【欧州】【Common】

Common – EU decarbonization policy: 2024 EEA report on Trends and Projections and the Commission's Climate Action Progress Report confirm slow GHG emission reduction progress in the EU's transport sector

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【概要：Summary】

The EU is making progress towards climate neutrality but in contrast to other sectors, GHG emissions from transport could not be significantly reduced in the past decades. The only significant drop in the transport sector's GHG emissions occurred in 2020 due to effects of the COVID-19 pandemic. To achieve the 2030 climate target of a 55% reduction of GHG emissions and a 23% reduction in GHG emissions from the transport sector, compared to 2005, it would require a further decrease significant decrease of GHG emissions in a limited period of six years. However, according to EEA's 2024 report on Trends and Projections, preliminary data for 2023 estimate only a small decrease of around 1% of the transport sector's GHG emissions in 2023 compared to 2022. Road transport still has the highest share with 73.2% of the total of all transport sector's GHG emissions in the EU in 2022. In addition, more than 70% of these road transport CO_2 emissions originate from passenger cars and vans. At the same time, only road transport is considered having the potential for achieving significant GHG emission decreases, as technical solutions are available. Accordingly, the majority of implemented and planned measures focus on GHG emission reduction in road transport and the promotion of low-carbon or zero-emission fuels and technologies, as well as encouraging a modal shift to public transport.

However, the EEA's 2024 report confirms that the transport sector remains the second largest source of GHG emissions also in 2023. Looking towards 2030, with current policies and measures, GHG emissions from transport are expected to remain 4% above 1990 levels, which is even 0.5 percentage points above the EEA's 2022 projection. However, the EEA's 2024 report also estimates a decrease of the GHG emissions in transport by 2030 to 8% below 1990 levels if additional measures are taken.

From 2027 onwards, GHG emissions of the road transport sector will be covered by the new emission trading system (ETS-2). If these measures fail to further decrease GHG emissions in the transport sector, the emissions can only be expected to stagnate, at best. This underlines the difficulties to decarbonise the transport sector, but it still remains a precondition to reach the 2050 target of net-zero GHG emissions.

【記事：Article】

1. Background: The post-pandemic trends in the transport sector's GHG emissions

Since 1990, GHG emissions have been reduced across all EU's economic sectors, except for transport. During the COVID-19 pandemic lockdowns in 2020, transport emissions briefly declined due to reduced free movement and transport activities in the EU and road transport's GHG emissions fell by 14% in 2020 compared to 2019 (EEA 2023b, Antolini 2023a). However, these emissions rose again in 2021 by 8.6% and by 2.7% in 2022, making transport the EU's second-largest source of GHG emissions, according to the EEA's "Trends and Projections in Europe 2023" report (EEA 2023a, 2023b).

The temporary pandemic-related GHG emission reduction from transport also forcefully highlighted the scale of necessary efforts to actually reach carbon neutrality by 2050 (Antolini 2022). Although the number of electric vehicles (EVs) increased in recent years, EVs still only represent 5.4% of the EU's total passenger car fleet and road transport still accounts for 73.2% of the transport sector's GHG emissions and 25% of the EU's total (European Commission n.d., Antolini 2023b, EEA 2023c). Accordingly, the EEA's projections conclude that current GHG emissions reduction measures and policies are not sufficient to put the transport sector on the trajectory to achieve the 2030 and 2050 emission reduction targets (EEA 2023a, Antolini 2023a).

2. EEA's 2024 Trends and Projections Report and the European Commission's 2024 Climate Action Progress Report confirm general reduction of GHG emissions

The EU Climate Law (Regulation (EU) 2021/1119) sets ambitious targets, including the 55% net GHG emission reduction target to be reached by 2030, based on 1990 levels, and climate neutrality by 2050 (EEA 2024a). The European Commission's "Climate Action Progress Report" outlines progress towards these targets, as required by Regulation (EU) 2018/1999 (European Commission 2024a). According to the 2024 Climate Action Progress report (COM(2024) 498 final), the EU achieved an 8% net GHG emissions reduction in 2023 compared to 2022 (European Commission 2024a, 2024b). This marks the largest annual drop in decades, aside from the pandemic-related decline in 2020 (European Commission 2024b, 2024c). However, the EEA's "Trends and Projections in Europe 2024" stress that achieving climate neutrality will require new policies beyond 2030, as projections for 2040-2050 show a widening gap between expected GHG emission reduction and EU targets (EEA 2024a). The EEA's 2024 report also confirms that the net GHG emissions decrease of 8% in 2023 compared to 2022 was the largest year-on-year decrease in decades (EEA 2024b, 2024c). However, this decline is mostly driven by reduced use of coal in energy production, increased use of renewables, and lower energy consumption (EEA 2024a, European Commission 2024b). In total, in 2023, the GHG emissions reached a reduction of 37% below 1990 levels, up from a 31% decrease in 2022 (EEA 2024a, 2024b, 2024c). Based on the policies and measures currently in place, GHG emissions are projected to decline by 43% by 2030 compared to 1990 level (EEA 2024b). This decline will rise to 49% if planned additional measures are added. However, it still will fall short by six percentage points of the 55% GHG emission reduction target envisaged for the year 2030 (EEA 2024b). If only the EU domestic GHGs are considered (excluding international transport), GHG emissions are projected to reach a 51% reduction by 2030, thereby further reducing the gap, but it still confirms the need for further additional GHG emission reduction measures (EEA 2024a, 2024b).

