International Transport Forum

Decarbonisation Costs

Insights from the forthcoming ITF Transport Outlook 2025

ITF/MLIT Policy Dialogue
5 September 2025
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OECD

Scenario Analysis as a tool for informed decision-making

A decision-making tool under uncertainty

Three Scenarios for transport decarbonisation futures

These scenarios are not predictions.

They provide policy makers with critical indicators to support decisions that will have long-lasting consequences.

1

Business-as-Usual

Reflects the partial and hesitant efforts to decarbonise that have occurred over the past decade

2

Increased Ambition

An accelerated decarbonisation pathway. Technological, political and demand-based constraints remain in place

3

All-Out

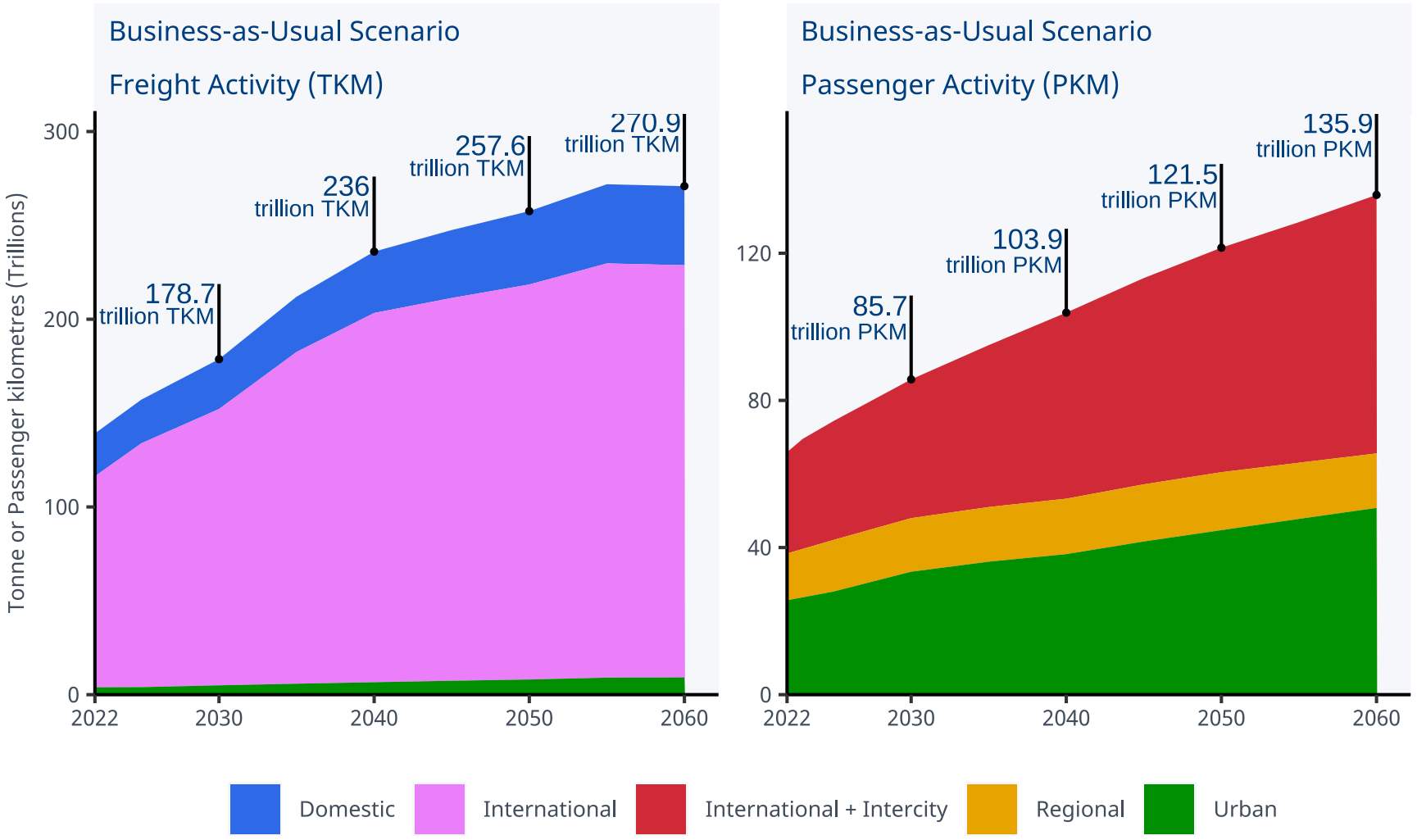
An approximation of the upper bounds of what could be achieved from a technical perspective if favourable conditions are in place

