strike teams” and an Australian Government Coordinator-General. These recommendations focus on the federal level. They also have relevance at the state level.

In Victoria, many energy projects require an environmental approval to assess their impact, such as an environment report or Environment Effects Statement under state legislation.⁸ Projects of national significance also need to be assessed under the Environmental Protection and Biodiversity Conservation Act. Project proponents often cannot predict these requirements in advance. This means they might have to commission extra studies or technical work. Sometimes the information requirements are unclear, and proponents spend time and money gathering irrelevant details. Alternatively, they might initially provide too little information, meaning further studies are needed.⁹ These situations add cost and delays, and can risk a project’s financial viability.¹⁰ In some cases the process can take over 3 years.¹¹

In the *Victoria’s draft 30-year infrastructure strategy*, we make the following recommendations to the Victorian Government that have strong alignment to the Productivity Commission’s draft recommendations:

- **Draft recommendation 29: Coordinate faster delivery of key energy infrastructure**
Fast-track key energy projects and coordinate enabling infrastructure. Establish a unified energy transition project pipeline and conduct annual progress assessments. Create a central energy transition coordinator to align priorities, improve transparency and manage risks.
- **Draft recommendations 30: Improve environmental assessments and site selection for energy projects**
Reform environmental assessments and help energy project proponents select good sites.

Victoria has also established a development facilitation program, priority assessment teams and an investment coordinator-general.¹² We note these programs only have short-term funding and a remit wider than energy.

The Productivity Commission seeks information to help estimate the effect on power prices of bringing more capacity online faster. We commissioned 2 technical reports on energy transition risks. Both contain scenario modelling that includes potential impacts on wholesale energy prices.

Modelling for delays to key transmission projects and delays to offshore wind show higher wholesale energy prices compared to base cases.¹³ Delays across transmission and renewable energy capacity could lead to thermal plants required longer than planned for.¹⁴ Coal-fired power plants are ageing,

and modelling for increases in coal-fired power plant outages leads to a 50% increase in wholesale prices and potential threats to reliability in some years.¹⁵

We also modelled a hypothetical example of bringing forward offshore wind targets to 9 gigawatts by 2035. This could place downward pressure on wholesale prices in the 2030s.¹⁶

Both reports are available on our website or via the following links:

- *Victoria's energy transition risks and mitigation actions:*
<https://assets.infrastructurevictoria.com.au/assets/victorias-energy-transition-risks-and-mitigation-actions.pdf>
- *Infrastructure Victoria Energy Transition Analysis:*
<https://assets.infrastructurevictoria.com.au/assets/energy-transition-analysis.pdf>

Emissions reduction policies

Infrastructure contributes around 70% of Australia's greenhouse gas emissions through operational, enabled, and embodied emissions.¹⁷ Incorporating carbon values into cost-benefit analysis estimates the impact of different projects and policies on emissions. Valuing carbon in infrastructure cost-benefit analysis can encourage decision-makers to reduce emissions, particularly at the project planning stage when it has the greatest influence on outcomes.¹⁸

There are different ways of valuing carbon. We agree that using a target consistent approach is reasonable. Victoria has a legislated target to reduce emissions to net zero by 2045.¹⁹ Carbon values would need to reflect costs specific to these goals.

Reducing emissions in infrastructure sectors other than electricity can be more challenging due to technology costs, and the need for policies and incentives to support change across the economy. Emissions reduction may be one of multiple objectives that a policy seeks to achieve. For example, household gas appliance switching to efficient electric appliances can reduce emissions, save households money, and reserve gas for industries that cannot switch fuels.²⁰ It is particularly important for Victoria where structural gas shortfalls are expected by 2029.²¹ Decision-makers assess policies on their costs and benefits.

In *Victoria's draft 30-year infrastructure strategy*, we make the following recommendations to the Victorian Government that will be of interest to the Productivity Commission:

- **Draft recommendation 24: Reduce greenhouse gas emissions from infrastructure**
Adopt carbon values and measure carbon in infrastructure projects to reduce emissions.
- **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.
- **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.

