



LEGAMBIENTE

Convegno formativo

Edilizia e infrastrutture viarie:
progettare la sostenibilità

Economia circolare, materiali da riciclo e Criteri Ambientali Minimi (CAM)
tra normativa, progettazione integrata e ciclo di vita delle opere

L'evoluzione della decarbonizzazione in ambito stradale

PIARC



Fabio Pasquali

PIARC Strategic Coordinator for Decarbonization

Roma, Sapienza, Facoltà di Ingegneria - 15 novembre 2026

PIARC and Decarbonisation – Contribution to Knowledge Sharing Though the PIARC Reports

Strat. Theme	Thematic Commitee	TC Denomination	Report (Published or In Progress) - Delivery Within Mid-2027	Strat. Theme
1. Road Administration	TC 1.1	Performance of Transport Administrations	Envisioning the Transport Agency of the Future - A PIARC High Impact Summary	Published
	TC 1.2	Contribution of Roads to Economic and Social Development	Contribution and Impact of Road Plans and Investments to the National-level Plans for Decarbonization	In progress
	TC 1.3	Finance and Procurement	How to Fund and Finance Decrbonized Investments . How to Finance the Ecologal Transition of Infrastructures	In progress
2. Road Mobility	TC 2.1	Roads for Accessibility and Mobility in Urban and Periurban Areas	Urban Vehicle Access Regulations (UVARS) - A PIARC Case Studies Collection	Published
	TC 2.3	Sustainable Freight	Greening of Road Freight	In progress
	TC 2.4	Road Network Operations and ITS for Sustainability	The Role of Innovative ITS Technologies In Transport Sustainability - A PIARC High Impact Summary	Published
3. Safety and Sustainability	TC 3.5	Road infrastructure for road transport decarbonization	Decarbonisation of the Road Transport Sector - A PIARC Briefing Note	Published
			Electric Road Systems - A PIARC Collection Of Case Studies	In progress
			Energy Positive Roads - A PIARC Briefing Note	In progress
4. Resilient Infrastructure	TC 4.1	Pavements	Measures for Reducing Carbon Footprint of Pavements - A PIARC Collection of Case Studies	Published
	TC 4.2	Bridges	Low-Carbon Materials	In progress
	TC 4.3	Earthworks	Earthworks Decarbonisation - A PIARC Collection of Case Studies	Published
	TC 4.4	Tunnels	Sustainability of Tunnel Operation: New Approaches - A PIARC Briefing Note And Collection Of Case Studies	Published
	TC 4.5	Decarbonization of Road Construction and Road Maintenance	Decarbonisation of Road Infrastructure Projects - A PIARC Collection of Case Studies - a PIARC Technical Report	In progress
			Improving logistical and technological decarbonization efficiency of road construction projects and maintenance	In progress
			Overview: New Technologies for the Measurement and Monitoring of Road Decarbonisation Initiatives A PIARC Briefing Note	In progress

Decarbonizzazione nelle infrastrutture stradali: esperienze internazionali

Opportunities to decarbonize Victorian Government Infrastructure (Australia, 2024)

RECOMMENDATIONS

Carbon management

1. Adopt a carbon management standard like *PAS 2080:2023 Carbon management in buildings and infrastructure* to measure and manage carbon emissions and modify as needed to embed in Victoria.

Foundational

2. Implement the same carbon measurement approach as New South Wales and deliver training across the Victorian Government.
3. Initially adopt a carbon value of *at least* $123 per tonne and then update to reflect values required to achieve Victorian emissions reduction targets.

