【欧州】【Common】

Common - Analysis of decarbonization policies for the transport sector in major European countries: German federal government abolishes subsidies for EV purchase, causing an increase of the CO_2 emission levels of newly registered passenger cars

Andrea Antolini Former Researcher JTTRI

【概要：Summary】

Road transport is responsible for 77% of the entire transport sector's CO_2 emissions and is expected to play a predominant role to reach the European Green Deal's target of reducing the transport sector's GHG emissions by 90% by 2050. Passenger cars alone are responsible for around 16% of the EU's total CO_2 emissions.

The European Environment Agency (EEA)'s 2022 final data on CO_2 emissions of newly registered passenger cars and vans has confirmed a corelation between the increasing number of Battery Electric Vehicles (BEVs) registrations and CO_2 emissions reduction in road transport. However, the sales of BEVs in Europe's main automobile market Germany have significantly decreased after the Federal government stopped the payment of subsidies for the purchase of private BEVs in December 2023.

The reason for the abolishment of the subsidies for the purchase of private BEVs was a German Federal Constitutional Court's ruling that forced the government to remove funds from its budget, which were earmarked for financing the "environment bonus" subsidies, including the purchase of private BEVs. The following decline in BEV sales and a recent increase of purchases of combustion engine passenger cars in Germany could jeopardise the further reduction of CO_2 emissions towards reaching the 2035 target of 0g CO_2/km emissions for newly registered passenger cars in the entire EU. Therefore, further support for the purchase of BEVs is considered necessary, as they are seen as crucial for achieving a significant reduction in the EU road transport sector's CO_2 emissions.

【記事：Article】

1. Importance of EVs for CO_2 emission reduction from new passenger cars

Based on the European Green Deal's target, the EU Member States intend to reach climate neutrality by 2050, and to reduce the transport sector's GHG emissions by 90%, based on 1990 figures (Council of the EU n.d.). While the transport sector is responsible for about 25% of the EU's total GHG emissions, road transport represents about 77% of the transport sector's total GHG emissions (European Commission n.d.). Considering the impact of passenger cars, they are responsible for around 16% of the EU's total CO_2 emissions (European Commission n.d.). To

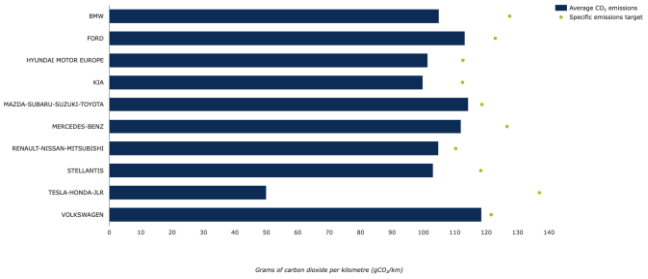
reduce the average CO_2 emissions from all newly registered passenger cars and vans, stricter CO_2 emission targets were introduced under Regulation (EU) 2019/631, which was amended by Regulation (EU) 2023/851 (see also Antolini 2023, EEA 2024a). Regulation (EU) 2023/851 requires to reach a GHG emissions reduction target for newly registered passenger cars of 95g CO_2/km between 2020 and 2024, and finally 0g CO_2/km as EU fleet-wide CO_2 emission target for passenger cars, corresponding to a 100% CO_2 emission reduction from 2035 onwards (European Commission n.d.). This will require a transformation of the transport sector towards the utilisation of exclusively zero emission vehicles.

Based on the Regulation (EU) 2019/631, the European Environment Agency (EEA) publishes annually the trends of the average CO_2 emission levels of newly registered passenger cars and vans in the EU-27, Iceland and Norway, and the UK (until 2020) (EEA 2023b, EEA 2022c). Between 2019 and 2022, the average CO_2 emissions from all newly registered passenger cars fell by -27% ((EEA 2022d). In 2022 alone, newly registered passenger cars CO_2 emissions decreased by around 6g CO_2/km compared to 2021 to 108.1g CO_2/km (EEA 2024a, European Commission n.d.).

According to the EEA's data analysis, this significant decrease of average CO_2 emissions for newly registered passenger cars can be attributed to a surge in registrations of battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs) (EEA 2023a).

