IEA-Advanced Motor Fuels
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Drivers and Policies

Transport GHG Emissions Share and Increase

The decarbonization of road transport presents the greatest challenge in Austria compared with other sectors: the greenhouse gas (GHG) emissions associated with road transport have increased by +38% since 1990 mainly because of greater road use (in terms of kilometres driven) in passenger and freight transport. In addition, the amount of fuel sold in Austria but used abroad increased because of higher fuel prices in neighbouring countries. GHG emissions reached their peak in 2005, followed by a period between 2005 and 2012 when GHG emissions decreased because of lower amounts of fuel sold, increased use of biofuels for blending, and an improved fleet with lower specific fuel consumption. Until 2022, GHG emissions from transport had gradually increased again, except for a sharp decrease during the pandemic (2020). Since 2022, GHG emissions have again decreased, leading in 2024 to the lowest value since 2000.

According to Environmental Agency Austria, in 2024, the transport sector in Austria generated GHG emissions of approximately 19.1 million tonnes of carbon dioxide equivalent (CO_2e) (compared with 19.8 million tonnes of CO_2e in 2023). In 2023, emissions decreased by 3.8% (compared with a decrease of 4.6% in 2022, or 21.6 million tonnes of CO_2e) as a consequence of the reduced fuel exports in the heavy commercial vehicle sector. In 2022, 58% of the road transport GHG emissions were caused by passenger cars, 8% by light-duty vehicles, 32% by heavy-duty vehicles and buses, and around 1% by mopeds and motorcycles. Railway, air traffic, shipping, and military accounted for 1% of GHG emissions.

In 2022, biofuels (all types) replaced around 5.75% of fossil fuels sold. This share meets the substitution target of 5.75% of fossil fuel on the market, as stipulated in the Fuel Ordinance, and represents a decline compared with previous years. The relatively low sales volume of pure biofuels is due to its relatively lower commercial competitiveness compared with fossil fuels. In 2022, the use of biofuels resulted in a reduction of approximately 1.32 million tonnes of CO_2 emissions in the transport sector.

Politics: Recent Activities and Developments

Austria is committed to carbon neutrality by 2040 — a goal that requires substantially increased decarbonization efforts across all energy sectors. Especially in the transport sector, a radical turnaround is needed to achieve this political target. For this reason, Austria has adopted a number of measures, including a taxation system that imposes a price penalty on ecologically destructive activities. Enacted in 2021 and described in the National Emissions Trading Act of 2022 (NEHG 2022), the system introduced continuously increasing price penalties for CO_2e, ranging from EUR 30 (USD 32.4) per ton in 2022 to EUR 55 (USD 59.4) per ton in 2025. In 2022, the CO_2 pricing scheme resulted in a price increase of 8.17 cents (including value added tax [VAT]) per litre of petrol (with blending) and 9.0 cents (including VAT) per litre of diesel (with blending).

Beginning in 2026, a European Union (EU)-wide CO_2 emissions trading system will replace national fixed-price rates. In addition, a mandatory procurement of zero-emission vehicles by the public sector is taking effect. Other measures already in place are an increased Normverbrauchsabgabe (NoVA) tax and the “Right to Plug,” which alleviates previous approval hurdles for the installation of charging stations in multi-apartment buildings.

Austria has also developed a number of national strategies in the area of transport, such as the 2030 Mobility Master Plan and the corresponding research and innovation (R&I) Mobility Strategy. Complementary strategic plans for freight transport (the Freight Transport Master Plan 2030) and for hydrogen (the Hydrogen Strategy for Austria) have also been developed. Despite significant efforts, a consistent, overarching activity document listing a full set of measures, their expected contributions, and corresponding key performance indicators (KPIs) (fully describing the path to climate neutrality in 2040) has not been developed.

Austrian Integrated National Energy and Climate Plan

The integrated National Energy and Climate Plan (NECP) is a planning and monitoring instrument of the EU and its member states. The NECP is intended to contribute to improved coordination of

European energy and climate policy and serves as the central instrument for implementing the EU's renewable energy and energy efficiency targets for 2030. For Austria, the current NECP includes measures to support an increase in the share of renewable energy sources in the transport sector. In Austria, the biogenic energy share, in relation to the energy content of diesel, is about 6.3%; for petrol, it is currently about 3.4%. The NECP contains the national plan with a commonly shared vision, national targets and objectives, and policies and measures to ensure the achievement of the national climate targets.

