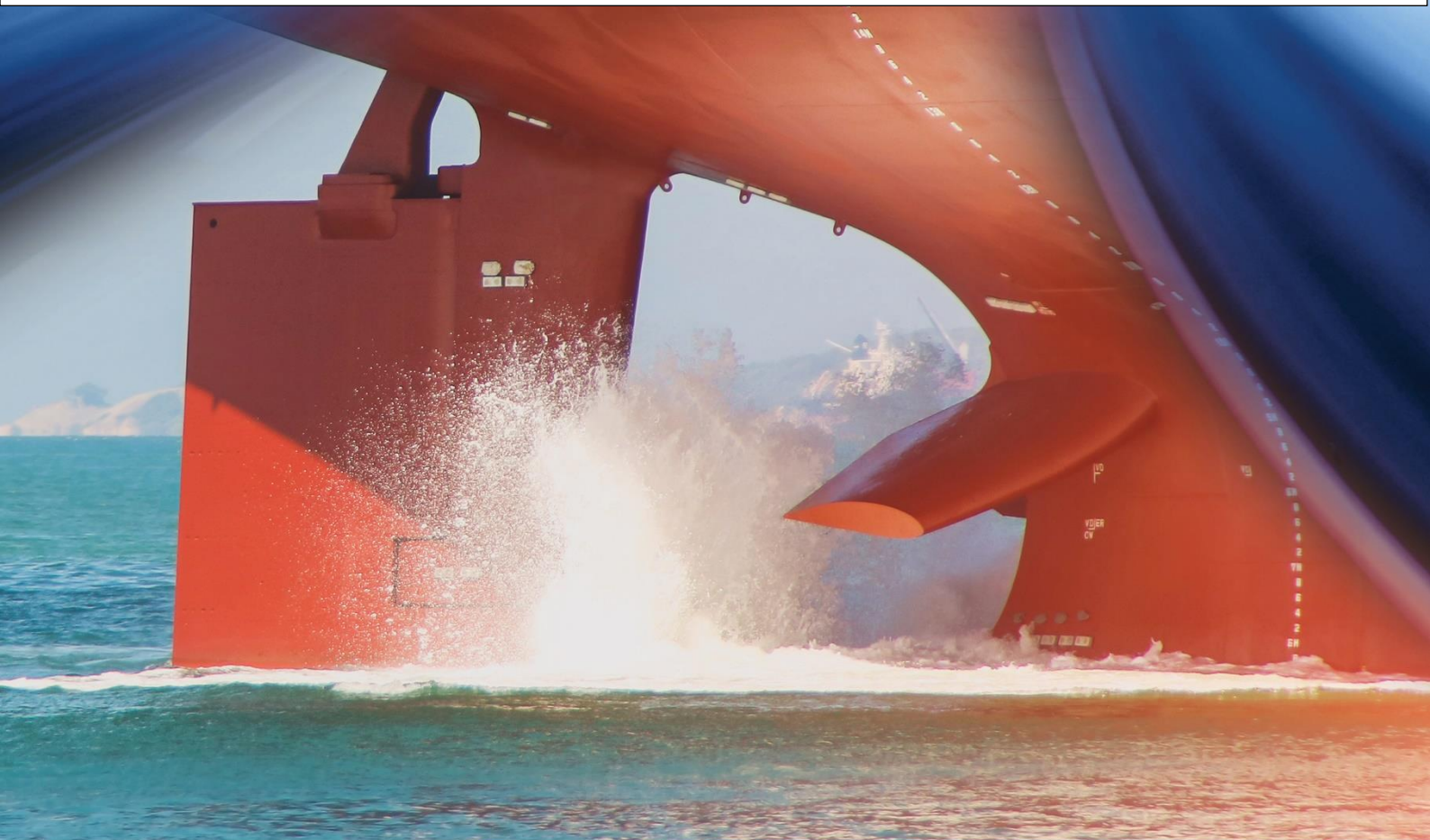


# IEA-Advanced Motor Fuels ANNUAL REPORT 2021

Austria



## Austria

### Drivers and Policies

#### Transport GHG Emissions Share and Increase

The transport sector, being the strongest emitting sector not covered by the European emissions trading system, emitted about 30% of GHG in 2019. Passenger and freight kilometers increase continuously, which is the main reason why GHG emissions in transport have seen an increase of 76% since 1990. Due to reduced economic activities and lock-down restrictions applied as a result of the COVID-19 virus, a significant drop of 9.2% in GHG emissions in the combined energy and transport sector took place from 2019 to 2020. A significant part of this reduction stems from a -11.2% lower consumption of diesel and a drop of gasoline consumption by 17.1%. Due to the starting economic recovery in 2021, fuel consumption increased by 4.4% for diesel and 5.3% for gasoline, according to a market assessment by the [Association of the Mineral Oil Industry \(FVMI\)](#). Therefore, a lasting change of the long-term tendency due to behavioral changes or structural changes during the pandemic year cannot be identified.