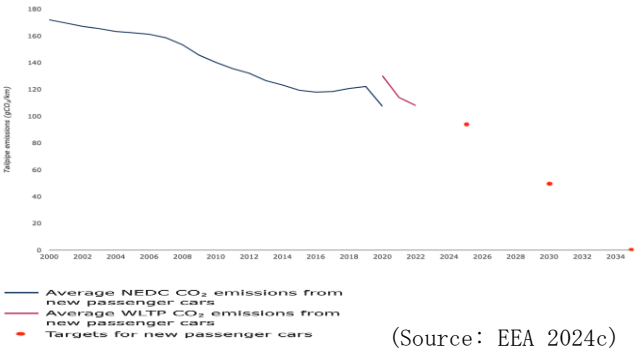
The highest annual increase in BEV passenger cars in the period 2013-2022 was noted between 2019 and 2020 (+85%), followed by a +78% increase between 2020 and 2021 (Eurostat 2024). The share of BEV passenger cars in the total number of all passenger cars in the EU grew from 0.02% in 2013 to 1.19% in 2022 (Eurostat 2024). According to the EEA's data, the share of EVs in newly registered passenger cars more than tripled from 3.5% in 2019 to 11.6% in 2020 and then to 17.8% in 2021 (EEA 2022a, EEA 2022d, European Commission 2022). Specific emission targets are set annually for each manufacturer or a group of vehicle manufacturers that act together as a pool. In 2022, 90 out of 91 manufacturers including individual or pool members stayed below their binding specific target. The Tesla-Honda-Jaguar-Land Rover pool had the lowest average CO_2 emissions (49.9g CO_2/km) (EEA 2024c).

Fig. 1: Average CO_2 emissions levels of individual or pools of car manufacturers in 2022



(Source: EEA 2024c)

Fig. 2: Average CO_2 emissions of new passenger cars with targets for 2025, 2030 and 2035



(Source: EEA 2024c)

Fig. 2 shows a decline in CO_2 emissions for new passenger cars and points out the future targets (2025, 93.6g CO_2/km; 2030, 49.5g CO_2/km; and 2035 0g CO_2/km) of CO_2 emissions reduction. According to EEA (2024c), these targets can be reached if the share of EVs further increase since they are seen as the main drivers of CO_2 emission reduction of newly registered passenger cars. EVs reached a share of 23% in 2022 in newly registered passenger cars (EEA 2024c, European Commission 2024).

2. German BEV market development jeopardises the achievement of CO_2 emission targets

According to the European Commission, it is crucial that CO_2 emissions of new passenger cars and vans continue to decrease over the next decade to deliver on the targets set out in the Regulation (EU) 2019/631 and under Regulation (EU) 2023/851 (European Commission 2024, Regulation (EU) 2019/631 recast). The overall share of BEV passenger cars is expected to grow considerably over the coming years in preparation to the 2035 0g CO_2/km target for passenger cars (Eurostat 2024).

While the EEA's data showed a positive development of CO_2 emissions from new passenger cars in 2022, in 2023, the German automobile market, being Europe's biggest with 20% of all newly registered passenger cars in Europe, had to face challenges (statista 2024).

The German market is an important indicator for the further development in the European market of new passenger cars and CO_2 emissions (Autovista24 2024a). In 2023, in the German automobile market showed a divergent development. While registrations of BEVs increased by +11.4% in Germany in 2023 reaching a market share of 18.4%, and hybrid car types reaching 29.5% of all newly registered passenger cars, also petrol-powered cars increased by +13.3%, reaching a share of 34.4% of the newly registered passenger cars in Germany (Autovista24 2024b). Even registrations of diesel passenger cars saw an increase of +3%, reaching 17.1% in 2023 (KBA 2024a, Autovista24 2024b). Instead in 2023, the PHEVs share sharply decreased by -51.5% compared to 2022 (Autovista24 2024b, KBA 2024a). This decrease in PHEVs registrations throughout 2023 can be directly connected to the discontinuation of subsidies for PHEVs at the start of January 2023 (Autovista24 2024a). The abolishment of subsidies for PHEV purchases was accompanied by an increase of internal-combustion engine passenger cars registrations. The increase of registrations of new petrol-powered passenger cars and diesel cars directly led to an increase of the average CO_2 emissions of +4.9% in passenger cars registrations, from 109,6g/km CO_2 emissions of passenger cars in 2022 to 114,9g/km in 2023 (KBA 2024a).

