Tracking Transport and Climate Change Indicators in Asia and the Pacific 2000-2020

COP27

November 2022

Asian Transport Outlook

Asian Transport Outlook

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Outline

Asian Transport Outlook

Summary trends Transport and Climate Change in Transport in Asia and the Pacific

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Transport CO2 Emissions 1990 -2050

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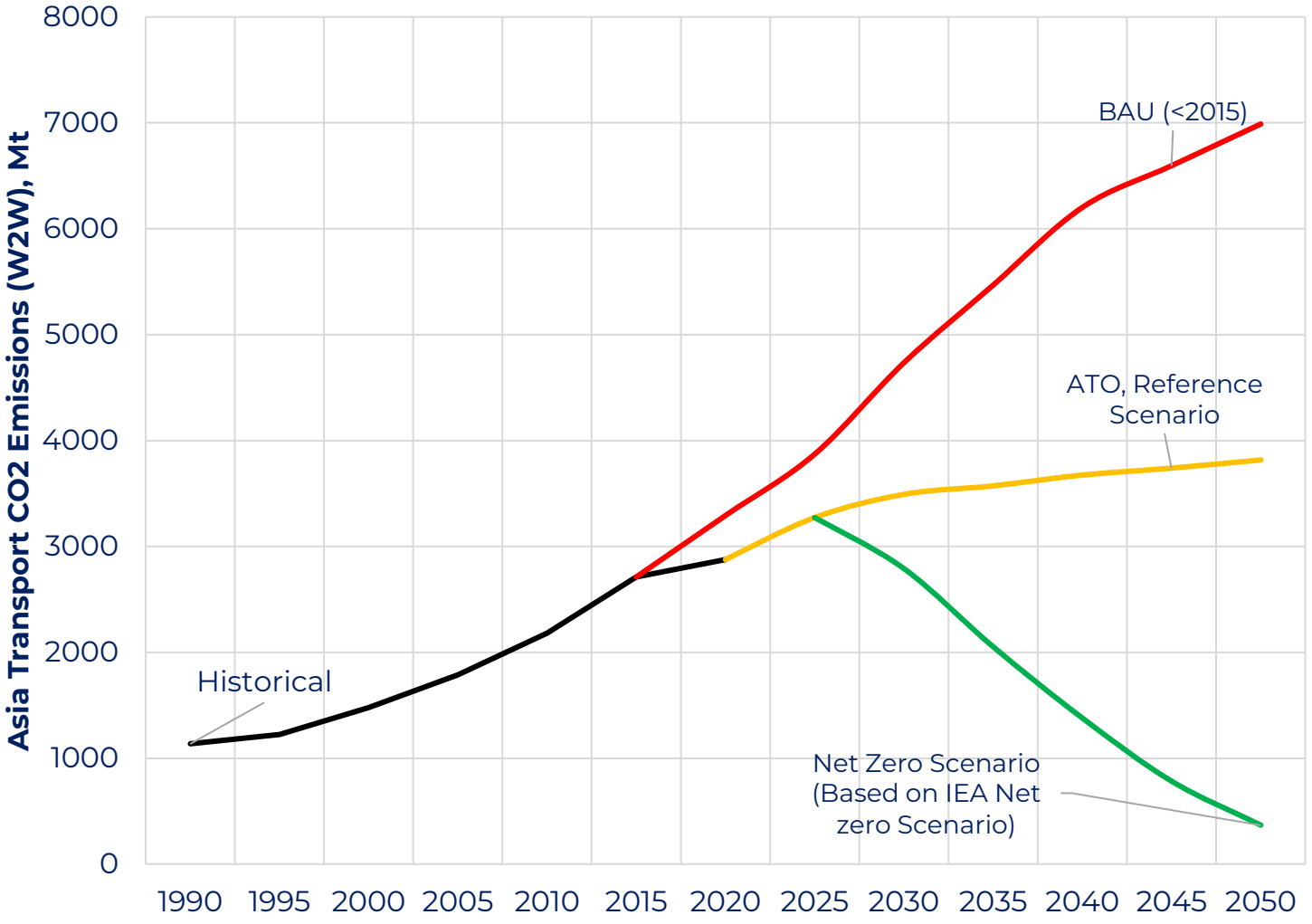
- Good news - Transport CO_2 Emissions in Asia have deviated from historic (pre-2015) baseline. By 2050, we estimate that Transport CO2 emissions could be close to 50% lower than historic BAUs.
- Bad news - At the current rate, transport CO2 emissions will not peak before 2050.
- Requirement - For alignment with the 1.5 Degree or Net Zero pathways, transport CO2 emissions in Asia must peak by 2025 and reach below 1 Gt by 2050.



Source: Asian Transport Outlook. (2021). A New Perspective on Transport and Climate Change

Transport CO2 Emissions Growth Rate

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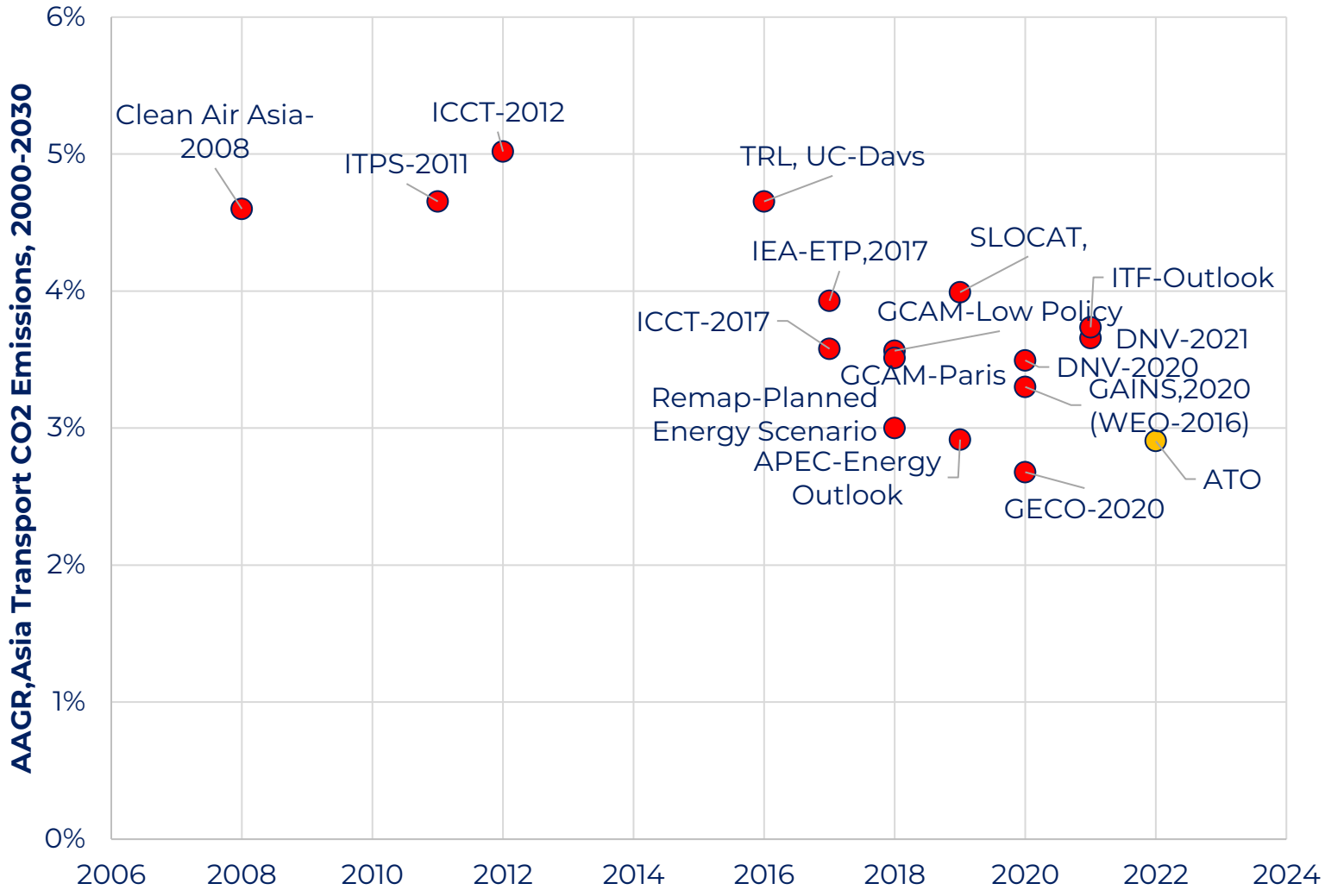
- Scientific literature suggests that Asia's transport CO2 emission baseline projections reduce over time.

- The Asian Transport Outlook helps to explain why the transport sector baseline projections is reducing over time



Source: Asian Transport Outlook. (2021). A New Perspective on Transport and Climate Change

Share of Asia Pacific countries with transport CO2 emissions growth rate

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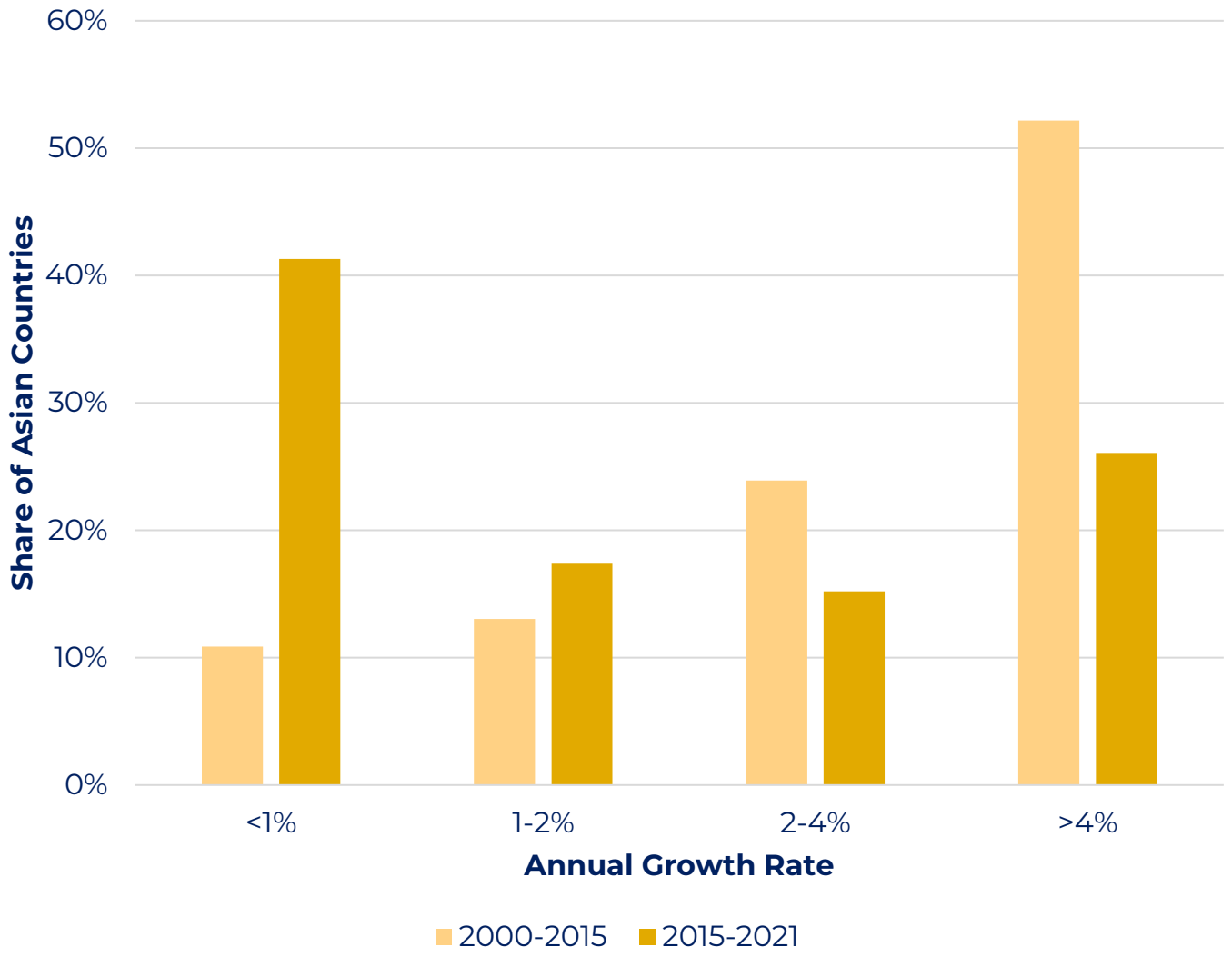
- Since 2015, there has been a considerable decrease in the growth rate of transport CO2 emissions across the Asia Pacific region, with 59% of countries reporting growth of not more than 2%

- The transport sector's share in total fossil fuel CO2 emissions in Asia has reduced marginally, i.e. 2000=11.4%, 2015=11.8% & 2021=11.3%. This indicates that between 2015 and 2021, transport CO2 emissions in Asia is growing slightly slower than in other sectors.