#### Politics – Recent activities and developments

Austria is committed to carbon neutrality by 2040. This goal requires substantially increased decarbonization efforts across all energy sectors. Especially in the transport sector, a radical turnaround is needed to contribute to the political aim. Austria, therefore, has adopted a number of measures such as a newly designed taxation system, which puts a price on ecologically destructive activities. In 2021, a new taxation system came into force, which introduces a CO<sub>2</sub> pricing system with a continuously increasing price path from EUR 30 (USD 34.2) per ton CO<sub>2</sub> (2022) up to EUR 55 (USD 62.7) per ton CO<sub>2</sub> (2025). From 2026 onwards, an EU-wide CO<sub>2</sub> emissions trading system will replace national fixed price rates. In addition, an obligatory procurement of zero-emission vehicles by the public sector is taking effect. Other measures already put in place are an increased NoVA tax and the “Right to Plug,” which alleviates previous legal approval hurdles for the installation of charging stations for apartment owners at their vehicle parking space in a multi-apartment building.

National strategies in the area of transport have been developed, such as the Mobility Master Plan and the corresponding RDI Mobility 2030 Strategy. Complementary strategic plans for Freight Transport and Hydrogen are just being completed. Despite significant efforts, a consistent overarching activity document listing measures, their expected contributions and corresponding KPIs (fully describing the path to climate neutrality in 2040) is not available. An updated Austrian National Energy and Climate Plan reflecting the ambitious European Green Deal targets in the *Fit for 55* package (reduction of greenhouse gas emissions by 55% by 2030) might be the nucleus for an aggregation of all planned measures and their expected impact.

#### Austrian Integrated National Energy and Climate Plan (NECP)

The integrated NECP is a planning and monitoring instrument of the EU and its Member States. It is intended to contribute to improved coordination of European energy and climate policy and is the central instrument for implementing the EU’s renewable energy and energy efficiency targets for 2030. For Austria, the NECP main instruments are (1) to increase the share of renewable energy sources in the fuel sector, whereby in Austria the biogenic share in relation to the energy content of diesel is about 6.3%, and for petrol currently about 3.4%, and (2) the Normverbrauchsabgabe (NoVA) tax, in which a bonus/penalty system for CO<sub>2</sub> emissions is levied when passenger cars are first placed on the domestic market (new car purchase or private import), which provides incentives to purchase vehicles with low CO<sub>2</sub> emissions.

#### Taxes and Incentives

Starting in July 2008, the NoVA tax was introduced for taxing the acquisition of new vehicles. As of March 2014, new cars that emit less than 87 g of CO<sub>2</sub>/km are exempt from NoVA. Further reduction steps of 5 g of CO<sub>2</sub>/km per year are planned until 2024. Each additional gram results in a financial penalty of EUR 80 (USD 91) on the purchase price of a passenger vehicle. Pure biofuels are exempt from the mineral oil tax. CNG is exempt from the mineral oil tax as well but is subject to the lower natural gas tax.

## Advanced Motor Fuels Statistics

### Fleet Distribution and Number of Vehicles in Austria

According to provisional figures, for the second time in history, the total fleet of motor vehicles registered in Austria passed seven million, with 7.21 million registered motor vehicles. That is an increase by 1.64% or 116,156 vehicles compared to 2020. Passenger vehicles, the most numerous type of vehicle (share: 71.2%), showed an increase by 0.8% to 5.13 million vehicles (Table 1).

Fleet numbers indicate a continuous trend toward advanced alternative propulsion systems, especially toward BEVs and HEVs (Figure 1). For instance, there were 76,539 BEVs and 107,111 HEVs in Austria in 2021, which shows a continuing positive trend from previous years, and which follows an exponential trajectory. The number of vehicles powered by compressed natural gas (CNG) and liquefied petroleum gas (LPG), including bivalent ones, shows a stable, but very moderate fleet level of 5,787 vehicles (2020: 6,063). There is a continuing slow decrease of bivalent vehicles to 3,132 (2020: 3,308; 2019: 3,474) while the CNG vehicles fleet stays stable with 2,654 (2020: 2,753; 2019: 2,602). With 55 (2020: 45) vehicles, the fuel cell electric vehicle (FCEV) fleet is still negligible.