Transport decarbonisation

An immediate and universal challenge

Transport demand for freight and passenger activity will increase

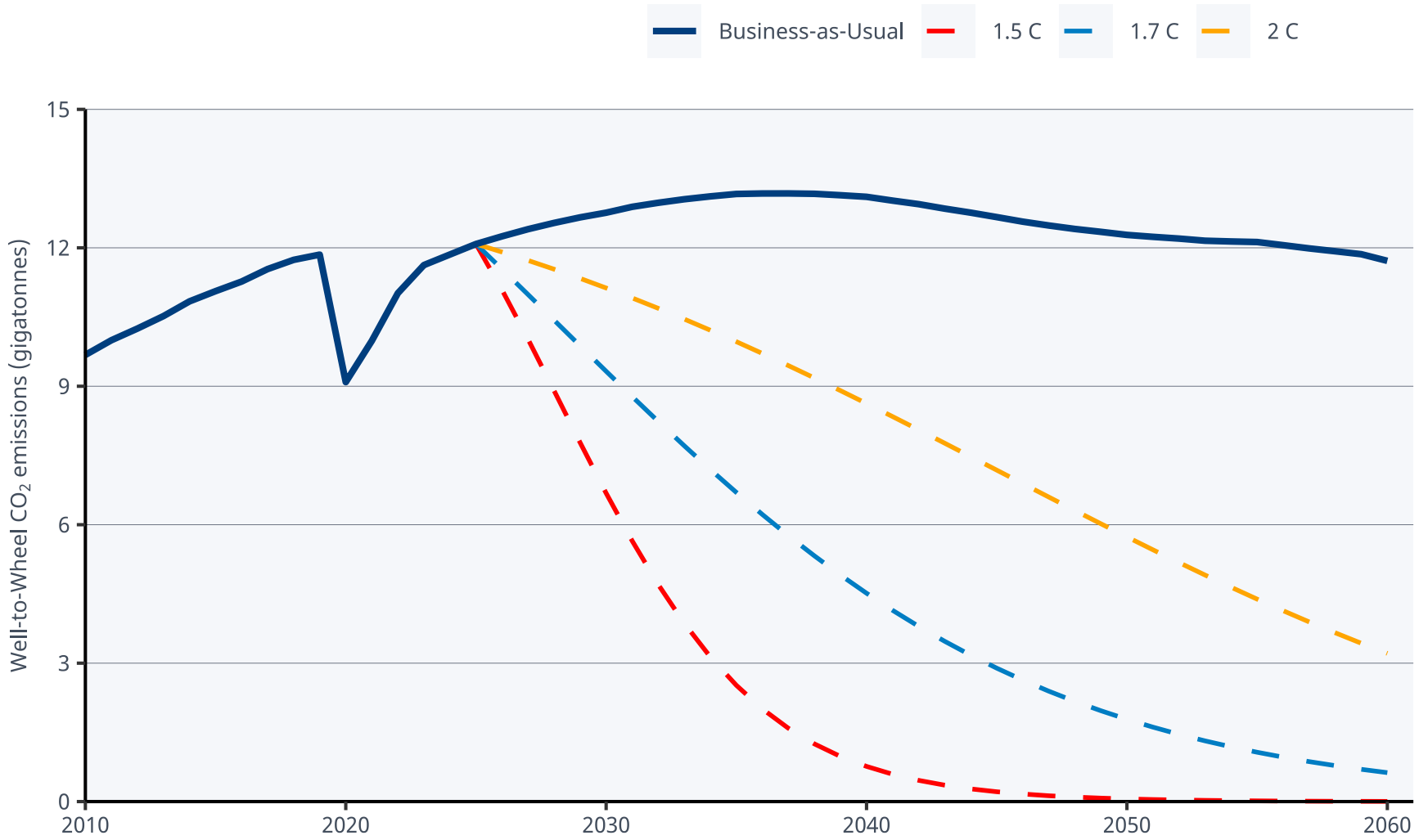
Under the Business-as-Usual scenario, both passenger-kilometres (PKM) and tonne-kilometres (TKM) increase significantly.



ITF (forthcoming)

Business-as-Usual: Climate targets will not be met

Despite progress, the transport sector is not on track to achieve meaningful emission reductions by 2060.



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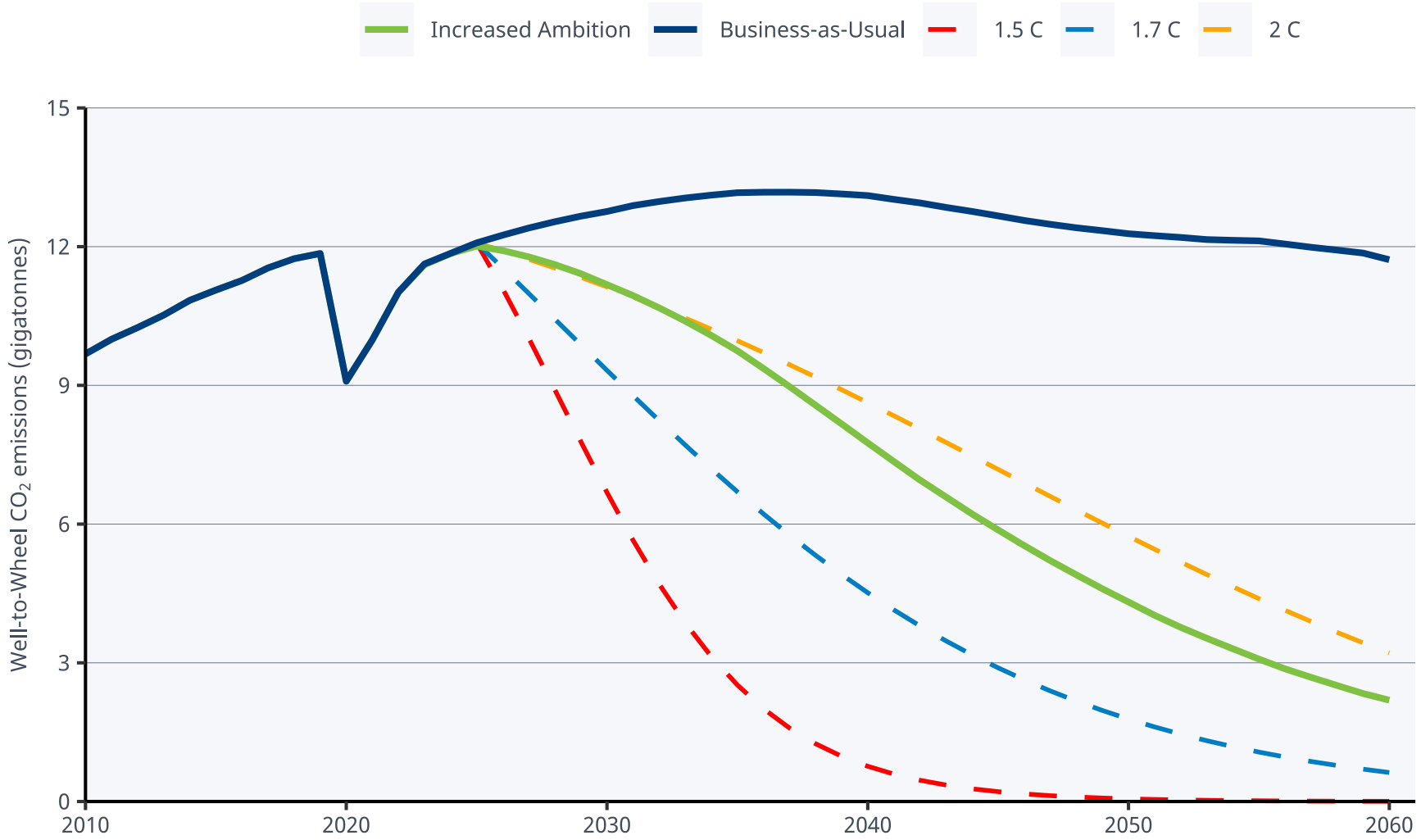
Note: Dashed lines show representative trajectories that would align with limiting warming to different levels, assuming that transport maintains the same share of annual WTW emissions (27%) of the remaining carbon budget

