

Monthly EV sales: methodology

Ember, October 2026. Covers the Monthly EV sales dataset and the EV Sales Data Tracker.

1. Overview

Ember compiles monthly new car registrations by drivetrain for 56 countries, the European Union and the World, from national vehicle registration authorities, statistics offices and industry associations. From these, Ember estimates each country's electric vehicle (EV) fleet, the electricity that fleet uses and the oil it displaces.

Battery electric vehicles (BEVs) run entirely on electricity and have a larger impact on oil demand than plug-in hybrids (PHEVs). Both count as electric vehicles in the data and the tracker, and each is also shown separately.

The data are updated monthly as publishers release new figures, typically two to six weeks after the end of the month. The latest available month therefore differs between countries. Already published figures can be subject to revisions.

2. Registrations

The data count **new passenger cars registered for the first time in the month**. The tracker and the dataset refer to these as sales. Where a publisher only reports a different measure (all car sales, wholesales or customs imports) or a different set of vehicles (light commercial vehicles, pickups, imported used cars), the data are used as published and the country notes (section 9) say so. Figures are collected to a common scope where possible.

Series start between 2005 and 2024 depending on the country. The smaller EU markets start in 2023.

3. Drivetrains

Each car is assigned one of these drivetrains.

Drivetrain	Includes
Battery electric	Cars powered only by a battery charged from the grid
Plug-in hybrid	Cars with a combustion engine and a battery charged from the grid. Range-extended EVs are included as the publisher reports them, in most cases with plug-in hybrids.
Hybrid	Cars with a combustion engine and a battery that cannot be plugged in. Includes full hybrids and, in most sources, mild hybrids.
Petrol, Diesel	Other combustion cars, by fuel
Ethanol/petrol blend	Flex-fuel and high-ethanol cars (Brazil, India)
Combustion (unspecified)	Combustion cars where the publisher gives no petrol/diesel split. For World, every car that is not battery electric or plug-in hybrid.
Other	Hydrogen fuel cell, gas (LPG, CNG) and unclassified cars

The dataset contains two aggregates: **Electric vehicle (BEV+PHEV)** and **All drivetrains**. Shares are always calculated relative to All drivetrains.

Drivetrains are mapped from each publisher's own categories. Where a publisher does not separate a drivetrain, its cars stay where the publisher reports them. Some publishers fold plug-in hybrids into Hybrid, and some count full or mild hybrids within petrol and diesel. The country notes list these cases.

A plug-in hybrid is driven partly on fuel. The impact estimates assume 35% of its distance is electric (55% in China), so a plug-in hybrid displaces roughly a third as much oil as a battery electric car.

4. Metrics

For each country or region, month and drivetrain, the data include:

- **Registrations** and their change from the same month a year earlier, in number and %.
- **Share of registrations**, the drivetrain's registrations as a percentage of All drivetrains.
- **Year-to-date** registrations and share for the calendar year, resetting each January.
- **Rolling 12-month** registrations and share over the latest 12 months, shown once at least 12 months are available. The rolling share removes seasonal swings.

A drivetrain that a country reports in some months but not in others is set to zero in the months it is absent.

5. Regional aggregates

European Union

The EU is the sum of the 27 member states. Members without a national source in this dataset come from the monthly press releases of the European Automobile Manufacturers' Association (ACEA), which cover all EU markets with the same drivetrain split. A month is published when all members are present, or when the missing members make up less than 1% of EU registrations. Missing members are then carried forward from their previous month. The EU series starts in January 2023.

World

Not every market is observed, so World is an estimate. The registrations of the countries in this dataset are scaled up to annual global car sales from the IEA's [Global EV Data Explorer](#), separately for battery electric, plug-in hybrid and all other cars.

For each month and each of the three groups:

1. The reference year is the month's year, or the latest year in the IEA data if that is earlier.
2. Take the countries that report the month and have a complete reference year.
3. Scale factor = global sales in the reference year ÷ those countries' sales in the reference year.
4. World registrations in the month = those countries' registrations in the month × the factor.