Business case

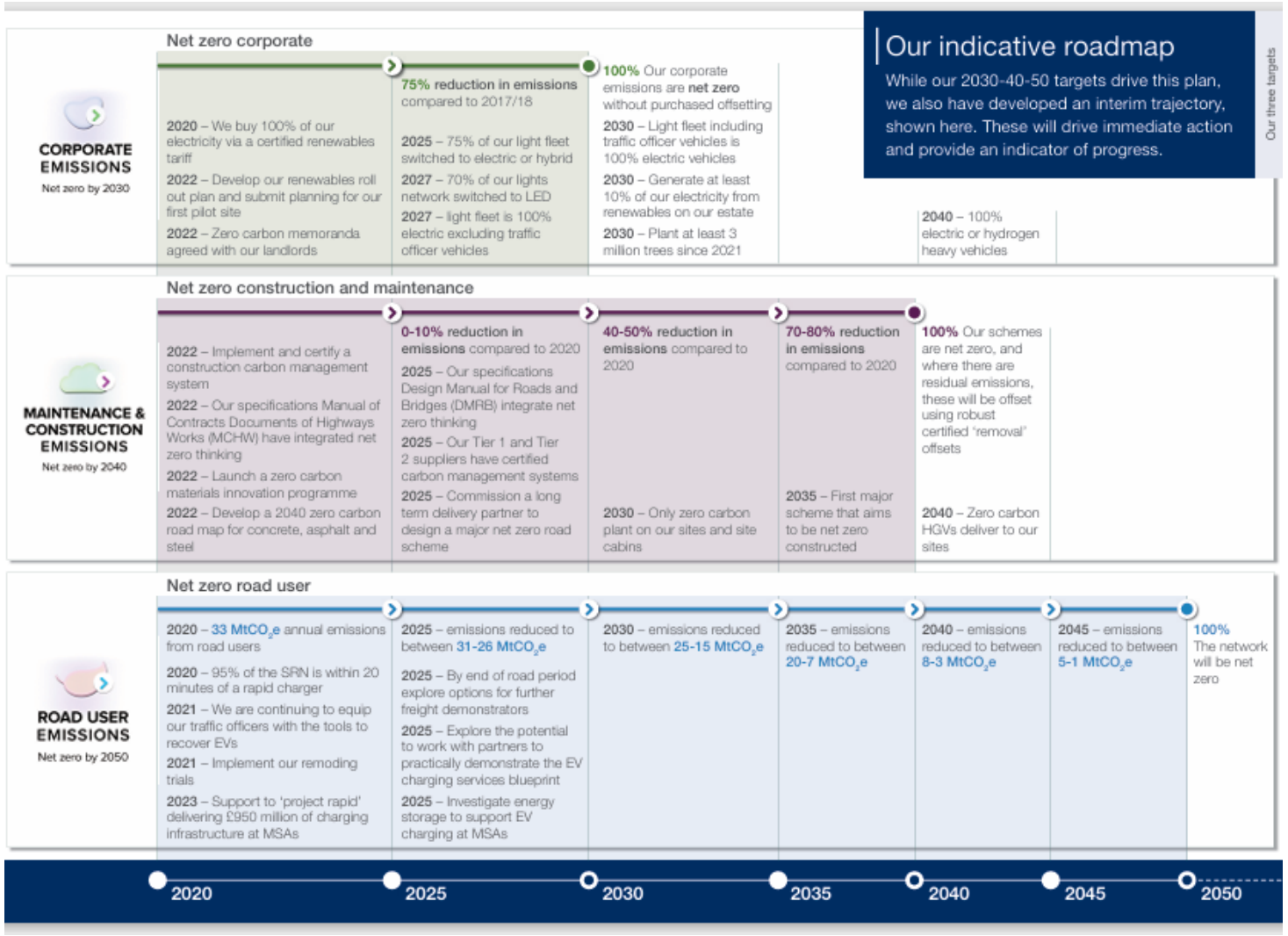
4. Update business case guidelines and templates to integrate emissions reduction.
5. Measure carbon in infrastructure cost benefit analysis and make decisions that reduce emissions.

Procurement and delivery

6. Update procurement frameworks and guidance to embed carbon reduction in tenders.
7. Update standard form contracts to include carbon reporting, abatement requirements and further reduction opportunities.
8. Establish carbon management prequalification requirements for government contracts.
9. Support industry to develop zero or low emissions solutions by testing alternative materials and adopting performance-based standards.