Incentives and Pricing

In July 2008, Austria introduced the NoVA tax for new vehicles. Such taxes — in which a bonus/penalty system for CO_2 emissions is levied when passenger cars are first placed on the domestic market (new car purchase or private import) — provide incentives to purchase vehicles with low CO_2 emissions. New cars that emit less than 87g of CO_2/km are exempt from NoVA. Further reductions of 5g of CO_2/km per year are planned until 2025. Each additional gram/km per year results in a financial penalty of EUR 80 (USD 86.4) on the purchase price of a passenger vehicle. Pure biofuels are exempt from the mineral oil tax. Compressed natural gas (CNG) is also exempt from the mineral oil tax, but it is subject to the lower natural gas tax.

Advanced Motor Fuels Statistics

Fleet Distribution and Number of Vehicles in Austria

2024 marked the fifth time in Austria's history that the total number of motor vehicles registered in the country exceeded 7 million, with 7.43 million registered motor vehicles — an increase of 1.2% or 84,790 vehicles compared with 2023. Passenger vehicles dominate the fleet with 5.23 (compared with 5.19 in 2023) million vehicles (Table 1), representing the largest share (70.5%) of vehicles in Austria.

Fleet numbers demonstrate a slight but continuous trend toward advanced, alternative propulsion systems, especially toward battery electric vehicles (BEVs) and hybrid electric vehicles (HEVs) (Figure 1). For instance, 200,603 BEVs and 242,094 HEVs were registered in 2024, illustrating a positive trend continuing from previous years. The number of vehicles powered by CNG and liquefied petroleum gas (LPG), including bivalent vehicles, decreased in 2024 by 8.2% (420 vehicles), representing a moderate fleet level of 4,694 vehicles (compared with 5,114 in 2023). The number of bivalent vehicles decreased from 2,771 in 2023 to 2,521 in 2024, and the CNG vehicle fleet decreased marginally from 2,342 in 2023 to 2,172 in 2024. With only 62 vehicles (67 in 2023), the fuel cell electric vehicle (FCEV) fleet in Austria is still negligible.

Table 1. Austrian Fleet Distribution of Passenger Vehicles (M1) by Drivetrain, 2018–2024

Drivetrain	2018	2019	2020	2021	2022	2023	2024
Gasoline	2,133,473	2,173,772	2,190,388	2,192,128	2,189,530	2,184,042	2,183,076
Diesel	2,776,333	2,772,854	2,762,273	2,717,475	2,651,280	2,584,985	2,510,099
Electric	20,831	29,523	44,507	76,539	110,225	155,490	200,603
LPG	2	2	2	1	1	1	1
CNG	2,365	2,602	2,753	2,654	2,564	2,342	2,172
Hydrogen (H_2)	24	41	45	55	62	67	62
Bivalent gasoline/ ethanol (E85)	5,769	5,770	5,190	4,878	4,595	4,326	3,424
Bivalent gasoline/LPG	333	330	330	331	331	334	297
Bivalent gasoline/ CNG	3,177	3,143	2,978	2,801	2,616	2,437	2,224
Hybrid gasoline/ electric	34,086	45,645	68,983	108,978	148,284	195,439	257,588
Hybrid diesel/ electric	2,463	6,172	14,378	27,996	41,402	55,543	72,347
Total	4,978,856	5,039,854	5,091,827	5,133,836	5,150,890	5,185,006	5,231,893

Source: Statistik Austria.

New Registrations

In 2024, 253,789 (compared with 239,150 in 2023) new passenger cars were registered. After 2023 with +11.2% (+24,100 vehicles) registrations, 2024 again showed an upward trend of 6.1% (+14,639 vehicles). In 2024, new registrations of petrol-powered vehicles increased by 8.6% (+14,639 units). Registrations of diesel-powered vehicles continued to fall, by 5.2% to 44,132 (versus 46,568 in 2023).

With 44,622 new registrations, all-electric passenger cars showed a decrease of 6.3%. The number of vehicles with hybrid drivetrains also increased (petrol-hybrid: +25.9%, diesel-hybrid: -1.9%). In 2024, the share of all-electric passenger cars was 17.6%; the share of hybrid passenger cars was 31.9%.

Overall, the share of all alternatively powered passenger cars increased to 49.5% (compared with 48.2% in 2023), confirming the transition toward alternative drivetrains.