Table 1. Austrian Fleet Distribution of Passenger Vehicles by Drivetrain, 2016–2021

Drivetrain	2016	2017	2018	2019	2020	2021
Gasoline	2,031,816	2,074,442	2,133,473	2,173,772	2,190,388	2,192,128
Diesel	2,749,038	2,770,470	2,776,333	2,772,854	2,762,273	2,717,475
Electric	9,071	14,618	20,831	29,523	44,507	76,539
LPG	1	2	2	2	2	1
CNG	2,456	2,433	2,365	2,602	2,753	2,654
H2	13	19	24	41	45	55
Bivalent gasoline/ ethanol (E85)	6,165	5,992	5,769	5,770	5,190	4,878
Bivalent gasoline/ LPG	341	335	333	330	330	331
Bivalent gasoline/ CNG	2,574	2,773	3,177	3,143	2,978	2,801
Hybrid gasoline/ electric	18,696	26,039	34,086	45,645	68,983	108,978
Hybrid diesel/ electric	1,337	1,455	2,463	6,172	14,378	27,996
Total	4,821,508	4,898,578	4,978,856	5,039,854	5,091,827	5,133,836

Source: Statistik Austria

### New registrations of alternatively powered passenger cars rise again despite overall trend

In 2021, 239,803 new passenger cars were registered, 3.6% less compared to 2020. Thus new passenger car registrations are 27.2% below the level of the pre-crisis year 2019 and have reached the lowest level in 37 years. The decline is linked to a continuation of the significant decrease in petrol and diesel-fueled passenger cars registrations. The number of petrol-powered passenger cars also fell to 91,478, corresponding to a share of 38.1%, and the number of diesel-powered passenger cars fell to 58,263, corresponding to a share of 35.9%.

Despite the overall trend, at 90,062 cars, the share of all alternatively powered passenger cars increased to 37.6%, thus showing an impressive 17.5 percentage points increase within a year. In absolute numbers, the numbers are even more impressive with an increase of 79.9% compared to 2020's 50,060 cars. Among alternatively powered drives, petrol-hybrid passenger cars (43,051) have an 18.0% share, BEV passenger cars (33,366) have a 13.9% share and diesel-hybrid passenger cars (13,545) have a 5.6% share. Yet the number of newly registered BEVs still do not match the increase in the total fleet number.

