

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.

Australian Academy of Technological Sciences and Engineering (ATSE)

Q2. What matters to you?

See attached PDF submission

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/1107594/attachment/dXBsb2FkOjIwMjMtMDItMTIUMTE6MDg6MjEuNTMxWg==0-sbm-2023-04-17-infrastructure-vic-v2.pdf/download>

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

SUBMISSION

Submission to Infrastructure Victoria

Submission to Victoria's 30-year Infrastructure Strategy

26 May 2023

The Australian Academy of Technological Sciences and Engineering (ATSE) is a Learned Academy of independent, non-political experts helping Australians understand and use technology to solve complex problems. Bringing together Australia's leading thinkers in applied science, technology and engineering, ATSE provides impartial, practical and evidence-based advice on how to achieve sustainable solutions and advance prosperity.

Approximately 70% of Australia's greenhouse gas emissions are directly or indirectly contributed by infrastructure, through embodied, operational, and enabled emissions from other sectors (ClimateWorks, 2020). The projected population increase in Victoria will place more demands on existing infrastructure and necessitate new infrastructure: the greenhouse gas emissions from this must be managed. ATSE's submission to this consultation on Victoria's 30-year Infrastructure Strategy engages with the theme of mitigating and adapting to climate change, and puts forward the following recommendations for the next iteration of the Strategy:

Recommendation 1: Add an objective to the Strategy to “decarbonise infrastructure by accounting and budgeting for greenhouse gas emissions from infrastructure”.

Recommendation 2: Collaborate with national and state infrastructure bodies to develop a nationally consistent framework for greenhouse gas accounting in infrastructure.

Recommendation 3: Add recommendations to the Strategy to measure and publicly report estimated carbon emissions of project options and projects throughout the lifecycle of projects; measure, manage and report carbon emissions at an infrastructure portfolio level; and embed decarbonisation into infrastructure procurement and contracts.

Recommendation 4: Embed circular economy principles into the Strategy.

Establishing a framework for decarbonising infrastructure

The refresh of Victoria's 30-year Infrastructure Strategy can extend on the existing Strategy's vision for reducing greenhouse gas emissions from infrastructure. This will become a more pressing challenge in the race to net zero carbon emissions by 2050. Decarbonising infrastructure should be elevated to an objective in the refreshed Strategy.

Accurately and comprehensively measuring greenhouse gas emissions is a necessary first step to decarbonising infrastructure. ATSE supports a national approach to greenhouse gas accounting and recommends that Infrastructure Victoria collaborates with its federal and state counterparts to ensure national consistency and comparability. There is currently no one accepted greenhouse gas accounting framework. This presents an opportunity for consolidated national work to establish such a framework. This framework must comprehensively include emissions from each stage of infrastructure projects, including: land use changes, site investigations, planning and design, extractive resources, manufactured materials, off-site and on-site construction activities, operational project elements, end of useful life, and repurposing assets. Technologies such as digital twinning can be used to model greenhouse gas emissions at the different stages.

In January 2023, ATSE provided a [submission](#) to Infrastructure NSW's consultation on Decarbonising Infrastructure Delivery. ATSE welcomed the proposed framework as having the potential to lead the way nationally as a gold standard approach to decarbonising infrastructure and the construction sector. ATSE's submission recommended strengthening the framework with further actions to comprehensively measure, standardise and budget for embodied emissions in infrastructure projects, support research and development on embodied emissions, and implement a circular economy approach to infrastructure. ATSE encourages Infrastructure Victoria to refer to that submission particularly in considering the creation of a greenhouse gas accounting framework.

Once an accounting framework is established, carbon valuation can be a lever to drive down infrastructure emissions and encourage investment in new carbon neutral construction materials. The 2021 Strategy recommended expanding carbon valuation guidance for state government agencies, noting that current guidance is silent on accounting for embodied emissions. Despite consultation for the next Strategy being underway, this recommendation from the previous version has not been implemented, though Infrastructure Victoria has begun to prepare advice to the Victorian Government on these guidelines. This should be undertaken in concert with the establishment of an accounting framework.

Recommendation 1: Add an objective to the Strategy to “decarbonise infrastructure by accounting and budgeting for greenhouse gas emissions from infrastructure”.



Recommendation 2: Collaborate with national and state infrastructure bodies to develop a nationally consistent framework for greenhouse gas accounting in infrastructure.

Recommendation 3: Add recommendations to the Strategy to measure and publicly report estimated carbon emissions of project options and projects throughout the lifecycle of projects; measure, manage and report carbon emissions at an infrastructure portfolio level; and embed decarbonisation into infrastructure procurement and contracts.

Improving infrastructure planning through circular economy principles

ATSE advocates a circular economy framework in infrastructure planning. This enables “doing more with less” as advanced by the Infrastructure Victoria consultation documents, by repurposing and repairing existing facilities where possible. In the context of infrastructure planning, circular economy considerations include situational and cultural change, managing demand to reduce it and avoid peaks, planning to optimise scope, minimise impact and enhance the natural environment and biodiversity, design to minimise the use of resources and maximise nature based solutions, select materials to reduce embodied energy and minimise harm, construction to minimise consumption and waste, and operations to maximise efficiency and minimise energy consumption and cost. At the same time, with increasing severity and frequency of climate related events, infrastructure projects need to be planned, design and constructed to be more resilient such that their purpose and function can be maintained and/or restored quickly after adverse climatic events.

Recommendation 4: Embed circular economy principles into the Strategy.

Decarbonising infrastructure is a fundamental, complex and medium term need. It will be achieved through a variety of strategies and immediate action to embed de-carbonisation in all aspects of planning and decision-making and all phases of infrastructure investment and development. It will require sustained learning and development to be successful and a collaborative approach with community and industry to deliver it.

ATSE thanks Infrastructure Victoria for the opportunity to respond to the 30-year Infrastructure Strategy consultation. For further information, please contact academypolicyteam@atse.org.au.

References

Australian Academy of Technological Sciences and Engineering 2023, 'Submission on Decarbonising Infrastructure Delivery', accessed from < <https://www.atse.org.au/research-and-policy/publications/publication/submission-on-decarbonising-infrastructure-delivery/>>

ClimateWorks 2020, 'Reshaping infrastructure for a net zero emissions future', accessed from < <https://www.cefc.com.au/media/402347/reshaping-infrastructure-to-lower-emissions-march-2020.pdf>>