Source: ATO Analysis based on EDGAR v7.0 Global Greenhouse Gas Emissions

Transport Infrastructure & Transport Activity

Infrastructure Growth

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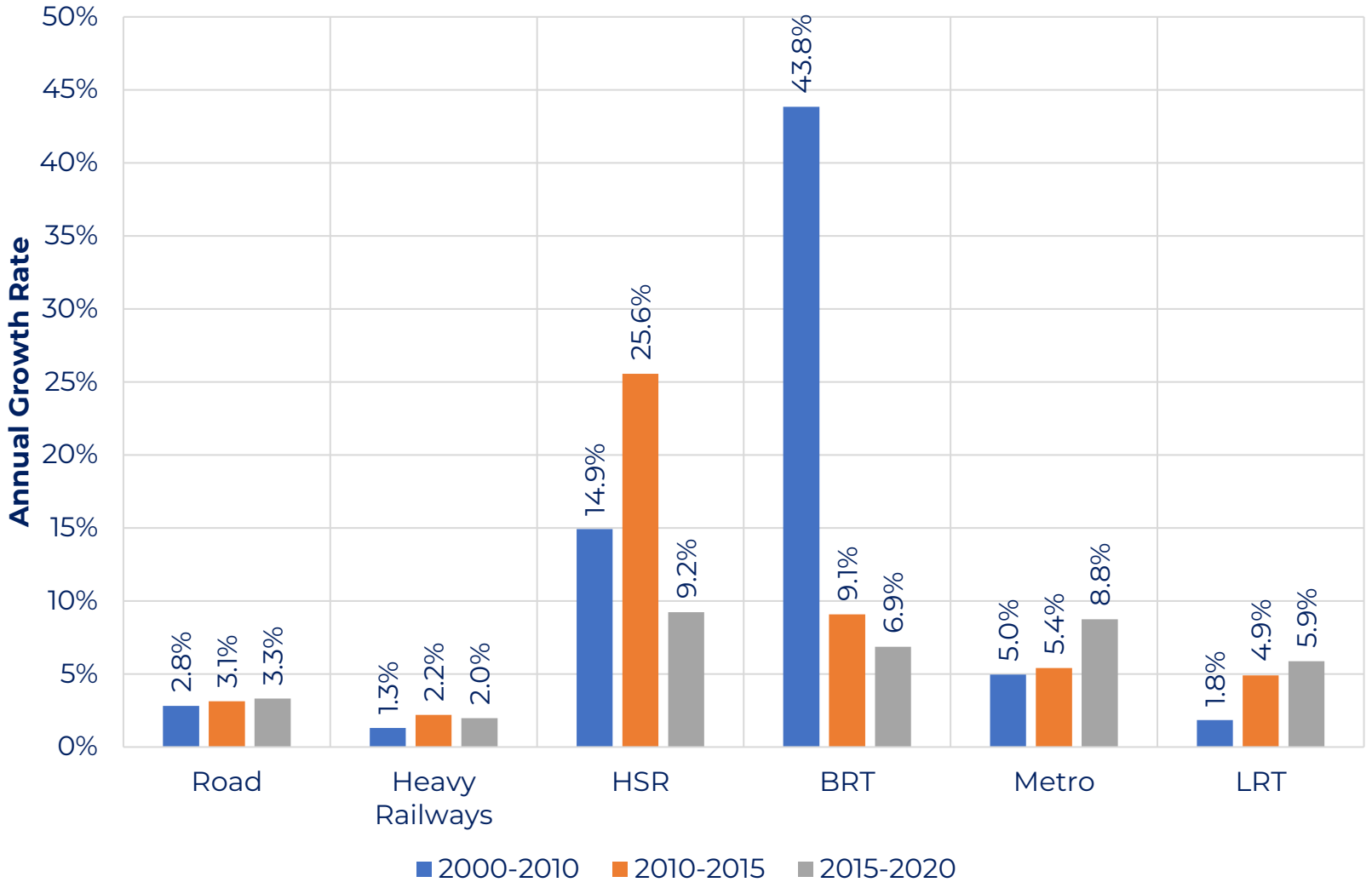
- Road construction outpaces construction of rail infrastructure
- Growth in BRT infrastructure has declined considerably, from a low baseline (in line with lack of general interest in bus expansion)
- Metro construction is accelerating, as is the case of LRT



Source: ATO Analysis based on Country Official Statistics, UIC, and ITDP

Number of Asian Cities with Rapid Urban Transit Infrastructure

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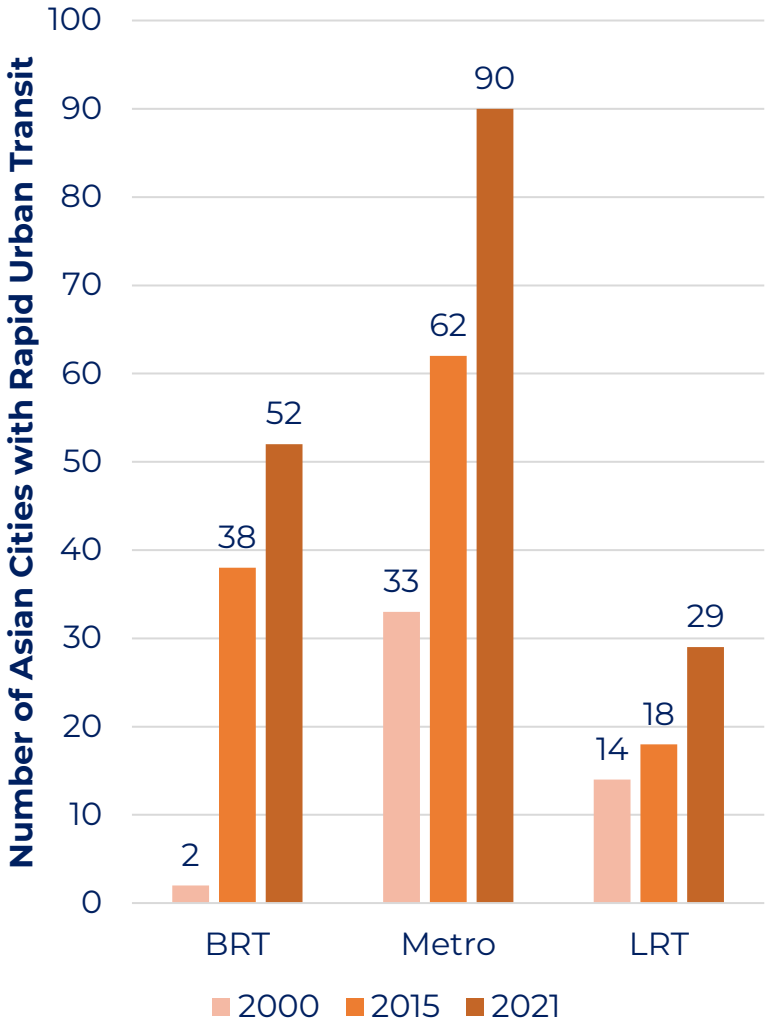
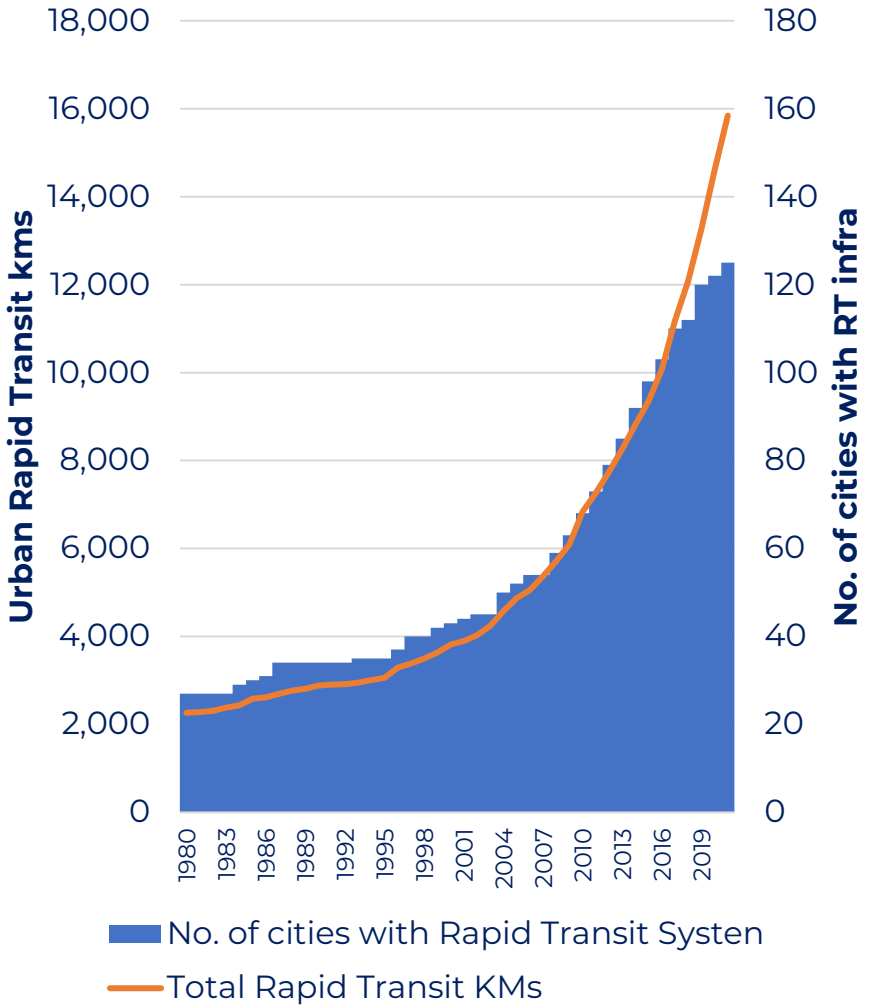
- Number of Asian cities with rapid urban transit infrastructure is increasing. But a significant gap remains.
- Currently, only 125 cities out of about 550 cities with more than 0.5 million population have urban rapid transit.
- Average size of rapid transit systems is increasing
- Metro is a more popular choice compared to BRT or LRT.





Source: ATO Analysis based on ITDP

Total Infrastructure Investment

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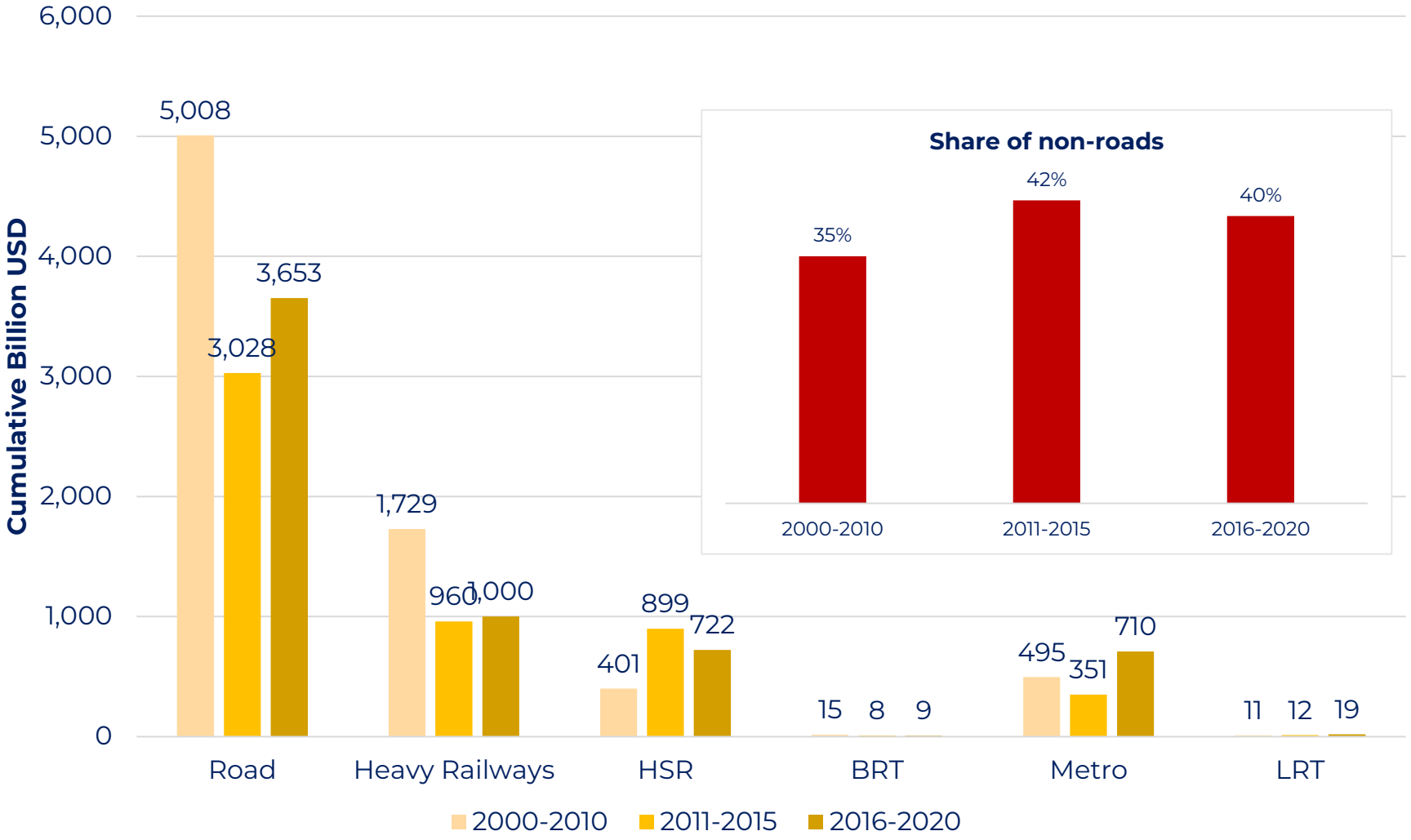
- Currently, 40% of Transport Inland Infrastructure investments (construction + maintenance) are allocated to Railways and Urban Transit



Source: Asian Transport 2030 Outlook

PPP in Transport

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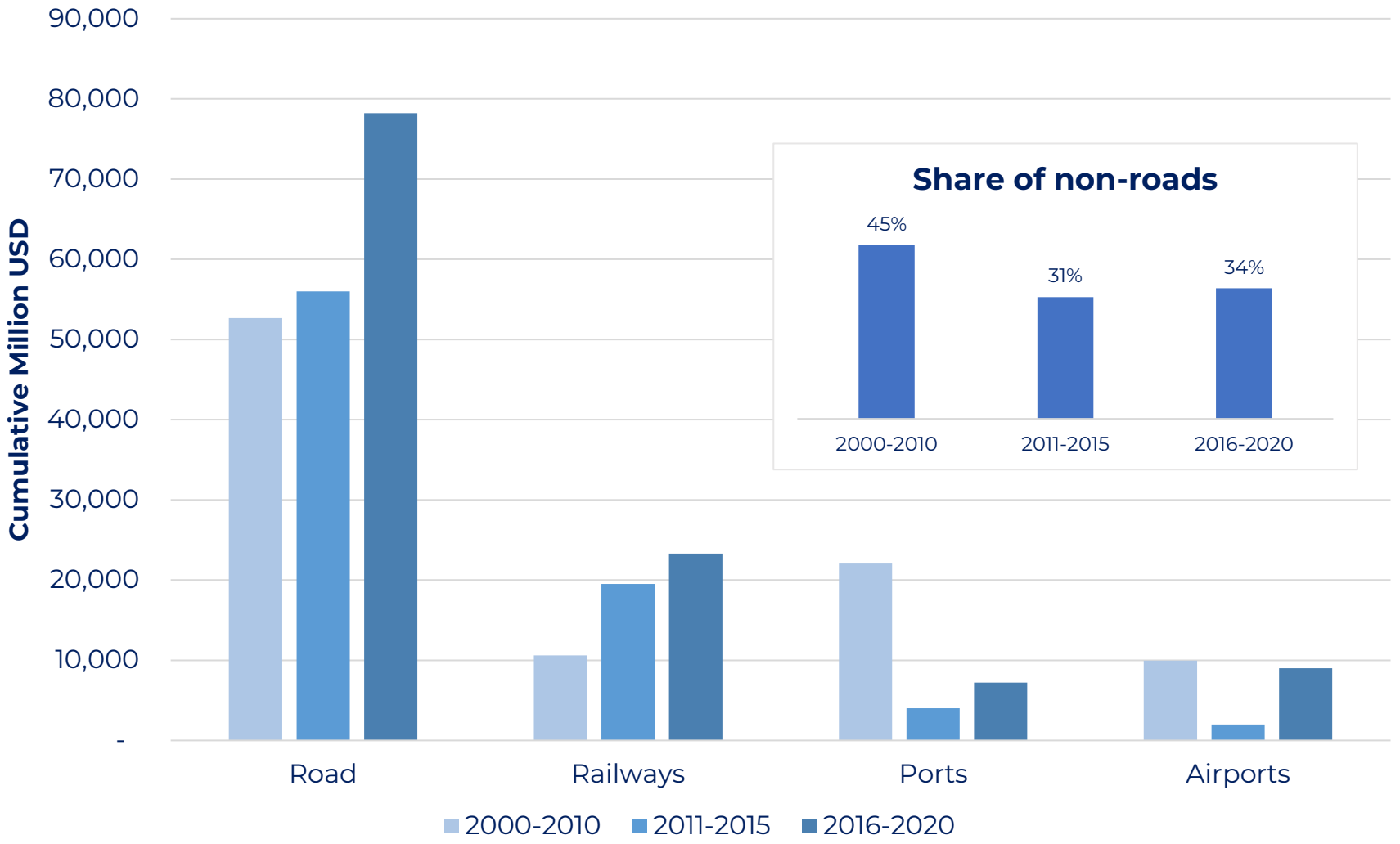
- PPP investments in transport infrastructure in Asia have increased, with 2016 –2020 growth limited by COVID in 2020.
- PPP investments in transport infrastructure remain very limited compared to the overall investment
- Noticeable is the continued absence of urban transit infrastructure data in the WB PPP database