3. The transport sector's 2023 GHG emissions and future projections

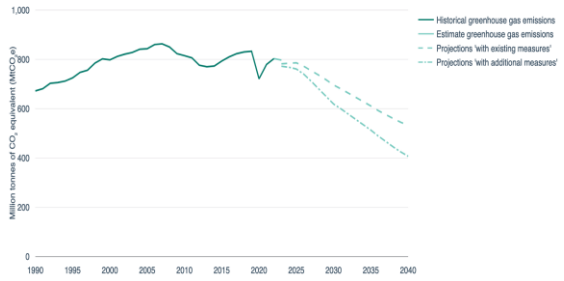
Europe's emission reductions vary across its economic sectors, with the energy supply sector, and the industrial sector showing significant levels of GHG emission reduction over the last two decades (EEA 2024a). According to the Climate Action Progress Report 2024, in 2023, emissions from power and industry installations saw the highest annual decrease to date, of -16.5% and -24% respectively, compared to 2022 (European Commission 2024c, EEA 2024a). Instead, verified emissions from the aviation sector and aircraft operators increased by around 9.5% (European Commission 2024b, 2024c).

The sectors under the Effort Sharing Regulation (ESR) sectors showed mixed progress. While the buildings sector reduced GHG emissions by over 30% since 2005, transport emissions have only slightly decreased due to parallel rising transport volumes (EEA 2024a, European Commission 2024c). In 2023, GHG emissions from the ESR decreased by 2% compared to 2022. This reduction was mainly driven by the buildings sector (-5.5%) in 2023 compared to 2022 (European Commission 2024b). Instead, the GHG emissions from the transport sector decreased by only 0.8% compared in 2023 compared to 2022 (European Commission 2024b, EEA 2024a).

Preliminary 2023 data estimate a 0.8% reduction of GHG emissions in the transport sector compared to 2022 (EEA 2024b, COM/2024/498 final, EEA 2024f). Slower electric vehicle adoption is cited as the main factor for this marginal decrease (EEA 2024b, COM/2024/498 final).

Looking ahead towards 2030, projections for transport related GHG emissions differentiate between expected emission reductions from policies and measures in place, and additional reductions that planned measures can generate (EEA 2024f). In fact, under current policies and measures, GHG emission reduction from transport will remain at 4% above 1990 levels (EEA 2024f).

Fig. 1: Historical and estimated GHG emissions from transport in Europe



Source: EEA (2024f)

With additional measures, those emissions would drop 8% below 1990 levels, while international aviation and maritime transport emissions are projected to continue to increase (EEA 2023c EEA 2024f).

Moreover, the mentioned EEA 2024 projection of GHG emissions from transport remaining 4% above 1990 levels is even 0.5 percentage points higher than the EEA's 2022 estimates, with a projection of a 3.5% increase in 2030 compared to 1990 (EEA 2022). According to the EEA's projections, the GHG emissions from domestic navigation, domestic aviation and railway have decreased since 1990 and they are projected to remain relatively stable in the coming years (EEA 2024f).

Instead, while only road transport emissions are expected to have the potential to further decrease, this sub-sector's GHG emissions constitute the highest proportion of overall transport emissions with 73.2% of all EU's transport GHG emissions in 2022 (including domestic transport and international bunkers) (EEA 2024f). More than 70% of road transport emissions originate from passenger cars and vans (European Commission 2024c). This share is expected to decrease, as a majority of implemented and planned measures at EU level focus on road transport and the introduction of low and zero-emission vehicles (EEA 2024f). The EU CO_2 emission standards for new cars, vans, and heavy-duty vehicles are central to reducing

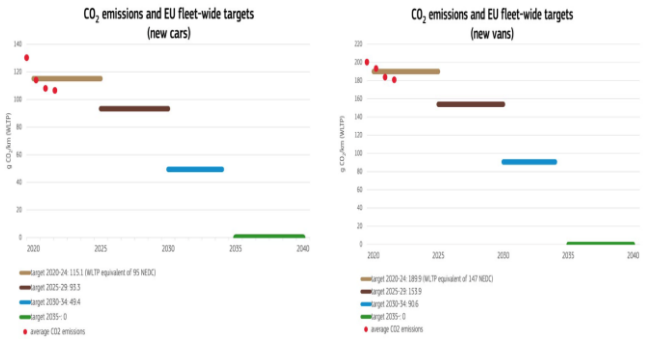
road transport emissions. Provisional data for new cars and vans registered in the EU, Iceland, and Norway show that average CO_2 emissions for new cars fell by 1.4% from 108.1g CO_2/km in 2022 to 106.6g CO_2/km in 2023, and for vans by 1.5% from 183.8g CO2/km in 2022 to 180.9g CO_2/km in 2023 (European Commission 2024c). Despite this progress, transport remains the EU's largest emission source, with a 25% share of the EU's total GHG emissions (EEA 2024a, 2024b).

