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Dear Allison,

**RE: Advice on opportunities to reduce greenhouse gas emissions of Victorian Government infrastructure.**

Thank you for providing Engineers Australia the opportunity to provide Infrastructure Victoria advice on opportunities to reduce greenhouse gas emissions of Victorian Government infrastructure.

Engineers Australia is the peak body of the engineering profession. We are the collective voice of over 115,000 members nationally, which includes over 26,000 members in Victoria. Constituted by Royal Charter, our mission is to advance the science and practice of engineering for the benefit of all Australians.

Addressing embedded and active emissions in the infrastructure sector is a pressing global challenge that requires immediate attention from governments, industry, and the engineering profession. It is reported that infrastructure-related emissions account for around 70 per cent of Australia's total annual emissions.<sup>1</sup> The engineering profession has a critical role to play in reducing emissions across all stages of infrastructure development, including emissions from the three stages of infrastructure development:

- Stage One: production of construction materials
- Stage Two: construction process
- Stage Three: operation and maintenance of the asset over its lifespan.

Without prioritising the decarbonization of assets and the implementation of future carbon-neutral infrastructure stocks, it will be challenging for Victoria to reach the committed net zero emissions by 2050 target.

Furthermore, consideration needs to be given to the social, economic and environment costs of climate change on infrastructure as part of managing current and future impacts. The State of the Climate Report (2022) by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Bureau of Meteorology, highlights changes in both higher temperatures and weather patterns in Australia over the last century. Failure to reduce infrastructure exposures to these impacts and enhance adaptability and resilience could lead to future economic, social, and environmental vulnerabilities.

Sustainable infrastructure is an area of focus both for the private sector and governments across Australia. Engineers Australia recommends Infrastructure Victoria looks for consistency in collaboration with other Infrastructure bodies. It is also recommended that Infrastructure Victoria review Infrastructure Australia's 2022 Replacement Materials report which shines a light on opportunities to use recycled materials in road infrastructure.

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<sup>1</sup> 'Reshaping infrastructure for a net zero emissions future' *Clean Energy Finance Corporation* (March 2022)  
<https://www.cefc.com.au/media/402347/reshaping-infrastructure-to-lower-emissions-march-2020.pdf>

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This submission has been developed in consultation with our Victorian-based members. Their diverse perspectives have been used to inform the content and recommendations. Responses to the terms of reference are below.

**Opportunities to identify, prioritise, quantify, incentivise, and track reductions in embodied, operational, and enabled infrastructure emissions at early strategic planning and investment decision making stages, including business case assessment.**

Fundamental to decarbonising infrastructure is the analysis of materials in project feasibility assessments and project planning processes. Greater consideration needs to be given to opportunities that reuse and repurpose existing infrastructure as opposed to current build/demolish/re-build linear construction patterns. Mitigating the need for new infrastructure builds is paramount. To do this, Government needs to consider end of life opportunities for buildings and their components, in the context of the long-term implications of infrastructure assets.

Clear and meaningful reporting requirements across government and the private sector on carbon emissions will also help to incentivise reductions. This should be coupled with more emphasis on carbon reduction obligations in requests for proposals for consultants and contractors.

Engineers Australia recommends the following as opportunities to identify, prioritise, quantify, incentivise and track reductions in infrastructure emissions.

**Standards:**

- National standards and processes need to be developed and updated to allow for consistent measuring and utilisation of low-carbon alternatives.
- By developing standards to measure carbon emissions (including embodied carbon) will help to identify and prioritise emissions reduction opportunities in projects.
- Updated standards also need to allow for low-carbon alternatives, particularly low to zero emission cements and other building materials.
- Identification of standards that may present a barrier to adoption of recycled materials – due to long lead times to implement changes to standards the opportunities to amend should be identified as early as possible so that existing standards can be reviewed and where possible updated to support the adoption of more sustainable practices.

**Targets:**

- Improved targets for emissions reduction in infrastructure should also be set. This can be encouraged through mandates such as a percentage of green building materials in new infrastructure.

**Procurement:**

- Prioritising procurement practices focused on low-carbon materials and energy-efficient technologies will incentivise suppliers and contractors to reduce emissions from infrastructure delivery.
- Understanding of supply chain limitations and early identification of opportunities for expansion.