Source: WB PPI

Transport Activity

Motorization in Asia (1)

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- Growth in passenger vehicle ownership is declining for 2&3-wheelers and cars.
- Bad News – since 2015, growth in public transport vehicles ownership has almost completely stagnated
- Freight Vehicles are growing faster over time

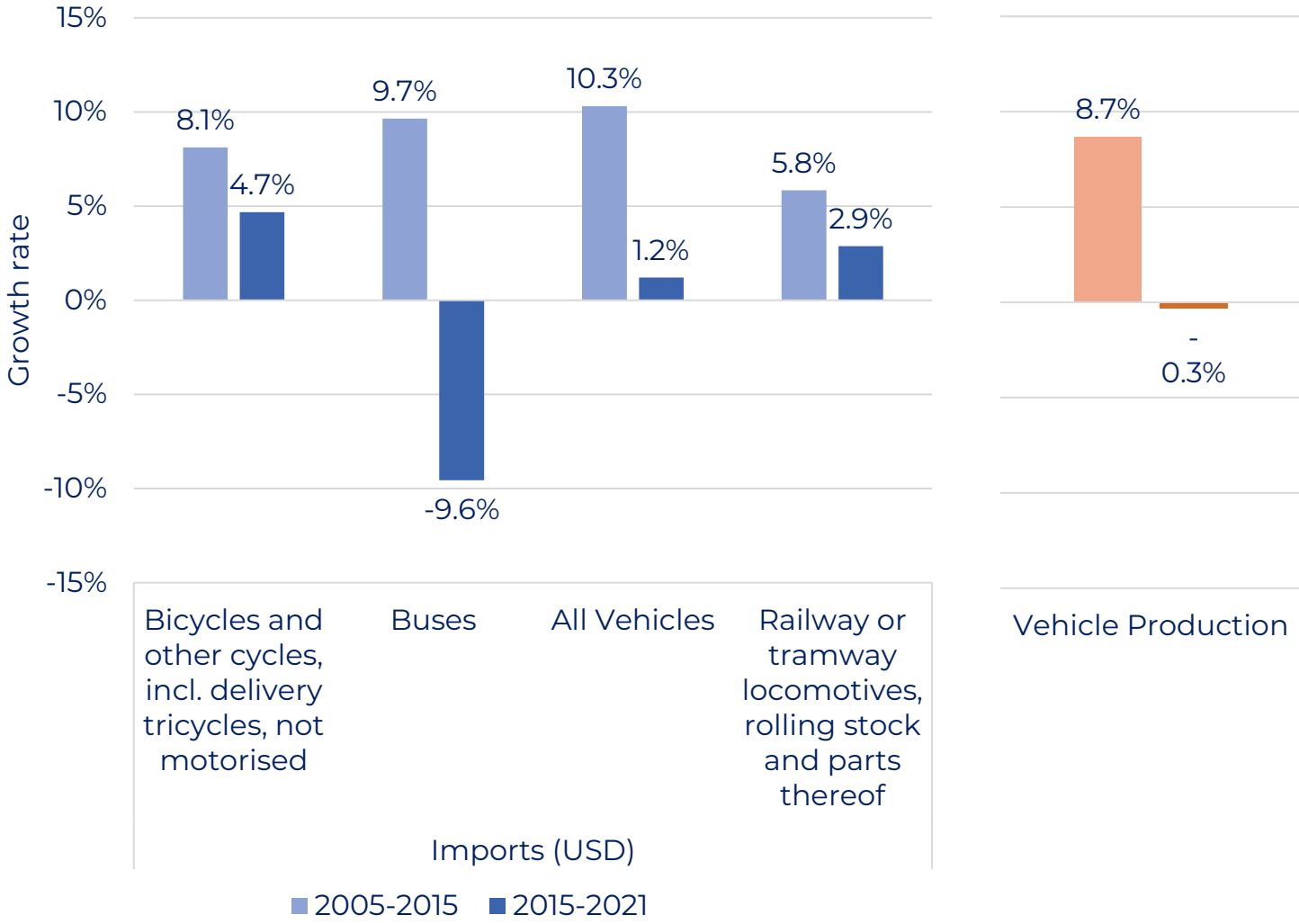
Source: ATO Analysis based on Country Official Statistics

Motorization in Asia (2)

<<< TOC

- Good News - Since 2015, the trends confirm a significant decline in growth rate of private vehicle imports and a small decline in manufacturing in Asia

- Bad News – there is a sharp decrease in the importation of buses which is in line with other negative trends regarding bus-based public transit systems



Source: ATO Analysis based on ITC Trade Map and OICA

Passenger and Freight Activity

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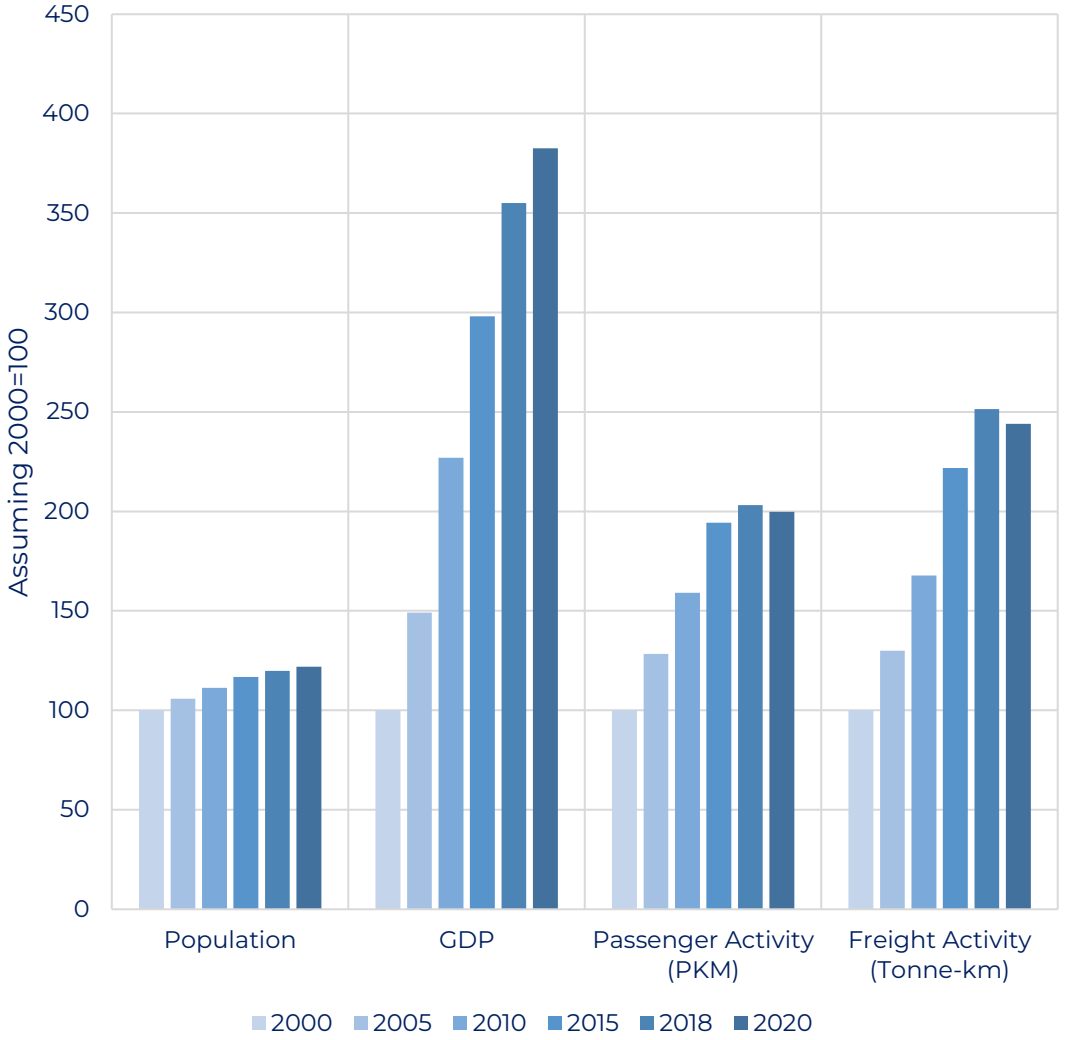
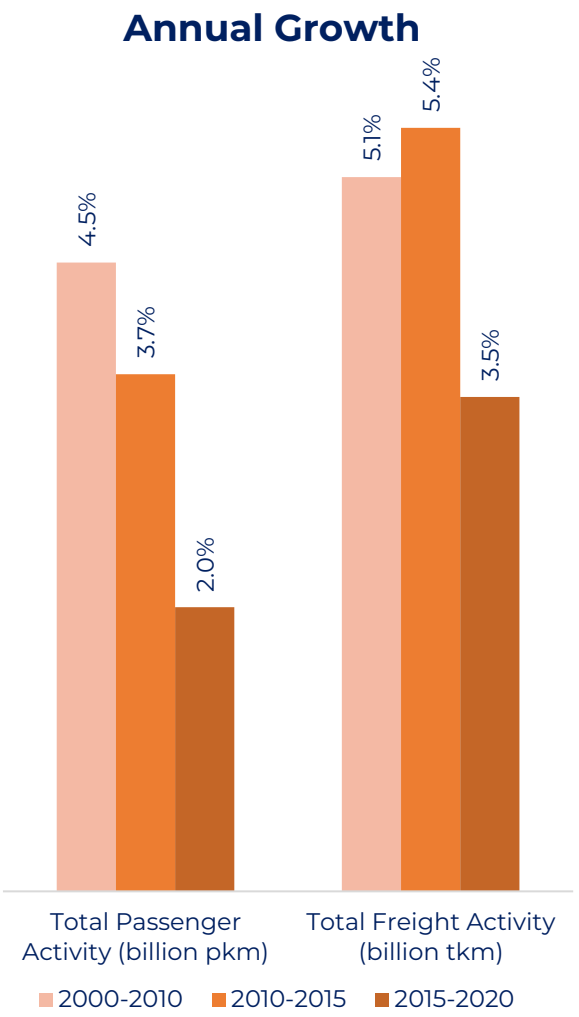
- Over the last two decades, transport demand in Asia has more than doubled. Freight activity has outpaced growth of passenger transport activity
- A relative decoupling of passenger & freight activity with GDP growth is visible in Asia
- However, both Passenger & freight activity continue to grow faster than the population





Source: UN World Population Prospects, World Bank, ATO
Analysis based on Country Official Statistics

Transport Mode Shares

Passenger Activity Mode Share

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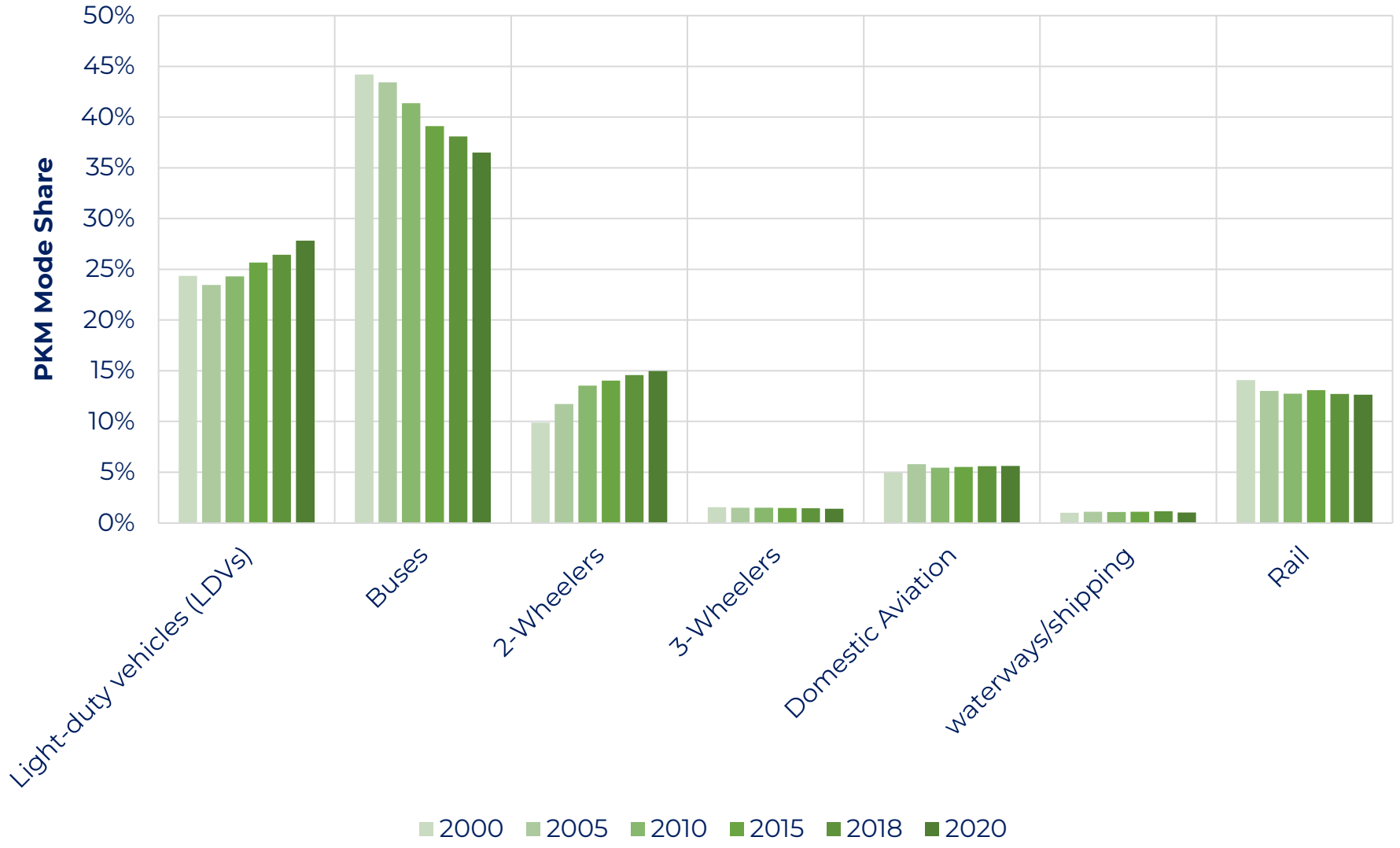
- Despite several mode shift policies, Passenger activity is shifting away from buses (formal/informal) to 2-wheelers and cars
- Rail passenger activity remains stable and is not increasing