Draft recommendation 24 builds on our 2023 advice to the Victorian Government, *Opportunities to reduce greenhouse gas emissions of infrastructure*. Our report explains how the Victorian Government can update policies, guidelines and procedures to make carbon emissions count in

infrastructure decision-making. This includes looking across the lifecycle of infrastructure such as planning, design, construction, maintenance and at end-of-life.

The report can be accessed on our website:

- *Opportunities to reduce greenhouse gas emissions of infrastructure*
www.infrastructurevictoria.com.au/resources/opportunities-to-reduce-greenhouse-gas-emissions-of-infrastructure-2

Draft recommendations 33 and 34 build on our 2021 advice to the Victorian Government, *Towards 2050: Gas infrastructure in a net zero emissions economy*. Victoria is one of the highest users of fossil gas in the world.²² It has over 38,000 kilometres of gas pipelines valued at \$7.2 billion.²³ Homes and commercial businesses account for more than 60% of Victoria's total fossil gas use, compared to the east coast average of 36%.²⁴ Victoria's fossil gas contributes around 16% of its total emissions, mostly in the building stock.²⁵

In *Towards 2050: Gas infrastructure in a net zero emissions economy*, we examined future energy scenarios based on different technology breakthroughs to examine high-level infrastructure implications. Our analysis indicates fossil gas will continue to play a role for some time, but different types of renewable gases will be needed to replace some fossil gas, with an increased role for electricity. This will help reduce emissions. Many of Victoria's gas assets can be repurposed, but not without further assessment and working out many complex logistical challenges. Some existing gas infrastructure will be decommissioned, while other parts may need to be reconfigured.

We recommend regional energy planning to help identify more decentralised gas supply that could pair with demand. This is combined with scaling up biogas and biomethane production, fast-tracking green hydrogen, and sustained efforts in energy efficiency and targeted electrification programs.

The report and supporting technical documents can be accessed on our website:

- *Towards 2050: Gas infrastructure in a net zero emissions economy*
www.infrastructurevictoria.com.au/resources/towards-2050-gas-infrastructure-in-a-net-zero-emissions-economy-final-report.

The Productivity Commission seeks information relating to options to reduce emissions from heavy vehicles. We provided advice to the Victorian Government on *Automated and zero emissions vehicle infrastructure*, including 17 recommendations tested against 7 possible future scenarios and key triggers for action.

We recommend establishing a supportive environment for the Victorian fleet to transition to zero emissions technologies. This includes assessing the benefits and impact of permitting zero emissions freight to travel where currently restricted, and to analyse the costs and benefits of zero emissions zones for freight vehicles.²⁶ Allowing zero emissions freight on some routes could be done where appropriate and safe.

The report and supporting technical documents can be accessed on our website:

- *Automated and zero emissions vehicle infrastructure*
<https://www.infrastructurevictoria.com.au/resources/advice-on-automated-and-zero-emissions-vehicles>.

Thank you again for the opportunity to provide a submission to your *Investing in cheaper, cleaner energy and the net zero transformation – Interim report*. If you would like to discuss any of the information in this submission, please contact me or Llewellyn Reynders, Director of Research and Policy at [REDACTED]

Yours sincerely

[REDACTED]