Increased action can reduce total emissions

With high levels of policy ambition and action, it remains possible for the world to achieve peak global annual tank-to-wheel (TTW) transport emissions this decade.

But more action is still needed.



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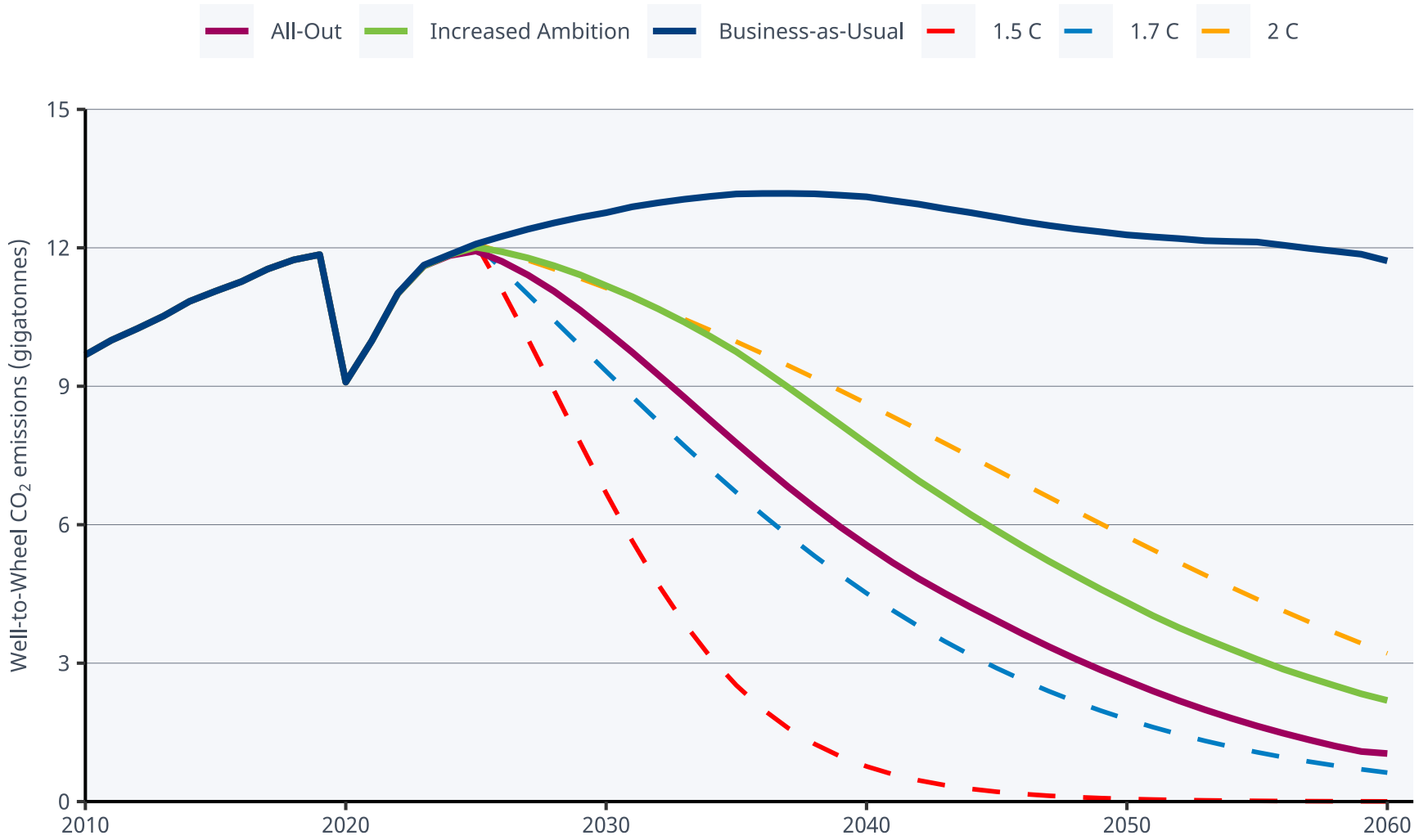
Technology alone will not be enough to reach climate goals

Testing the limits of technology up-take –without further demand management is not aligned with 1.5º