Source: Asian Transport 2030 Outlook

Freight Mode Share

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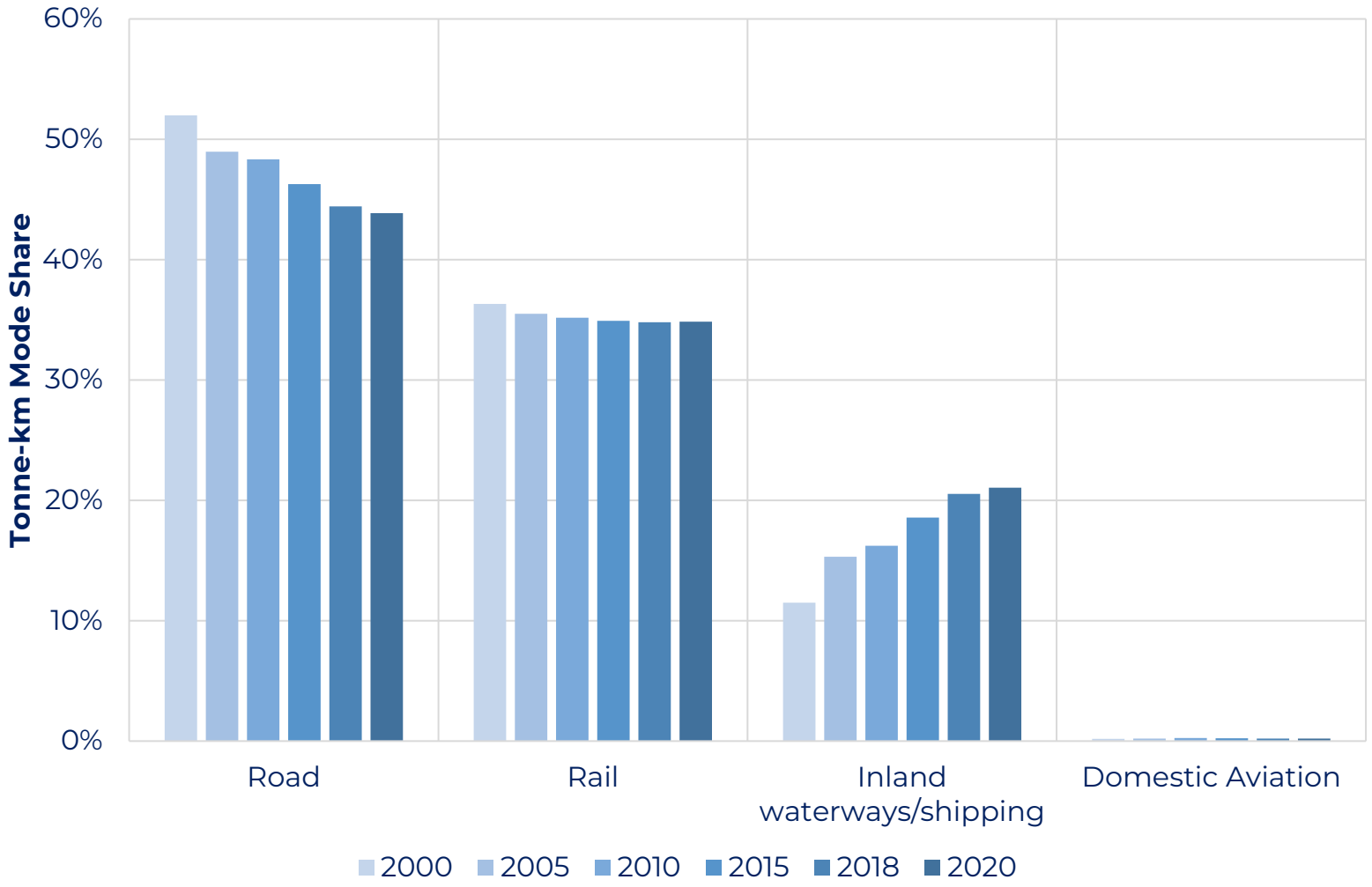
- Led by the People's Republic of China's inter-modal improvements, inland waterways/shipping mode share has increased.
- Railway freight mode-share has remained the same.



Source: Asian Transport 2030 Outlook

Urban Transport Mode Share in Asia

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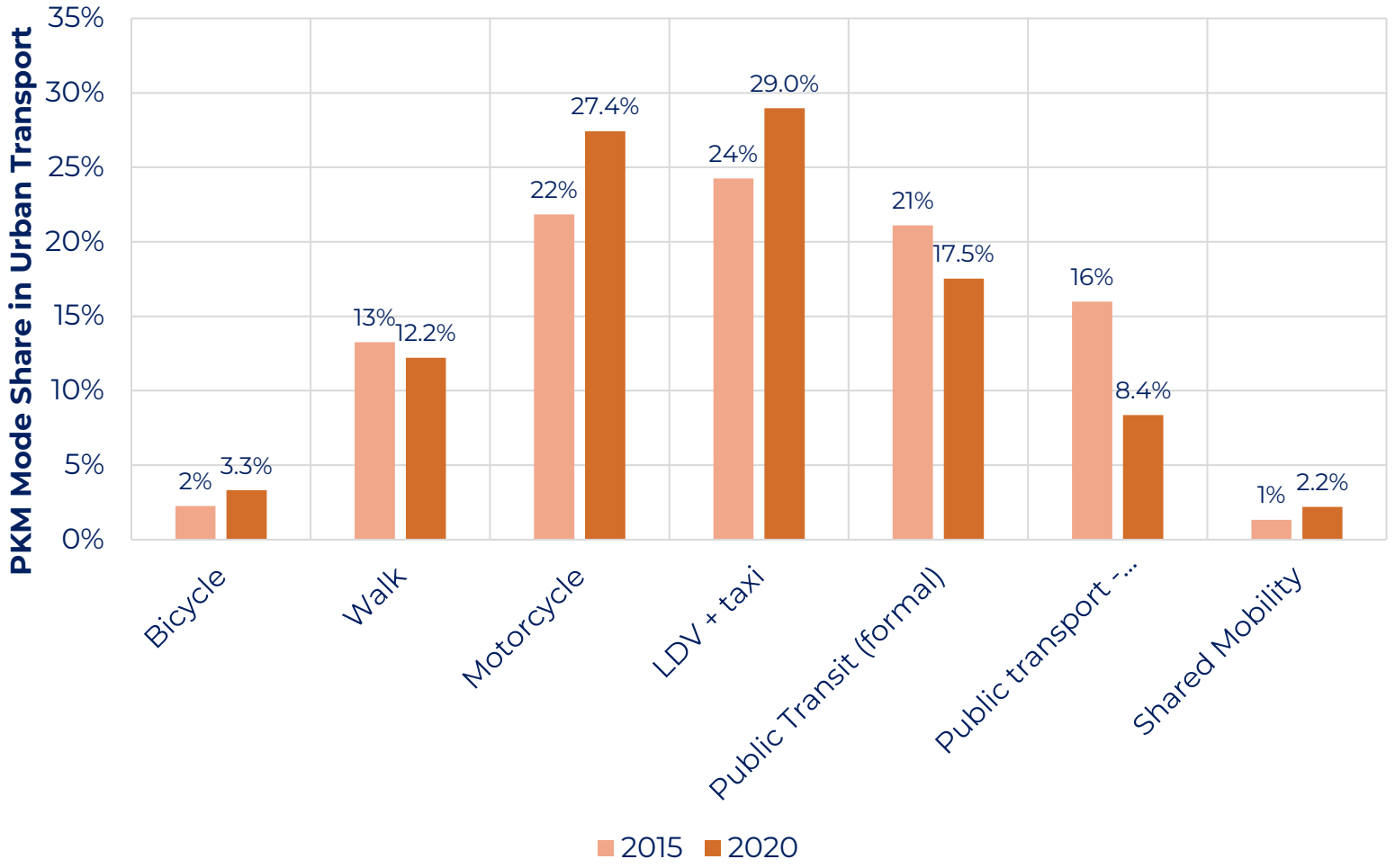
- Active transport (walking and cycling) share is not growing
- The share of private motorised transport (motorcycle and cars) is growing
- Importance of both formal and informal public transport is declining rapidly
- Shared mobility activity is gaining modestly in share



Source: ITF, 2021

Transport Fuels & Carbon Intensity

Fuel Efficiency of First-time Registered LDVs (L/100km WLTC)

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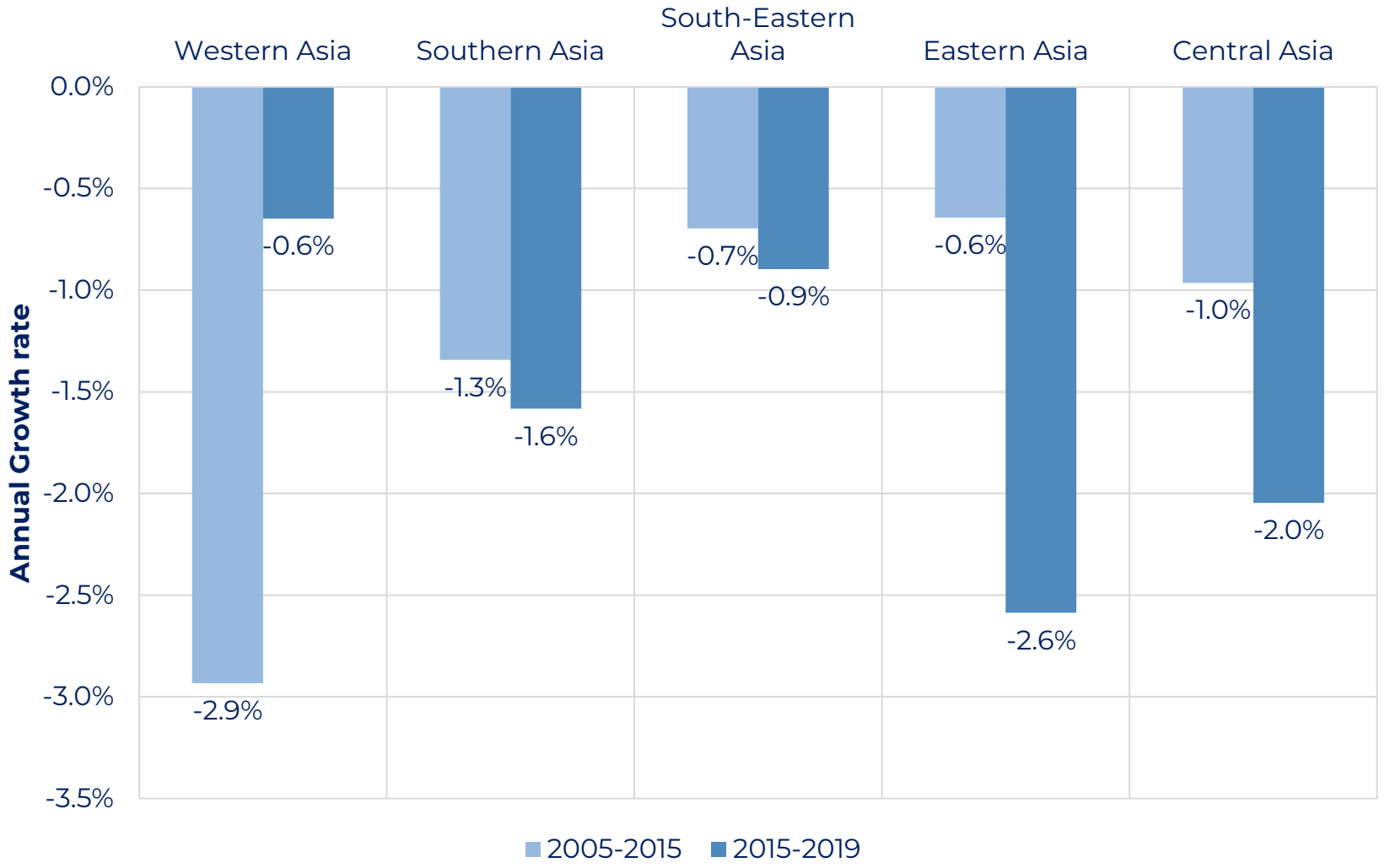
- Since 2005, the average fuel efficiency of new passenger cars sold in the global south (in terms of Lge/100km, WLTC) has improved from 8.4 in 2005 to 7.1 in 2019
- In Asia, the rate of improvement in fuel efficiency of LDVs is picking up across almost all sub-regions of Asia, except Western Asia
- However, the improvement is significantly lower than the 2.7% annual fuel economy improvements over 2005-2030 needed to meet the GFEI target



