



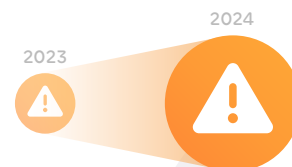
Mobility



Far too slow

Mobility connects people and sustains economies. For a transformative shift, reducing motorised transport, promoting clean modes, and decarbonising remaining transport is essential.

4.2 Mobility



Past progress: Progress towards climate neutrality in the mobility sector was still **far too slow** in the assessed period, but there are promising signs of improvement for many enablers. Pandemic-induced emission reductions are rebounding but remain below pre-pandemic levels. Overall, the growth in passenger and freight transport demand somewhat slowed. COVID-19 negatively impacted the modal split of passenger transport, but passengers seemed to slowly be shifting back from road to rail transport again. The modal split for freight transport was still heading in the **wrong direction**. Although increasing, the pace of zero emission vehicle (ZEV) adoption and infrastructure buildout was still **far too slow** (see 5.1).

Policy context: Transport policy at the EU level has largely focused on implementing zero and low emission motorised transport (ECNO, 2024b). The EU has an ambitious vision for ZEVs (EC, 2020g) and is backing it up with stricter CO₂ emission performance standards and the Alternative Fuels Infrastructure Regulation (AFIR). However, the EU could make further progress by going beyond deploying ZEVs: overall motorised transport volumes need to be reduced and, where motorised transport is unavoidable, a greater modal shift for passenger and freight transport from road to rail needs to be facilitated. The proposed revision of the Trans-European transport network (TEN-T) is the EU’s first and primary tool for enabling a union-wide modal shift (EC, 2021c). Reducing motorised transport demand is key to reducing GHG emissions from transport, but the EU’s Sustainable and Smart Mobility Strategy (SSMS) (EC, 2021m) does not consider moderating motorised transport demand (ESABCC, 2024).













Areas of action: To become climate neutral by 2050, ZEV uptake could be facilitated by building out recharging infrastructure, providing guidance on financial incentives, and addressing gaps in the CO₂ emission standards. To address the policy gap for managing the demand for motorised transport and further incentivising the modal shift away from road transport, the EU could incorporate transport demand moderation into the SSMS and adopt the revised TEN-T. The EU could also be more active in coordinating non-motorised transport infrastructure, and in rural areas, in expanding rail networks.

Table 6: Progress in mobility towards the objective and enablers

OBJECTIVE	ENABLERS		
Reducing GHG emissions and carbon intensity in the transport sector 	Managing motorised transport demand 	Enabling modal shift 	Implementing zero emission transport

Note: Large circles show the progress classification of this year and small circles the one from last year’s progress assessment. Arrows indicate positive or negative changes in classification. See Table 35 for further information. Source: ©ECNO.