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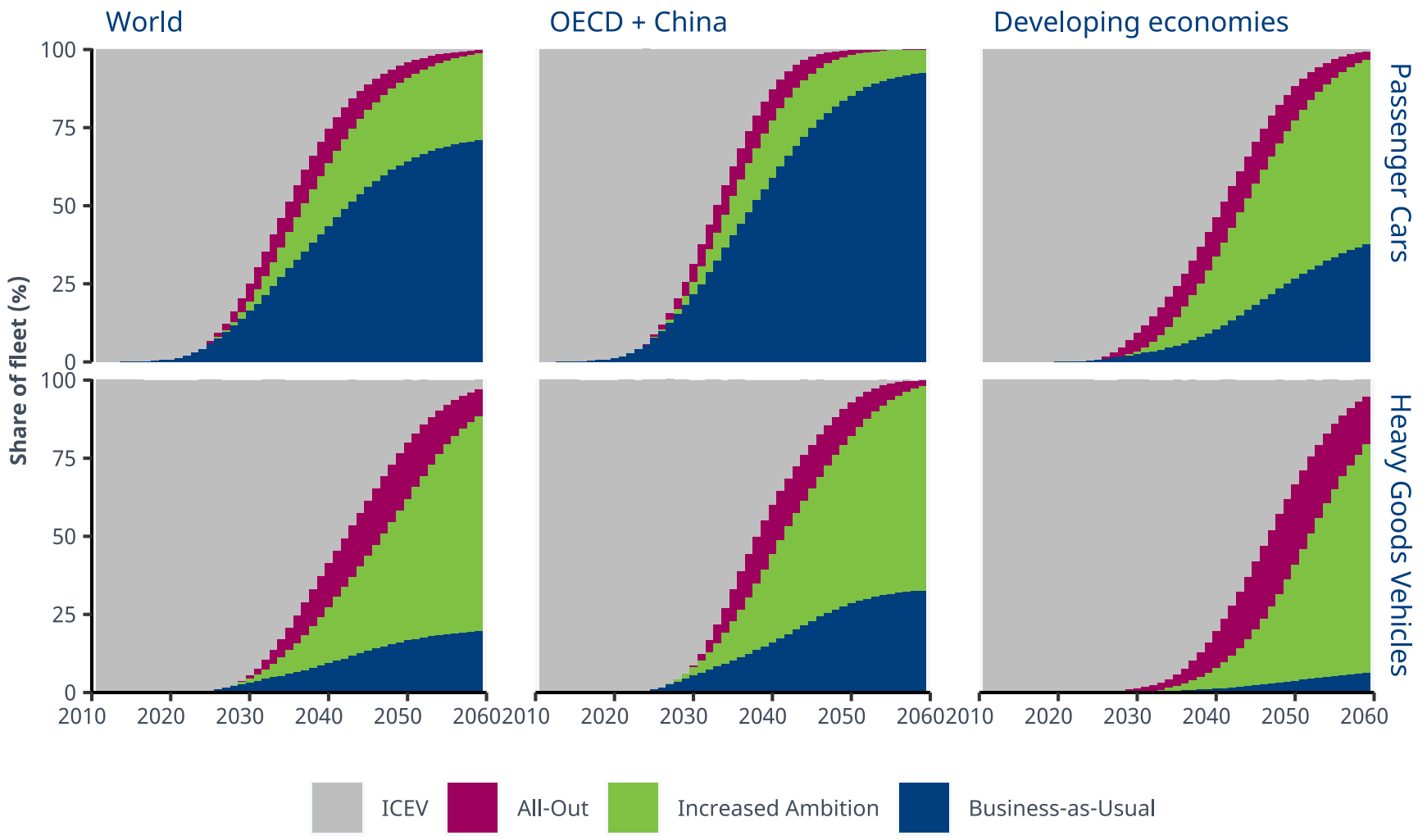
Transport decarbonisation

Technology alone will not be enough.

Overcoming legacy Barriers

Considerable momentum is already occurring under the Business-as-Usual scenario, particularly for passenger cars in China and OECD countries, far greater efforts are needed to boost for heavy goods vehicles (HGVs).



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ITF Transport Outlook 2025 Recommendation

