

AUTHORS:

Hannah E. Murdock, *Imperial College London*; Arjay Dineros, *SLOCAT Secretariat*

CONTRIBUTOR:

Mark Major, *Kühne Foundation*

Europe Regional Overview

Demographics

Population size:

744 million

(2022)

Population growth:

+1%

(2010-2020)

Urban population share:

75%

(2022)

Urban population growth:

+38%

(2010-2022)

GDP per capita:

USD 27,769

(2021)

GDP growth:

+14%

(2010-2021)

Source: See endnote 1 for this section.



SLOCAT Partnership on Sustainable, Low Carbon Transport

Transport, Climate and Sustainability
Global Status Report - 3rd edition

Key findings



Demand trends



- Passenger cars continued to be the dominant transport mode in the European Union (EU), with an 86% share in 2020 (latest data available). The number of registered passenger cars in the EU reached 253 million in 2021, up 8.6% from 2016. Vehicle preferences across Europe vary by fuel type, but nearly all countries have maintained a heavy reliance on fossil-fuelled vehicles.
- The motorisation rate (covering four-wheeled motor vehicles) continued to vary greatly across Europe, growing around 20% regionwide and 18% in EU countries, on average, during 2010-2020.
- The COVID-19 pandemic resulted in key changes in Europe's urban areas, as public transport use fell sharply and remained below 2019 levels as of July 2022 in the United Kingdom, the Netherlands, Belgium, Italy and Spain. However, in some countries, such as France and Germany, public transport sectors rebounded to pre-pandemic levels or higher.
- As public transport use declined, active travel increased in many places. Several European cities reconfigured streets to enable greater walking and cycling. Cycling in particular boomed in the region, as many cities dramatically increased funding to support bike lanes and infrastructure. Several major cities continued to have high shares of active travel among all trips as of 2022.
- Europe is the second largest electric car market in the world after China; however, despite high uptake since 2020, only 2.4% of the region's passenger cars were electric as of 2022. Sales of battery electric and plug-in hybrid cars grew more than 15% in 2022, and over 1.6 million battery-only electric cars were sold, a more than four-fold increase from 2019.
- The electric bus market in Europe grew 26% in 2022, to more than 4,100 registered vehicles, and nearly one-third of the European public bus fleet was reported to be zero-emission vehicles.
- The EU announced in 2022 that it had achieved its 2020 target of 10% renewables in transport (up from just 1.6% in 2004), with 12 of the 27 Member States surpassing the target and Sweden leading at 31.9%.
- The Russian Federation's invasion of Ukraine in 2022 contributed to rising energy prices worldwide, but the European market was particularly hard hit as countries relied heavily on Russian energy imports. Between February and July 2022, natural gas wholesale prices in Europe rose 115% and electricity prices rose 237%. The Russian war in Ukraine also has resulted in other transport-related impacts, including damage to infrastructure and major disruptions in the sector.
- Air and rail transport in Europe were heavily impacted by the COVID-19 pandemic. Air passenger transport in EU Member States fell 73% in 2020 but rebounded slightly by 2021, growing nearly 40%. Rail transport fell 46% in 2020, following years of an upward trend.
- From 2011 to 2021, the modal split in freight transport remained relatively stable in the EU, with some minor fluctuations and changes shares of maritime, rail and inland waterway transport decreased, and this trend continued through 2022. Meanwhile, the share of road freight increased slightly as it rebounded from the pandemic, and air freight transport remained stable. Maritime transport accounted for more than two-thirds of freight tonne-kilometres in the EU during 2011-2021.

Emission trends



- The transport sector contributed 22% of economy-wide carbon dioxide (CO₂) emissions in Europe in 2021. The region's transport CO₂ emissions grew a moderate 2% between 2010 and 2019, then fell 12.6% in 2020; in 2021, they rebounded 5.9% but remained below pre-pandemic levels.
- Europe contributed 18% of the world's transport CO₂ emissions in 2021 (excluding international aviation and shipping), the third largest regional share after Asia and North America.
- Based on measures planned or in place as of October 2022, total transport emissions in the EU were projected to fall below 1990 levels by 2029. In this scenario, only road transport emissions, representing 77% of the EU's transport greenhouse gas emissions, would decline until 2030. Emissions from other modes would either remain stable or increase, particularly aviation.
- Transport CO₂ emissions vary greatly across the region, from 143 million tonnes in Germany to 0.68 million tonnes in Iceland in 2021. On a per capita basis, Luxembourg emitted by far the most CO₂ from transport in 2021, while Ukraine emitted the least.

Policy developments



- With the onset of the COVID-19 pandemic, countries enacted various policy measures to stimulate transport demand, including the European Year of Rail initiative, financial aid to airlines, and many measures supporting active travel, responding to the popularity of temporary cycling and pedestrian infrastructure.
- In 2020, the European Commission released its Sustainable and Smart Mobility Strategy, which lays the foundation towards a green and digital transformation and more resiliency to future crises.
- As part of the European Green Deal, the European Commission adopted four proposals in 2021 aimed at modernising the EU's transport system to support cleaner, smarter mobility.
- In December 2021, the European Commission presented a proposal for an updated regulation on EU guidelines for the development of the Trans-European Transport Network (TEN-T), following from several initiatives in support of rail in recent years.
- In early 2023, the European Commission proposed updating the 2010 Intelligent Transport System Directive to adapt to emerging road mobility options, apps, and connected and automated mobility.
- By 2022, several European countries had adopted policies and targets aimed at promoting or discouraging certain vehicle types or fuels, and many cities had designated low-emission zones to limit polluting vehicles and improve liveability. Almost all countries in the region had biofuel blending mandates and advanced biofuel targets, in addition to those set at the EU level.
- In early 2023, the EU almost unanimously approved a ban on sales of internal combustion engine vehicles (with an exception for CO₂-neutral e-fuels) as of 2035. By 2022, at least 9 European countries had adopted either a target for 100% electric vehicles or a ban on internal combustion engine vehicles, while 11 countries had announced or made plans for such a target.
- Active low-emission zones in the EU-27, the United Kingdom and Norway increased 40% between 2019 and 2022, with projections for an additional 58% growth by 2025, to reach a total of 507 zones.
- As part of the EU's Efficient and Green Mobility Package, the EU Urban Mobility Framework was released in December 2021 to guide cities to reduce emissions, improve public health, and make urban mobility smarter and more sustainable. The framework foresees that all major cities in the network develop a sustainable urban mobility plan (SUMP) by 2025.
- Across Europe, the number of SUMPs increased from 800 in 2013 to 1,000 in 2018, with several cities having updated their SUMPs at least once.
- With the Russian invasion of Ukraine and the subsequent spike in energy prices, countries across Europe offered relief to consumers by providing subsidies for fuel and public transport. The European Commission also enacted fuel subsidies, and in May 2022 it released the REPowerEU plan, which includes a strategy to shift to imports of non-Russian gas and oil alongside accelerated adoption of renewable energy and energy conservation efforts.
- Specifically for freight, the European Commission provisionally agreed in 2022 to include emissions from shipping in the EU Emissions Trading System, and in 2023 it adopted FuelEU Maritime, aimed at reducing the greenhouse gas emission intensity of shipping fuels 80% by 2050.





Overview



Countries in Europeⁱ have shown broad diversity in both transport demand and associated emissions, with the COVID-19 pandemic bringing dramatic changes to urban areas and beyond.² The Russian Federation's invasion of Ukraine in 2022 had a large impact on the region, with far-reaching effects on energy prices in particular.³ Governments have responded to these major events with several key developments.

Due largely to the effects of the pandemic, the region has seen striking shifts in the modal split since 2020. While the motorisation rate has increased greatly in some countries, it has declined in others.⁴ Active travel has grown strongly in many cities, while the use of public transport has mostly decreased.⁵ Overall, the number of registered passenger cars has continued to rise, maintaining a heavy reliance on fossil-fuelled vehicles in most places, although electric vehicles grew five-fold between 2018 and 2021.⁶

Concerted policy action in European countries and by the European Union (EU) has focused on decarbonising transport since 2020, as demonstrated by the European Green Deal, which targets a 90% reduction in EU transport sector emissions by 2050.⁷ A number of policies have focused on making mobility smarter, more resilient, and more inclusive, while creating more liveable cities.

