

Italy

The key areas of sustainable, low-carbon transport in **Italy** are urban mobility improvements, high-speed rail improvements and alternative fuels. Italy's transport sector remained the country's largest source of greenhouse gas emissions, contributing 27.8% of national emissions in 2023. Renewable energy, including biofuels and electricity, accounted for 5.9% of Italy's transport energy consumption, whereas the carbon intensity of its electricity was moderate, at 323.5 gCO₂/kWh in 2023. While transport emissions declined slightly (-0.33% from 2015 to 2023), passenger travel demand fell (-11.2%) while freight activity surged (+25.7%). Road transport dominates both passenger (81% cars) and freight (83.7% road) modes. Concerning sustainability issues, transport accounted

for 14.4% of national air pollutant emissions in 2019. Transport-induced air pollution, in turn, caused 6.06 premature deaths per 100,000 people in Italy in 2019. Road traffic injuries, on the other hand, claimed 5 lives per 100,000 people and accounted for 2.20% of Italy's GDP in 2021. In 2020, 93.47% of Italy's population had convenient access to public transport. Private motorisation rates are also extremely high with 749.5 vehicles per 1,000 people in 2020. The country has strong policies for transport decarbonisation, including emissions trading, vehicle efficiency standards, and high-speed rail expansion. Italy follows the EU target of an internal combustion engine sales phase-out by 2035 and aims to expand electric vehicle adoption.

Income group: High-income

Human Development Index (2023): 0.92

Population size (2023): 60.51 million **-1.77%** (2015 - 2023)

Urban population share (2023): 71.09% **+2.29%** (2015 - 2023)

GDP per capita (2023): 33 318.92 USD **+10.01%** (2015 - 2023)

Share of transport and storage jobs in workforce (2023) **8.3%**

Share of women employed in transport and storage (2023) **24.1%**

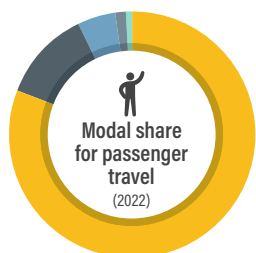
Transport Demand Trends

Passenger transport activity

744 436

million passenger-km in 2022

-11.2%
(2015 to 2022)



81.0% Cars
11.9% Buses and coaches
4.8% Rail
1.4% High-speed rail
0.8% Tram and metro

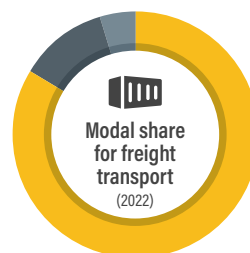
SDG 9

Freight transport activity

206 110

million ton-km in 2022

+25.7%
(2015 to 2022)



83.7% Road
11.8% Rail
4.5% Oil pipeline

SDG 9

Transport energy consumption (2022)

1 535 917 TJ

+0.9%
(2015 to 2022)

Oil products

91.2%

of total transport energy consumption

Per capita fossil fuel subsidies (2022)

538.3 USD per capita

SDG 12

Fuel quality standards (2022)

<15 ppm

Average light duty vehicle fuel consumption (2022)



Road traffic fatalities (2021), WHO estimates

SDG 3.6

5

deaths per 100,000 people

5.8 Regional
15.0 Global

Road traffic fatality cost as percentage of GDP (2021)

2.2%

Premature deaths linked to transport air pollution (2019)

SDG 11.6

6.1

deaths per 100,000 people

4.1 Regional
2.3 Global

Contribution of transport to air pollution (2019)

14.4%

Transport Emission Trends

Transport GHG emissions (2023)

104.0

million tonnes of CO₂ equivalent

-0.3%
(2015 to 2023)

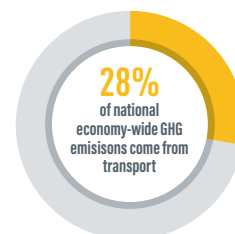
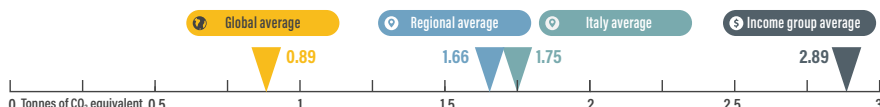
-1.2%
(2022 to 2023)

Per capita transport GHG emissions (2023)

1.75

tonnes of CO₂ equivalent per capita

PER CAPITA EMISSION COMPARISON



Transport is the **largest** GHG-emitting sector in the country in 2023.