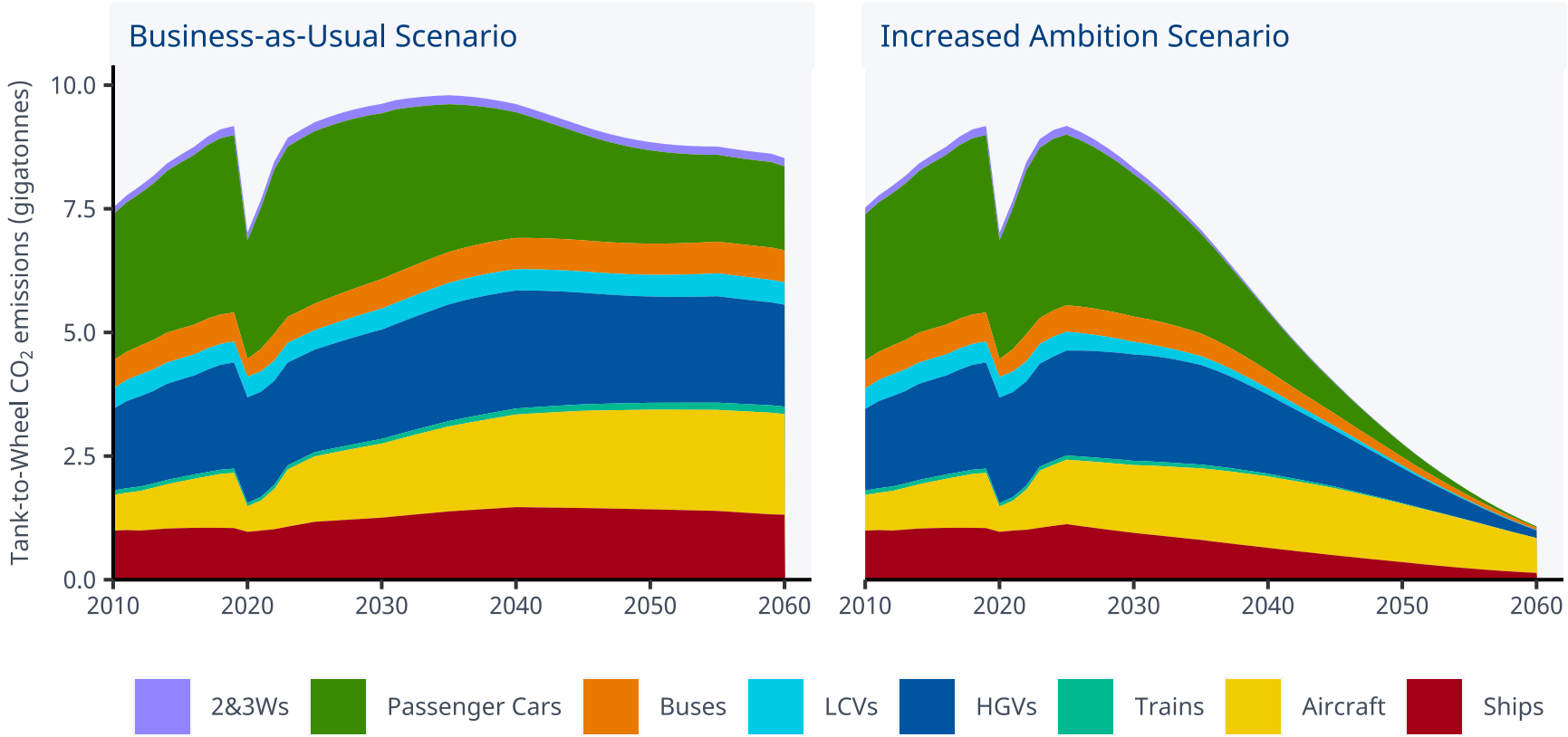
Accelerate the adoption of zero-emission road vehicles in leading economies

Transitioning to cleaner fleets is critical to decarbonisation—and attainable

Sustainable aviation fuels are needed urgently

Non-urban transport will decarbonise at a slower rate than other sectors.

Without further decarbonising actions, aviation will lag behind other modes.



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Introduce binding regulations on international aviation and maritime fossil-fuel use

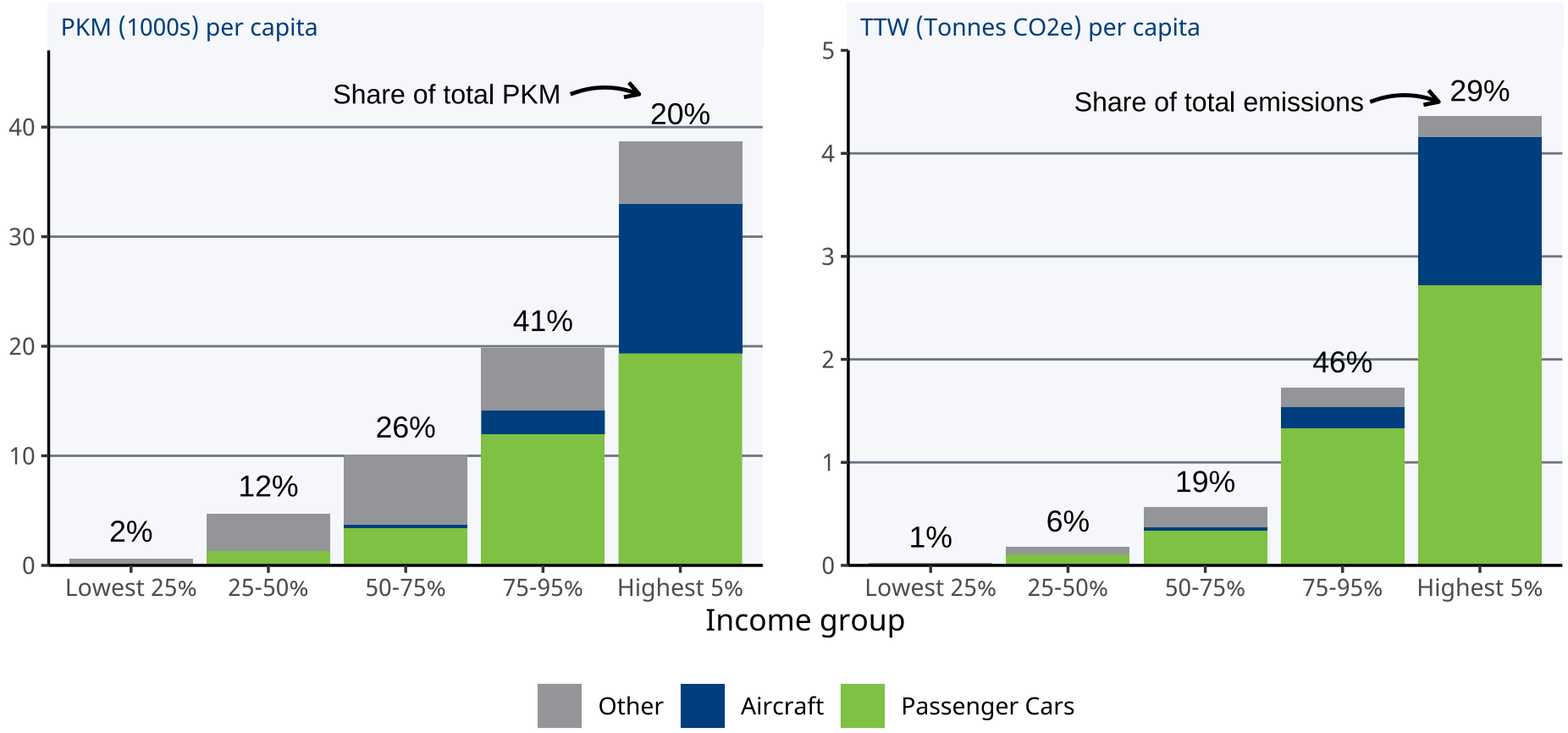
Transport decarbonisation

Managing demand is critical

Large disparities in transport activities and associated emissions

Emissions associated with more carbon-intensive modes are critical

2022 Estimates



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To effectively manage transport demand, consider the capability for change