Source: UNEP

Fossil Fuel Subsidy in Transport Sector in Asia-Pacific

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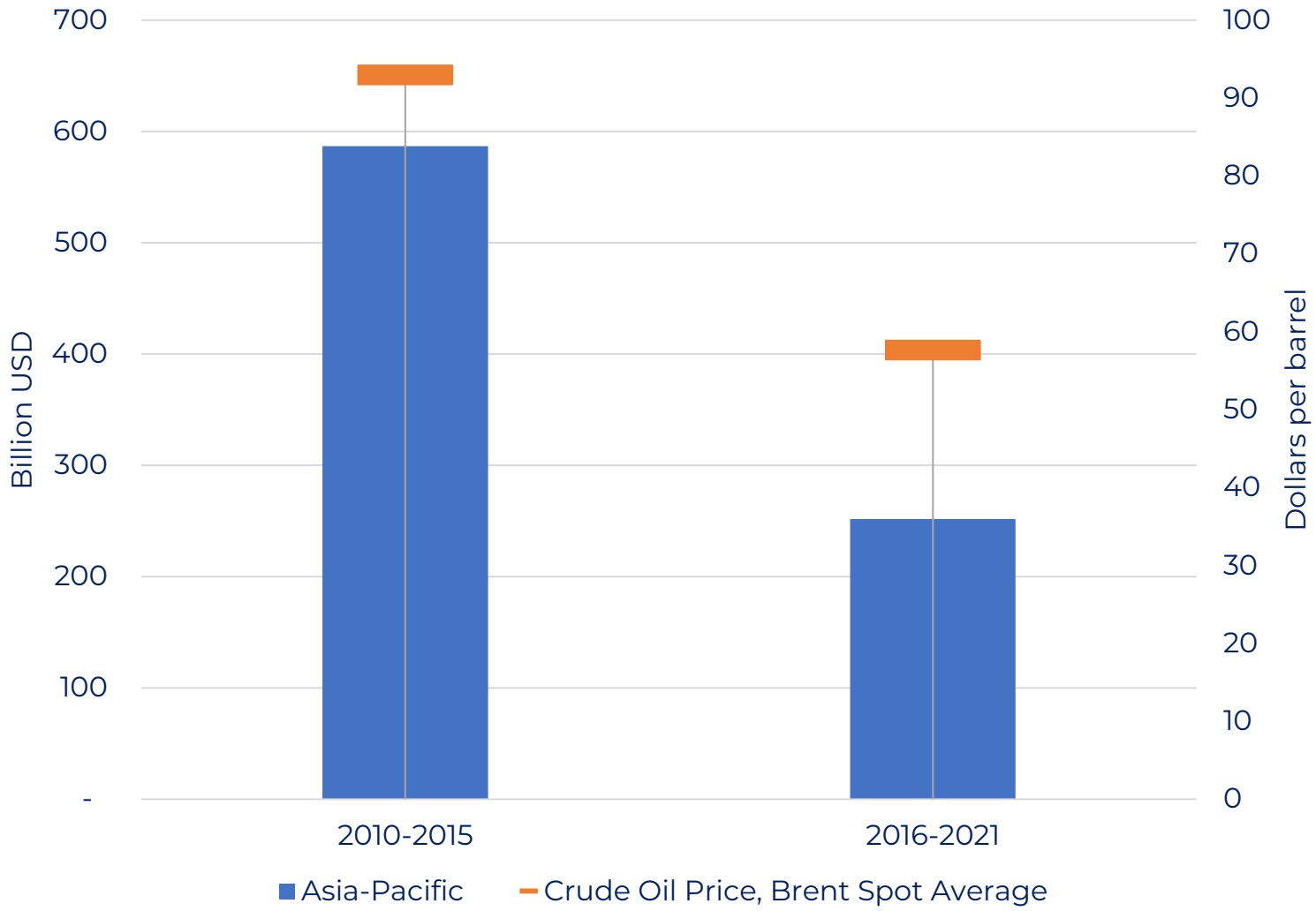
- Asia has made considerable progress in reducing fossil fuel subsidies
- However, the 2022 crude oil price increase has resulted in reinstating subsidies in some leading oil-importing nations



Source: IEA Fossil Fuel Subsidy Database

Transport Energy Consumption Share

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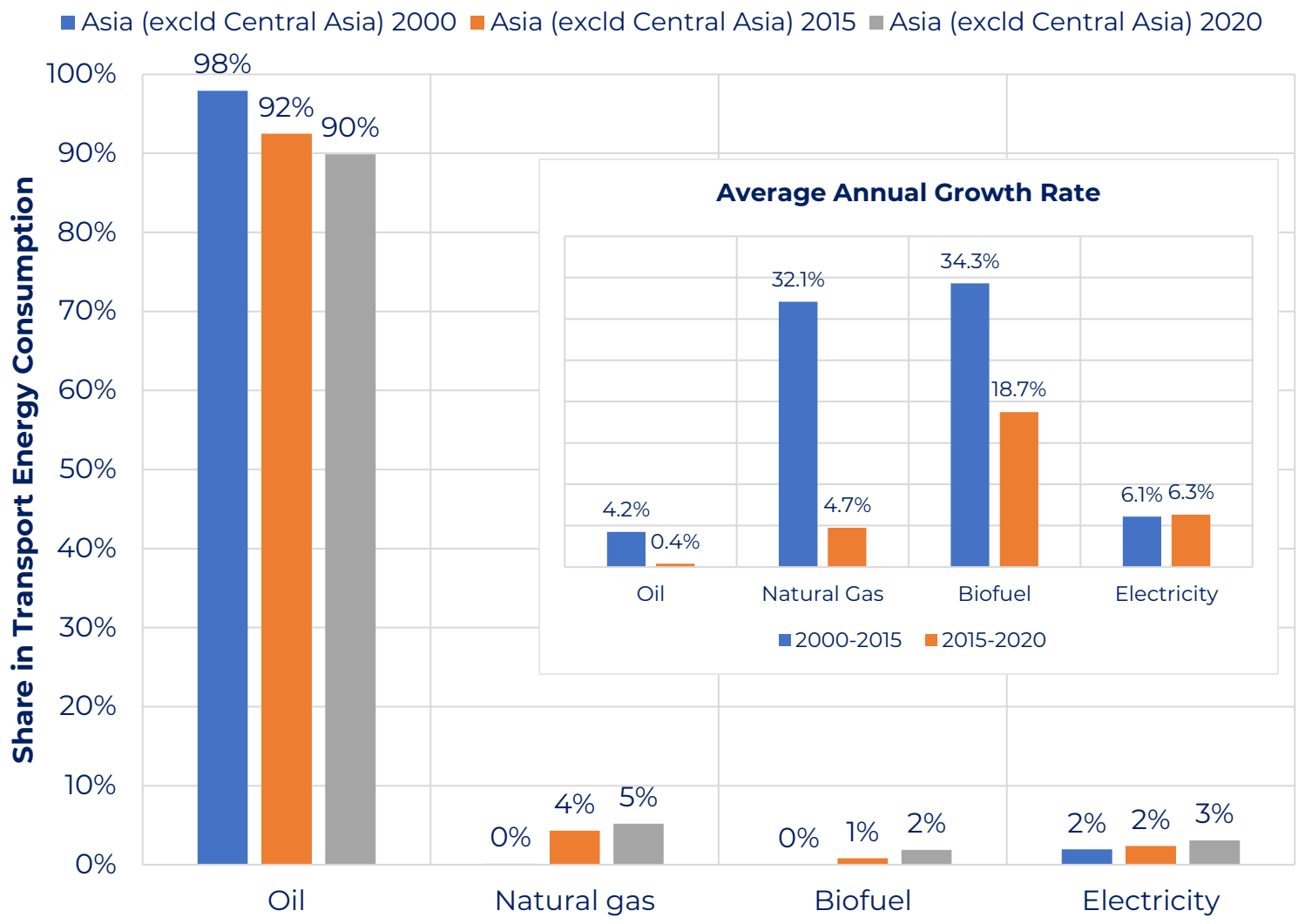
- Limited decrease in the role of oil in powering transport
- Growth rates of non-oil energy sources is declining for natural gas and biofuel, while being stable in case of electricity



Source: IEA

Rail Electrification in Asia

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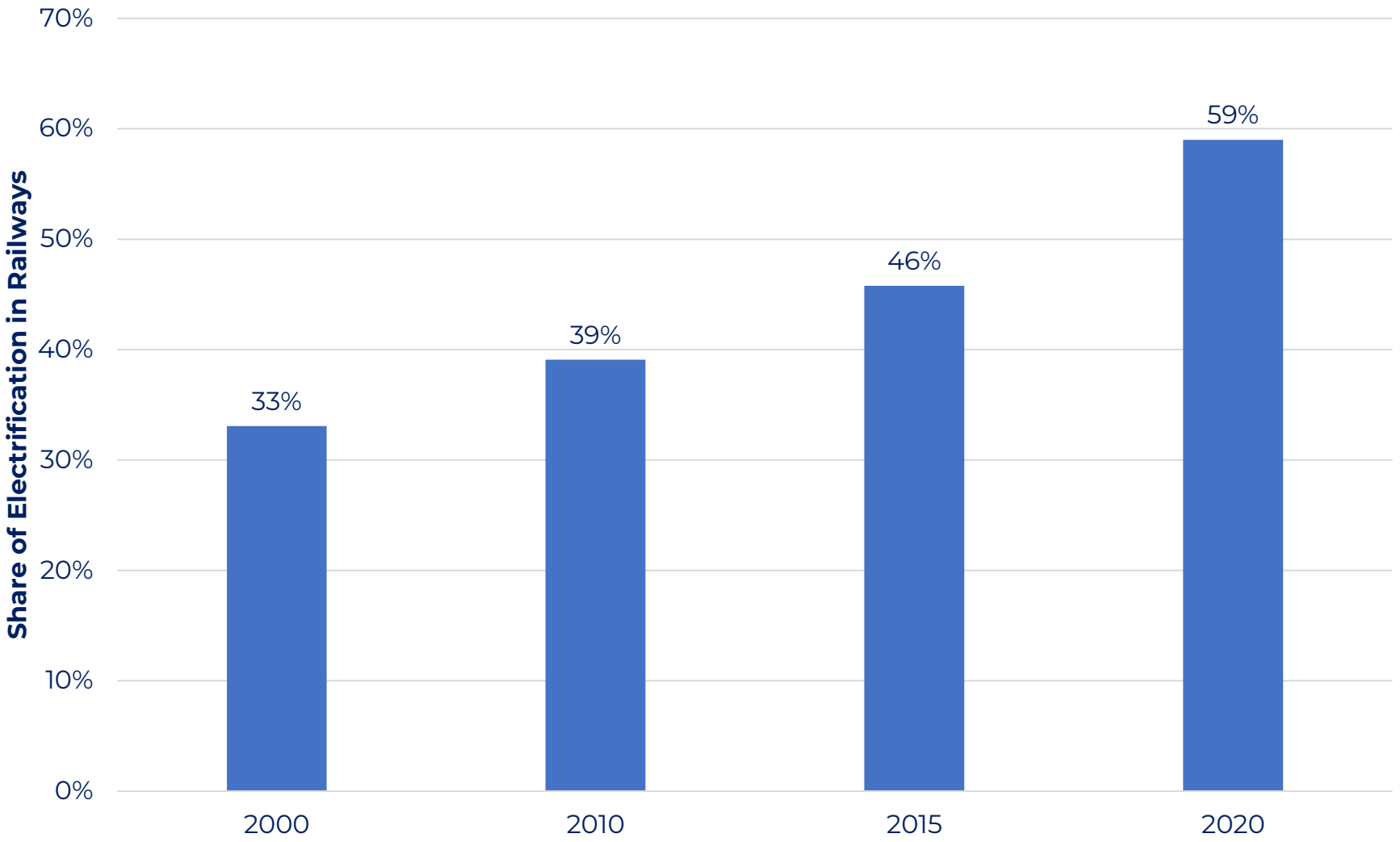
- Considerable progress in the electrification of railways in Asia
- We are on the verge of absolute decoupling of railway CO2 emissions with GDP



Source: ATO Analysis based on UIC

Electric Vehicle Ownership in Asia

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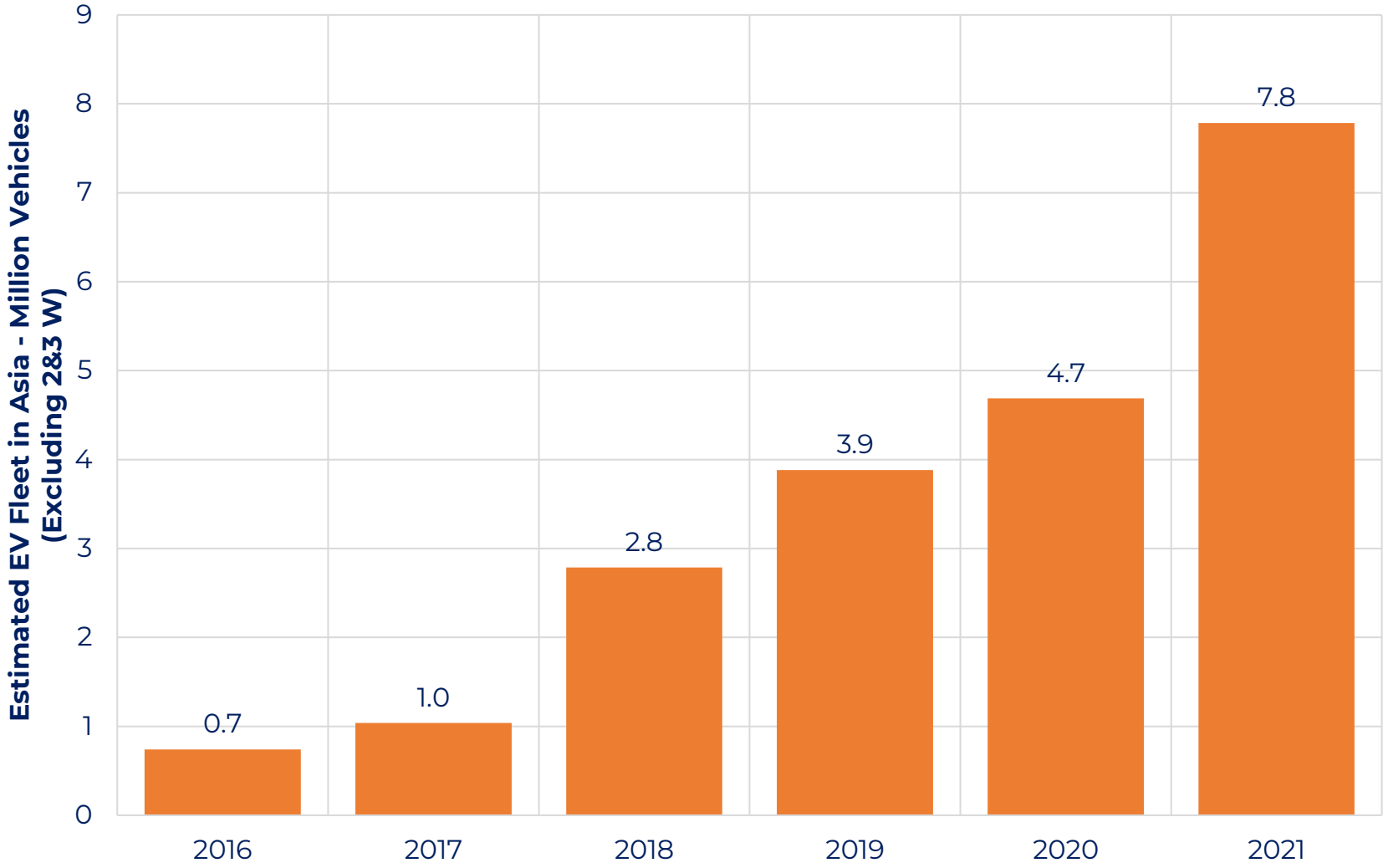
- Good News – While the vehicle ownership growth rates have reduced, there is an exponential increase in electric vehicle ownership in Asia
- Close to 95% of global electric vehicles are in Asia
- Close to 92% of electric vehicles in Asia are 2&3-wheelers