Table 7: Details on indicators' past progress and required change

2023 2024 >	Historical data			Required change	
	Time period	Relative change p.a.	Absolute change p.a.	Benchmark	Absolute change p.a.
OBJECTIVE: Reducing GHG emissions and carbon intensity in transport					
GHG emissions from transport [MtCO ₂ e] 	2017–2022 (EEA, 2024b)	-2.3% per year	-20.6 MtCO ₂ e per year	92% reduction by 2050 relative to 2005 (EC, 2018)	-29.7 MtCO ₂ e per year (2022–2050) → 1.4 times faster
Carbon intensity of passenger transport [tCO ₂ /pkm] 	n/a	n/a	n/a	n/a	n/a
ENABLER 1: Managing motorised transport demand					
Total passenger transport volume [passenger-km] 	2016–2021 (Eurostat, 2023f)	-5.5% per year	-310,448 pkm per year	7.4 bn pkm in 2050 (EC, 2018)	95,014 pkm per year (2021–2050) → can still increase
Total freight transport volume [million tonne-km] 	2017–2022 (Eurostat, 2023c)	1.4% per year	32,455 Mt-km per year	3.2 bn Mt-km in 2050 (EC, 2018)	28,267 Mt-km per year (2022–2050) → 0.9 times lower
ENABLER 2: Enabling modal shift					
Share of passenger transport volume on road [%] 	2016–2021 (Eurostat, 2023f)	2.2% per year	1.7%-points per year	75.2% share by 2050 (EC, 2018)	-0.4%-points per year (2021–2050) → needs U-turn
Share of passenger transport volume on rail [%] 	2016–2021 (Eurostat, 2023f)	-4.1% per year	-0.3%-points per year	9.6% share by 2050 (EC, 2018)	0.1%-points per year (2022–2050) → needs U-turn
Share of freight transport volume on road [%] 	2016–2021 (Eurostat, 2023e)	0.8% per year	0.6%-points per year	68.7% share by 2050 (EC, 2018)	-0.3%-points per year (2021–2050) → needs U-turn
Share of freight transport volume on rail [%] 	2016–2021 (Eurostat, 2023e)	-2.1% per year	-0.4%-points per year	24.1% share by 2050 (EC, 2018)	0.2%-points per year (2021–2050) → needs U-turn
ENABLER 3: Implementing zero emission transport					
Share of EVs in passenger car stock [%] 	2017–2022 (EAFO, 2024b)	57.9% per year	0.4%-points per year	99% by 2050 (EC, 2020g)	3.5%-points per year (2022–2050) → 8.4 times faster
Share of ZEVs in heavy-duty vehicle stock [%] 	2017–2022 (IEA, 2023a)	138.3% per year	0.01%-points per year	70% by 2050 (EC, 2020g)	2.5%-points per year (2022–2050) → 444 times faster
Share of ZEVs in new passenger car registrations [%] 	2017–2022 (EEA, 2023f)	66.5% per year	4.5% -points per year	100% by 2035 (EC, 2023aj)	6.0%-points per year (2022–2035) → 1.3 times faster
Total number of recharging points [#] 	2018–2023 (EAFO, 2024b)	192.3% per year	151,975 recharge points per year	16m recharge points by 2050 (EC, 2021b)	579,123 points per year (2023–2050) → 3.8 times faster

Note: Icons indicate progress classification of this year's progress assessment and coloured lines the change in classification; see Table 35 for further information. n/a indicates that data are not available. The COVID-19 pandemic induced unprecedented, but temporary changes in transport patterns that resulted in the manual reclassification of the progress status of indicators; EVs include battery electric vehicles (BEVs), fuel cell electric vehicles (FCEVs) and plug-in hybrid vehicles (PHEVs); ZEV include all EVs as well as hydrogen combustion engine vehicles (H2-ICEVs).

Source: ©ECNO.

Objective: Reducing GHG emissions and carbon intensity in transport

Past progress: Overall, GHG emission reductions in transport were **far too slow**, excluding the extraordinary impacts of the COVID-19 pandemic on mobility and considering the already apparent rebounding of GHG emissions after 2020. The 2022 emission data included in this report further showcase the post-pandemic rebounding of GHG emissions from transport. Over the next three decades, emission reductions need to occur 1.4 times faster to meet the EU's 2050 target of a 92% reduction in GHG emissions relative to 2005 levels (EC, 2018). The state of reducing carbon intensity of passenger transport could not be assessed because of the lack of EU-wide data.

Indicators:

- GHG emissions from transport
- Carbon intensity of passenger transport

Policy context: To ensure climate neutrality in the transport sector by 2050, the EC developed the SSMS, which lays out milestones for 2030 that focus on scaling up high-speed rail and ZEVs. (EC, 2021j). To accelerate the diffusion of ZEVs, the EU has also strengthened the CO₂ emission performance standards for light-duty vehicles. Absent from the SSMS is a milestone to reduce or moderate the demand for motorised transport. As part of the Fit for 55 package (EC, 2021b) and to complement the Green Deal and the SSMS, the EU recently extended the Emissions Trading System (ETS 2), which, starting in 2027, will disincentivise high-emission fuels through its carbon pricing mechanism and accelerate the phase-out of older, polluting vehicles. To further reduce emissions, the proposed Energy Taxation Directive (EC, 2021l) would align energy tax levels based on fuel type and increase the minimum tax level on diesel and petrol.