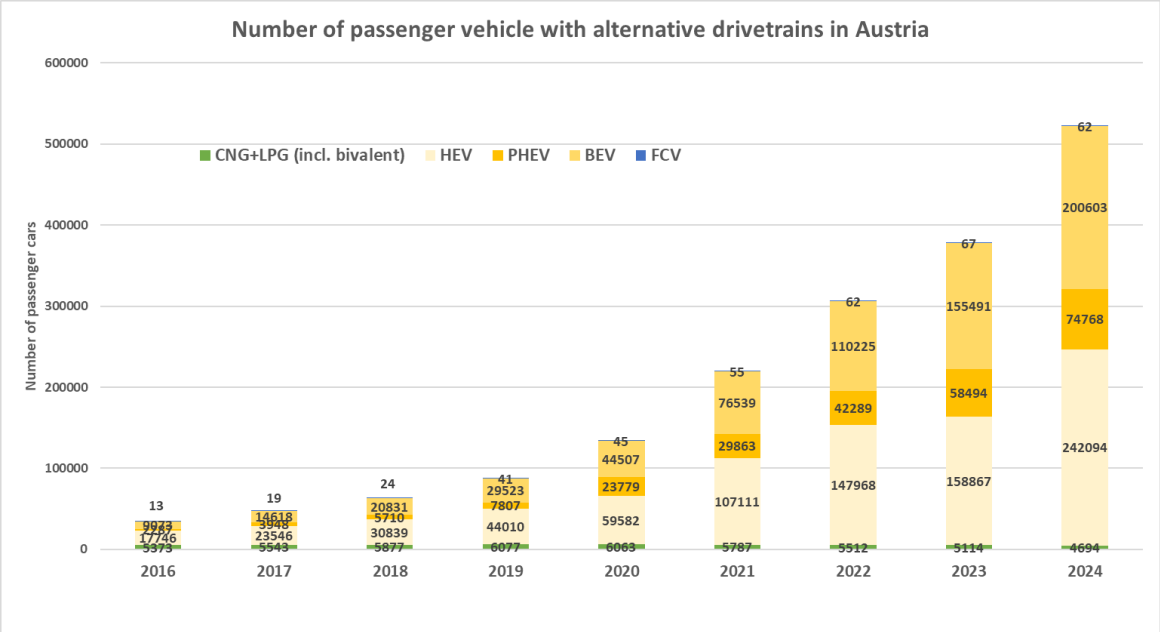

Figure 1. Trends for vehicles with alternative drivetrains in Austria, 2016–2024 (Source: Statistik Austria)

Average CO_2 Emissions of Passenger Cars

In 2024, the CO_2 emissions of newly registered passenger cars measured, on average, 129 g/km (compared with 130 g/km in 2023), based on the Worldwide Harmonised Light Vehicles Test Procedure (WLTP) and excluding electric and hydrogen vehicles. The number drops to 106 g/km (compared with 104 g/km in 2023) if electric and hydrogen vehicles are included in the calculation. The average emissions for petrol-powered M1 vehicles in 2024 is 134 g/km (compared with 138 g/km in 2023); diesel-powered passenger vehicles generate an average of 149 g/km (compared with 146 g/km in 2023).

Development of Filling Stations

By the end of 2023, Austria had 2,751 publicly accessible filling stations (compared with 2,759 in 2022). As an annual average for 2024, the price of gasoline for private use at a filling station was EUR 1.573 (USD 1.699) per liter; the price of diesel was EUR 1.597 (USD 1.725) per liter. In 2024, 79 public CNG stations are available, and 40 LPG filling stations are available (41 in 2023). In addition, six public liquified natural gas (LNG) filling stations are in Ennshafen, St. Marienkirchen, Reichersberg (Upper Austria), Feldkirchen (Styria), Himberg (Lower Austria), and Wals/Salzburg.

Austria has five publicly accessible hydrogen fueling stations (HFSs) all operated by OMV (an Austrian integrated crude oil, natural gas, and petrochemicals group). There are two more H_2 fueling stations, but access for one is limited to companies, commercial enterprises, and municipalities, and the other is dedicated to hydrogen research. Except for the latter, all HFSs support a pressure of 70 MPa.

