European Alternative Fuels Observatory

Overview on data collection main characteristics, data quality and contact details[1].

A	Data description (metadata)	
	Data description	European Alternative Fuels Observatory (EAFO) is a platform collecting data on the deployment of alternative fuels (AF) vehicles and infrastructure. EAFO currently provides comprehensive information on alternative fuels use in the road transport sector: AF vehicles fleet, new registrations of AF vehicles by vehicle types: passenger cars (M1), light duty vehicles (N1), heavy duty vehicles (N2 and N3), buses and coaches (M2 and M3) and light vehicles (L), as well as on the deployment of AF infrastructure by type of energy: electricity, hydrogen, natural gas and LPG. Additionally, EAFO collects data about total vehicle registrations and total fleet (including all power trains), to calculate market and fleet share KPIs of AFs. Gradually, EAFO intends to provide alternative fuels information for all transport modes, as well as increase the granularity of the data. Currently, succinct information is provided about alternative fuels infrastructure in maritime and inland waterway shipping and the electrification of railways. The portal contains also other sections with data and information aimed at policy makers, consumers, and other stakeholders (BEV models available for purchase, BEV model statistics, recharging prices).
	Statistical population	The statistical population is represented by alternative fuels vehicles broken down by type of vehicle: passenger cars (M1), vans (N1), heavy goods vehicles (N2 and N3), light vehicles (L), as well as alternative fuels infrastructure: recharging stations and refuelling stations for hydrogen, natural gas, and LPG.
	Reference period	The reference period varies by category: The following data are monthly: registrations of alternatively fuelled vehicles for passenger and light commercial vehicles and recharging infrastructure and hydrogen refuelling infrastructure. The following data are quarterly: the fleet of alternatively fuelled vehicles; registration of buses and heavy-duty vehicles; ; CNG, LNG, and LPG refuelling infrastructure.
	Frequency of dissemination	The frequency of dissemination corresponds to the reference period (please see above).
	Geographical reference area	The indicators are available for the EU-27 countries, EFTA countries, Türkiye and the UK. Aggregates are calculated for the EU-27, and country comparison is available for all 33 countries. Gradually, more countries will be added.
	Unit of measure	The unit of measure for EAFO data includes total numbers of alternatively fuelled vehicles (BEV, PHEV, H2, LPG, CNG, LNG) for passenger cars (M1), vans (N1), buses (M2 & M3), and trucks (N2 & N3), expressed in units. Fleet shares and year-over-year growth rates are given as percentages. New registrations are measured in units and as a percentage of total registrations. For infrastructure, the total number of recharging points (AC/DC) and hydrogen, CNG, and LNG refuelling stations are reported in units. Ratios of vehicles per refuelling

[1] The document refers to road data only.

		point are calculated for hydrogen and natural gas. Growth rates for recharging and refuelling infrastructure are expressed as percentages. This framework provides a clear view of alternative fuel adoption and infrastructure trends.
	Basic statistical concepts and definitions	The EAFO database provides statistical variables across vehicle fleets, new registrations, and infrastructure categories. Key variables include: 1. **Fleet Variables**: These measure the total number of alternatively fuelled vehicles (AFVs), categorised by fuel type (BEV, PHEV, H2, LPG, CNG, LNG) and vehicle type (M1, N1, M2, M3, N2, N3). The data includes absolute numbers, fleet share percentages, and year-over-year growth rates. 2. **New Registration Variables**: These include the total number of newly registered AFVs by fuel type and vehicle type. Variables also include the market share of AFVs as a percentage of total registrations and year-over-year changes. 3. **Infrastructure Variables**: These encompass the total number of recharging points (AC/DC) and refuelling stations (H2, CNG, LNG), as well as ratios such as vehicles per refuelling or recharging point. Growth rates for infrastructure development are also calculated.
	Classifications used	The classification of vehicles follows the UNECE vehicle categorisation: • L: Motor vehicles with less than four wheels and some lightweight four-wheelers. • M: Power-driven vehicles having at least four wheels and used for the carriage of passenger: - M1: Power-driven vehicles having at least four wheels and used for the carriage of passengers. - M2: Vehicles used for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a maximum mass not exceeding 5 tonnes. - M3: Vehicles used for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a maximum mass exceeding 5 tonnes. • N: Power-driven vehicles having at least four wheels and used for the carriage of goods: - N1: Vehicles used for the carriage of goods and having a maximum mass not exceeding 3.5 tonnes. - N2: Vehicles used for the carriage of goods and having a maximum mass exceeding 3.5 tonnes but not exceeding 12 tonnes. - N3: Vehicles used for the carriage of goods and having a maximum mass exceeding 12 tonnes. The definition of the recharging systems and the alternative fuels categorisation follow the Regulation on the deployment of alternative fuels infrastructure: - alternative fossils fuels for a transitional phase: natural gas, in gaseous form (compressed natural gas and liquefied form gas), liquefied petroleum gas (LPG), synthetic and paraffinic fuels produced from non-renewable energy; - alternative fuels for zero-emission vehicles: electricity, hydrogen and ammonia; - renewable fuels: biomass fuels and biofuels.
	Statistical Confidentiality	The data collected by EAFO do not contain personal or identity data.
B	**Data quality**	
	Relevance	The data on the portal aims to support the European Commission in the implementation process of Regulation (EU) 2023/1804 on the deployment of alternative fuels infrastructure. The data on EAFO is also used by various Commission services, such as the JRC or Eurostat, and tools, e.g. the TENtec interactive map viewer.