The region advanced efforts to achieve the United Nations (UN) Sustainable Development Goals, and the EU set the world's most ambitious regional climate targets for 2030, which will require far more rapid progress than occurred by 2023.⁸ Emissions from road transport are projected to continue to decline to 2050, although emissions from other transport modes are expected to remain stable or increase without further measures.⁹

Demand trends



As in other world regions, the COVID-19 pandemic greatly affected both passenger and freight transport in Europe, with some countries and cities experiencing dramatic changes in their modal shares in 2020 and beyond. These included large increases in active travel and declines in public transport, which in many cases continued through 2022.¹⁰

Passenger cars continued to be the dominant transport mode in the EU, with an 86% share in 2020 (latest data available).¹¹

The number of registered passenger cars in the EU reached 253 million in 2021, up 8.6% from 2016.¹² Vehicle preferences across Europe vary by fuel type, but nearly all countries have maintained a heavy reliance on fossil-fuelled vehicles.

- ▶ Several EU Member States experienced particularly strong growth in passenger car registrations in 2021, including Greece, Ireland and Poland.¹³
- ▶ Germany had the highest total number of passenger cars in 2021, at almost 49 million, followed by Italy (40 million) and France (39 million).¹⁴
- ▶ In 2021, the European countries with the highest shares of petrol-powered cars among new registrations were Cyprus (85.5%), Malta (80.5%), Lithuania (77.6%), the Netherlands (77.4%) and Finland (77.3%).¹⁵
- ▶ The only country that had a higher share of diesel than petrol cars among new passenger car registrations was Greece (75.8%).¹⁶

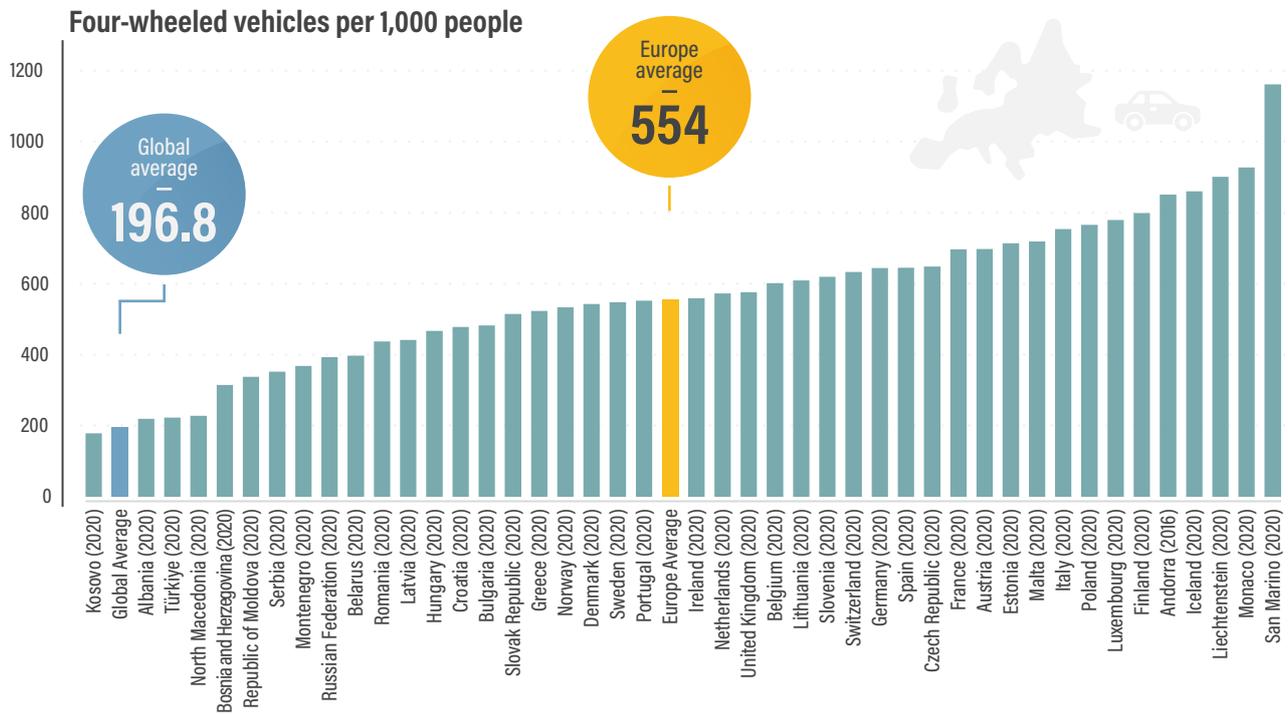
The motorisation rate (covering four-wheeled motor vehicles) continued to vary greatly across Europe, growing around 20% regionwide and 18% in EU countries, on average, during 2010-2020.¹⁷ The average motorisation rate for the region was 554 vehicles per 1,000 people, well above the global average of 196 vehicles per 1,000 people (see Figure 1).¹⁸ From 2010 to 2020, motorisation growth ranged from an increase of 76% in Romania to a decline of 12% in Greece (due to ongoing effects of the economic crisis).¹⁹

- ▶ San Marino and Monaco topped the list for motorisation in the region, with 1,161 and 927 vehicles per 1,000 people, respectively, in 2020, followed by Liechtenstein (902) and Iceland (860).²⁰ The lowest motorisation rate was in Kosovo (178), followed by Albania (219) and Türkiye (223).²¹
- ▶ Finland, with 798 passenger cars per 1,000 people, topped the motorisation list in EU Member States in 2020, followed closely by Luxembourg, with 779 cars per 1,000 people.²²
- ▶ Luxembourg had the highest share of vehicles no older than two years in the EU in 2021 (19.2% of vehicles), followed by Germany (17.8%) and Sweden (15.8%), while Poland had the highest share of passenger cars older than 20 years (41.3% of vehicles), followed by Estonia (33.2%) and Finland (29.2%).²³ Eastern European countries are a large market for

ⁱ In this section, "Europe" includes 27 Member States of the European Union (EU), four Member States of the European Free Trade Association (EFTA), as well as Albania, Andorra, Belarus, Bosnia and Herzegovina, Kosovo, Monaco, Montenegro, the Republic of North Macedonia, the Republic of Moldova, the Russian Federation, San Marino, Serbia, Ukraine and the United Kingdom. When the text refers specifically to "the EU", only EU Member States are concerned.

FIGURE 1. Motorisation rates per 1,000 people in Europe, 2016-2020

Source: See endnote 18 for this section.



imported second-hand vehicles, with Serbia and Bosnia and Herzegovina among the world's top 10 importing countries for used light-duty vehicles.²⁴

- ▶ The motorisation rate in the six EU candidate countries and potential candidates for which data are available – Albania, Kosovo, Montenegro, the Republic of North Macedonia, Serbia and Türkiye – is much lower than in the EU Member States.²⁵

The COVID-19 pandemic resulted in key changes in Europe's urban areas, as public transport use fell sharply and remained below 2019 levels in several countries as of July 2022.²⁶ However, in some countries public transport sectors rebounded to pre-pandemic levels or higher.

- ▶ Between 2019 and 2022, public transport use in the region decreased the most in the United Kingdom (down 21%), followed by the Netherlands, Belgium, Italy and Spain.²⁷
- ▶ Conversely, France reported a 9% increase in public transport use in 2022 compared to 2019, while use increased 8% in Germany.²⁸

As public transport use declined, active travel increased in many places.²⁹ Several European cities reconfigured streets to enable greater walking and cycling.³⁰ Cycling in particular boomed in the region, as many cities dramatically increased funding to support bike lanes

and infrastructure.³¹ Several major cities continued to have high shares of active travel among all trips as of 2022.³²

- ▶ Countries with the largest additional cycling funding per capita during 2020 were Finland (USD 8.3 per person), followed by Italy (USD 5.4), France (USD 5.2) and the United Kingdom (USD 5.1).³³
- ▶ Cities with high shares of walking among all trips included Paris (France) and London (UK) at 47%, and Stockholm (Sweden) and Oslo (Norway) at 42% each in 2022.³⁴ Cities with high cycling shares included Copenhagen (Denmark) and Amsterdam (Netherlands) at 19% in the same year.³⁵

Europe is the second largest electric car market in the world after China; however, despite high uptake since 2020, only 2.4% of the region's passenger cars were electric as of 2022.³⁶ Sales of battery electric and plug-in hybrid cars grew more than 15% in 2022, meaning that every fifth car sold in Europe was electric.³⁷ Over 1.6 million battery-only electric cars were sold in 2022 in Europe, a more than four-fold increase from the 360,000 sold in 2019.³⁸

The electric bus market in Europe grew 26% in 2022, to more than 4,100 registered vehicles, and nearly one-third of the European public bus fleet was reported to be zero emission vehicles.³⁹

For its transport energy mix, **the EU announced in 2022 that it had achieved its 2020 target of 10% renewables in transport (up from just 1.6% in 2004), with nearly half (12) of the 27 EU Member States surpassing the target.**⁴⁰ By 2019, Europe as a whole accounted for 18% of the global demand for renewable fuels for transport.⁴¹