Because the factor is recomputed from the countries present each month, a country that has not yet reported is estimated implicitly rather than left out. The countries covered account for about 60% of global car sales in 2019, rising to about 80% in 2025. Months where they cover less than 60% are not published.

Only battery electric, plug-in hybrid and Combustion (unspecified) are published for World. The global totals cover all other cars together, but not their split into petrol, diesel, hybrid and other.

6. EV fleet

The current EV fleet is an Ember estimate. It starts from the latest published year-end fleet, from Eurostat or the IEA, adds the cars registered since and subtracts the cars estimated to have left the fleet. Battery electric and plug-in hybrid fleets are estimated separately for each country and region.

$$\text{fleet}(\text{month}) = \text{year-end fleet} \times (1 - \text{attrition} \div 12 \times \text{months since year-end}) \\ + \text{registrations since year-end}$$

- **Year-end fleet.** Each country and drivetrain uses one source. For most European countries and the EU, this is Eurostat's vehicle register statistics (passenger cars by type of motor energy at 31 December,

dataset road_eqs_carpda). For other countries and the World, it is the EV stock in the IEA's Global EV Data Explorer. The latest year-end published at or before the previous December is used.

- **Attrition** is the net rate at which cars leave the fleet through scrapping and used exports, less used imports. It is derived from consecutive year-ends as (previous year-end + that year's registrations - year-end) ÷ previous year-end, bounded between -10% and +25% a year. It is positive where cars are scrapped or exported (Germany, United Kingdom) and negative where used EVs are imported (Denmark, the Netherlands, the Baltic states). For the current year, the average of the last three rates is used. Where no rate can be derived, attrition is 1.5% a year. It applies to the opening fleet, spread evenly over the year.
- Months missing from a country's registrations are filled with the same month a year earlier, or the mean of the nearest reported months.
- Where no year-end fleet is published (Ecuador, Nepal, Peru, Taiwan, Ukraine, Uruguay), the fleet is the sum of registrations since the series starts. This generally represents a lower bound.
- The World fleet uses the World registrations estimate (section 5) as its additions.

7. Electricity demand and oil displaced

The estimates follow Ember's EV oil-displacement methodology. They are calculated for the fleet of each country and drivetrain and then summed.

Quantity	Calculation
Distance per EV (km/yr)	Average distance per car × EV mileage ratio
Electric distance (km/yr)	Fleet × electric share × distance per EV. The electric share is 1 for BEVs and 0.35 for PHEVs (unless otherwise specified).
Electricity demand (GWh/yr)	Electric distance × EV energy intensity (kWh/100 km) ÷ 100 ÷ 10 ⁶
Fuel avoided (litres/yr)	Electric distance × counterfactual energy intensity (l/100 km) ÷ 100
Oil displaced (barrels of oil equivalent/yr)	Fuel avoided × petroleum share of the fuel blend × 9.3 kWh per litre × 1.09 (upstream losses) ÷ 1,700 kWh per barrel of oil equivalent
Value of oil displaced (USD/yr)	Oil displaced × Brent price

Assumptions. Values are country-specific where evidence exists, otherwise regional or global defaults. The average distance per car is national for most European countries and for the United States (18,000 km), China (12,300 km) and Japan (8,000 km), and 12,000 km elsewhere. The EV mileage ratio reflects that EVs are newer than the average car and are driven more. It is 1.3 in Europe, 1.0 in China, 0.8 in the United States and 1.2 elsewhere. Plug-in hybrids drive 35% of their distance on electricity (55% in China). Energy intensity is the test-cycle value for new cars from the Global Fuel Economy Initiative, by country where available, raised by 25% (EVs) and 20% (combustion cars) to reflect real-world conditions. The resulting EV energy intensity is 18–29 kWh/100 km, and the counterfactual combustion car uses 6–12 l/100 km. The petroleum share of the road-fuel blend removes biofuels. It is 0.80 in Brazil, 0.93 in the United States, 0.95 in the EU and the UK, and 1 elsewhere.