Technology is not enough

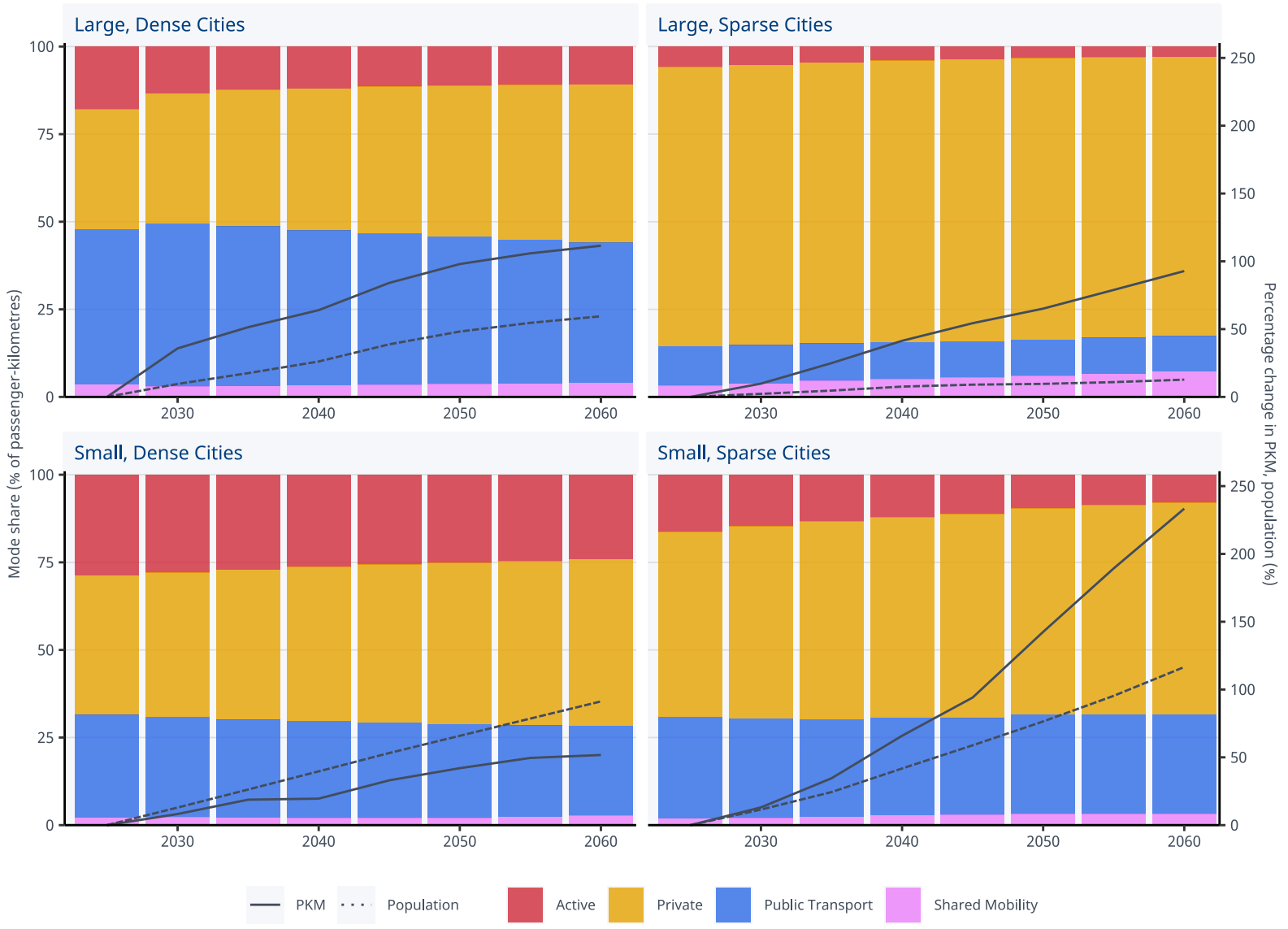
Different city types will require different decarbonisation solutions

Transport solutions must fit local needs:

Challenges vary by city type.

Levers in action: Vision-led can unlock public transport everywhere.