- ▶ Sweden had the EU's highest renewable energy share in transport in 2020, at 31.9% (due in large part to its relatively high use of biofuels in the sector), followed by Finland (13.4%), the Netherlands and Luxembourg (both 12.6%).⁴² The lowest shares were in Greece (5.3%) and Lithuania (5.5%).⁴³
- ▶ France, Germany and Spain together represented 44% of renewable energy use for transport in Europe.⁴⁴

Despite significant growth in recent years, passenger cars powered by so-called alternative fuels comprised only a small share of Europe's total passenger car fleet in 2021 and remained low in most EU Member States.⁴⁵ As defined by the European Commission, alternative fuels refer to fuels other than petrol or diesel but can include other fossil fuels, so they are not always necessarily "clean" or "sustainable".⁴⁶ They can include electricity, liquefied petroleum gas (LPG), fossil natural gas, alcohols and mixtures of alcohols with other fuels, hydrogen, and biofuels, among others.⁴⁷

In some European countries, new passenger cars powered by alternative fuels are mostly or nearly entirely battery electric, but the share varies greatly, with countries in Eastern and Southern Europe having a much smaller share of electric "alternative fuel" vehicles.⁴⁸ This variation is due in part to differing government incentives and their timing, including tax reductions, subsidies, access to lanes reserved for public transport, and free parking.⁴⁹ Other reasons for the diversity in alternative fuel car registrations include the number, variety and price of such models.⁵⁰

The Russian Federation's invasion of Ukraine in 2022 contributed to rising energy prices worldwide, but the European market was particularly hard hit as countries relied heavily on Russian energy imports.⁵¹ **Between February and July 2022, natural gas wholesale prices in Europe rose 115% and electricity prices rose 237%.**⁵² In 2020, the EU relied on the Russian Federation for 29% of its crude oil imports and 43% of its natural gas imports.⁵³ With the rise in global oil prices due to the conflict and other factors, fuel prices for transport have surged since 2020. (See Section 3.1 *Integrated Transport Planning* and Section 3.6 *Road Transport*.)

The Russian war in Ukraine also has resulted in other transport-related impacts, including damage to infrastructure and major disruptions in the sector (see Box 1).⁵⁴

BOX 1. The Russian Federation's war in Ukraine and impacts on transport

In 2021, prior to the Russian invasion of Ukraine, the EU had confirmed a plan to strengthen transport links with Eastern Partnership countries, including Ukraine, where 39 projects were planned to improve all modes of transport, for a total of EUR 4.5 billion (USD 4.8 billion). Ukraine was already connected to all 27 EU Member States through bilateral air services agreements, and in October 2021 a common aviation area agreement was signed to permit direct flights between Ukraine and any airport in the EU.

However, as a result of the Russian invasion in 2022, transport infrastructure in Ukraine has been greatly compromised. By June 2022, up to an estimated 30% of Ukraine's transport infrastructure had been damaged and major disruptions occurred in the sector, representing costs of up to EUR 92.6 billion (USD 98.8 billion). Meanwhile, the flows of refugees from Ukraine have needed transport to the EU. By the end of 2022, nearly 8 million people had fled Ukraine to other countries across Europe.

In a statement issued on 25 February 2022, the day after the invasion, the International Road Transport Union estimated that at least 12,000 truck drivers from across Europe and elsewhere remained stuck in Ukraine. In addition, the increase in fuel prices had negative impacts on commercial transport operators and supply chains, especially for road and maritime transport.

In response to the invasion, the EU adopted several sanctions linked to the transport sector, including bans on:

- ▶ sales of aircraft and related parts and equipment to Russian companies;
- ▶ Russian aircraft of any kind from entering EU airspace;
- ▶ Russian-flagged vessels from entering EU ports, with the exception of deliveries for medical, food, energy or humanitarian purposes;
- ▶ road transport businesses that were established in the Russian Federation from transporting goods into the EU, including those in public transport to other destinations; and
- ▶ the import of Russian seaborne crude oil and petroleum products, which represents 90% of previous oil imports from the Russian Federation.

In reaction to the sanctions, the Russian Federation banned from its airspace all EU airlines, as well as airlines from 36 other countries that support sanctions against the country. This resulted in reduced flight capacity by western companies, as well as higher flight costs for travellers and air cargo. (See Section 3.7 *Aviation*.)

Source: See endnote 54 for this section.

As with other regions, air transport in Europe was heavily impacted by the COVID-19 pandemic. Air passenger transport in EU Member States fell 73% in 2020 but rebounded slightly by 2021, growing nearly 40%.⁵⁵ Total air passenger transport among all European countries was expected to surpass 2019 levels (pre-pandemic) by 2024.⁵⁶

Rail transport was also severely affected by the pandemic, falling 46% in 2020 in EU Member States following years of an upward trend.⁵⁷ By 2021, EU rail transport had partially recovered, rising 16.5%, with France and Germany showing particularly strong recoveries.⁵⁸ Night trains also resurged across the region by 2022, and rail carriers increasingly offered new routes and services to attract more customers.⁵⁹

From 2011 to 2021, the modal split in freight transport remained relatively stable in the EU, with some minor fluctuations and changes shares of maritime, rail and inland waterway transport decreased, and this trend continued through 2022.⁶⁰ The decline was due to factors including effects from the pandemic, shrinking demand for goods, changes in port congestion, higher freight costs, supply chain disruptions, increasingly competitive truck transport, and the decline in traditional customer industries for rail freight (such as coal and petrol).⁶¹ Meanwhile, the share of road freight increased slightly as it rebounded from the pandemic (with strong increases in 2021), and air freight transport remained stable.⁶²

The effects of the pandemic led to a 5% decline in containerised freight transport across Europe in 2020, following continuous increases over the previous decade.⁶³ In 2021, inland freight grew 15% in the region.⁶⁴ However, the market for new commercial road vehicles in the EU fell nearly 15% between 2020 and 2022 due to supply chain issues limiting the availability of vehicles.⁶⁵

Maritime transport accounted for more than two-thirds (67.9%) of freight tonne-kilometres in the EU during 2011-2021.⁶⁶

- ▶ Latvia registered the highest growth in maritime transport during this period (up 8.5 percentage points) followed by Estonia (up 6.0), while Sweden recorded the largest drop (down 5.9).⁶⁷
- ▶ From 2011 to 2021, the share of inland waterways in total freight transport decreased in 11 of the 17 EU Member States for which this mode of transport is applicable.⁶⁸ The largest drop in the inland waterway transport share was in Luxembourg (down 3.2 percentage points), while slight increases were seen in the Slovak Republic (up 0.7 percentage points) and Finland (up 0.1).⁶⁹
- ▶ The share of road transport in total EU freight transport peaked at nearly 25% in 2021, after rising by 0.6 percentage points from the previous year.⁷⁰ In 2021, the share increased the

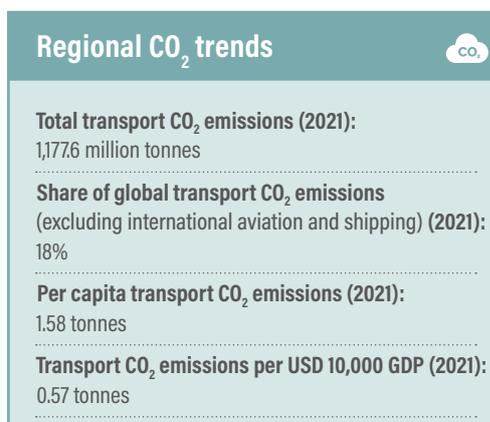
most in Romania (up 3.7 percentage points), while the largest decrease was in the Slovak Republic (down 3.4).⁷¹

- ▶ The share of rail in total freight transport dropped in Switzerland and in 16 of the 25 EU Member States that have railways during 2011-2021.⁷² Latvia had the largest fall in rail's share during the decade (down 22.9 percentage points), followed by Lithuania (down 10.8).⁷³
- ▶ The share of air transport in total freight transport remained relatively stable in all EU countries during 2011-2021.⁷⁴ The highest increases in the share of air in total freight transport were in Latvia (up 0.9 percentage points) and Luxembourg (up 0.6).⁷⁵

Emission trends



The transport sector contributed 22% of economy-wide CO₂ emissions in Europe in 2021.⁷⁶ The region's transport CO₂ emissions grew a moderate 2% between 2010 and 2019, then fell 12.6% in 2020 with the onset of the COVID-19 pandemic; in 2021, they rebounded 5.9% but remained below pre-pandemic levels.⁷⁷



Source: See endnote 78 for this section.