The purchase of BEVs decreased in Germany since September 2023, when subsidies for the purchase of business BEVs stopped. Finally, on 17 December 2023, the German federal government decided to abruptly discontinue its financial support for the purchase of private BEVs under the so-called "Umweltbonus" (environmental bonus) (Autovista24 2024b, BMWK 2023). Since 2016, the "environmental bonus" had subsidized the purchase of 2.1 million EVs. Originally, it was planned to be continued until the end of 2025 with a reduced subsidy amount of EUR 3,000 for BEVs for private use in 2024 (BMWK 2023, Wallner 2024). The decision to end subsidy payments in mid-December 2023 was caused by a German Federal Constitutional Court's ruling. Accordingly, €60 billion had to be removed from the German government's Climate and Transformation fund budget, which was partially earmarked for subsidies for the purchase of privately owned BEVs (Autovista24 2024b). This stop of subsidy payments resulted in a steep decline in BEVs sales, and in January 2024, EVs sales decreased by -54.9% compared to December 2023, while the sales of internal-combustion engine vehicles increased by +9.1% for petrol cars and +9.5% for diesel, showing that German automobile manufacturers partially shifted back their attention to the sale of internal-combustion engine vehicles, while pooling agreements still allow them to meet their specific CO_2 limits under EU legislation (King 2024, EEA 2024c). However, meeting future CO_2 limits might become more difficult for car manufacturers if the BEV sales continue to decline.

3. Incentives for purchasing EVs in other

European countries

In other European countries, some incentives for the purchase of EVs have ended like in Germany. In Norway, the VAT tax exemptions for the purchase of BEVs was discontinued (King 2024). Also in France, subsidies for company buyers have stopped, and the number of vehicles eligible for incentives has been cut by removing export models from the list of EVs, eligible for subsidies, thereby basically avoiding subsidizing Chinese EV imports to France (King 2024). In contrast, Italy and Spain saw their BEV registrations improve in 2023 compared to 2022, although their market share was still below the EU average (Autovista24 2024c). The governments Italy and Spain but also in France intend now to continue subsidies for the purchase of BEVs for private use or they are considering to implementing new incentives in 2024. As the latest figures of newly registered BEVs namely France, Italy and Spain suggest, the registrations of BEVs as passenger cars continue to increase and they are expected to further rises in 2024 (Jacobs 2024).

4. Conclusion and consideration: Impact of discontinued subsidies in Germany and considerations for Japan

The European market share of BEVs and PHEVs combined is forecast to reach 29.4% in 2025, 67.3% in 2030 and 94.5% in 2035 (King 2024).

Germany is still the largest market for BEVs and PHEVs in absolute numbers of new registrations in Europe, although the recent volatile development in BEV sales due to the sudden discontinuation of subsidies for the purchase of BEVs in December 2023 could have a lasting negative impact throughout the year 2024. Furthermore, Europe might become a target of massive Chinese EV exports, which could also lead to pressure on EV prices. This could make BEVs more affordable for a wider group of customers, stimulate sales of EVs and make the EU stay on track to meet the 2035 decarbonisation target in road transport. However, the massive imports of cheaper Chinese EVs could also harm the EU's important automobile manufacturing industry (Cagney 2024). Therefore, the European Commission is preparing measures to introduce higher tariffs on Chinese EVs imports. In the meantime, the EU's car industry is not expected to sell EVs at lower prices and compete with Chinese makers over the BEVs' prices.

Instead, some European car manufacturers seem to focus on offering cheaper combustion-engine cars to boost profits, even if it means that CO_2 emissions for newly registered passenger cars will continue to increase. Consequently, this could jeopardise the 2035 target of 100% zero-emission newly registered passenger cars. In fact, to reach the 2035 target, the number of BEVs will have to increase massively, in the German market but also in other EU Member States (Pontes 2024, Autovista24 2024a). Ultimately, achieving the 2035 CO_2 emission reduction target will depend on the further support of purchases of BEVs by governmental financial incentives.