- Oil displaced is in barrels of crude oil equivalent. It includes the oil used to extract, refine and transport the fuel, taken as 9% of the fuel's energy (OPGEE, JEC).
- A barrel of petrol holds about 13% less energy than a barrel of crude oil. Oil displaced is therefore about 5% below the volume of fuel avoided.
- Oil displaced is a gross figure, so the fuel used to generate the electricity is not subtracted.
- The value of oil displaced uses one price for every country, the average Brent spot price over the latest six months (US Energy Information Administration).

- EU and World figures are built bottom-up. Member countries are summed, with a country whose latest month lags carried forward. Any part of the region's fleet not covered by member countries is modelled with the region's default assumptions.

8. Data files

monthly_ev_sales.csv has one row per country or region, month and drivetrain.

Column	Description
Area, ISO 3 code, Area type	Country or region, its ISO 3166 alpha-3 code, and "Country or economy" or "Region"
Date	First day of the month
Drivetrain, Is aggregate drivetrain	Drivetrain (section 3). Aggregates are Electric vehicle (BEV+PHEV) and All drivetrains.
Registrations	New registrations in the month
Registrations YoY change, Registrations YoY change (%)	Change from the same month a year earlier
Share of registrations (%)	Share of All drivetrains in the month
Year-to-date registrations, Year-to-date share of registrations (%)	Calendar year to date
Rolling 12-month registrations, Rolling 12-month share of registrations (%)	Latest 12 months. Blank until at least 12 months are available.
Continent, Ember region, EU / OECD / G20 / G7 / ASEAN member	Groupings

monthly_ev_fleet_impact.csv has one row per country or region, for its latest available month.

Column	Description
Area, ISO 3 code, Area type	As above
Latest available date	First day of the latest month with registrations data
EV fleet (vehicles)	Ember's estimate of the battery electric and plug-in hybrid fleet (section 6)
EV fleet electricity demand (GWh per year)	Annual electricity demand of that fleet
Oil displaced (thousand barrels of oil equivalent per year)	Annual oil displaced by that fleet, in barrels of crude oil equivalent
Value of oil displaced (USD million per year)	At the Brent price in the next column
Brent price 6-month average (USD/bbl)	Average Brent spot price over the latest six months

9. Country sources and notes

Sources are listed by publisher, with the years each covers where the source changes. Where data reach Ember through Robbie Andrew's vehicle registration data, the original publisher is named.

Country or region	Sources	Notes
World	Ember estimate from the country series in this dataset, scaled to annual global totals from the IEA's Global EV Data Explorer.	Estimated by scaling the countries covered (about 80% of global car sales) up to annual global car sales. All cars other than battery electric and plug-in hybrid, including hybrids, are shown as Combustion (unspecified).