Europe contributed 18% of the world's transport CO₂ emissions in 2021 (excluding international aviation and shipping), the third largest regional share after Asia and North America.⁷⁹ Based on measures planned or in place as of October 2022, total transport emissions in the EU were projected to fall below 1990 levels by 2029 (see Figure 2).⁸⁰ In this scenario, only road transport emissions, representing 77% of the EU's transport greenhouse gas emissions, would decline until 2030.⁸¹ Emissions from other modes would either remain stable or increase, particularly aviation (see Figure 3).⁸²

Transport CO₂ emissions vary greatly across the region, from 143 million tonnes in Germany to 0.68 million tonnes in Iceland in 2021.⁸³ On a per capita basis, Luxembourg emitted

FIGURE 2. Greenhouse gas emissions from transport in the EU, 1990-2020, with projections to 2040

Source: See endnote 80 for this section.

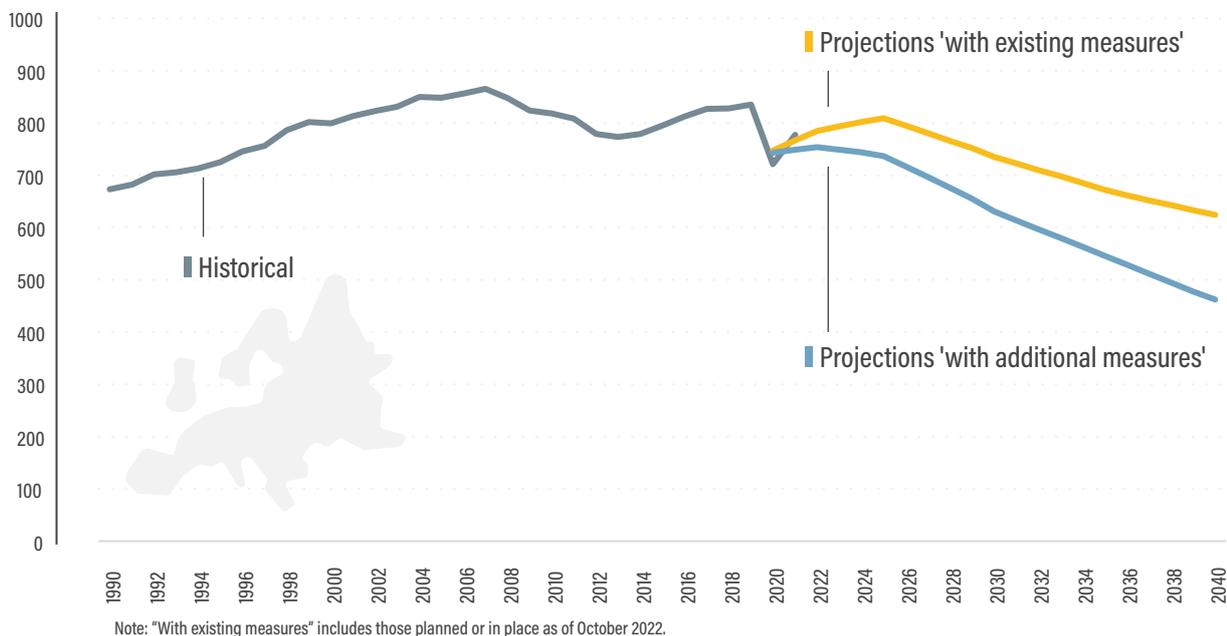


FIGURE 3. Change in greenhouse gas emission levels from transport in the EU, by mode, 1990-2020, with projections to 2040

Source: See endnote 82 for this section.

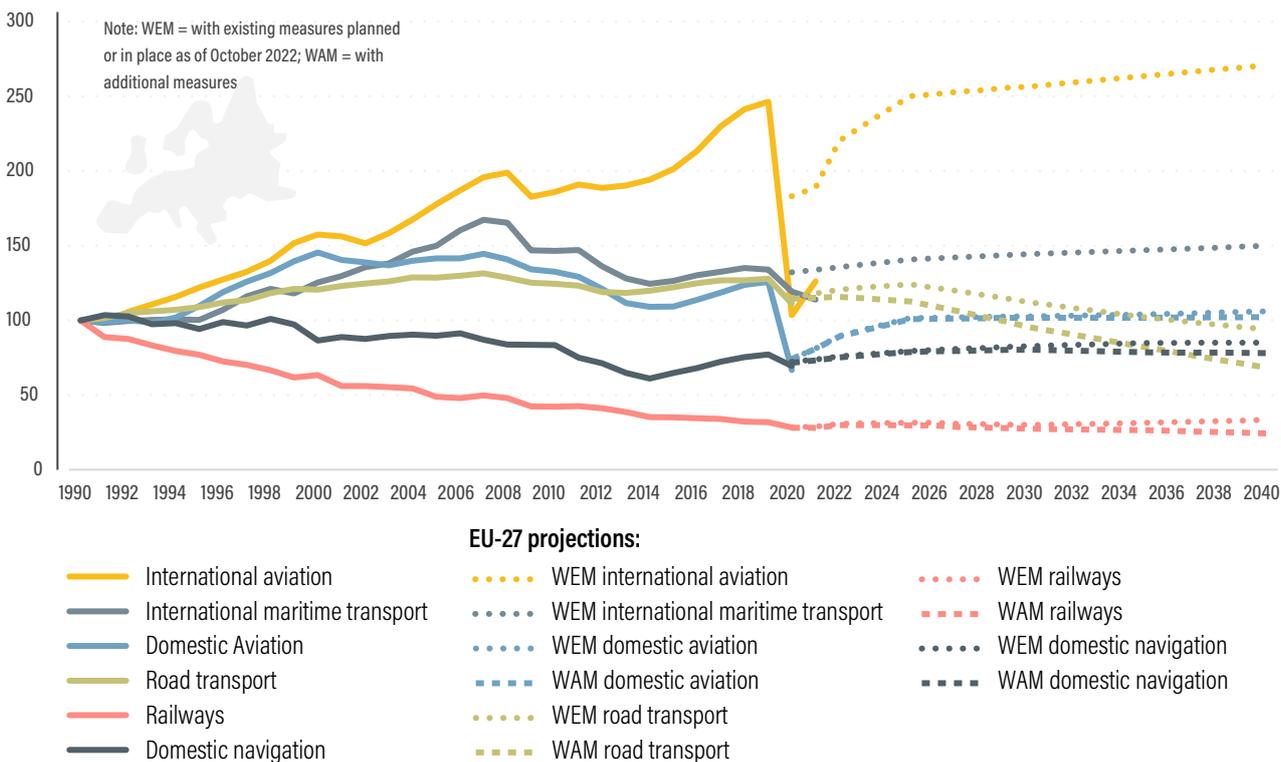
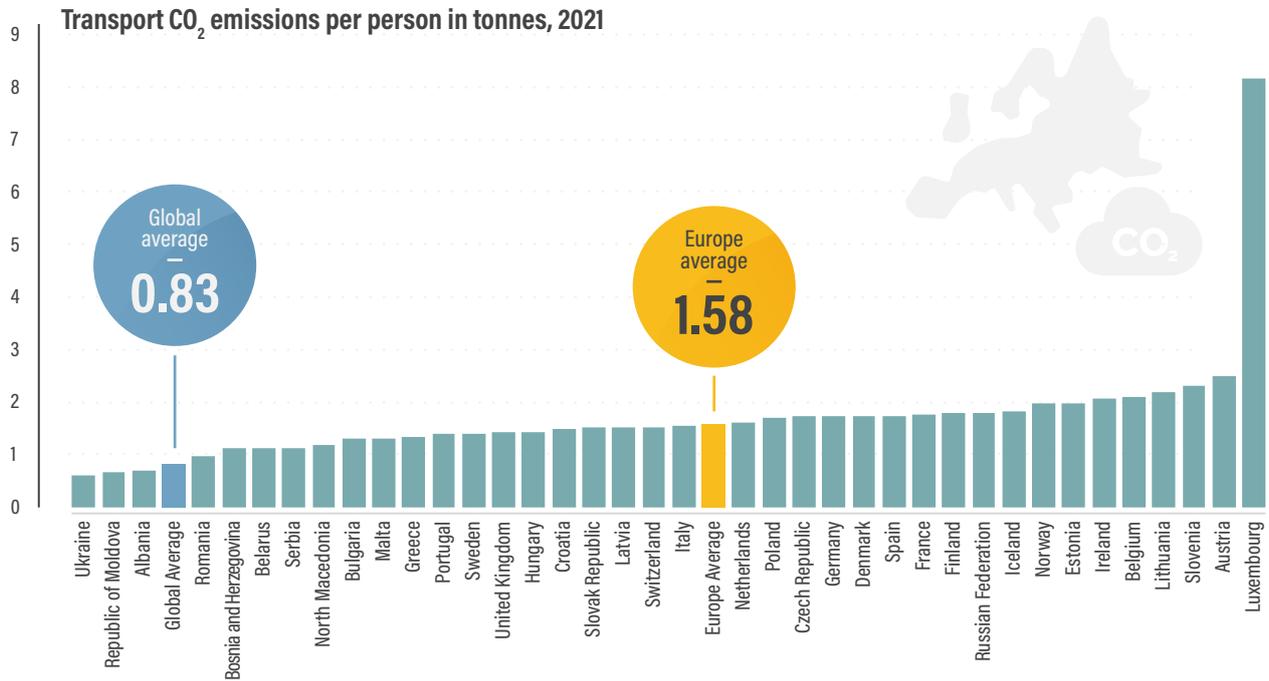