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## **Options to update the Victorian Government's existing investment guidelines, procurement policies, regulatory tools, standards, frameworks and/or guidelines to reduce emissions.**

The Government should promote and prioritise ecologiQ and Recycled First policies. Recycled First has already led to 2 million tonnes of recycled materials being used in transport projects.<sup>2</sup>

Typically, tight budgets and programs – driven through the need to deliver projects more efficiently and the desire for expecting more for less, don't allow projects to factor innovation or new procurement processes. In this context, there is significant opportunity to challenge the status quo and foster innovation and new approaches.

Specifically, standard construction activities should be challenged in favour of construction which prioritises emissions reduction. Procurement practices need to balance budget constraints with more emphasis on green building products and innovation with a focus on including low to zero emission materials procurement in design criteria for all infrastructure projects.

Greater data should also be sought by the government. Business cases could require power, gas, and consumables usage to be included to ensure whole of life emissions are considered. Additionally, conducting a post-project review two years after 'practical completion' and extracting data to compare can be beneficial.

## **Innovative approaches that the Victorian Government can use to incentivise private industry to increase production and adoption of low-carbon materials and/or methods in procurement.**

Incentivising and prioritising the use of green building materials in procurement practices will increase the demand for products which will have a flow through benefit to private industry and increase investment. Other direct opportunities for government include:

### **Grants and subsidies**

- These can be provided to help offset any increased costs of sourcing green products and to support private industry to innovate and develop more green building materials.
- A local directory of grants and subsidies should also be created to help Victorian industry understand and navigate the options at both a state and federal level.

### **Tax incentives**

- Explore ways the Victorian government can support private industry through tax incentives for business innovating and developing green building products.

### **Procurement**

- As mentioned above, by prioritising green procurement practices through amending design criteria for infrastructure projects through low-carbon materials and energy-efficient technologies will incentivise private industry to innovate and develop more low-carbon materials. To support this, government

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<sup>2</sup>'ecologiQ' *Victoria's Big Build* (accessed 10 May 2023) <https://bigbuild.vic.gov.au/about/ecologiQ>





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should prioritise innovation in reducing emissions from the planning stage of a project through to the operation, maintenance and decommissions.

- Supply chain development and the growth of domestic recycling capabilities and the recycling sector. The Recycled First policy provides an opportunity to identify and development initiatives to support lowering emissions and create a sustainable supply chain to provide materials to major infrastructure projects. As this industry matures, expansion to the private sector would be likely.

**Enablers and barriers to implementation of any recommendations and their ramifications for reducing the emissions of infrastructure delivery, increasing productivity, and reducing costs. This could include any impacts on costs and benefits, and how these could be equitably distributed across stakeholders and over the life of infrastructure.**

Several enablers and barriers exist to the implementation of recommendations for reducing infrastructure delivery emissions, increasing productivity and reducing costs.

**Enablers**

- Greater use of technology and digital tools can support in the development and utilisation of low-carbon products which can enable the transition towards a greener infrastructure delivery system and enhance productivity in the sector.
- Transparency and accountability are also essential enablers for the success of any initiative.
- Investing in circular economy principles can drive the re-use of materials tying it back into federal government initiatives.

**Barriers**

- The Clean Energy Finance Corporation *Opportunities for cutting embodied carbon* report found that cost effective solutions already exist today to reduce embodied carbon in infrastructure. However, *there* is a perception that implementing low-carbon products and methods comes with a high cost. Greater engagement and analysis should be done to show the benefits and costs associated with utilising green building products.
- Lack of measures and KPI's to demonstrate the effectiveness of investment in low-carbon infrastructure.
- Current processes and project feasibility assessments and project planning processes can hinder the implementation of low-carbon infrastructure delivery.
- Differing standards and approaches across states also present a barrier, given global supply chains and the size of Australia. More alignment between all levels of government is needed to influence and impact supply chains to do more to reduce emissions and decarbonise infrastructure.
- Improving both the availability of recycled material through regulatory reforms and the attractiveness of recycled content in infrastructure projects. Mandating recycled content only goes part of the way to achieving this.

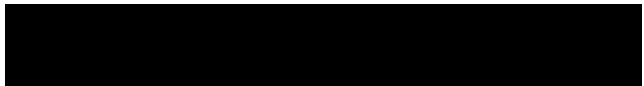




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We commend Infrastructure Victoria for providing this advise to the Victorian Government and extend an offer to further support and/or engage our members as required. If you wish to discuss any of the content further, please contact me at [REDACTED]

Best regards,



[engineersaustralia.org.au](http://engineersaustralia.org.au)