Research and Demonstration Focus

Energy Model Region

As part of the "Energy Model Region" initiative, made-in-Austria energy technologies are developed and demonstrated in large-scale, real-world applications with international visibility. The Austrian Climate and Energy Fund (KLIEN) invests up to EU 120 million (USD 130 million) in three Energy Model Regions. One of the regions — WIVA P&G — demonstrates the transition of the Austrian economy and energy production to an energy system based heavily on green hydrogen. Particular emphasis is focused on the development of hydrogen transport applications. A project database is available online. The WIVA P&G Energy Model Region forms part of the Mission Innovation Hydrogen Valley family.

klimaaktiv mobil Program

Austria's national action program for mobility management, klimaaktiv mobil, supports the development and implementation of mobility projects and transport initiatives that aim to reduce CO_2 emissions. Since 2004, 21,000 climate-friendly mobility projects have been funded. The klimaaktiv mobil website offers a map with details about each project. In 2024, the klimaaktiv website had a complete relaunch to enhance design, content, and usability. Total financial support until 2024 amounted to EUR 180 million (USD 194 million).

IEA Technology Cooperation Programmes Funding

Austria has been actively involved in the International Energy Agency (IEA) Technology Collaboration Programmes (TCPs) since joining the IEA in 1975. The TCPs are an important complement to Austrian national energy R&I activities and contribute via Task outcomes and recommendations to national priorities. This funding programme fosters Austrian participation in the collaborative work within the IEA, disseminates results, and facilitates networking activities. On a national level, a yearly network event connects the experts who are active in the different IEA TCPs.

R&I Mobility Strategy 2030

The R&I Mobility Strategy 2030 provides financial support for R&I projects and activities for sustainable passenger and freight transport. The strategy focuses on four mission areas: cities, regions, digitalization, and technology. The annual budget ranges from EUR 15 million to EUR 20 million (USD 16.2 million to USD 21.6 million). A project database is available online.

CETP (Clean Energy Transition Partnership)

The Clean Energy Transition Partnership (CET Partnership) is a transnational initiative on joint research, technological development, and Innovation (RTDI) programming to boost and accelerate the energy transition, building upon regional and national RTDI funding programs. It brings together more than 70 partners from 32 countries. An Austrian national requirement for applicants is a clear focus on mobility. The yearly funding sum is around 1.5 to 2.0 Mio. EUR (USD 1.62 million to 2.16 million) for Austrian participants.

SET-Plan IWG (Implementation Working Group) on hydrogen

The Implementation Working Group (IWG) on hydrogen established in 2023 aims to implement part of the Strategic Research and Innovation Agenda (SRIA) of the European Research Area (ERA) pilot on green hydrogen and coordinate the work on hydrogen previously split between different IWGs of the SET Plan.

Outlook

In its government programme, the new Austrian government confirms the goal of reaching carbon neutrality by 2040 — 10 years earlier than the EU. Alternative fuels are indispensable for reaching this ambitious goal. The governmental programme reflects a continuation of measures defined in the Austrian Climate and Energy Strategy to reach this goal.

Advanced motor fuels play a crucial role in the Austrian Climate and Energy Strategy and are considered an essential element for a successful Austrian transition toward sustainable mobility, as acknowledged in the new governmental programme.

The areas of deployment depend on the use case. Electrification is the preferred option for use cases with limited energy requirements, such as passenger cars or light-duty vehicles with limited mileage.

Use cases with high-energy-density demands, such as aviation, waterborne, or non-road mobile machinery applications focus on hydrogen, biofuel, and synthetic and advanced fuels. Although R&I funding schemes and programs are no longer directed at improving internal combustion engine (ICE) drivetrains, they aim to support the improvement and uptake of ICE applications, such as hydrogen, biofuel, and synthetic and advanced fuels for use cases with high-energy-density demands.

Since April 13, 2024, Regulation (EU) 2023/1804 on the deployment of alternative fuels infrastructure has been in force. The regulation outlines a framework for the deployment of charging and refueling infrastructure for road vehicles across the EU. It includes mandatory targets for member states instead of previous indicative targets, thus aiming to solve the uneven distribution of publicly accessible charging infrastructure — a prerequisite for an EU-wide transition toward alternative drivetrains. The new governmental programme states that the new EU Renewable Energy Directive III (RED III) regulation will be implemented as quickly and completely as possible (e.g., through acceleration of authorization procedures).

Additional Information Sources

- Federal Ministry for Innovation, Mobility and Infrastructure, https://www.bmimi.gv.at/