FIGURE 4. Per capita transport CO₂ emissions in Europe, by country, 2021

Source: See endnote 85 for this section.



by far the most CO₂ from transport in 2021, while Ukraine emitted the least.⁸⁴ Luxembourg has exceptionally high per capita emissions because calculations of CO₂ emissions include fossil fuel sales, and many citizens from neighbouring countries take advantage of lower diesel and petrol prices in Luxembourg (see Figure 4).⁸⁵

- ▶ The European countries with the highest transport CO₂ emissions in 2021 were Germany, France, the United Kingdom, Italy, Spain, and Poland, while those with the lowest emissions were Iceland, Malta, Moldova, Albania, the Republic of North Macedonia and Estonia.⁸⁶
- ▶ On a per capita basis, the highest-emitting European countries in 2021, after Luxembourg, were Austria, Slovenia, Lithuania and Belgium.⁸⁷ The countries with the lowest emissions per capita were Ukraine, Moldova, Albania, Romania, and Bosnia and Herzegovina.⁸⁸

declared 2021 the “European Year of Rail” in an attempt to increase rail transport.⁸⁹ With the similarly sharp decrease in air travel, European governments agreed to nearly EUR 38 billion (USD 40.5 billion) in financial aid for airlines by mid-2021.⁹⁰ Many national and sub-national jurisdictions increasingly supported active travel in 2020 and beyond, responding to the popularity of temporary cycling and pedestrian infrastructure installed during the pandemic. Micro-mobilityⁱⁱ also benefited from such changes but saw setbacks in some markets.

- ▶ In 2020, France introduced a USD 22 million programme to support cycling, including subsidising parking and repairs, with a goal of increasing the share of bike commuting from 3% in 2020 to 9% by 2024.⁹¹
- ▶ London (UK) adopted a Streetspace Plan in 2020 to support the target of a ten-fold increase in cycling and a five-fold increase in walking.⁹²
- ▶ Brussels (Belgium) adopted legislation in 2022 that removes certain permitting requirements for building new bike lanes, in response to the increase in cycling use since the pandemic.⁹³
- ▶ In April 2023, Paris (France) became the only European capital to ban shared electric scooters following a referendum in which just 8% of registered voters cast ballots.⁹⁴

Policy developments

With the onset of the COVID-19 pandemic, countries enacted various policy measures to stimulate transport demand starting in 2020. Following the steep decline in rail usage, the EU

ii Micro-mobility refers to small, lightweight mobility devices typically operating at low to moderate speeds, such as electric scooters and bicycles. See <https://www.itdp.org/multimedia/defining-micromobility>.



In more sweeping action at the EU level, in 2020, the European Commission released its Sustainable and Smart Mobility Strategy, which lays the foundation towards a green and digital transformation and more resiliency to future crises.⁹⁵ The major targets are as follows.⁹⁶

By 2030:

- ▶ At least 30 million zero-emission vehicles will be in operation on European roads.
- ▶ 100 European cities will be climate neutral.
- ▶ High-speed rail traffic will double.
- ▶ Scheduled collective travel of under 500 kilometres should be carbon neutral within the EU.
- ▶ Automated mobility will be deployed at large scale.
- ▶ Zero-emission vessels will become ready for market.

By 2035:

- ▶ Zero-emission large aircraft will become ready for market.

By 2050:

- ▶ Nearly all cars, vans, buses as well as new heavy-duty vehicles will be zero-emission.
- ▶ Rail freight traffic will double.
- ▶ High-speed rail traffic will triple.
- ▶ The multimodal Trans-European Transport Network (TEN-T), equipped for sustainable and smart transport with high-speed connectivity, will be operational for the comprehensive network.

As part of the European Green Deal, the European Commission adopted four proposals in 2021 aimed at modernising the EU's transport system to support cleaner, smarter mobility.⁹⁷ Such proposals would put the transport sector on track to cut its emissions 90% by 2050, with plans to:

- ▶ increase connectivity and shift more passengers and freight away from road transport to rail and inland waterways;
- ▶ support the increased installation of charging points, infrastructure for "alternative fuels", as well as new digital technology;
- ▶ increase the focus on sustainable mobility in urban areas; and
- ▶ facilitate the choice between different transport options in an efficient multi-modal transport system.⁹⁸

As part of both the European Green Deal and the Sustainable and Smart Mobility Strategy, in December 2021 the European Commission presented a proposal for an updated regulation on EU guidelines for the development of the Trans-European Transport Network (TEN-T), following from several initiatives in support of rail in recent years. The EU aims to develop a region-wide network of roads, rail, inland waterways, and short-sea shipping routes, while increasing gross domestic product by an estimated 2.4% between 2021 and 2050, reducing greenhouse gas emissions 0.4% by 2050, creating 840,000 new jobs and mobilising funds for regional infrastructure.⁹⁹ In response to the Russian invasion of Ukraine, the proposal was amended in July 2022 to extend four corridors to Ukraine and Moldova and to accelerate a shift towards the European standard railway gauge.¹⁰⁰

To help the EU meet its target of doubling high-speed rail traffic by 2030, the TEN-T proposal contained an action plan to remove barriers to cross-border and long-distance travel and to make rail travel more attractive for passengers.¹⁰¹ Several developments supporting rail in the region have taken place in recent years in line with these goals.

- ▶ In early 2023, plans were announced for major rail projects in the “Three Seas Region” covering 12 EU Member States adjacent to the Baltic, Adriatic and Black seas.¹⁰² In Poland, nearly 4,500 kilometres of high-speed rail were planned to be deployed as early as 2028.¹⁰³ By 2030, the entire cross-border rail corridor of the Rail Baltica project is to be completed in Estonia, Latvia, and Lithuania running to the Polish border, with possible lines to major cities in other countries.¹⁰⁴
- ▶ To support domestic rail, France enacted a ban on domestic flights in May 2023 on routes where trains can transport passengers instead in less than 2.5 hours; however, the ban affected only three routes, or 1 in 40 flights.¹⁰⁵
- ▶ Overnight direct train services began operating between Brussels (Belgium) and Berlin (Germany) in May 2023, reflecting efforts and demand in the region to provide passengers alternatives to air travel.¹⁰⁶

In early 2023, the European Commission proposed updating the 2010 Intelligent Transport System Directive to adapt to emerging road mobility options, apps, and connected and automated mobility.¹⁰⁷ To stimulate faster deployment of new and intelligent services, certain data on roads, travel and traffic related to the TEN-T will be made available in digital format.¹⁰⁸

Notable developments supporting sustainable transport systems also occurred outside the EU since 2020. In 2021, the UK government published its Transport Decarbonisation Plan, which includes a proposed target to ban the sale of heavy goods vehicles fuelled by diesel and petrol by 2040, with a similar target for light-duty vehicles by 2035.¹⁰⁹ The plan also sets goals for improving public transport and promoting active travel, building on a pledged GBP 2 billion (USD 2.4 billion) to support active travel and GBP 2.8 billion (USD 3.4 billion) to support the switch to cleaner vehicles, as well as commitments to a net zero rail network by 2050 and net zero domestic aviation by 2040.¹¹⁰

By 2022, several European countries had adopted policies and targets aimed at promoting or discouraging certain vehicle types or fuels, and many cities had designated low-emission zones to limit polluting vehicles and improve liveability. Almost all countries in the region had biofuel blending mandates and advanced biofuel targets, in addition to those set at the EU level.¹¹¹ (See Section 4.1 *Transport Energy Sources*.)