Timeliness	The monthly and quarterly data are made available approximately 45 days after the end of the month or the quarter.
Accuracy and reliability	All data are collected, and quality checked by an external consortium managing the portal. The EAFO dataset relies on a combination of public data sources and supplementary datasets from trusted third-party providers. ***Source Data:*** The data are primarily derived from national statistical offices, transport ministries, and regulatory authorities across European countries. Additional inputs are sourced from vehicle registration databases, charging infrastructure operators, and independent market research organisations. These administrative registers serve as the foundation for fleet statistics, new registrations, and infrastructure reporting. The main source for data on recharging infrastructure is Eco-movement, GibGas for natural gas, H2-map for hydrogen and MyLPG.eu for LPG. Public Registers: These sources are chosen for their comprehensive coverage and direct alignment with the reporting objectives. Data from these registers often originates from government-mandated reporting obligations, ensuring consistency and completeness. However, potential deficiencies, such as delayed reporting or inconsistent definitions across countries, are mitigated through harmonisation efforts and validation protocols implemented by EAFO. Potential Deficiencies and Solutions: Variations in data granularity and definitions between Member States are addressed through standardisation processes. Where gaps exist, EAFO employs estimation methods or collaborates with data providers to refine the accuracy. In the section on Sources the data providers are listed for each Member State. ***Data collection and methods used:*** EAFO employs a data aggregation and validation approach rather than direct data collection from respondents. Data is sourced through collaboration with national authorities, industry organisations, and independent market analysts. Administrative Data Integration: Primary data is collected from administrative sources, including government vehicle registration systems, infrastructure operator reports, and official energy statistics. This ensures the use of standardised, comprehensive datasets. Data Aggregation from Stakeholders: EAFO collaborates with charging infrastructure providers, vehicle manufacturers, and energy operators to gather supplementary data. These stakeholders provide datasets through structured reporting formats to ensure consistency and comparability. Validation and Harmonisation: Rigorous validation processes are applied to ensure data reliability. Methods include cross-checking against historical trends, reconciling inconsistencies between sources (ACEA, Eurostat, ITF, UNECE, etc.), and applying harmonised definitions for alternative fuels. Monitoring and Quality Assurance: EAFO continuously monitors for gaps or anomalies in data submissions. In cases of non-response or data insufficiencies, estimation techniques or proxy measures are employed.
Accessibility and clarity	***Publications***: Key datasets, including vehicle fleet statistics, registration trends, and infrastructure developments, are updated and published on a consistent schedule. Updates are made available on the 15th day of each month, ensuring timely access to the latest information. These updates cover quarterly fleet data and monthly registrations and infrastructure statistics, all accessible via the EAFO website. EAFO also publishes special reports or thematic studies in response to emerging trends, regulatory changes, or stakeholder requests. These reports provide in-depth analysis and contextual insights, complementing regularly updated data. Data is presented in the form of graphs and maps, ensuring visual clarity and ease of interpretation. Additionally, users have the option to view data in table format or download it as Excel (xls) or CSV files, providing flexibility for analysis. A limited number of indicators about the share of zero-emission vehicles are re-disseminated by Eurostat. These are available in the dataset " New zero-emission vehicles by type of vehicle and type of motor energy" ensuring alignment with

		broader European statistical resources.
	Coherence and comparability	***Geographical***: Data coverage varies across countries and regions, which may impact comparability. For instance, data from certain territories, such as French overseas departments, are not included in national totals or EU aggregates, leading to slight discrepancies in reported figures. These omissions are noted where applicable, and their overall effect on EU-wide metrics is minimal but should still be acknowledged when interpreting results. EAFO continues to work with Member States to improve data consistency and completeness across all regions. Data are generally accepted as having a high level of comparability between countries. These data should however be reliable over time for any given country. ***Over time***: EAFO offers consistent time series data; however, methodological adjustments can affect comparability over time. For example, changes in the methodology for counting recharging infrastructure were introduced post-2020. In line with Annex III of AFIR, recharging points are now categorised and counted by precise power levels and subcategories, with data sourced directly from CPOs to ensure accuracy. Annual data on new registrations is available as of 2008 for all EU countries. Monthly registration data is available since 2018. Registration data is available on a model level for BEV, PHEV and FCEV powertrains for the vehicle categories M1 and N1. Data on AF infrastructure is available as of 2012.
C	**Contact and update**	
	Contact organisation	DG MOVE Unit B4 Sustainable & Intelligent Transport
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	Metadata update	9 January 2025