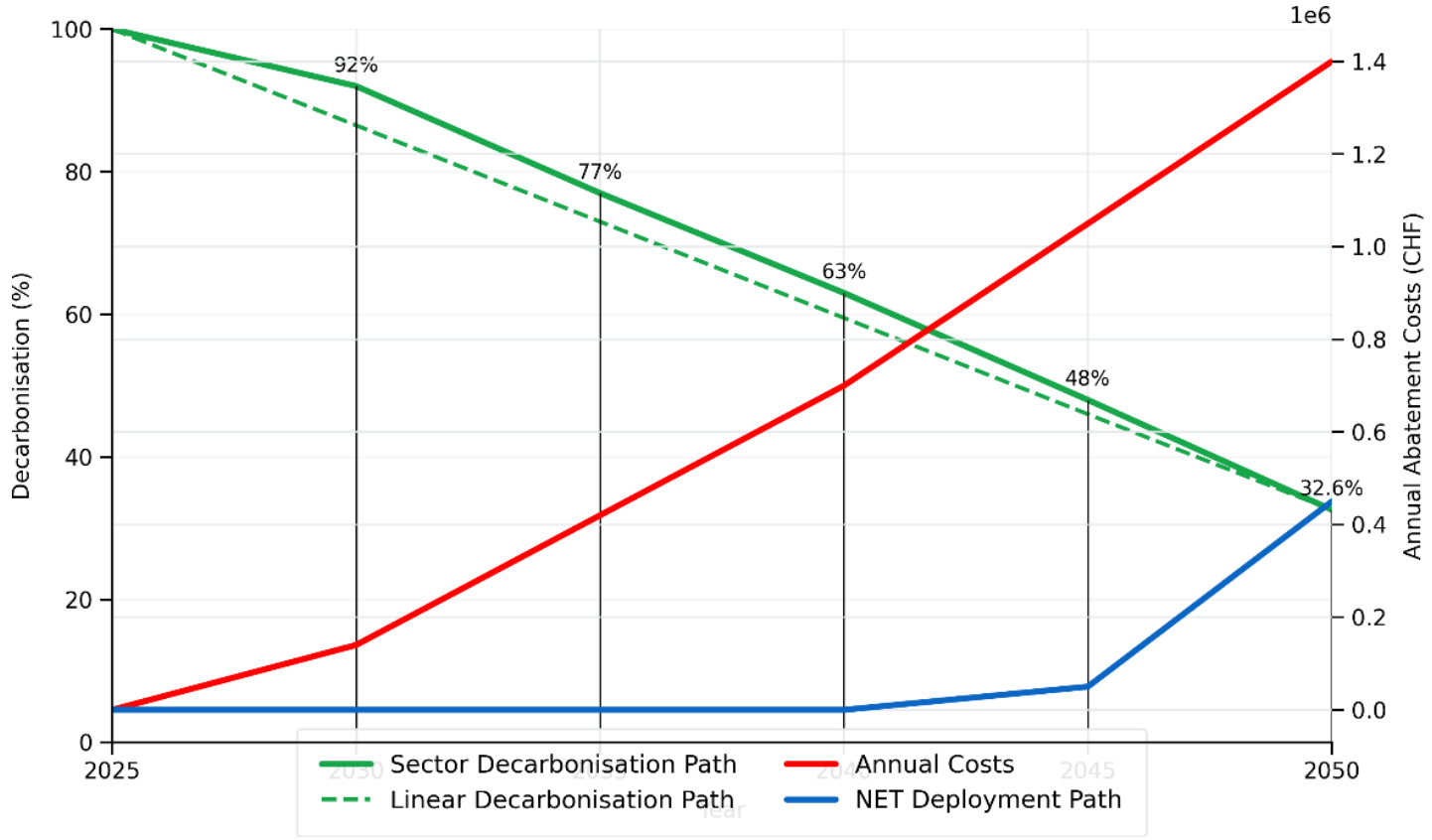
Decarbonizzazione nelle infrastrutture stradali: esperienze internazionali

Roadmap of Highways of England (UK, 2023)



Decarbonizzazione nelle infrastrutture stradali: esperienze internazionali

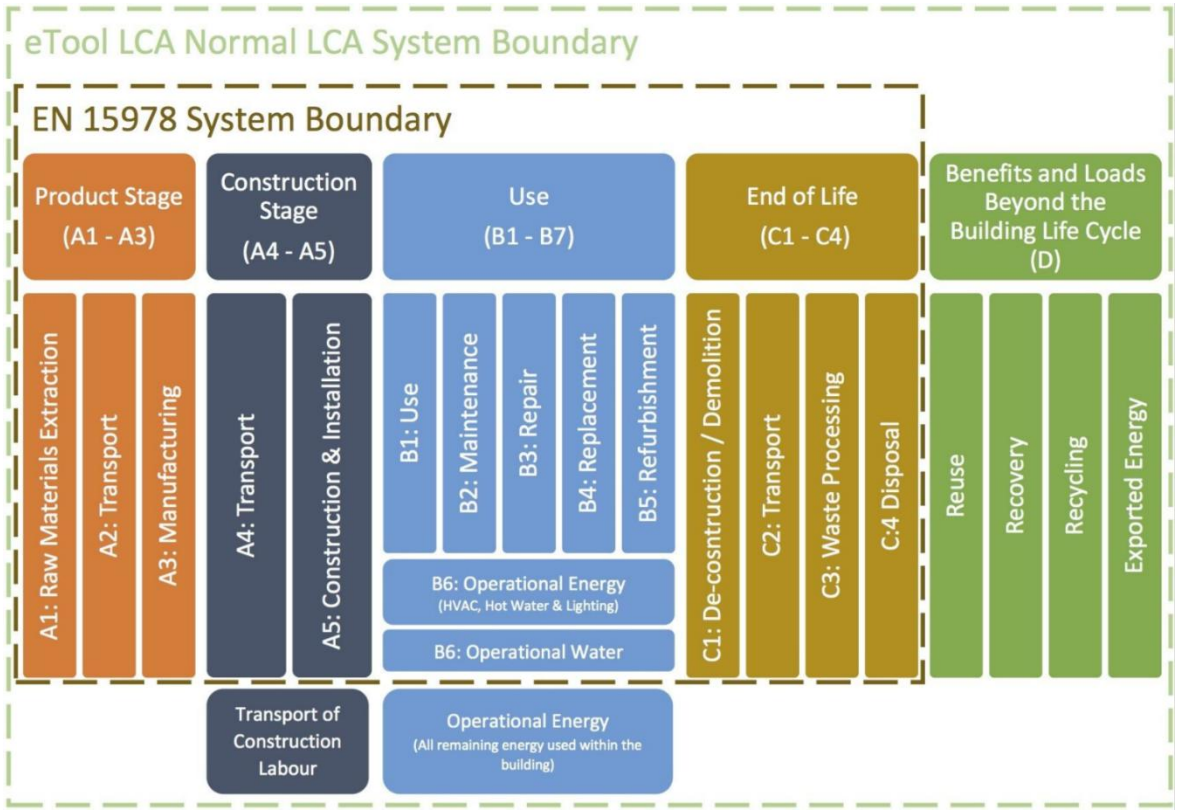
Foreseen decarbonization path of core materials 2025-2050 (Switzerland, 2025)