Country or region	Sources	Notes
EU	Sum of the member states' series in this dataset, with the European Automobile Manufacturers' Association (ACEA) for members without a national source.	Sum of the 27 member states. A small member missing in a month (under 1% of the EU market) is carried forward from its previous month.
Albania	General Directorate of Road Transport Services (DPSHTRR), via Robbie Andrew's vehicle registration data	
Australia	Federal Chamber of Automotive Industries (FCAI) VFACTS, as reported by CarExpert; to January 2025 via Robbie Andrew's vehicle registration data	All new light vehicles, including utes and light commercial vehicles.
Austria	ACEA from 2023; Statistics Austria (2018–2022), via Robbie Andrew's vehicle registration data	
Belgium	ACEA from 2023; FPS Mobility and Transport (2013–2022), via Robbie Andrew's vehicle registration data	Mild hybrids are in Hybrid before 2023 and within petrol and diesel from 2023, when the source changes.
Brazil	Brazilian Automotive Industry Association (ANFAVEA); to 2023 via Robbie Andrew's vehicle registration data	Cars and light commercial vehicles. Flex-fuel cars, most of the market, are shown as Ethanol/petrol blend.
Bulgaria	European Automobile Manufacturers' Association (ACEA)	
Chile	National Automotive Association of Chile (ANAC)	Light and medium vehicles, including light commercial vehicles.
China	China Passenger Car Association (CPCA), via Robbie Andrew's vehicle registration data	Non-plug-in hybrids are included in Combustion (unspecified).
Colombia	National Business Association of Colombia (ANDI), via Robbie Andrew's vehicle registration data	Plug-in hybrids are not reported separately and are included in Hybrid.
Croatia	European Automobile Manufacturers' Association (ACEA)	
Cyprus	European Automobile Manufacturers' Association (ACEA)	
Czechia	Car Importers Association (SDA)	Before 2018, plug-in hybrids are included in Hybrid. From 2018, full hybrids are counted within petrol and diesel.
Denmark	Statistics Denmark	Hybrids are counted within petrol and diesel.
Ecuador	Association of Automotive Companies of Ecuador (AEADE), via Robbie Andrew's vehicle registration data	Plug-in hybrids are not reported separately and are included in Hybrid.
Estonia	European Automobile Manufacturers' Association (ACEA)	
Finland	Finnish Transport and Communications Agency (Traficom)	Hybrids are counted within petrol and diesel.
France	French Ministry for the Ecological Transition, statistics service (SDES)	
Germany	Federal Motor Transport Authority (KBA)	
Greece	European Automobile Manufacturers' Association (ACEA)	
Hungary	European Automobile Manufacturers' Association (ACEA)	

Country or region	Sources	Notes
Iceland	European Automobile Manufacturers' Association (ACEA)	
India	Ministry of Road Transport and Highways (Vahan dashboard)	From 2025, most new petrol cars are registered as E20 and shown as Ethanol/petrol blend, so the fall in Petrol is a change of fuel label. CNG cars are in Other.
Indonesia	Association of Indonesia Automotive Industries (GAIKINDO), via Robbie Andrew's vehicle registration data	Wholesales (factory to dealer), not registrations.
Ireland	Society of the Irish Motor Industry (SIMI); to 2023 via Robbie Andrew's vehicle registration data	
Israel	Israel Vehicle Importers Association, via Robbie Andrew's vehicle registration data	
Italy	UNRAE (association of foreign vehicle makers in Italy)	LPG and natural gas cars, about 8% of the market, are in Other.
Japan	Japan Automobile Dealers Association (JADA); to 2021 via Robbie Andrew's vehicle registration data	Excludes kei cars, about a third of new car sales.
Latvia	European Automobile Manufacturers' Association (ACEA)	From 2025, hybrids are counted within petrol.
Lithuania	European Automobile Manufacturers' Association (ACEA)	In 2023, plug-in hybrids are included in Hybrid.
Luxembourg	ACEA from 2023; STATEC (2010–2022), via Robbie Andrew's vehicle registration data	
Malaysia	Road Transport Department (JPJ), via data.gov.my	Includes pickups and vans. Plug-in hybrids are not reported separately and are included in Hybrid.
Malta	European Automobile Manufacturers' Association (ACEA)	
Mexico	National Institute of Statistics and Geography (INEGI)	Excludes BYD and Tesla, and Chirey and Omoda from May 2025, which do not report to INEGI, so EV sales are understated.
Nepal	Department of Customs, via Robbie Andrew's vehicle registration data	Vehicle imports from customs records, not registrations.
Netherlands	Netherlands Vehicle Authority (RDW) from 2024; Netherlands Enterprise Agency (RVO) (2018–2023), via Robbie Andrew's vehicle registration data	Before 2024, hybrids are counted within petrol and diesel.
New Zealand	NZ Transport Agency Waka Kotahi (NZTA)	Includes imported used cars at their first New Zealand registration, which lowers the EV share.
Norway	Norwegian Road Traffic Information Council (OFV), via Robbie Andrew's vehicle registration data	
Peru	Peruvian Automotive Association (AAP), via Robbie Andrew's vehicle registration data	
Poland	Polish Automotive Industry Association (PZPM), from the Central Vehicle Register, via Robbie Andrew's vehicle registration data	
Portugal	Automobile Association of Portugal (ACAP), via Robbie Andrew's vehicle registration data	