Considering the situation in Japan, over the past two years, the popularity of BEVs has been growing while the sales of hydrogen-powered cars have decreased (ITA 2024). Japan's Basic Hydrogen Strategy with a target of introducing 800,000 fuel-cell passenger vehicles by 2030 has so far only reached about 8,000 hydrogen cars (Collins 2024). Instead, BEVs have risen in popularity, and the target of introducing 100% environmentally friendly vehicles by 2035 could also be reached by a significant growth in the BEVs sales (Collins 2024).

Therefore, also in Japan, the further reduction of CO_2 emissions of new passenger cars could depend on the further surge in the number of BEVs sales and their purchase could be supported with subsidies or general price reductions for BEVs.

References

Antolini, Andrea (2023): Road/Railways - Environmentally friendly vehicles: European Environment Agency's 2022 provisional data on CO 2 emissions from newly registered passenger cars and vans confirms positive influence of electromobility on CO_2 emission level. In: https://www.jttri.or.jp/2023_topic_europe_0901.pdf, 2023/09/27, accessed 31 May 2024

Autovista24 (2024a): EVs make up quarter of German new-car market in 2023. In: https://autovista24.autovistagroup.com/news/evs-makeup-quarter-of-german-new-car-market-2023/, 14 February 2024, accessed 27 May 2024

Autovista24 (2024b): German new-car registrations plunged in December as EV bonus withdrawn early. In: https://autovista24.autovistagroup.com/news/german-new-car-registrations-plunged-december-ev-bonus-withdrawn-early/, 05 January 2024, accessed 27 May 2024

Autovista24 (2024c): BEV growth key for two of Europe's biggest new-car markets in 2024. In: https://autovista24.autovistagroup.com/news/bev-growth-key-for-two-europes-biggest-new-car-markets/, 04 January 2024, accessed 27 May 2024

Bell, Sebastian (2024a): EV Sales Plummet 14.1% In Germany in Q1, Tesla Does Even Worse. In: https://www.carscoops.com/2024/04/q1-ev-sales-drop-14-1-percent-in-germany-tesla-sales-tumble-37-percent/, April 16, 2024, accessed 27 May 2024

Bell, Sebstian (2024b): EV Sales Plunge 55% In Germany as Incentives Dry Up. In: https://www.carscoops.com/2024/02/ev-sales-in-germany-fall-55-percent-after-incentives-end/, February 10, 2024 accessed 27 May 2024

BMWK (Bundesministerium für Wirtschaft und Klimaschutz, BMWK) (2023): Umweltbonus endet mit Ablauf des 17. Dezember 2023. In: https://www.bmwk.de/Redaktion/DE/Pressemitteilungen/2023/12/20231216-umweltbonus-endet-mit-ablauf-des-17-dezember-2023.html, 16.12.2023, accessed 27 May 2024

Cagney, Donagh (2024): Europe doesn't know whether to tax or subsidise electric cars. In: https://www.euractiv.com/section/transport/news/europe-doesnt-know-whether-to-tax-or-subsidise-electric-cars/, 28 May 2024, accessed 31 May 2024

Collins, Leigh (2024): Hydrogen car sales in Japan have fallen by 83% over the past two years, new figures show. In: https://www.hydrogeninsight.com/transport/exclusive-hydrogen-car-sales-in-japan-have-fallen-by-83-over-the-past-two-years-new-figures-show/2-1-1582966?zephr_sso_ott=Mga5Fn, 15 January 2024, accessed 30 May 2024

Council of the EU (n.d.): Clean and sustainable mobility. In: https://www.consilium.europa.eu/en/policies/clean-and-sustainable-mobility/#Road, no date, accessed 27 May 2024

EEA (European Environment Agency, EEA) (2020): Average CO2 emissions from newly registered motor vehicles in Europe. In: https://www.eea.europa.eu/data-and-maps/indicators/average-co2-emissions-from-motor-vehicles/assessment-2, 13 Aug 2020, accessed 27 May 2024

EEA (European Environment Agency, EEA) (2022a): CO2 performance of new passenger cars in Europe. In: https://www.eea.europa.eu/ims/co2-performance-of-new-passenger, 26 Sep 2022, accessed 27 May 2024