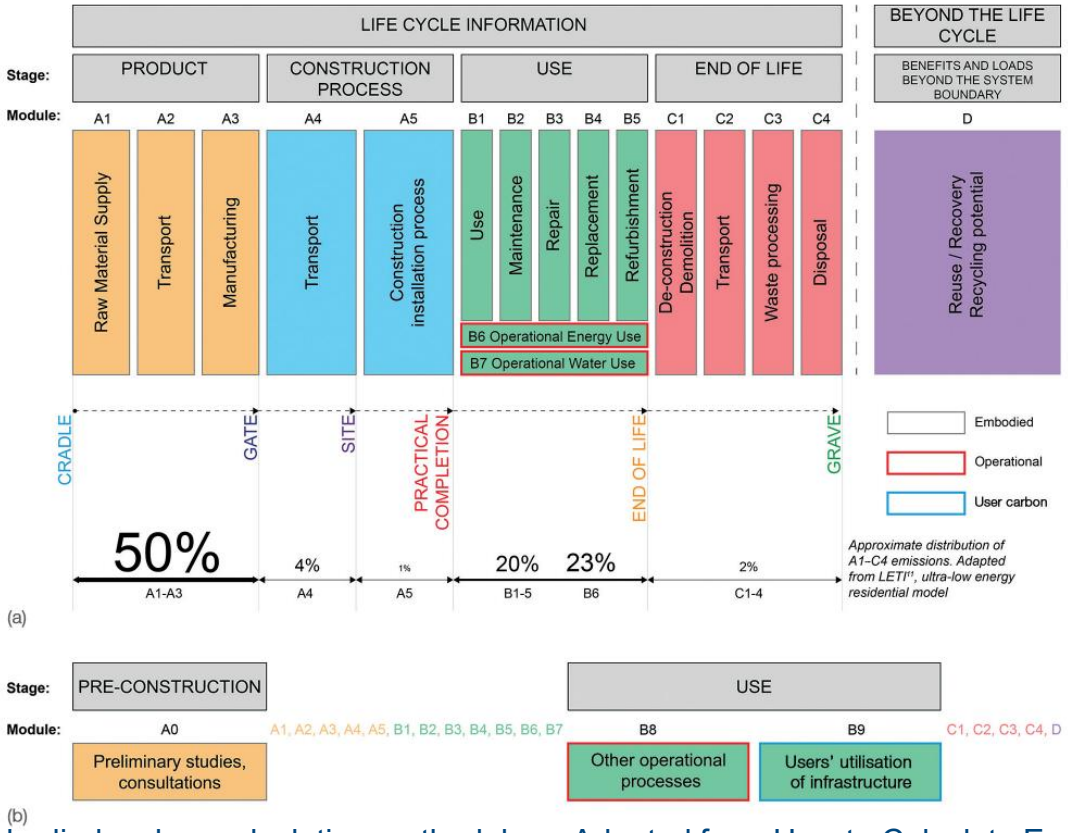
Path of decarbonisation of the gravel, concrete and recycling industry of Switzerland established 2025 (green line: decarbonisation path, red line: investment costs, blue line: negative emission technology)

Decarbonizzazione nelle infrastrutture stradali: esperienze internazionali

Embodied carbon calculation – Institution of structural engineers (2024)



System boundaries based on EN 15978



Embodied carbon calculation methodology. Adapted from How to Calculate Embodied Carbon by The Institution of Structural Engineers

Grazie dell'attenzione!



Fabio Pasquali, Italy
Economist, Strategic Coordinator on Decarbonization
fabiopasquali300@gmail.com
www.piarc.org

@PIARC_Roads

World Road Association PIARC

World Road Association PIARC

World Road Association PIARC