Transport Decarbonisation Pathways

Transport strategy identifies climate change ☒

Long-term strategy submitted to UNFCCC ☒

NDC submitted: 1st and Updated NDC

NDC highlights transport for GHG mitigation ☒

Transport mitigation targets in NDC

☒ reduce emissions from existing EU ETS sectors and from maritime of 62% by 2030, compared to 2005 levels

Other non-emission related transport targets in NDC ☒

VNR highlights transport

☒ 2022 VNR with transport linkages to SDG 9

Transport actions in VNRs

- Public transport improvements
- Integrated public transport pricing
- Sustainable urban mobility plans

Transport actions in NDC

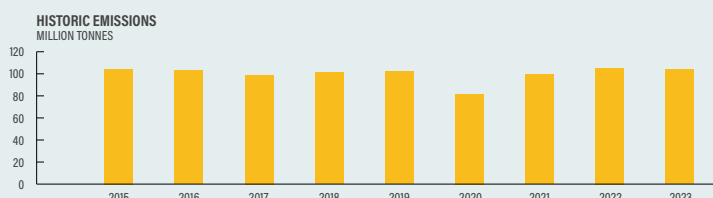
Mitigation

- Alternative fuels measures
- Vehicle efficiency standards
- Emissions trading and carbon pricing
- Aviation and shipping improvements

Adaptation

- No actions

Transport GHG emissions from 2015 to 2023



Policy Areas: Indicators and Targets

Integrated Transport Planning

National urban mobility framework (2024)	✓ Required for every city above 100,000 population
Sustainable urban mobility plans (2024)	✓
Number of sustainable urban mobility plans (2024)	45 cities
Low emission zones (2024)	180 cities

Adaptation and Resilience

ND-GAIN Index (2022)	59.58
Vulnerability score for infrastructure (2022)	0.39

Walking

Walkability Score (2024)	0.74
National walking strategies (2024)	✓

Cycling

Cycling infrastructure in capital (2022)	254 km
Percent near protected bikeways (2024)	29%
Bike sharing systems (2024)	115
National cycling strategies (2024)	✓

Target

- To construct 565 km of cycling paths in urban areas
- To strengthen connections between railway stations and universities by June 2026

Public Transport

Bus rapid transit (2024)	—
Bus rapid transit daily passenger volume (2024)	—
Urban rail (LRT, metro, tram) (2024)	289 km in 16 cities
Proportion of population that has convenient access to public transport (2020)	93.47% SDG 11.2

Intercity Rail

Rail network (2021)	17 305.2 km
Rail travel activity (2021)	27 693 million passenger-km
Rail freight activity (2021)	24 262 million ton-km
High-speed rail (2023)	1 097 km
High-speed rail travel activity (2017)	5 290 million passenger-km
National plans for passenger and freight rail expansion (2024)	✓

Target

- The accelerated implementation of a 5-year agreement between the ministry of transport and the national rail company
- The acceleration of procedures for approving rail projects, with the following planned investments
- High-speed train connections towards south Italy for freight and passengers
- High-speed train connections in the North of Italy with Europe
- Diagonal connections
- Development of European system for management of rail transport
- Improvement of metropolitan rail connections and national key hubs
- Improvement of regional railways
- Improvement, electrification, and resilience of railways in South Italy
- Improvement of rail stations in the South of Italy

Road Transport

Total road vehicles in use per 1,000 people (2020)	749.5
Road vehicle fleet growth (from 2015 to 2020)	6.53%
Rural Access Index (2019)	— SDG 9.1
Diesel prices (2022)	1.47 USD per litre
Gasoline prices (2022)	1.77 USD per litre

Aviation

Air passengers carried (2021)	2.4 million people
Air freight activity (2021)	1150.7 million ton-km
Carbon-accredited airports (2023)	19 airports
of which carbon neutral:	7 airports

Shipping

Logistics Performance Index (2023)	3.7
Liner shipping connectivity index (Q4 2024)	76.3
Container port traffic (2020)	9 800 000.0 TEU

Transport Energy Sources

Biofuel blend overall mandate (2023)	10.0%
Biofuel blend biodiesel mandate (2023)	—
Biofuel blend ethanol mandate (2023)	—
Carbon intensity of electricity (2023)	323.45 gCO ₂ /kWh
Renewable energy (biofuels and electricity) share in transport (2022)	5.9% of total transport energy consumption SDG 7.2.1
Biofuels (2022)	3.8% of total transport energy consumption
Electricity (2022)	2.1% of total transport energy consumption
Targeted renewable power share	7210%

Vehicle Technologies

Emission standards for LDVs (2024)	Euro 4 and above
CO ₂ emissions performance for passenger cars (2024)	89 g CO ₂ /km in 2023
Targeted CO ₂ emissions performance (2024)	0 g CO ₂ /km by 2035
Regulatory environment ranking on used vehicles (2024)	—
Electric vehicles stock for passenger cars (2024)	300 000 vehicles
Share of electric vehicles in car sales (2024)	7.9%
ICE phase-out targets	✓ (2035)
Electric vehicles stock for vans (2024)	25 000 vehicles
Electric vehicles stock for trucks (2024)	—

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List of acronyms

GDP	Gross-domestic product
HDV	Heavy-duty vehicle
ICE	Internal combustion engine
kWh	Kilowatt-hour
LDV	Light-duty vehicle
LRT	Light-rail transit
NDC	Nationally determined contribution
PST	Primary, secondary or tertiary roads

TEU	Twenty-foot Equivalent Unit
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
VNR	Voluntary national review of the Sustainable Development Goals
WLTP	Worldwide harmonised light vehicles test procedure

