



Towards Decarbonising Transport Vietnam 2024

A Stocktake on Sectoral Ambition

Imprint

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Agora Verkehrswende is a Berlin-based think tank that seeks to promote climate-friendly mobility. Non-partisan and non-profit, it works together with key stakeholders in the fields of politics, business, academia and civil society to decarbonise the transport system. To this end, the think-tank team develops evidence-based policy strategies and recommendations. Agora Verkehrswende was initiated in 2016 by Stiftung Mercator and the European Climate Foundation.

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VIETNAM



0.80%

SHARE IN GLOBAL GDP (2022)

2.85%

TRANSPORT SECTOR SHARE GDP (2022)

3.67%

EMPLOYMENT IN TRANSPORT (2022)

Source: World Development Indicators, UNDP, GSO Vietnam

Vietnam is long and narrow, extending over 1,650 km north to south while varying in width between 50 km and 500 km. Most of the country's population resides along the coasts; Vietnam has a 3,260 km coastline on the South China Sea and Gulf of Tonkin, as well as over 3,000 islands and extensive internal waterways. Accordingly, an exceptionally high share of freight is transported by water. Motorcycles play a major role in passenger transport, with the motorisation rate for two-wheelers being more than double that of cars.

Vietnam aims to reduce GHG emissions from transport by 12% unconditionally and 22% conditionally by 2030 compared to a BAU scenario. Vietnam was one of the few countries to update and significantly increase its NDC ambition in 2022. The country has pledged to reach net zero emissions by 2050. Vietnam is supporting its budding electric vehicle industry and aims to reach a 50% "electric and green energy vehicle" share in passenger cars by 2030. Measures to support a shift towards public transport and rail/water-based freight are currently scarce.



NDC

- 15.8% (UNCONDITIONAL) TO 43.5% (CONDITIONAL) ECONOMY-WIDE REDUCTION IN GHG EMISSIONS BY 2030 COMPARED TO BAU
- ECONOMY-WIDE NET-ZERO TARGET BY 2050



EV TARGETS

- 50% SHARE OF LOW- OR ZERO-EMISSION VEHICLES BY 2030
- END PRODUCTION, ASSEMBLY AND IMPORT OF ICE AUTOMOBILES AND MOTORCYCLES BY 2040
- 100% ZEV VEHICLES BY 2050



POPULATION

98.2 million people

CURRENT POPULATION (2022)

1.2%

SHARE OF GLOBAL POPULATION (2022)

EXPECTED POPULATION GROWTH: 9.0% (2020–2050)

311 people/km²

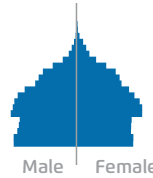
POPULATION DENSITY (2022)

61 people/km²

WORLD AVERAGE (2021)

32.4 years

AVERAGE AGE (2022)



Male Female

Source: UN World Population Prospects 2024, World Development Indicators



URBANISATION

39% of total

URBAN POPULATION (2022)

77%

G20 AVERAGE

51.3%

WORLD AVERAGE

38.1 million people

TOTAL URBAN POPULATION (2022)

EXPECTED SHARE OF URBAN POPULATION: 57.3% (2050)

Source: World Development Indicators, World Urbanisation Prospects 2018

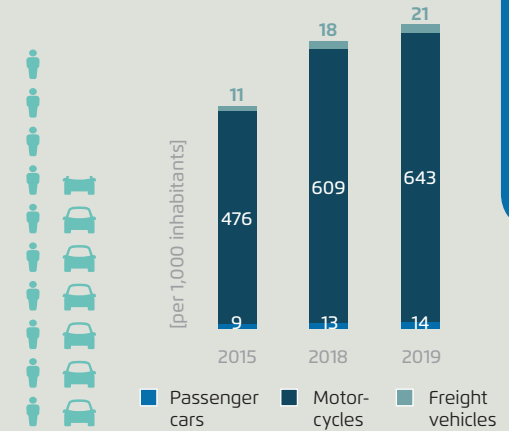


MOBILITY

680 road motor vehicles per 1,000 inhabitants

MOTORISATION RATE (2019)

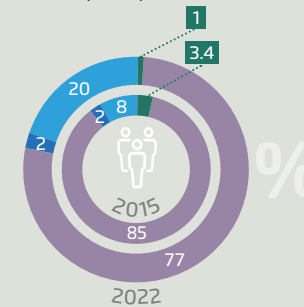
1 person icon = 100 inhabitants
1 car icon = 100 motor vehicles