Source: DNV

Countries with a biofuel mandate

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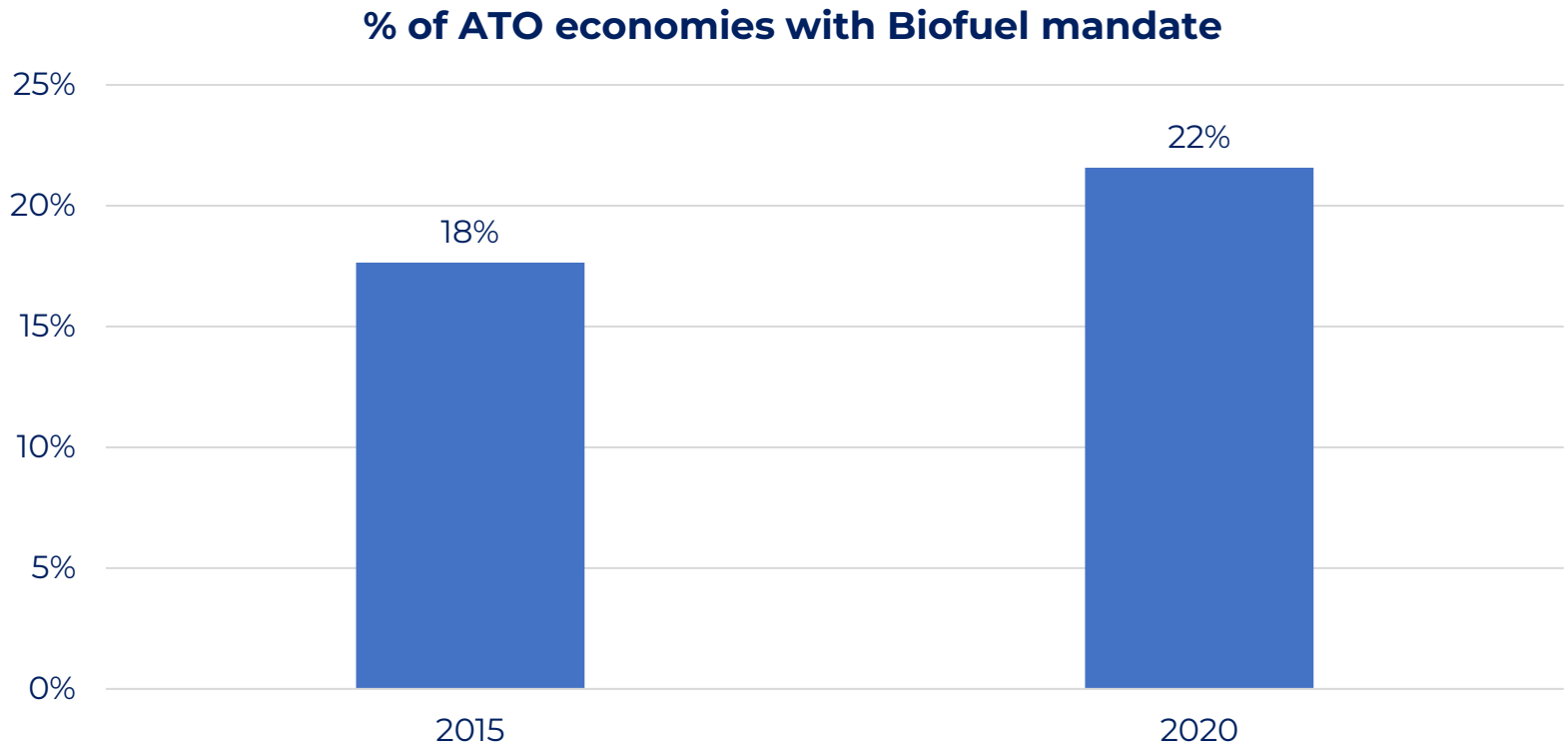
- Less than 1/4th of Asian Economies have set Biofuel targets



Source: REN21

Carbon Intensity of Transport in Asia-Pacific Region

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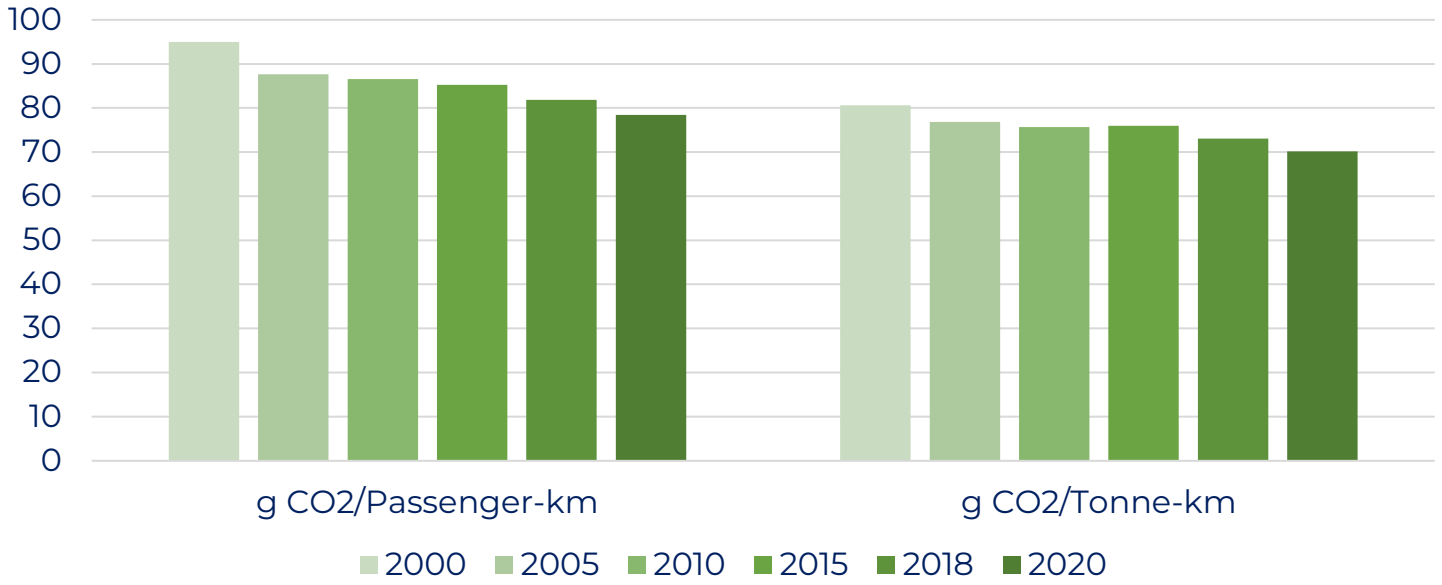
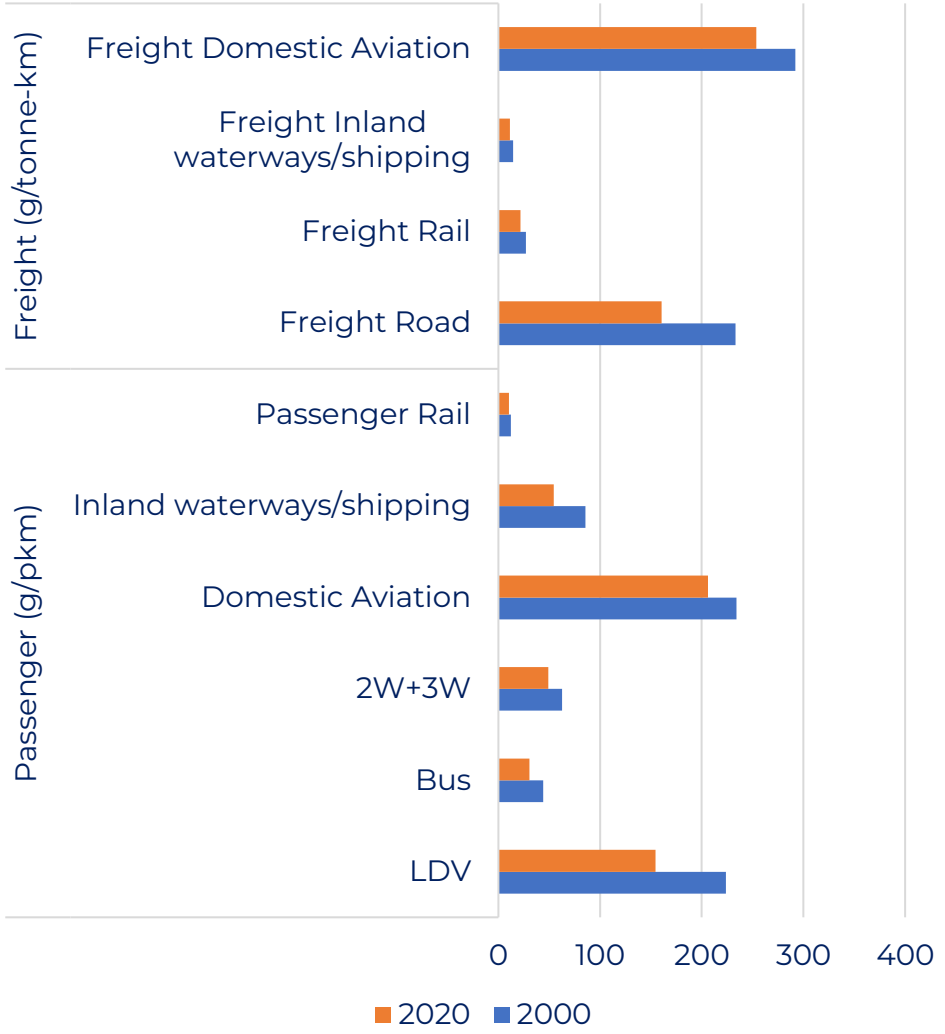
- There is a noticeable improvement in the carbon intensity of both passenger and freight transport in Asia. This improvement is across all modes
- With growing electrification in railways, 2-3W and buses, carbon intensity may improve substantially in the coming years





Source: Asian Transport 2030 Outlook (forthcoming)

Transport in Climate Policy Documents, LTS & NDC's

Transport target coverage in NDCs and LTSs

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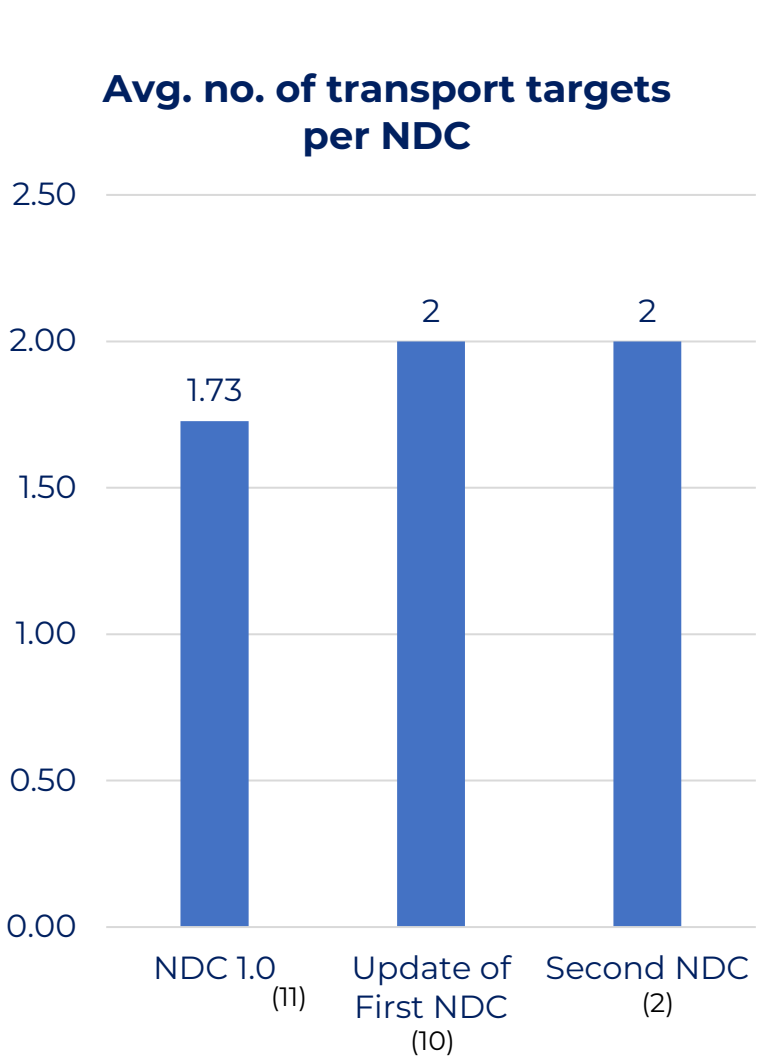
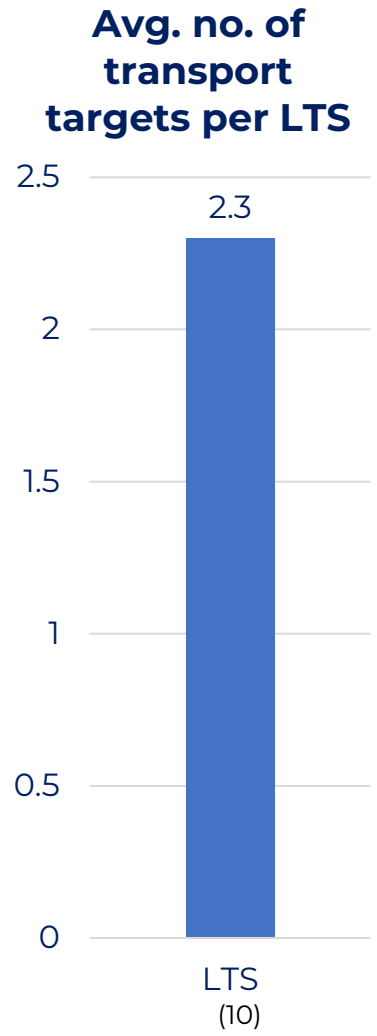
- Average number of transport targets in NDC has not increased significantly since 2015.
- LTSs on average has slightly more transport targets compared to NDCs.