- ▶ The EU’s Fit for 55 package, introduced in 2021, targets reducing the region’s greenhouse gas emissions 55% by

2030 and reaching climate neutrality by 2050; for the transport sector, this would mean that CO₂ emissions from new cars would need to reach zero by 2035.¹¹²

- ▶ Building on this, **in early 2023 the EU almost unanimously approved a ban on sales of internal combustion engine vehicles (with an exception for CO₂-neutral e-fuels) as of 2035**, with only Bulgaria, Italy, Poland and Romania voting against the regulation.¹¹³
- ▶ **By 2022, at least 9 European countries had adopted either a target for 100% electric vehicles or a ban on internal combustion engine vehicles (typically targeting sales), while 11 countries had announced or made plans for such a target.**¹¹⁴ A 2021 survey found that a majority of Europeans living in cities support these bans going into effect by 2030.¹¹⁵ Only three countries – Denmark, Sweden and the United Kingdom – had both a 100% electric vehicle target or a 100% ban on internal combustion engine vehicles *and* a target for 100% renewable power.¹¹⁶
- ▶ Many cities have enacted partial bans on diesel vehicles, in most cases banning the vehicles during specific times of day rather than outright.¹¹⁷ In 2022, Madrid became the first major European capital to eliminate diesel-fuelled buses from its public fleet; however, most of the fleet continues to be fuelled by compressed natural gas, which studies have shown is not a “clean” solution for transport.¹¹⁸
- ▶ An increasing number of European cities have adopted low-emission zones, ultra-low emission zones, or zero-emission zones, including those targeting freight vehicles. **Active low-emission zones in the EU-27, the United Kingdom and Norway increased 40% between 2019 and 2022, with projections for an additional 58% growth by 2025, to reach a total of 507 zones** (particularly as related laws come into force in France, Poland and Spain).¹¹⁹ (See Section 3.1 *Integrated Transport Planning*.)

As part of the EU’s Efficient and Green Mobility Package, the EU Urban Mobility Framework was released in December 2021 to guide cities to reduce emissions, improve public health, and make urban mobility smarter and more sustainable.¹²⁰ The framework foresees that all major cities in the network develop a sustainable urban mobility plan (SUMP) by 2025, with the primary objectives of 1) contributing to EU greenhouse gas reduction targets; 2) improving transport and mobility to, in and around cities; and 3) improving the efficiency of deliveries.¹²¹ **Across Europe, the number of SUMP’s increased from 800 in 2013 to 1,000 in 2018, with several cities having updated their SUMP’s at least once.**¹²²

With the Russian invasion of Ukraine and the subsequent spike in energy prices, countries across Europe offered relief to consumers by providing subsidies for fuel and public transport. France offered a fuel rebate of EUR 0.15 (USD 0.16) per litre for motorists, while Belgium, Germany, the Netherlands

and Sweden also provided fuel subsidies to help people cope with the crisis.¹²³ Some countries, such as Germany and Spain, provided support to public transport to reduce costs for users and to encourage a shift away from driving.¹²⁴ **The European Commission also enacted fuel subsidies, and in May 2022 it released the REPowerEU plan, which includes a strategy to shift to imports of non-Russian gas and oil alongside accelerated adoption of renewable energy and energy conservation efforts.**¹²⁵

Specifically for freight, the European Commission provisionally agreed in 2022 to include emissions from shipping in the EU Emissions Trading System.¹²⁶ **In early 2023, it adopted FuelEU Maritime, aimed at reducing the greenhouse gas emission intensity of shipping fuels 2% by 2025 and 80% by 2050.**¹²⁷

Partnership in action



SLOCAT partners engaged in dozens of actions during 2020-2022, including:

- ▶ The **ESCALATE** project brings together a diverse and committed consortium focused on escalating zero-emission heavy-duty vehicles and logistic intelligence to power the EU's net zero future.¹²⁸
- ▶ At the 2021 United Nations Climate Change Conference in Glasgow, United Kingdom (COP 26), the **European Cyclists' Federation** and a global coalition of pro-cycling organisations issued an open letter calling on governments to

commit to greatly increase the number of people who cycle in their countries in order to reach climate goals quickly and effectively. More than 350 civil society organisations signed the letter in November 2021.¹²⁹

- ▶ In 2020, the **European Rail Research Advisory Council (ERRAC)** launched the Strategic Research and Innovation Agenda, which outlines to the European Commission how the railway sector can use research and innovation to deliver the vibrant, efficient and customer-friendly railway of the future.¹³⁰
- ▶ After analysing Google's Environmental Insights Explorer (EIE) since 2021, **ICLEI-Local Governments for Sustainability** developed a handbook describing key steps to access and assess EIE transport data as well as how data sets could be used for sustainable urban mobility planning in German cities, including Cologne, Hamburg, Ludwigsburg and Ravensburg.¹³¹
- ▶ In 2023, the **POLIS Network** launched the GREEN-LOG programme to accelerate systemic changes to create last-mile delivery ecosystems that are socially, economically and ecologically sustainable; the programme will test the transferability of the proposed innovations through Urban Living Labs in five initial European cities or regions (Athens, Barcelona, Flanders, Oxfordshire and Ispra) and three follower cities (Arad, Helsingborg and Valga).¹³²
- ▶ **The Future Is Public Transport**, a campaign that unites mayors, workers, union leaders, activists and city residents, called on world leaders at COP 26 in 2021 to make the investments needed to drive a green and just economic recovery and to transform cities for the better.¹³³