Business-as-Usual



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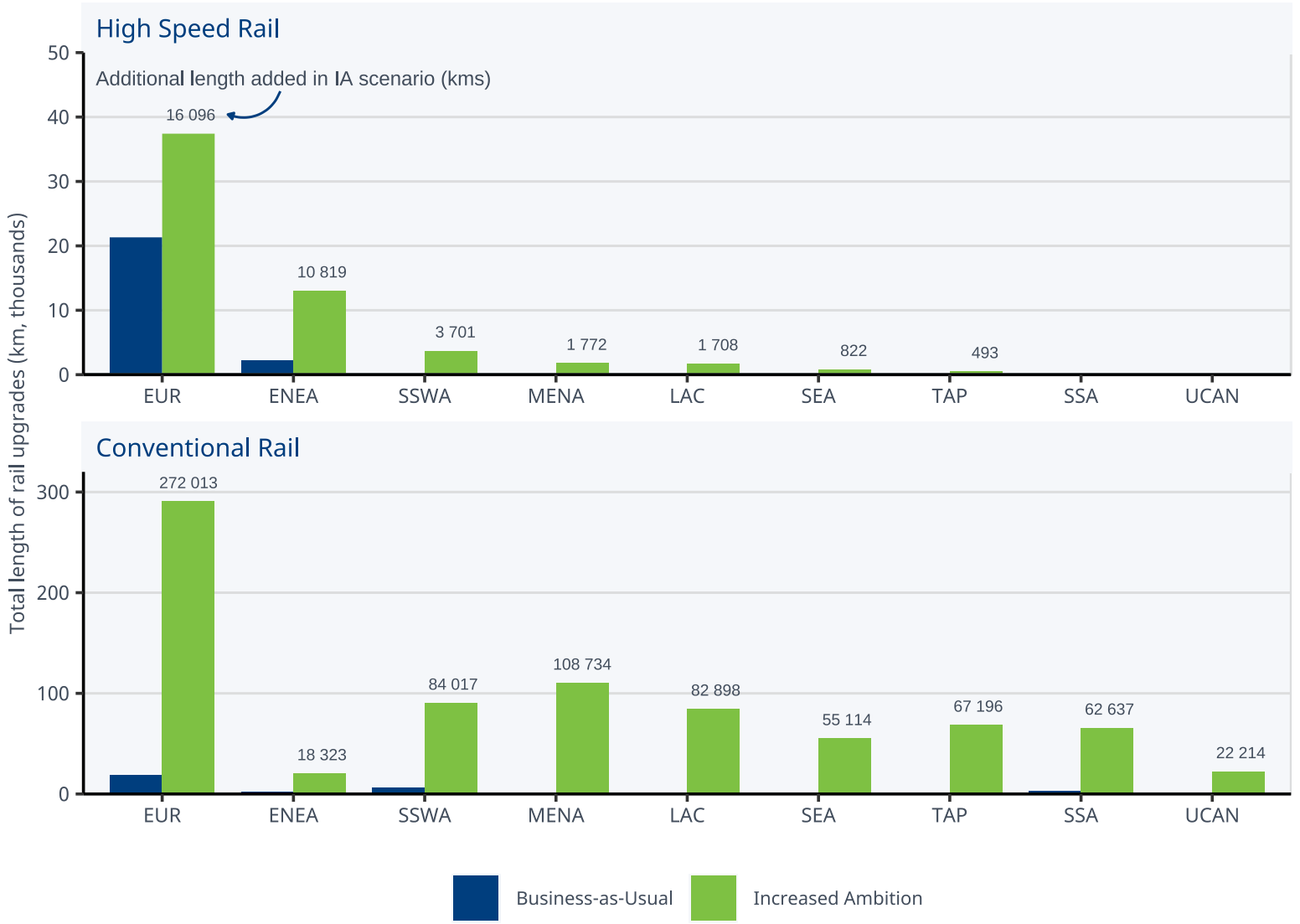
Levers in-action: Vision-led planning for inter-urban travel

Building new HSR connections and improving speeds on existing connections can bring many benefits, although substantial capital and operating investments are required to achieve this potential.



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Design urban mobility solutions that fit the context

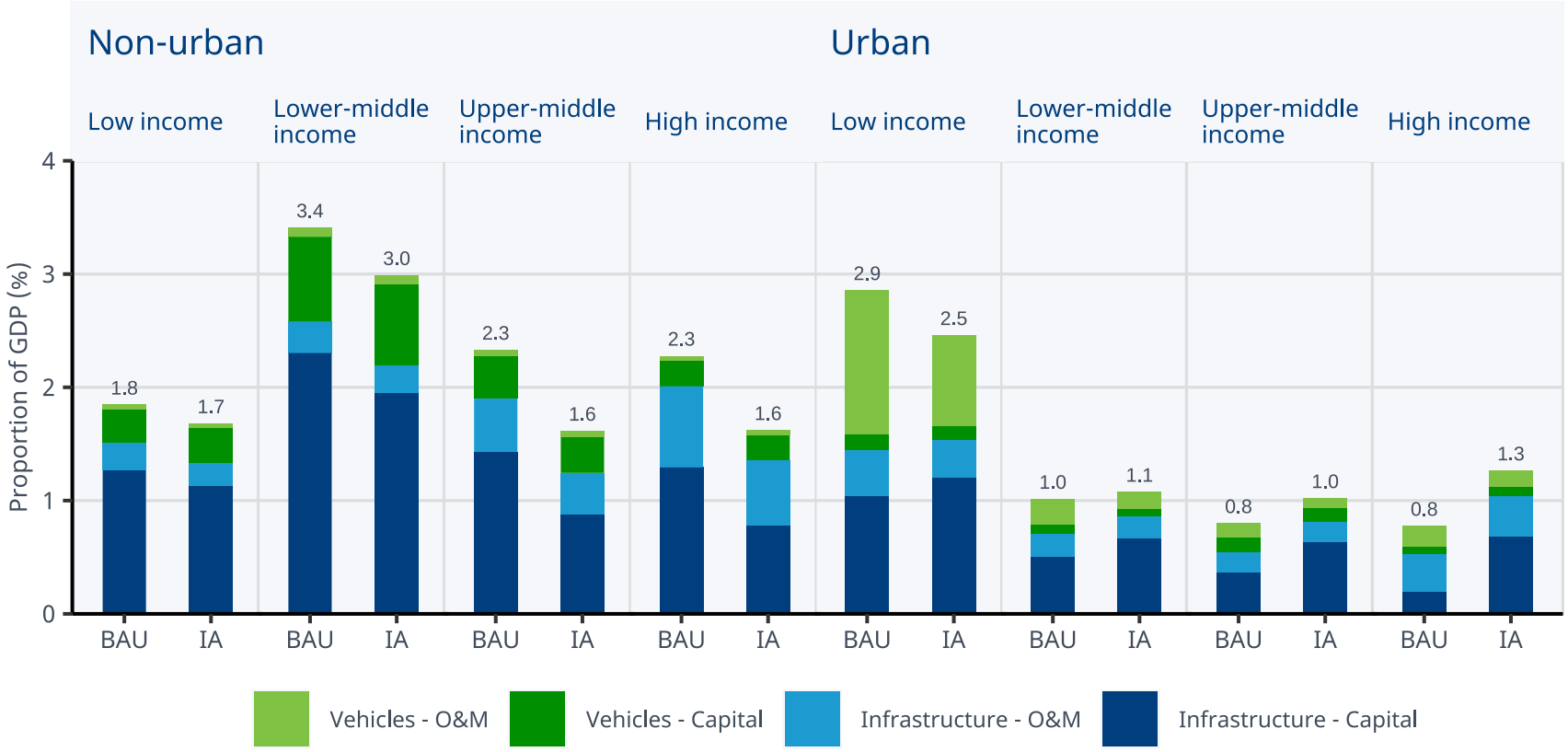
Different solutions in different contexts will lead to better outcomes