Areas of action: Transport policy at the EU level focuses primarily on implementing zero emission and low carbon transport and, to a lesser degree, on shifting transport modes (ECNO, 2024b). However, there exist significant policy gaps for managing, reducing, and avoiding motorised transport volumes. Since 2000, growing transport volumes have been the primary driver in increasing GHG emissions from road transport (EEA, 2022a). Therefore, reducing transport volumes, especially for emissions-intensive road transport, is critical for reaching the EU's 2050 climate neutrality target. Given that the EU's population is expected to grow until 2030 (Eurostat, 2019), reducing the absolute GHG emissions in the transport sector will become increasingly challenging. To ensure that EU-level policies and regulations have the desired effect, both overall GHG emissions and the carbon intensity of passenger transport should be considered—the composite value of emissions per passenger kilometre—which may enable a more nuanced understanding of the interplay of socioeconomic factors in the transport sector.

Enabler 1: Managing motorised transport demand

Past progress: Progress towards managing motorised transport demand for freight and passengers was mixed. The onset of the COVID-19 pandemic caused a sharp decline in total passenger transport volumes. The sudden contraction of passenger transport volume heavily skews the trend data.

Taking into account the annual 6% growth rate of the EU's passenger transport volume between 2015 and 2019 and the visible post-pandemic rebounding of passenger transport volume in 2021, the progress towards this indicator was deemed to be **too slow**. Additionally, given that the number of passenger cars per EU inhabitant increased to a record-high 0.56 in 2022—up from 0.49 cars per resident in 2012 (Eurostat, 2024m)—and that Europe's population will continue to grow until 2030 (Eurostat, 2019), union-wide demand for motorised transport is likely to continue increasing. Freight transport volume was less impacted by COVID-19: freight volume continued to increase but at a slower rate; a rate that is nearly compatible with the EU's 2050 climate neutrality target (EC, 2018).

Indicators:

- Total passenger transport volume
- Total freight transport volume

Policy context: The EU has not set official targets for managing overall transport volumes and does not recognise the moderation of transport demand as a policy option (ESABCC, 2024). This policy gap can partially be attributed to the fact that the demand for and volume of motorised passenger transport is most immediately managed by urban planning at the municipal and regional level instead of at the EU level. The proposal to revise the TEN-T and the EC's adoption of the European Declaration on Cycling (EC, 2023f) are first steps towards reducing motorised transport volumes. The TEN-T revision calls for the development of sustainable urban mobility plans (SUMP) for over 400 cities along the network. In its declaration on cycling, the EU recognises the need to increase funding for cycling infrastructure.

Areas of action: The pandemic spurred an unprecedented demand for cycling in Europe: between 2019 and 2020, bicycle sales reached a record high of over 22 million units, and sales of Electrically Power Assisted Cycles (EPACs) increased by 33.5% across the 27 Member States and the UK (CONEBI, 2021). Therefore, the sale of EPACs outpaced the growth of battery EV sales in the EU for the same period (EAFO, 2024b). To begin leveraging this positive trend, the EU could formally adopt the revised TEN-T proposal and follow through on the financial commitments made in the European Declaration on Cycling to support Member States and municipalities in increasing the modal share of active mobility. Motorised freight transport demand could be reduced by encouraging local, circular industry. To do so, the EU could identify synergies between the SSMS and the Circular Economy Action Plan and the subsidiary Circular Cities and Regions Initiative (EC, 2020h).

Enabler 2: Enabling modal shift

Past progress: The modal split in passenger and freight transport was headed in the **wrong direction** in the assessed period. For passenger transport, the pandemic triggered an unprecedented shift away from public mobility towards private cars. This year's report includes data from 2021 which indicate the beginning of the return to positive pre-pandemic passenger transport trends. Although these post-pandemic trends appear favourable, the rate at which passengers are switching from cars to trains must be further expedited. The modal split in freight transport volume was largely unaffected by the pandemic: the share of freight transported by road was steadily increasing, while the shares on rail and inland waterways were decreasing. This represents a modal shift that is trending in the opposite direction of what is needed to further reduce sectoral GHG emissions.

Indicators:

- Share of passenger transport volume on road
- Share of passenger transport volume on rail
- Share of freight transport volume on road
- Share of freight transport volume on rail

Policy context: The EU-level policy portfolio for facilitating a modal shift in the transport sector has been limited but recently expanded by the proposed revision of the TEN-T. The proposal stipulates the completion of the extensive long-distance, cross-border passenger and freight rail network by 2050. It aims to connect 430 cities and all major EU airports by passenger trains travelling at least 160km/h. In its Urban Mobility Framework, the EU commits to activating and reinforcing multiple funding instruments for public transport in municipalities (EC, 2021q). The TEN-T revision additionally calls for an increase in the number of freight trains in the EU and ensures international integration for dedicated rail freight corridors. In 2023, the EC announced the Combined Transport Directive and the Green Freight Package, offering financial support for freight operations that reduce road transport emissions by adopting intermodal transport models (EC, 2023aa). The TEN-T revision and this financial incentive are the first steps in facilitating a shift from road to rail for freight transport in the EU.