Photo credits: Miguel Discart

2.3 EUROPE REGIONAL OVERVIEW

- 1 Calculations by the SLOCAT Partnership on Sustainable, Low Carbon Transport based on United Nations (UN), 2022, "World Population Prospects 2022", <https://population.un.org/wpp>, accessed 21 January 2023; UN Stats (2018), "2018 Revision of World Urbanization Prospects", <https://population.un.org/wup>, accessed 28 December 2022; World Bank, 2023, "GDP (constant 2015 US\$)", <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD>.
- 2 Reuters, 2022, "Public Transport Use in Europe Still Below Pre-pandemic Levels - ING Report", <https://www.reuters.com/article/europe-public-transport-study-id1N12Y20R5>.
- 3 A. Gazzani and F. Ferriani (2022), "The impact of the war in Ukraine on energy prices: Consequences for firms' financial performance", CEPR, 7 October, <https://cepr.org/voxeu/columns/impact-war-ukraine-energy-prices-consequences-firms-financial-performance>; N. Chiyawa (2022), "Why Russia's Ukraine invasion spiked energy prices, in 4 charts", NBC News, 24 February, <https://www.nbcnews.com/news/world/why-russia-s-ukraine-invasion-spiked-energy-prices-4-charts-n1289799>.
- 4 Government of the United Kingdom, 2023, "Vehicles statistics", <https://www.gov.uk/government/collections/vehicles-statistics>; IRF, 2022, "World Road Statistics 2022", <https://datawarehouse.worldroadstatistics.org>.
- 5 Reuters, op. cit. note 2.
- 6 Eurostat, 2023, "Passenger Cars in the EU", https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Passenger_cars_in_the_EU.
- 7 European Commission, 2021, "New Transport Proposals Target Greater Efficiency and More Sustainable Travel", https://transport.ec.europa.eu/news/efficient-and-green-mobility-2021-12-14_en.
- 8 Eurostat, May 2023, "Sustainable Development in the European Union: Monitoring Report on Progress Towards the SDGs in an EU Context", <https://ec.europa.eu/eurostat/documents/15234730/16817772/KS-04-23-184-EN-N.pdf/845a1782-998d-a767-b097-f22ebe93d422?version=1.0&t=1684844648985>.
- 9 European Environment Agency (nd), "Greenhouse gas emissions from transport in Europe", <https://www.eea.europa.eu/ims/greenhouse-gas-emissions-from-transport>, accessed 10 July 2023
- 10 Reuters, op. cit. note 2.
- 11 Share from Destatis, 2022, "Road Transport: Car Dominance Unbroken", <https://www.destatis.de/Europa/EN/Topic/Transport/Car.html>; fossil fuel reliance from Eurostat, "Passenger Cars in the EU", op. cit. note 6.
- 12 Eurostat, "Passenger Cars in the EU", op. cit. note 6.
- 13 Ibid.
- 14 Ibid.
- 15 Ibid.
- 16 Ibid.
- 17 IRF, op. cit. note 4.
- 18 IRF, op. cit. note 4. **Figure 1** from Eurostat, 2022, "Stock of Vehicles by Category and NUTS 2 Regions", https://ec.europa.eu/eurostat/data-browser/view/TRAN_R_VEHST__custom_3245293/default/table; Government of the United Kingdom, 2023, "Vehicles Statistics", <https://www.gov.uk/government/collections/vehicles-statistics>; IRF, 2022, "World Road Statistics 2022", <https://datawarehouse.worldroadstatistics.org>; E.A. Nanaki, 2018, "Measuring the Impact of Economic Crisis to the Greek Vehicle Market", *Sustainability*, Vol. 10, p. 510. <https://doi.org/10.3390/su10020510>.
- 19 IRF, op. cit. note 4.
- 20 IRF, op. cit. note 4.
- 21 Ibid.
- 22 Ibid.
- 23 Eurostat, "Passenger Cars in the EU", op. cit. note 6.
- 24 United Nations Environment Programme (UNEP), 2020, "Global Trade in Used Vehicles Report", pp. 25-26, <https://www.unep.org/resources/report/global-trade-used-vehicles-report>; UNEP, 2021, "Used Vehicles and the Environment - Progress and Updates 2021", <https://www.unep.org/resources/report/used-vehicles-and-environment-progress-and-updates-2021>.
- 25 IRF, op. cit. note 4.
- 26 Reuters, op. cit. note 2.
- 27 Ibid.
- 28 Ibid.
- 29 Ibid.
- 30 L. Laker, 2021, "Europe Doubles Down on Cycling in Post-Covid Recovery Plans", The Guardian (UK), <https://www.theguardian.com/lifeandstyle/2021/mar/12/europe-cycling-post-covid-recovery-plans>.
- 31 K. Vandy, 2020, "Coronavirus: How Pandemic Sparked European Cycling Revolution", BBC, <https://www.bbc.co.uk/news/world-europe-54353914>.
- 32 Google, 2023, "Environmental Insights Explorer", <https://insights.sustainability.google>, accessed 27 May 2023.
- 33 Vandy, op. cit. note 31.
- 34 Google, op. cit. note 32.
- 35 Ibid.
- 36 International Energy Agency (IEA), 2023, "Global Electric Vehicle Outlook 2023", <https://www.iea.org/reports/global-ev-outlook-2023>.
- 37 IEA, 2023, *Global Electric Vehicle Outlook*, Paris, <https://www.iea.org/reports/global-ev-outlook-2023>
- 38 Ibid.
- 39 Sustainable Bus, 2023, "Electric Bus Market Europe 2022. All the Figures. Guess the Leaders!" <https://www.sustainable-bus.com/news/electric-bus-market-europe-2022>.
- 40 Eurostat, 2022, "EU Meets 2020 Renewable Energy Target in Transport", <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20220202-2>.
- 41 REN21, 2023, *Renewables 2023 Global Status Report: Energy Demand*, p. 46, https://www.ren21.net/wp-content/uploads/2019/05/GSR2023_Demand_Modules.pdf.
- 42 Eurostat, "EU Meets 2020 Renewable Energy Target in Transport", op. cit. note 40.
- 43 Ibid.
- 44 REN21, op. cit. note 41, https://www.ren21.net/wp-content/uploads/2019/05/GSR2023_Demand_Modules.pdf, p. 46.
- 45 Eurostat, "Passenger Cars in the EU", op. cit. note 6, Table 1.
- 46 Eurostat (2019), "Glossary:Alternative fuel", https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Alternative_fuel, accessed 10 July 2023
- 47 Ibid.
- 48 Eurostat, "Passenger Cars in the EU", op. cit. note 6, Table 1.
- 49 Ibid.
- 50 Ibid.
- 51 A. Gazzani and F. Ferriani (2022), "The impact of the war in Ukraine on energy prices: Consequences for firms' financial performance", CEPR, 7 October, <https://cepr.org/voxeu/columns/impact-war-ukraine-energy-prices-consequences-firms-financial-performance>; N. Chiyawa (2022), "Why Russia's Ukraine invasion spiked energy prices, in 4 charts", NBC News, 24 February, <https://www.nbcnews.com/news/world/why-russia-s-ukraine-invasion-spiked-energy-prices-4-charts-n1289799>.
- 52 A. Gazzani and F. Ferriani (2022), "The impact of the war in Ukraine on energy prices: Consequences for firms' financial performance", CEPR, 7 October, <https://cepr.org/voxeu/columns/impact-war-ukraine-energy-prices-consequences-firms-financial-performance>
- 53 Ibid.
- 54 **Box 1** based on the following sources: European Parliamentary Research Service (EPRS), 2022, "Russia's War on Ukraine: Implications for Transport", [www.europarl.europa.eu/RegData/etudes/BRIE/2022/733536/EPRS_BRI\(2022\)733536_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733536/EPRS_BRI(2022)733536_EN.pdf). According to EPRS, idem, the oil import ban is subject to transition periods to allow the sector and global markets to adapt and to allow the EU and its partners to secure alternative supplies and minimises the impact on global oil prices. Number of refugees based on United Nations High Commissioner for Refugees, 2023, "Ukraine Refugee Situation, Update from 3 January 2023", <https://web.archive.org/web/20230105054519/https://data.unhcr.org/en/situations/ukraine>.
- 55 Eurostat, 2021, "Air Passenger Transport Decreased by 73% in 2020", <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/EDN-20211206-1>.
- 56 International Air Transport Association (IATA), 2022, "Air Passenger Numbers to Recover in 2024", <https://www.iata.org/en/pressroom/2022-releases/2022-03-01-01>.
- 57 Eurostat, 2021, "Rail transport Severely Impacted by COVID-19 in 2020", <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20211119-2>.
- 58 Eurostat, 2022, "Railway Passenger Transport Statistics - Quarterly and Annual Data", https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Railway_passenger_transport_statistics_-_quarterly_and_annual_data#in_2021.2C_the_EU_rail_passenger_transport_performance_partially_recovered_from_the_sharp_drop_in_2020.
- 59 J. Buckley, 2022, "Europe's New Train Routes for 2022", CNN, <https://edition.cnn.com/travel/article/europe-new-train-routes-2022/index.html>.
- 60 Eurostat, 2023, "Freight Transport Statistics - Modal Split", https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Freight_transport_statistics_-_modal_split#Modal_split_of_freight_transport_in_the_EU; Eurostat, 2022, "Road Freight Transport Statistics", https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Road_freight_transport_statistics#EU_road_freight_transport_increased_sharply_in_2021; S. Tan, 2022, "Shipping Rates Are Still Falling, in Another Sign That a Global Recession May Be Coming", CNBC, <https://www.cnbc.com/2022/09/08/shipping-rates-are-still-falling-in-another-sign-that-a-global-recession-may-be-coming.html>; McKinsey & Company, 2022, "Bold Moves to Boost European Rail Freight", <https://www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insights/bold-moves-to-boost-european-rail-freight>; J. Lerh, 2022, "Global Port Congestion, High Shipping Rates to Last into 2023 - Execs", Reuters, <https://www.reuters.com/business/global-port-congestion-high-shipping-rates-last-into-2023-exec-2022-06-16>.
- 61 Ibid.
- 62 Eurostat, 2023, "Freight Transport Statistics - Modal Split", op. cit. note 60.
- 63 ITF, "Modal Shift to Cleaner Transport Fails to Materialize", <https://www.itf-oecd.org/modal-shift-transport-trends>, accessed 27 May 2023.
- 64 Ibid.