Source: Asia Transport Outlook

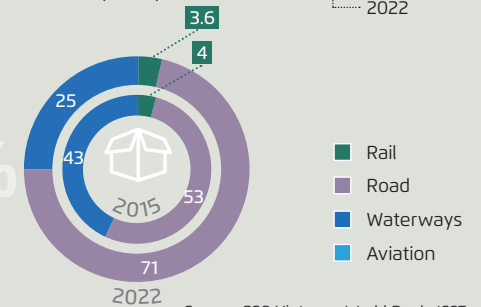
160,656 million passenger-km

PASSENGER TRANSPORT VOLUME (2022)



126,726 million tonne-km

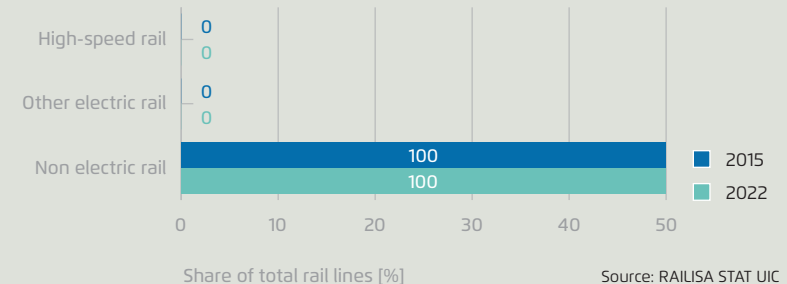
FREIGHT TRANSPORT VOLUME (2022)



Source: GSO Vietnam, World Bank, ICCT

Note: Only domestic, motorized transport with some exceptions for indistinguishable data. PKM Aviation data from 2013 and 2019 respectively and different data base (ICCT). TKM Aviation data from 2021 and different data base (World Bank)

Rail infrastructure



Share of total rail lines [%]

Source: RAILISA STAT IUC



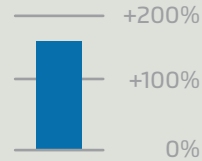
TOTAL EMISSIONS

Total CO₂ emissions from fuel combustion in Vietnam increased 15-fold between 1990 and 2019. Emissions in the transport sector increased 9-fold over the same period. While transport emissions dropped 26% between 2019 and 2021 due to the global pandemic, more recent data are expected to show a strong reversal of this crisis-induced trend. Total emissions growth outpaced emissions growth in the transport sector due to an increased reliance on coal-fired power generation. In 2019, the transport sector was responsible for just 15% of total emissions, and this share fell to 11% in 2021. Under a business-as-usual scenario, sector emissions are projected to increase another 44% by 2030 and 87% by 2050 (over 2020 levels). Owing to Vietnam's long coastline and extensive river network, waterborne navigation represents 8.4% of sector emissions, while aviation is responsible for 8.8%.



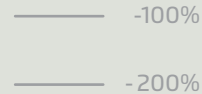
284.75 Mt CO₂

TOTAL CO₂ EMISSIONS FROM FUEL COMBUSTION (2021)



154.2%

CHANGE IN TOTAL EMISSIONS (2016-2021)



TOTAL CO₂ EMISSIONS FROM FUEL COMBUSTION PER CAPITA



2.9

(2021)



7.4

G20 AVERAGE (2021)



4.3

WORLD AVERAGE (2021)

0.80%

SHARE IN GLOBAL EMISSIONS (2021)



t CO₂ per capita

Source: IEA



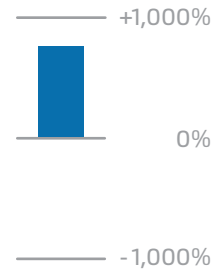
TRANSPORT SECTOR EMISSIONS

32.1 Mt CO₂

TOTAL CO₂ EMISSIONS FROM FUEL COMBUSTION IN THE TRANSPORT SECTOR (2021)

755.2%

CHANGE IN TRANSPORT SECTOR EMISSIONS (1990-2021)



TOTAL CO₂ EMISSIONS PER CAPITA IN THE TRANSPORT SECTOR

2015



0.36

2019



0.45

2021



0.33

2030*



0.61

t CO₂ per capita

Source: SLOCAT

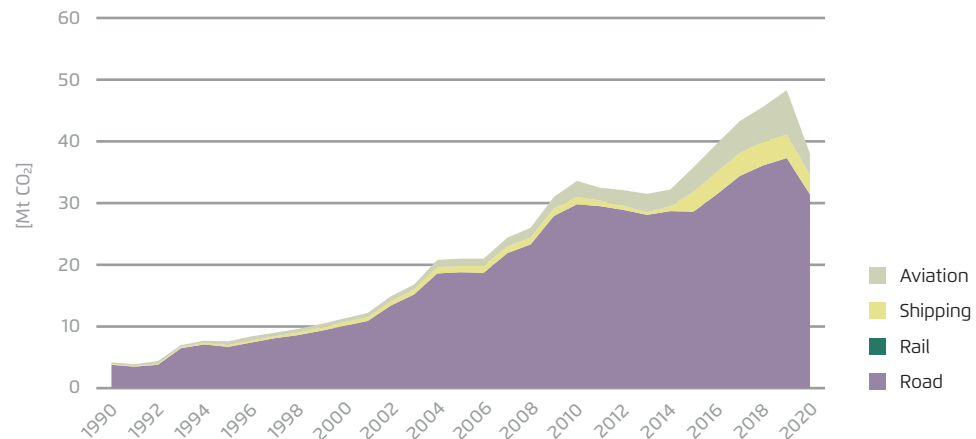
* projected emissions under an average business-as-usual scenario