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- ¹ Infrastructure Victoria, *Strategy objectives engagement report: Victoria's 30-year infrastructure strategy*, September 2023.
- ² S Hallegatte, J Rentschler and J Rozenberg, *Lifelines: the resilient infrastructure opportunity*, The World Bank, 2019, p xiii-xiv, accessed 1 September 2025.
- ³ Infrastructure Victoria, *Weathering the storm*, 2024, p 1, accessed 1 September 2025; Deloitte Access Economics, *Economic reality check: adapting Australia for climate-resilient growth*, report to the Minderoo Foundation, 2022, pp 26-27, accessed 30 September 2024; S Hallegatte, J Rentschler and J Rozenberg, *Lifelines: the resilient infrastructure opportunity*, The World Bank, 2019, accessed 1 September 2025.
- ⁴ Deloitte Access Economics, *Economic reality check: adapting Australia for climate-resilient growth*, report to the Minderoo Foundation, 2022, pp 26-27, accessed 1 September 2025.
- ⁵ Infrastructure Victoria, *Weathering the storm*, 2024, p 10, accessed 2 September 2025; R Wise, 'The benefits of proactively planning for infrastructure resilience', CSIRO News, 13 October 2022, accessed 1 October 2024.
- ⁶ Emergency Management Victoria, *Victoria's critical infrastructure all sectors resilience report 2023*, State of Victoria, 2024, p 5, accessed 1 September 2025.
- ⁷ Infrastructure Victoria, *Weathering the storm*, 2024, pp 23,26, accessed 1 September 2025.
- ⁸ Department of Transport and Planning, *Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978*, State of Victoria, 2023, accessed 1 September 2025.
- ⁹ Herbert Smith Freehills, Clean Energy Investor Group, *Delivering major clean energy projects in Queensland and Victoria: review of QLD and VIC statutory planning approvals processes* [pdf], 2024, pp 8,27, accessed 1 September 2025.
- ¹⁰ Herbert Smith Freehills, Clean Energy Investor Group, *Delivering major clean energy projects in Queensland and Victoria: review of QLD and VIC statutory planning approvals processes* [pdf], 2024, p 27, accessed 1 September 2025; Clean Energy Council, *Clean energy council welcomes project planning reforms for Victorian renewables projects*, CEC website, 2024, accessed 1 September 2025.
- ¹¹ PwC, *Securing approvals for renewable energy facilities in Victoria*, PwC website, n.d., accessed 1 September 2025.
- ¹² Department of Transport and Planning, *Development Facilitation Program*, DTP website, 26 August 2025, accessed 1 September 2025; Department of Treasury and Finance, *Economic growth statement*, State of Victoria, 2024, p 20,25, accessed 1 September 2025.
- ¹³ Aurora Energy Research, *Energy transition analysis*, report for Infrastructure Victoria, 2024, p 67, accessed 1 September 2025; Jacobs, *Victoria's energy transition risks and mitigation actions*, report for Infrastructure Victoria, 2024, p 46, accessed 1 September 2025.
- ¹⁴ Jacobs, *Victoria's energy transition risks and mitigation actions*, report for Infrastructure Victoria, 2024, p 46, accessed 1 September 2025.
- ¹⁵ Jacobs, *Victoria's energy transition risks and mitigation actions*, report for Infrastructure Victoria, 2024, pp 41-42, accessed 1 September 2025.
- ¹⁶ Aurora Energy Research, *Energy transition analysis*, report for Infrastructure Victoria, 2024, p 81, accessed 1 September 2025.
- ¹⁷ Infrastructure Sustainability Council of Australia, ClimateWorks Australia, and Australian Sustainable Built Environment Council, *Issues paper: Reshaping infrastructure for a net zero emissions future*, ClimateWorks Australia, 2020, p 17, accessed 1 September 2025.
- ¹⁸ World Green Building Council, *Bringing embodied carbon upfront: coordinated action for the building and construction sector to tackle embodied carbon*, 2019, p 20, accessed 1 September 2025.
- ¹⁹ *Climate Action Act 2017* (Vic), section 6(1).
- ²⁰ J Gordon, *Managing the transition to all-electric homes – an economical solution to Victoria's fossil gas dilemma*, Institute for Energy Economics and Financial Analysis, 2023, p 5, accessed 1 September 2025.
- ²¹ Australian Energy Market Operator, *Victorian gas planning report*, 2025, pp 3-4, accessed 1 September 2025.
- ²² Accenture Strategy, *Gas infrastructure: international comparisons*, report for Infrastructure Victoria, 2021, p 3, accessed 1 September 2025.
- ²³ Australian Energy Regulator, *State of the energy market 2025*, Australian Government, 2025, p 187, accessed 1 September 2025.
- ²⁴ Australian Energy Regulator, *State of the energy market 2025*, Australian Government, 2025, p 144, accessed 1 September 2025.
- ²⁵ Department of Energy, Environment and Climate Action, *Gas substitution roadmap update 2024*, State of Victoria, 2024, p 5, accessed 1 September 2025.
- ²⁶ Infrastructure Victoria, *Advice on automated and zero emissions vehicles infrastructure*, 2018, pp 64-65, accessed 1 September 2025.