Source: GIZ – SLOCAT Tracker, https://changing-transport.org/tracker-expert/

Climate mitigation measures in NDC

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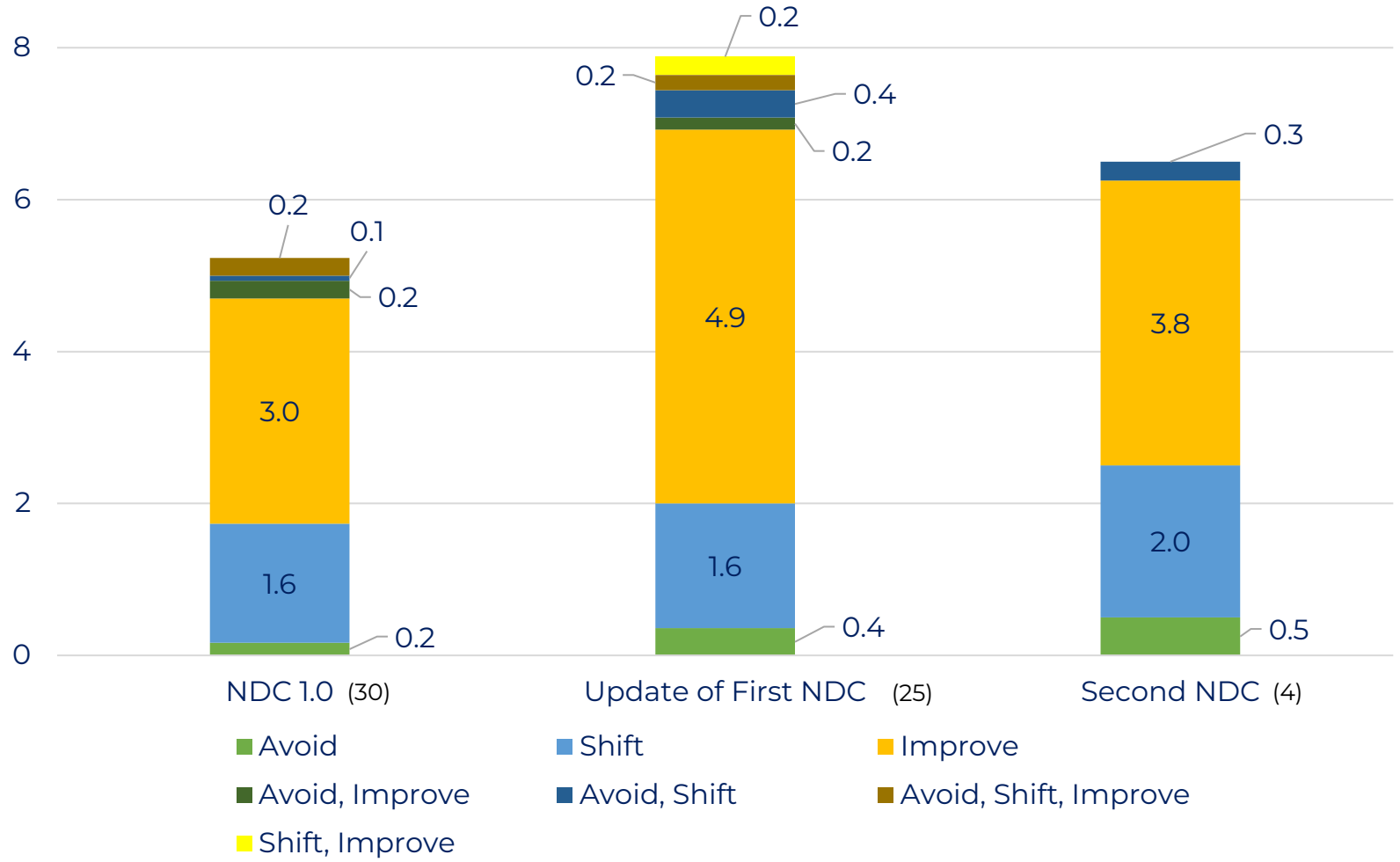
- Average no. of climate mitigation measures increased between initial and updated NDCs (5.2, 7.9)
- Second generation NDCs have a lower number of transport measures (6.5)
- 'Improve' measures consistently dominate. Slight increase in 'Shift' measures



Average no. of climate mitigation measures per NDC

Source: GIZ – SLOCAT Tracker, https://changing-transport.org/tracker-expert/

Modal Share Targets

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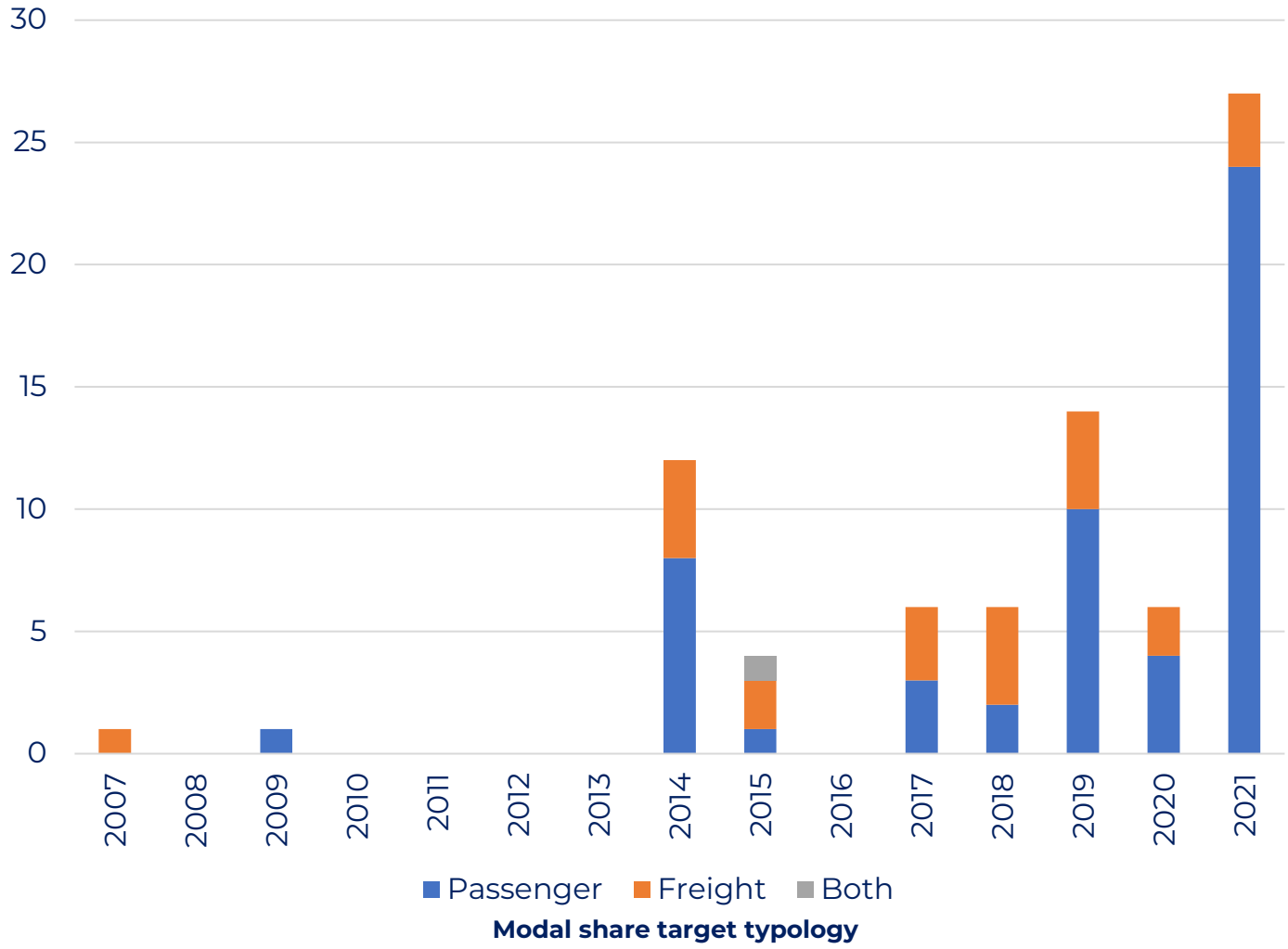
- There is a recent increase in the number of mode share targets in transport relate policy documents
- Passenger related targets remain dominant
- Overall the number of modal share targets, including their ambition level, is not likely to result in considerable modal share shift



Source: Asian Transport 2030 Outlook

EV Targets

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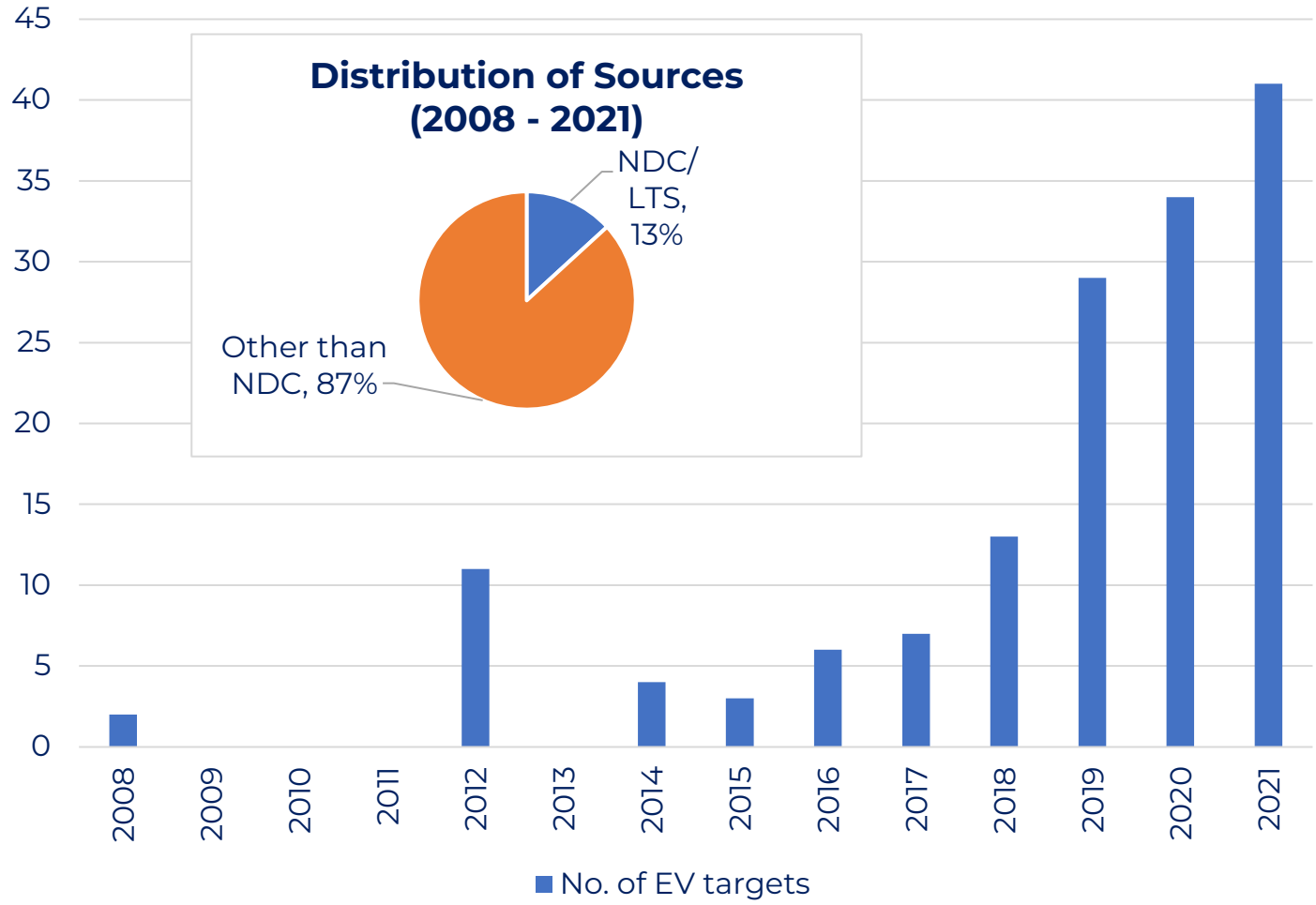
- There is a gradual increase in the number of EV targets
- Only ~13% of the targets are sourced from NDC/ LTS sources, which have not been all translated in national transport policy documents



Source: Asian Transport 2030 Outlook

Climate adaptation measures

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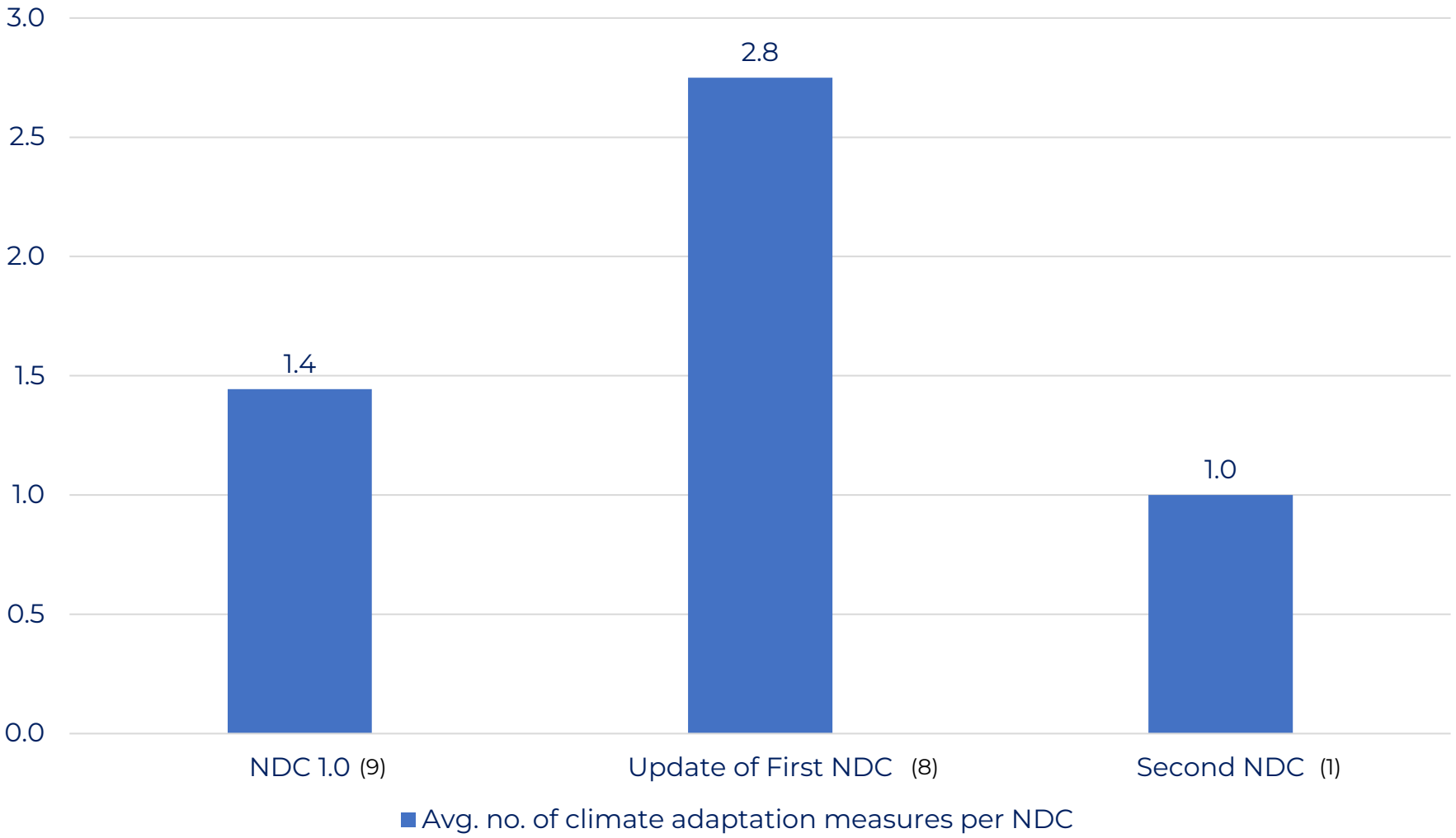
- Generally, very few climate adaptation measures are seen in NDCs
- Number of climate adaptation measures declining in second generation NDCs