Transport decarbonisation Costs

Rapid decarbonisation: Incurring lower costs and accruing savings on damages

The investment needed to decarbonise is less than the cost of inaction

The investments needed to achieve more ambitious transport decarbonisation goals are less than those needed to maintain the current course, even before accounting for the additional costs associated with increased exposure to extreme events.



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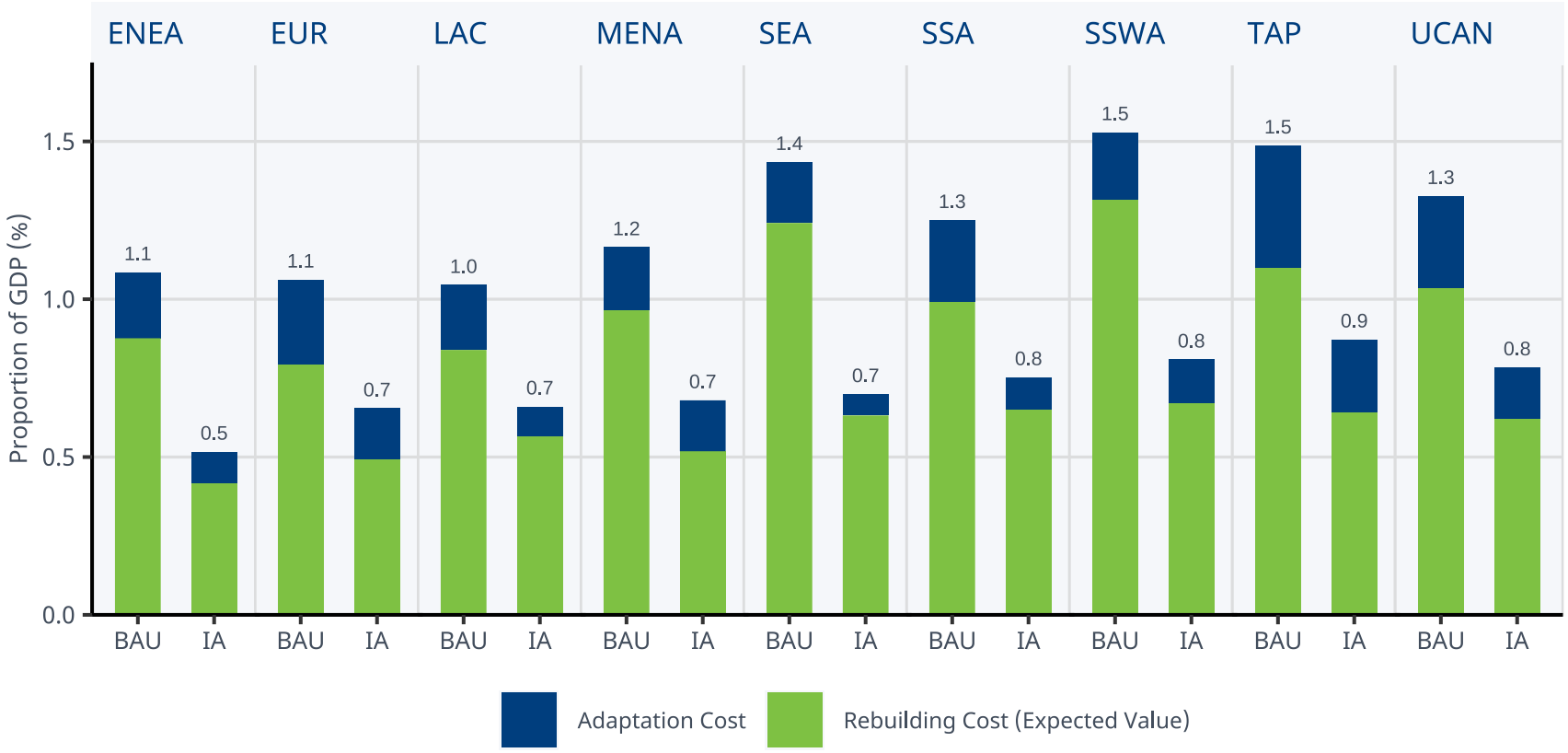
Any delays will increase adaptation costs and infrastructure investment needs

The ITF estimates considerably lower recovery and rebuilding costs under the Increased Ambition scenario



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Promote low-carbon transport financing in low- and middle-income countries

Expanding international climate finance for sustainable transport in emerging economies will reduce inequality, strengthen economic growth, reduce natural hazards, and improve public health and quality of life.

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Thank you

Publication Alert

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