- 65 ACEA, 25 January 2023, "Commercial Vehicle Registrations: -14.6% in 2022; -5.1% in December", <https://www.acea.auto/cv-registrations/commercial-vehicle-registrations-14-6-in-2022-5-1-in-december>.
- 66 Eurostat, 2023, "Freight Transport Statistics – Modal Split", op. cit. note 60.
- 67 Ibid.
- 68 Ibid.
- 69 Ibid.
- 70 Ibid.
- 71 Ibid.
- 72 Ibid.
- 73 Ibid.
- 74 Ibid.
- 75 Ibid.
- 76 Analysis by the SLOCAT Partnership on Sustainable, Low Carbon Transport based on M. Crippa et al., 2022, "CO2 Emissions of All World Countries – 2022 Report", https://edgar.jrc.ec.europa.eu/report_2022.
- 77 Ibid.
- 78 Ibid.
- 79 Ibid.
- 80 **Figure 2** from European Environment Agency (nd), "Greenhouse gas emissions from transport in Europe", <https://www.eea.europa.eu/ims/greenhouse-gas-emissions-from-transport>, accessed 10 July 2023
- 81 Ibid.
- 82 **Figure 3** from Ibid.
- 83 SLOCAT analysis based on Crippa et al., op. cit. note 76.
- 84 L. Jensen (2021), *Climate action in Luxembourg: Latest state of play*, European Parliament, [https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/690664/EPRS_BRI\(2021\)690664_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/690664/EPRS_BRI(2021)690664_EN.pdf); SLOCAT analysis based on M. Crippa et al., op. cit. note 76.
- 85 Energypedia, 2015, "Fuel Prices Luxembourg", https://energypedia.info/wiki/Fuel_Prices_Luxembourg. **Figure 4** from SLOCAT analysis based on Crippa et al., op. cit. note 76.
- 86 Ibid.
- 87 Ibid.
- 88 Ibid.
- 89 European Union Agency for Railways, 2021, "European Year of Rail 2021", https://www.era.europa.eu/content/european-year-rail-2021_en.
- 90 Greenpeace, 2021, "European Airline Bailout Tracker", <https://www.greenpeace.org/eu-unit/issues/climate-energy/2725/airline-bailout-tracker>.
- 91 Intelligent Transport, 2020, "The Trends Driving Europe's Mass Transit Future Forward", <https://www.intelligenttransport.com/transport-articles/108725/the-trends-driving-europes-mass-transit-future-forward>.
- 92 Ibid.
- 93 Polis, 2022, "Brussels Adapts Legislation to Ease Building Light Bike Lanes", <https://www.polisnetwork.eu/news/brussels-adapts-legislation-to-ease-building-light-bike-lanes>.
- 94 N. Camut, 2023, "Paris Votes to Ban Shared E-scooters", <https://www.politico.eu/article/paris-bans-e-scooters-in-landmark-referendums>.
- 95 European Commission, 2020, "Sustainable and Smart Mobility Strategy – Putting European Transport on Track for the Future", <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0789>.
- 96 Ibid.
- 97 European Commission, 2021, "New Transport Proposals Target Greater Efficiency and More Sustainable Travel", https://transport.ec.europa.eu/news/efficient-and-green-mobility-2021-12-14_en.
- 98 Ibid.
- 99 European Union, 2021, "Creating a Green and Efficient Trans-European Transport Network", https://transport.ec.europa.eu/system/files/2023-03/Creating_a_green_and_efficient_Trans-European_Transport_Network.pdf.
- 100 European Union, 2023, "TEN-T Revision", https://transport.ec.europa.eu/transport-themes/infrastructure-and-investment/trans-european-transport-network-ten-t/ten-t-revision_en.
- 101 European Commission, "New transport proposals target greater efficiency and more sustainable travel", op. cit. note 97.
- 102 CPK, 2023, "Joint Railway Investments for the Three Seas Region, CPK Railway Direction Days", <https://www.cpk.pl/en/news/joint-railway-investments-for-the-three-seas-region-cpk-railway-direction-days>.
- 103 Ibid.
- 104 Ibid.
- 105 M. Romain, 2023, "France's Short-haul Domestic Flight Ban: A Measure Lacking Substance", *Le Monde*, https://www.lemonde.fr/en/les-decodeurs/article/2023/05/26/france-s-short-haul-domestic-flight-ban-a-measure-lacking-substance_6028097_8.html.
- 106 Reuters, 2023, "First Night Train Connecting Brussels and Berlin Starts Operations", <https://www.reuters.com/world/europe/first-night-train-connecting-brussels-berlin-starts-operations-2023-05-26>.
- 107 European Parliament, 2023, "Review of the Directive 2010/40/EU on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport", <https://www.europarl.europa.eu/legislative-train/theme-a-european-green-deal/file-intelligent-transport-systems-directive-review>.
- 108 Ibid.
- 109 Government of the UK, 2021, "Government Publishes World's First 'Greenprint' to Decarbonise All Modes of Domestic Transport by 2050", <https://www.gov.uk/government/news/government-publishes-worlds-first-greenprint-to-decarbonise-all-modes-of-domestic-transport-by-2050>.
- 110 Ibid.
- 111 REN21, op. cit. note 41, p. 41.
- 112 Electrive, 2021, "EU Commission Presents 'Fit for 55' Climate Package", <https://www.electrive.com/2021/07/14/eu-commission-presents-fit-for-55-climate-package>; Electrive, 2022, "EU Council Confirms ICE Ban for Cars and Vans by 2035", <https://www.electrive.com/2022/06/29/eu-council-confirms-on-100-co2-reductions-for-cars-and-vans-by-2035>.
- 113 Electrive, 28 2023, "EU Member States Adopt ICE Sales Ban Almost Unanimously", <https://www.electrive.com/2023/03/28/eu-member-states-adopt-ice-sales-ban-almost-unanimously>.
- 114 REN21, "GSR 2022 Datapack, Reference Table R10", https://www.ren21.net/wp-content/uploads/2019/05/GSR2022_Data_Pack_Final.xlsx.
- 115 R. Frost, 2021, "63% of European City Dwellers Want a Ban on Petrol and Diesel Cars", *Euronews*, <https://www.euronews.com/green/2021/04/12/63-of-european-city-dwellers-want-a-ban-on-petrol-and-diesel-cars>.
- 116 REN21, op. cit. note 50, p. 42.
- 117 E. Jupp, 2019, "Diesel Bans: Where Can't You Drive in the UK and Europe?" *Motoring Research*, <https://www.motoringresearch.com/car-news/diesel-bans-uk-europe>.
- 118 M. Collings, 2023, "Madrid Becomes the First Major European Capital to Have a 100% Clean Bus Fleet", *Eltis*, <https://www.eltis.org/in-brief/news/madrid-becomes-first-major-european-capital-have-100-clean-bus-fleet>; Transport & Environment, 2020, "Compressed Natural Gas Vehicles Are Not a Clean Solution for Transport: Review of the Latest Evidence Shows High Levels of Particle Emissions", https://www.transportenvironment.org/wp-content/uploads/2021/07/2020_06_TE_CNG_particle_report.pdf.
- 119 Sadler Consultants, 2022, "Urban Access Regulations in Europe", <https://urbanaccessregulations.eu>.
- 120 F. Ripa, 2021, "European Commission Releases New Urban Mobility Framework", <https://www.eltis.org/in-brief/news/european-commission-releases-new-urban-mobility-framework>.
- 121 Ertico, 2022, "What Is the Aim of the New European Urban Mobility Framework?" <https://erticonetwork.com/what-is-the-aim-of-the-new-european-urban-mobility-framework>.
- 122 ICLEI-Local Governments for Sustainability, 2018, "The Status of SUMP in EU Member States", https://sumps-up.eu/fileadmin/user_upload/Tools_and_Resources/Reports/SUMPs-Up___PROSPERITY-SUMP-Status-in-EU-Report.pdf.
- 123 R. Frost, 2022, "From tax cuts to speed limits: How European governments are trying to cut fuel costs", *Green News*, 17 March, <https://www.euronews.com/green/2022/03/16/from-tax-cuts-to-speed-limits-how-european-governments-are-trying-to-are-trying-to-cut-fue>.
- 124 T.B. Deimon, 2023, "What effects for anti-inflation fare schemes in European public transport?", *egis*, 20 June, <https://www.egis-group.com/all-insights/what-effects-for-anti-inflation-fare-schemes-in-european-public-transport>.
- 125 European Commission (2022), "REPowerEU: A plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition", 18 May, https://neighbourhood-enlargement.ec.europa.eu/news/repowereu-plan-rapidly-reduce-dependence-russian-fossil-fuels-and-fast-forward-green-transition-2022-05-18_en.
- 126 European Commission, 2023, "European Green Deal: Agreement Reached on Cutting Maritime Transport Emissions by Promoting Sustainable Fuels for Shipping", https://ec.europa.eu/commission/presscorner/detail/en/ip_23_1813.
- 127 Ibid.
- 128 POLIS Network, "ESCALATE", <https://www.polisnetwork.eu/project/escalate>, accessed 10 July 2023.
- 129 "COP26: Government leaders must commit to boosting cycling levels to reduce carbon emissions and reach global climate goals quickly and effectively", <https://cop26cycling.com/>, accessed 10 July 2023
- 130 European Rail Research Advisory Council, 2020, "Rail Strategic Research and Innovation Agenda", https://uic.org/europe/IMG/pdf/20201207_rail-strategic-research-and-innovation-agenda.pdf.
- 131 ICLEI, 2023, "German Cities Harness Data-driven Approach for Low Carbon Transport Development and Sustainable Mobility Planning", <https://bit.ly/3rha6D7>.
- 132 POLIS Network, "GREEN-LOG", <https://www.polisnetwork.eu/project/green-log>, accessed 10 July 2023.
- 133 The Future Is Public Transport, <https://thefutureis-publictransport.org>, accessed 10 July 2023.

This report should be cited as:

SLOCAT (2023), Global Status Report on Transport, Climate and Sustainability - 3rd edition, www.tcc-gsr.com.

Data access and licensing:

Attribution 4.0 International (CC BY 4.0) Share — copy and redistribute the material in any medium or format. Adapt — remix, transform and build upon the material for any purpose. Attribution — you must give appropriate credit, provide a link to the licence and indicate if changes were made.



The development of this report was led by Maruxa Cardama, Angel Cortez, Emily Hosek, Agustina Krapp, Nikola Medimorec, and Alice Yiu from the SLOCAT secretariat. Our warm thanks to the many SLOCAT partners and experts from the wider transport community who have shaped this report. A significant share of the research for this report was conducted on a voluntary basis.

For a full list of acknowledgements, please visit the the online page [here](#).

www.tcc-gsr.com | #TransportClimateStatus



Transport, Climate and Sustainability
Global Status Report - 3rd edition