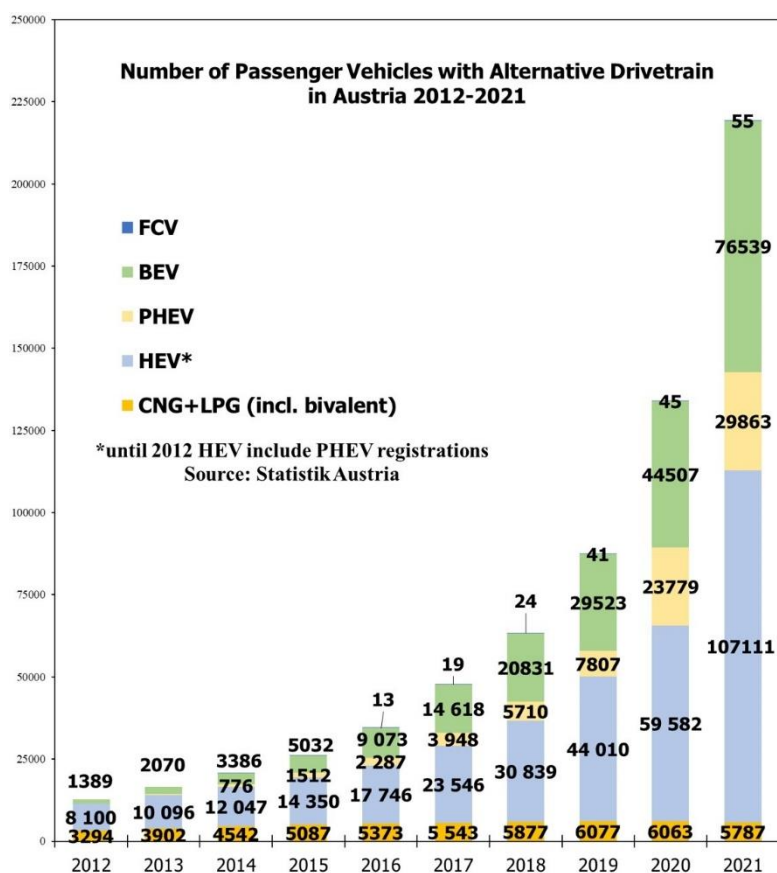


Fig. 1. Trends for vehicles with alternative drivetrains in Austria, 2012-2021

Source: Statistik Austria

### Average CO<sub>2</sub> Emissions of Passenger Cars

In 2021, the average CO<sub>2</sub>-emissions of newly registered passenger cars amounted to 135 g/km, based on the Worldwide Harmonised Light Vehicles Test Procedure (WLTP). (All-electric and hydrogen vehicles were taken into account). The number drops to 116 g/km if electric and hydrogen vehicles are included. The average number for petrol-powered M1 vehicles is 139 g/km (2020: 143 g/km), and diesel-powered passenger vehicles show an average of 150 g/km (2020: 156 g/km).

### Development of Filling Stations

By the end of 2020, Austria had 2,733 publicly accessible filling stations. As an annual average for 2021, the price of gasoline for private use at a filling station was EUR 1.281 (USD 1.46) and the correlating price of diesel was EUR 1,237 (USD 1.34) per liter. With 125 public CNG stations in 2021, the number of public CNG filling stations has continuously decreased in recent years (2020: 149). For LPG, 39 filling stations are available (2020: 37). In addition, three public LNG filling stations in Ennshafen (Upper Austria), Feldkirchen (Styria) and Vienna are in operation.

Austria has seven hydrogen fueling stations (HFSs), of which five are publicly accessible. For one, access is limited to companies, commercial enterprises, and municipalities; another 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. In the coming years, the Austrian Climate and Energy Fund (KLIEN) invests up to EUR 120 million (USD 131 million) in three Energy Model Regions. One such region—WIVA P&G—demonstrates the transition of the Austrian economy and energy production to an energy system based strongly on hydrogen. Particular emphasis is given toward the development of hydrogen transport applications like

in the [HyTruck – Hydrogen Truck Austria](#) project. 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, called [klimaaktiv mobil](#), supports the development and implementation of mobility projects and transport initiatives that aim to reduce CO<sub>2</sub> emissions. Since 2004, 21,000 climate friendly mobility projects have been funded. The klimaaktiv mobil website offers a map with details of each project. Total financial support amounted to EUR 167.5 million (USD 181 million) until the end of 2021.

#### **Energy Research Program**

The [Energy Research Program](#) provides research and innovation funding for the introduction and implementation of climate-relevant and sustainable measures and energy technologies. The strategic research focus is on sectors contributing significantly to GHG emissions, such as the transport sector. In addition, funding is dedicated to the participation of Austrian stakeholders in international organizations like the IEA TCPs.

#### **R&I Mobility Strategy 2030**

The [R&I Mobility Strategy 2030](#) provides financial support for R&I projects and R&I activities on fundamental issues of sustainable passenger and freight transport within the context of the four mission areas: Cities, Regions, Digitalization and Technology. The annual budget is between EUR 15 million and EUR 20 million (USD 16.3 million and USD 21.7 million). A [project database](#) is available online.

#### **ERA-NET Bioenergy**

In the [European Research Area \(ERA-NET\) Bioenergy](#), Austria cooperates with Germany, Poland and Switzerland in funding transnational bioenergy research and innovation projects. Austria's contribution to the recent 14<sup>th</sup> ERA-NET Bioenergy Joint Call amounts to EUR 0.8 million (USD 0.9 million).

### **Outlook**

Austria is committed to reaching carbon neutrality by 2040, 10 years earlier than the EU. The supporting Government Program identifies alternative fuels as indispensable for reaching this ambitious goal. Advanced motor fuels play a crucial role in the Austrian Climate and Energy Strategy and are considered an important element for a successful Austrian transition toward sustainable mobility.

The areas of deployment, though, 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. For the latter RDI funding, schemes are not directed at improving ICE drivetrains any more. Funding programs therefore focus on biofuel and synthetic fuel topics for use cases with high energy density demands, such as aviation or waterborne applications.

At the moment, Alternative Fuels Infrastructure Regulation (AFIR) is being discussed, which will set out the future framework for the deployment of charging and refueling infrastructure across the European Union. The document will include mandatory targets for member states, instead of today's indicative targets.

### **Additional Information Sources**

- Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology, <http://www.bmk.gv.at/>