EEA (European Environment Agency, EEA) (2022b): New registrations of electric vehicles in Europe. In: https://www.eea.europa.eu/ims/new-registrations-of-electric-vehicles, 26 Oct 2022, accessed 27 May 2024

European Environment Agency (EEA) (2022c): Monitoring of CO2 emissions from passenger cars - Regulation (EU) 2019/631. In: https://www.eea.europa.eu/data-and-maps/data/co2-cars-emission-22, 04 Oct 2022, accessed 27 May 2024

European Environment Agency (EEA) (2022d): Greenhouse gas emissions from transport in Europe. In: https://www.eea.europa.eu/ims/greenhouse-gas-emissions-from-transport, 26 Oct 2022, accessed 27 May 2024

EEA (European Environment Agency, EEA) (2023a): Average emissions from new cars and vans in Europe continue to fall, according to provisional data. In:https://www.eea.europa.eu/en/newsroom/news/average-emissions-from-new-cars-and-vans, 20 June 2023, accessed 30 May 2024

European Environment Agency (EEA) (2023b): Average carbon dioxide emissions from new cars registered in Europe decreased by 12% in 2020, final data shows. In: https://www.eea.europa.eu/highlights/average-carbon-dioxide-emissions-from/, 07 Feb 2023, accessed 27 May 2024

EEA (European Environment Agency, EEA) (2024a): CO_2 emissions from new passenger cars. CO2 emissions from new passenger cars registered in EU27, Iceland (from 2018) and Norway (from 2019) - Regulation (EU) 2019/631. In: https://co2cars.apps.eea.europa.eu/?source=, 9 March 2024, accessed 27 May 2024

EEA (European Environment Agency, EEA) (2024b): CO_2 emissions from vans. CO2 emissions from new vans registered in EU27, Iceland (from 2018) and Norway (from 2019) - Regulation (EU) 2019/631. In: https://co2vans.apps.eea.europa.eu/?source=, 08 March 2024, accessed 27 May 2024

EEA (2024c): Average CO_2 emissions from new passenger cars and future targets. In: https://www.eea.europa.eu/en/analysis/indicators/co2-performance-of-new-passenger, 18 Mar 2024, accessed 27 May 2024

European Commission (n.d.): CO_2 emission performance standards for cars and vans. In: https://climate.ec.europa.eu/eu-action/transport/road-transport-reducing-co2-emissions-vehicles/co2-emission-performance-standards-cars-and-vans_en, no date, accessed 27 May 2024

European Commission, Directorate-General for Climate Action (2022): CO2 emissions from new cars in Europe plummeted in 2020 as the share of zero- and low-emission cars tripled. In: https://climate.ec.europa.eu/news-your-voice/news/co2-emissions-new-cars-europe-plummeted-2020-share-zero-and-low-emission-cars-tripled-2022-09-26_en, 26 September 2022, accessed 27 May 2024

European Commission, Directorate-General for Climate Action (2023): Carbon dioxide emissions from new cars & vans down in 2022 as zero-emission vehicles gain in popularity. In: https://climate.ec.europa.eu/news-your-voice/news/carbon-dioxide-emissions-new-cars-vans-down-2022-zero-emission-vehicles-gain-popularity-2023-06-20_en, 20 June 2023, accessed 27 May 2024

European Commission, Directorate-General for Climate Action (2024): CO2 emissions from new cars and vans in 2022 down over a quarter since 2019 thanks to growing zero-emission vehicle sales. In: https://climate.ec.europa.eu/news-your-voice/news/co2-emissions-new-cars-and-vans-2022-down-over-quarter-2019-thanks-growing-zero-emission-vehicle-2024-03-18_en, 18 March 2024, accessed 27 May 2024

Eurostat (2024): Battery-only electric cars continued to increase in 2022. In: https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20240123-1, accessed 27 May 2024

ITA (International Trade Administration U.S. Department of Commerce, ITA)(2024): Japan Electric Vehicle Market. In: https://www.trade.gov/market-intelligence/japan-electric-vehicle-market, 06/13/2023, accessed 27 May 2024

Jacobs, Frank (2024): EV incentives in 2024: Europe's major fleet markets. In: https://www.fleeteurope.com/en/new-

energies/europe/features/ev-incentives-2024-europes-major-fleet-markets?a=FJA05&t%5B0%5D=Taxation&t%5B1%5D=EVs&curl=1, 9 January 2024, accessed 31 May 2024