SHARE OF TRANSPORT EMISSIONS IN TOTAL CO₂ EMISSIONS FROM FUEL COMBUSTION (2021)



Source: IEA

Transport sector emissions by subsector

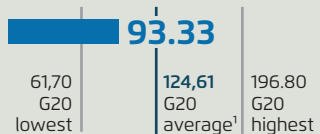


Source: IEA

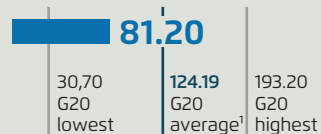


ENERGY

GASOLINE PRICE (2024) US cents/litre

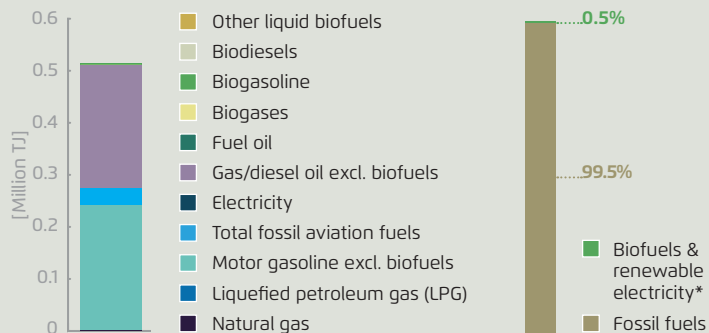


DIESEL PRICE (2024) US cents/litre



Source: Globalpetrolprices.com*

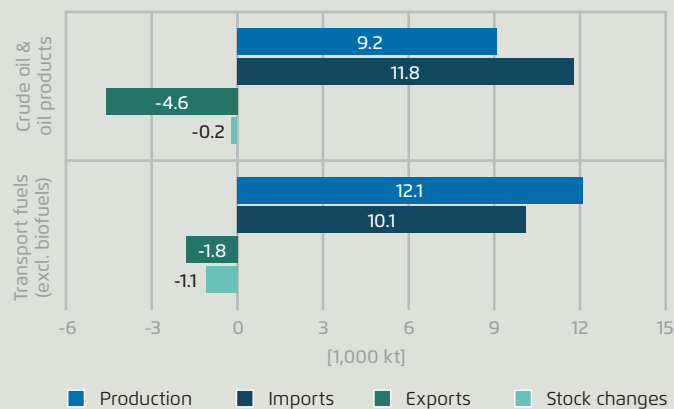
Energy use in transport by fuel



*electricity split calculated based on share of renewables
Year: 2020

Source: IEA

Fuel supply and use



Year: 2020

Source: IEA



ELECTRIC VEHICLES

>2 million vehicles

TOTAL STOCK OF ELECTRIC VEHICLES (2023)

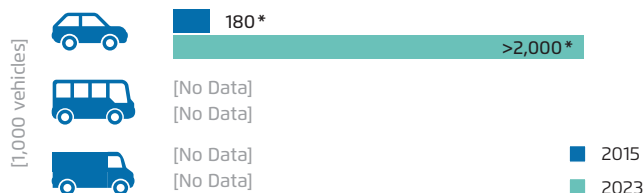
2.9%

MARKET SHARE OF ELECTRIC CARS IN NEW SALES (2023)

[No Data]

SHARE OF ELECTRIC VEHICLES IN TOTAL PASSENGER VEHICLE STOCK (2023)

ELECTRIC CAR FLEET BY VEHICLE TYPE (2015 VS. 2023)



approx. +1,100%

TOTAL FLEET GROWTH (2015–2023)

*Overwhelming majority of which are two- and three-wheelers
Source: CNBC, US International Trade Administration (ITA) 2022, Vietnam News Agency (VNA) 2024

PUBLICLY ACCESSIBLE CHARGING INFRASTRUCTURE



approx. 3,000

EV CHARGING STATIONS (2023)

approx. 150,000

CHARGING POINTS (INCL. FOR MOTORCYCLES) (2023)

Source: ChoToTxe & KPMG Report 2024

Battery reuse and recycling

- A newly adopted extended producer responsibility regime covers batteries starting from this year and vehicles from 2027.
- Producers and importers can select to recycle the product independently, hire a third part or pay a contribution to a national fund.
- The regulation prescribes individual mandatory recycling rates for product categories.