Source: GIZ – SLOCAT Tracker, https://changing-transport.org/tracker-expert/

References to climate change in transport related policy documents

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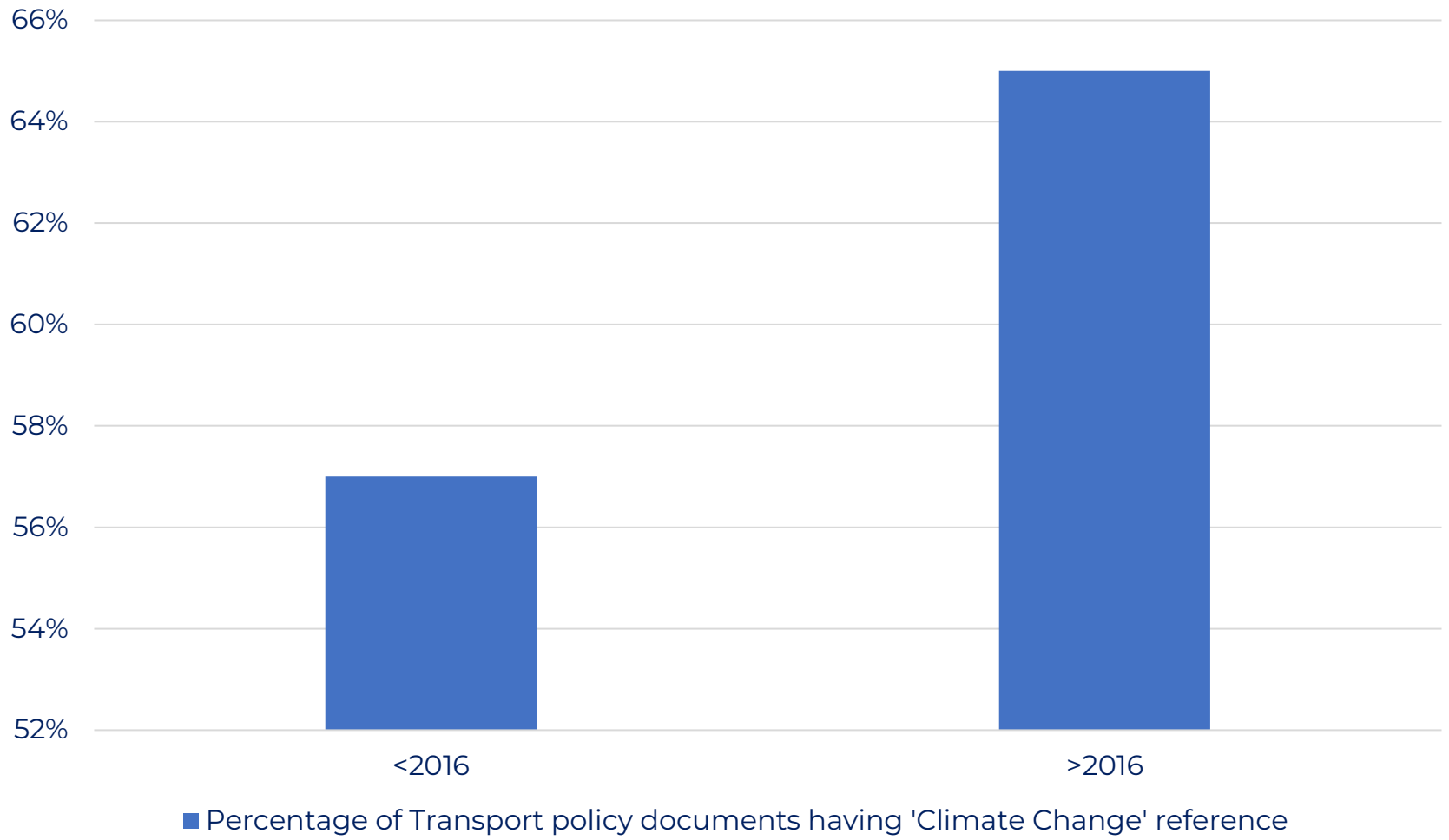
Number of transport-related policy documents referring to 'Climate Change' have increased from 57% to 65% before and after 2016.



Source: ATO Analysis

ADB Transport Projects with Climate Component

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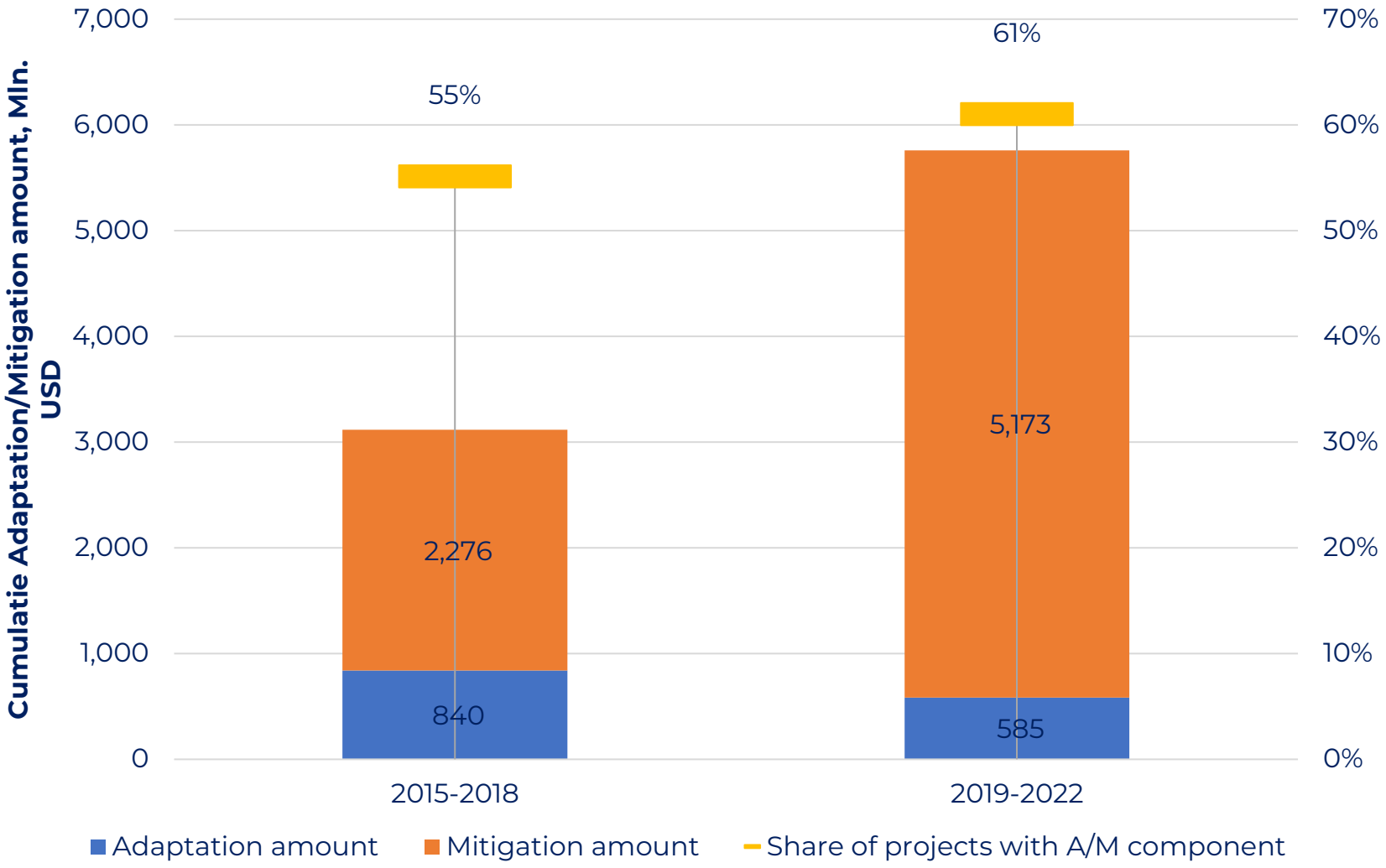
- Majority of ADB Transport Projects have a climate change component
- Mitigation is taking up a growing share of ADB climate funding in the transport sector



Source: ATO Analysis based on ADB

Summary

Summary shift in high-low carbon orientation in transport sector in Asia since 2000

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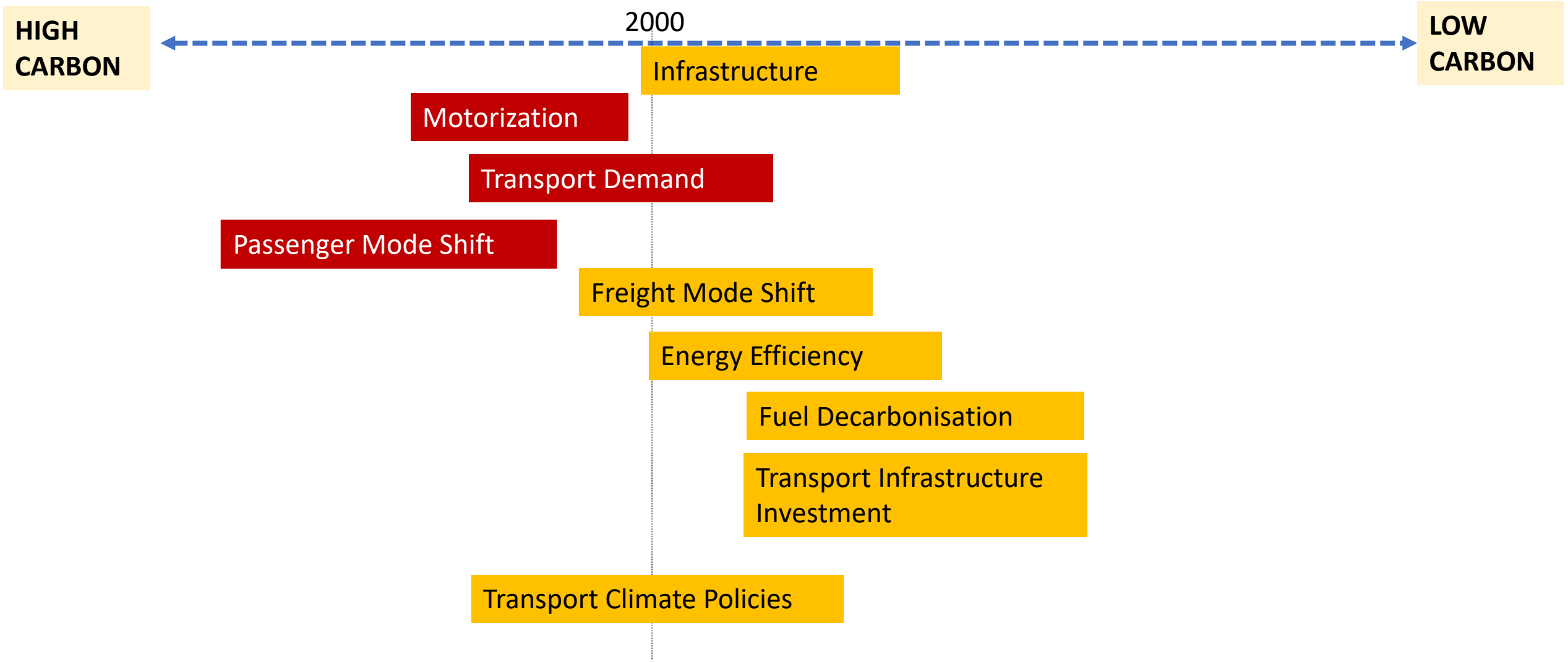

ATO as tracker

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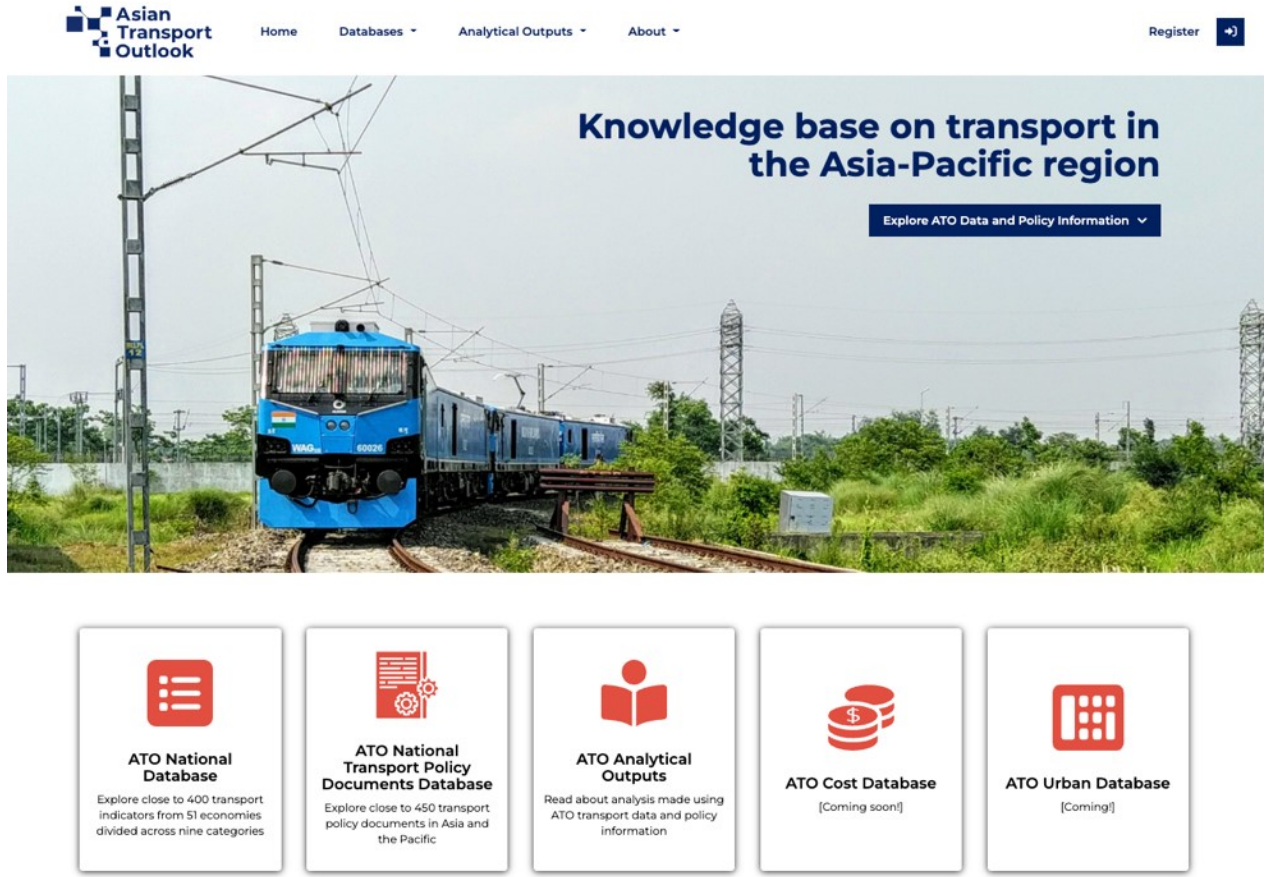
ATO data and policy information is updated on an annual basis and can be used to track and document:

- Transport CO2 emissions
- Supportive trends in infrastructure, transport activity as well as transport energy
- Transport policies



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