KBA (Kraftfahrzeugbundesamt, KBA) (2024a): Fahrzeugzulassungen im Dezember 2023 - Jahresbilanz. In: https://www.kba.de/DE/Presse/Pressemitteilungen/Fahrzeugzulassungen/2024/pm01_2024_n_12_23_pm_komplett.html;jsessionid=5C34A3D29740F141582F555319578895.live21304?snn=3662144, Pressemitteilung Nr. 01/2024, 04.01.2024, accessed 31 May 2024

KBA (Kraftfahrzeugbundesamt, KBA) (2024b): Neuzulassungen von Personenkraftwagen (Pkw) im Jahresverlauf 2024 nach Marken und alternativen Antrieben, Pressemitteilung Nr. 11/2024. In: https://www.kba.de/DE/Presse/Pressemitteilungen/AlternativeAntriebe/2024/pm11_2024_Antriebe_02_24_komplett.html?snn=3662144, 15. März 2024, accessed 31 May 2024

KBA (Kraftfahrzeugbundesamt, KBA) (2024c): Fahrzeugzulassungen im März 2024. Pressemitteilung Nr. 12/2024. In: https://www.kba.de/DE/Presse/Pressemitteilungen/Fahrzeugzulassungen/2024/pm12_2024_n_03_24_pm_komplett.html?fromStatistic=3504038&yearFilter=2024&monthFilter=03_Maerz, 04.04.2024, accessed 31 May 2024

King, Neil (2024): Growth forecast for European EV market despite incentive impact. In: https://ev-volumes.com/news/ev/growth-forecast-for-european-ev-market-despite-incentive-impact/, 27 Mar 2024, accessed 30 May 2024

Regulation (EU) 2019/631: Regulation (EU) 2019/631 of the European Parliament and of the Council of 17 April 2019 setting CO2 emission performance standards for new passenger cars and for new light commercial vehicles and repealing Regulations (EC) No 443/2009 and (EU) No 510/2011. In: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32019R0631, OJ L 111, 25.4.2019, accessed 27 May 2024

Regulation (EU) 2019/631 recast: Consolidated text: REGULATION (EU) 2019/631 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 April 2019 setting CO2 emission performance standards for new passenger cars and for new light commercial vehicles, and repealing Regulations (EC) No 443/2009 and (EU) No 510/2011 (recast). In: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02019R0631-20231203, 1 April 2024, accessed 27 May 2024

Regulation (EU) 2023/851: Regulation (EU) 2023/851 of the European Parliament and of the Council of April 19, 2023, amending Regulation (EU) 2019/631 as Regards Strengthening the CO2 Emission Performance Standards for New Passenger Cars and Light Commercial Vehicles in Line with the Union's Increased Climate Ambition. In: OJ L 110, 25.4.2023, p. 5-20, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R0851&qid=1685954558646, 25.4.2023, accessed 27 May 2024

Pontes, José (2024): 25% Of New Vehicle Sales Plugin Sales in Germany in 2023! In: https://cleantechnica.com/2024/01/21/25-of-new-vehicle-sales-plugin-sales-in-germany-in-2023/

statista (2024): New passenger car registrations in key European markets in 2022 and 2023 (in units). In: https://www.statista.com/statistics/246350/number-of-new-car-registrations-in-european-countries/, accessed 27 May 2024

Wallner, Irene (2024): BAFA-Förderung für Elektroautos beendet - so geht es 2024 weiter. In:https://www.carwow.de/ratgeber/elektroauto/foerderungen-fuer-e-autos-2020-welche-zuschuesse-gibt-es?utm_keyword=bafa%20f%C3%B6rderung&utm_source=google&utm_medium=cpc&utm_account=4564531884&utm_campaign=16872544770&utm_group=130694009250&utm_keyword=&device=c&campaignid=16872544770&adgroupid=130694009250&gad_source=1&gclid=EAIaIQobChMIs9_v5qCuhgMVca5oCR0q5A0IEAAYASAAEgJhPvD_BwE, 18. Januar 2024, accessed 27 May 2024