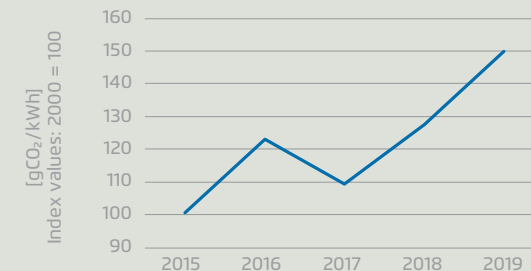
Source: Baker McKenzie (2022)



LINKAGES TO THE ENERGY SECTOR

In Vietnam, coal generates about half of the country's power, followed by hydropower and natural gas as the next most significant energy sources. The share of coal in power generation has increased constantly over the last decade. Support for the development of renewable energy is mainly provided through a fixed feed-in tariff. However, grid constraints have impaired the development of solar and wind energy. In response, the government has been reviewing the regulatory framework for the development of renewable energy; an annual cap on eligible projects and the introduction of a competitive bidding system are being considered. Additional incentives come through income tax and land lease exemptions.

CO₂ intensity of power



Source: Vietnam Ministry of Energy

Existing targets for renewable electricity generation

- 30.2%-39.2% unconditional by 2030 / 47% conditional on JETP commitments by 2030
- 67.5%-71.5% by 2050

Source: REN21

The role of hydrogen

- Vietnam has just adopted a national hydrogen development strategy, aiming to produce between 100,000 mt and 500,000 mt of hydrogen annually by 2030, mostly from renewable energy.
- There is currently no green hydrogen production in the country, but several projects are under development.

Source: Dezan Shira & Associates, S&P Global



AMBITION

NDCs and national climate targets

General NDC targets

- Committed to a 15.8% (unconditional) to 43.5% (conditional) reduction in GHG emissions by 2030 compared to BAU
- Economy-wide 2050 net-zero target

Transport-related NDC measures

- Improving vehicle efficiency
- Shifting transport modes for passengers and freight
- Shifting to alternative fuels

National ICE phase-out commitments

- 100% share of low- and zero-emission vehicles in new buses by 2025
- At least 50% of vehicles and 100% of taxis will be low- or zero-emission by 2030

- End production, assembly and import of ICE automobiles and motorcycles by 2040
- 100% ZEV vehicles by 2050

Future targets at national level

- 12% unconditional and 22% conditional reduction in GHG emissions from transport by 2030 compared to BAU
- 12.5% average annual increase of railway freight transport up to 2030
- Up to 50% modal share for public transport in cities by 2030
- Increase the average truck load factor to 60% by 2030
- Reach 623 CNG buses in use by 2030

Source: Decision No. 876/QĐ-TTg, NDC Submission



TRADE-OFFS

Sustainability of biofuels

[No Data]

Subsidies

[No Data]



COVID

Vietnam's transport sector was strongly impacted by the COVID-19 pandemic, as sector emissions fell 26% between 2019 and 2021. Many official statistics still reflect the situation at the height of the pandemic and may no longer be accurate. Some data sources indicate

that transport activity and emissions have strongly rebounded. However, the extent to which the pandemic will have long-lasting impacts on transport demand and behaviour (e.g. through increased reliance on remote work) remains unclear.



IMPLEMENTATION

Mobility

- ✓ **National programmes to support shift to public transport**
 - Develop infrastructure for public transport
 - Pilot models and communication to encourage modal shift
- ✓ **Measures to support low-carbon freight logistics**
 - Programme to enhance connectivity and promote multimodal transport
 - Promote the digitisation of operations and information sharing
- National-level measures to support new mobility services**
 - No measures at national level
- ✓ **National measures to support non-motorised transport**
 - Develop infrastructure for non-motorised transport

Energy

- Energy/carbon emission standards for light duty vehicles (LDV)**
 - Fuel efficiency standards are under discussion
- Energy/carbon emission standards for heavy duty vehicles (HDV)**
 - Fuel efficiency standards are under discussion
- Pricing instruments**
 - No CO₂ or energy consumption based taxes
- ✓ **Mandatory vehicle labelling**
 - Mandatory energy efficiency labelling for light-duty vehicles
 - Mandatory energy efficiency labelling for motorcycles and motorbikes
- ✓ **Support mechanism for electric vehicles & charging infrastructure**
 - Exemption for registration fees between March 2022 and February 2027, rising to 50% of regular fees afterwards
 - Reduced vehicle taxes for electric vehicles

Source: Source: NDC TIA 2023

Note: The list is not exhaustive but highlights aspects of the country's transport policy