Areas of action: Beyond reducing the emissions from road transport, the EU can also make progress towards its 2050 climate neutrality target by shifting more road transport onto rail (Rudolph et al., 2023). Although the EU is expanding the development of multimodal inter- and intra-city rail networks, there exist significant gaps in the buildout of rail infrastructure in rural areas, which account for 80% of the EU's total territory (EPRS, 2022). For passenger transport, the underinvestment in rail and other forms of public transport in rural areas has birthed transport deserts, in which residents are locked into car ownership and usage (EUUMO, 2023). Since freight and passengers are transported on the same rail lines in Europe (Clausen & Voll, 2013), the absence of rural rail networks means that freight can often only be transported on roads. Significant increases in investments in rural rail infrastructure could facilitate the necessary modal shift for passenger and freight transport.

Enabler 3: Implementing zero emission transport

Past progress: Overall progress towards implementing zero emission and low carbon transport at the EU level is improving but was still **far too slow** in the assessed period. ZEVs must make up 99% of the total share of passenger cars, while the share of ZEVs in the heavy-duty vehicle (HDV) stock needs to increase to 70% by 2050 (EC, 2020g) to be compatible with climate neutrality. To reach this level of uptake, the annual increase in ZEV uptake needs to occur 8 times faster for passenger vehicles and 444 times faster for heavy-duty vehicles than the current rate. The share of ZEVs in new passenger car registrations reached a record high in 2022 and was increasing by 4.5%-points per year. However, the growth rate was still **too slow** and needs to be increased to 6%-points per year. The number of recharging stations increased by over 190% per year between 2018 and 2023, but this development needs to accelerate by 3.8 times to be compatible with the EU's target of approximately 16 million public recharging points in 2050.

Indicators:

- Share of EVs in passenger car stock
- Share of ZEVs in heavy-duty vehicle stock
- Share of ZEVs in new passenger car registrations
- Total number of recharging points

Policy context: To stimulate the uptake of ZEVs, the EU strengthened its fleet-wide CO₂ emission performance standards in 2023. Starting in 2035, the CO₂ emission target for all new passenger cars and vans is 0 g CO₂/km. By doing so, the EU technically enacted a phase-out target for new internal combustion engine (ICE) vehicles. However, negotiations are ongoing to allow for ICE vehicles powered by CO₂-neutral fuel powertrains to qualify as zero emission vehicles after 2035, which may weaken the standards' emission reduction potential. Although not adopted yet, an agreement was reached in 2024 to increase the CO₂ emission reduction targets for HDVs to 65% by 2035 and 90% by 2040 (EC, 2023ae). The revised AFIR complements the updated CO₂ emission standards by establishing distance-based targets for light- and heavy-duty recharging stations—every 60 km and every 100 km, respectively—along the TEN-T road network. The EC has recommended raising the weight limit for HDVs using zero-emission technologies to incentivise heavy-duty ZEVs, which rely on heavier powertrains (EC, 2023ai).

Areas of action: The uptake of ZEVs needs to be accelerated. Expanding financial support and infrastructure development could expedite uptake. The CO₂ emission standards could be further strengthened if the EU maintains a clear definition of ZEVs and, therefore, does not classify low emission vehicles that use plug-in hybrid drivetrains or carbon-neutral fuels as zero emission. Carbon-neutral fuels are best reserved for aviation and maritime shipping, where such fuels are likely critical for decarbonisation. EU policies could go beyond targeting new vehicle sales by incentivising stock turnover in the existing ICE fleet of LDVs and HDVs; in particular, the EU could target high-mileage corporate fleets and leverage the revised ETS. Ratifying the proposed emission standards for HDVs could accelerate ZEV adoption for freight transport. The EU could provide guidance based on good practices in vehicle subsidies and taxes at the national scale and in infrastructure and behavioural policies at the municipal scale, which are particularly effective in increasing vehicle uptake (Wappelhorst et al., 2020).