Between 2005 and 2022, road transport emissions dropped by just 4%, while heavy-duty vehicle emissions rose by 1%, as efficiency gains and low-emission powertrains failed to offset increasing transport volumes (European Commission 2024c). Consequently, significant further emission reductions are still needed to deliver on the future targets and by 2035, all new cars and vans should be zero-emission vehicles (European Commission 2024c). However, decarbonising passenger transport will remain extremely challenging also due to the current level of passenger transport volumes and its projected increase (EEA 2024c).

One potentially effective strategy for mitigating the impacts of mobility is promoting a shift towards active or collective transport modes or through increased accessibility to local services (EEA 2024d). Road is also the dominant modality for freight transport with 53.8% of all freight in 2022 being carried by road, an increase of 6.8 percentage points since 1995 (EEA 2024e). Freight transport activity was only marginally affected by the COVID-19 pandemic, and by 2021, it had already completely recovered (EEA 2024e).

Furthermore, heavy-duty vehicles (HDVs), including lorries, buses and coaches, generate 27% of all CO_2 emissions from road transport. The EU has recently adopted revised CO_2 standards for new HDVs (European Commission 2024c).

Fig. 2: Average CO_2 emissions (dots) and EU fleet-wide targets (lines) for new cars and vans since 2020



Source: European Commission 2024c

CO_2 emissions must decline by 15% from 2025, by 45% from 2030, by 65% from 2035 and by 90% from 2040 onwards compared to the 2019 baseline, among others (European Commission 2024c).

As road transport emissions are expected to decline, aviation and maritime emissions are expected to constitute a higher proportion of transport sector emissions in the coming years with the greatest increases in GHG emissions toward 2030 (EEA 2024f). The impact of the COVID-19 pandemic on aviation only temporarily led to lower GHG emissions from aviation and emissions rose again by 25% in 2021 and by 57% in 2022 on a year-to-year basis (EEA 2024f).

According to the 2024 Climate Action Progress Report, in 2023, the EU-ETS aviation emissions continued to rise by 9.5% compared to 2022 (European Commission 2024c). Throughout 2024 and 2025, the Commission is adopting implementing legislation to strengthen the EU-ETS for aviation and the EU is among the first jurisdictions worldwide to implement CORSIA in law to offset aviation emissions from extra-European flights of EU-based airlines (European Commission 2024c).

However, the overall climate impact of aviation is even two to four times higher than the effect of its past CO_2 emissions alone, as non-CO_2 emissions account to 66% of the aviation's climate impact (European Commission 2024c). The

monitoring of non-CO_2 emissions from aviation in the EU will start from 1 January 2025, based on the revised ETS Directive (European Commission 2024c, Antolini 2024).

Regarding the trend of GHG emissions in maritime transport, the sector contributed around 3-4% of total EU CO_2 emissions in 2023, (European Commission 2024c). Following the revision of the ETS Directive, CO_2 emissions from large ships calling at EU ports are covered by the EU ETS as of 1 January 2024.

To achieve a smooth phase-in of the sector, for the year 2024 shipping companies will have to surrender allowances to cover 40% of their reported GHG emissions and this share will increase to 70% in 2025 and to 100% from 2026 onwards (European Commission 2024c).

Looking ahead, most planned policies and measures in the EU's transport sector focus on promoting low-carbon fuels or zero-emission technologies, as well as encouraging a modal shift to public transport (EEA 2024f).

4. Conclusion and considerations

The EEA's 2024 report confirms that the EU has successfully reduced net GHG emissions by 37% since 1990, whereas the GDP grew by 68% over the same period, demonstrating that decoupling GHG emissions from economic growth is possible.

In 2023, total GHG emissions dropped by 8% compared to 2022, the largest annual reduction in decades, excluding the 2020 COVID-19 pandemic's impact. However, most reductions occurred in the energy sector, driven by the decrease in the use of coal for energy production. In contrast, the transport sector's GHG emissions under the Effort Sharing Regulation were reduced only marginally, with only a 5% reduction in the period from 2005 to 2022, even including the COVID-19 pandemic related decline. Although EV adoption is considered helpful to decrease GHG emissions in the transport sector, the pace of reduction is slow, because of the slowing down of the EVs adoption.

The EEA's 2024 report shows that the transport sector's GHG emissions rebounded after the COVID-19 pandemic and decreased only marginally by 0.8% in 2023.

Therefore, current EU policies project a 43% reduction in net GHG emissions by 2030 compared to 1990, rising to 51% if planned additional measures are included (excluding international transport), but then they are still short of the 55% target.

This underlines that the transport sector remains the sector most challenging to decarbonize. Achieving further GHG emission reductions will depend highly on the rapid renewal of the vehicle fleet, accelerated adoption of zero-emission propulsion technologies in road transport, the implementation of the EU-ETS2 system in 2027 including the transport sector, and the promotion of a modal shift toward sustainable transport modes.

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