Country or region	Sources	Notes
Romania	European Automobile Manufacturers' Association (ACEA)	Plug-in hybrids are not reported separately and are included in Hybrid.
Singapore	Land Transport Authority (LTA); 2023–2025 via New AutoMotive's compilation of the same data	
Slovakia	European Automobile Manufacturers' Association (ACEA)	
Slovenia	European Automobile Manufacturers' Association (ACEA)	
South Korea	Ministry of Trade, Industry and Energy (MOTIE); to May 2026 via Robbie Andrew's vehicle registration data	Domestic sales of all vehicle types, including commercial vehicles.
Spain	Directorate-General for Traffic (DGT)	
Sweden	Statistics Sweden (SCB)	
Switzerland	auto-schweiz from 2024; Federal Statistical Office (FSO) (2005–2023), via Robbie Andrew's vehicle registration data	
Taiwan (China)	Highway Bureau, Ministry of Transportation and Communications (THB); to 2024 via Robbie Andrew's vehicle registration data	From 2025, plug-in hybrids are included in Hybrid.
Thailand	Department of Land Transport registrations, published by the Thailand Automotive Institute	Includes pickup trucks, about half the market, which lowers the EV share.
Türkiye	Turkish Statistical Institute (TÜİK); plug-in hybrid split from the Automotive Distributors' and Mobility Association (ODMD)	Plug-in hybrids are estimated from ODMD's monthly plug-in share of hybrid sales. Before 2024, all hybrids are in Hybrid.
Ukraine	Ministry of Internal Affairs vehicle register (data.gov.ua), via Robbie Andrew's vehicle registration data	Includes imported used cars at their first registration in Ukraine. Plug-in hybrids are not reported separately and are included in Hybrid.
United Kingdom	Society of Motor Manufacturers and Traders (SMMT); to May 2026 via Robbie Andrew's vehicle registration data	Mild hybrids are counted within petrol and diesel. Hybrid covers full hybrids only.
United States	Argonne National Laboratory	Light-duty vehicles (cars, SUVs, pickups and vans), not only passenger cars.
Uruguay	Automotive Trade Association of Uruguay (ACAU), via Robbie Andrew's vehicle registration data	Plug-in hybrids are not reported separately and are included in Hybrid.
Viet Nam	Vietnam Automobile Manufacturers' Association (VAMA), VinFast and TC Group, via Robbie Andrew's vehicle registration data	Covers VAMA members, VinFast and Hyundai (TC Group) only, so other brands are missing. Plug-in hybrids are not reported separately.

10. Limitations

- Scope differs between publishers (light vehicles or passenger cars, imported used cars, sales or registrations) and is not adjusted. Shares are more comparable across countries than totals.
- World is an estimate. The covered countries' mix is scaled to annual global totals, which are published rounded.
- Fleet estimates inherit the uncertainty of the year-end fleet figures, which are revised. Where attrition reaches its bounds, the December estimate will not match the next published year-end.

- The impact estimates use new-car test-cycle energy intensity as a fleet average and one mileage ratio for battery electric and plug-in hybrid cars.
- Oil displaced in barrels of crude oil equivalent is not directly comparable with estimates in barrels of refined product.

11. Data use and acknowledgements

The original publishers remain the source of truth for their data. This dataset and the EV Sales Data Tracker only aim to compile them into a comparable, up-to-date dataset that enables comparative analysis of the electrification of the transport sector.

Cite as: Ember (2026), Monthly EV sales. Licence: [CC BY 4.0](#).

Ember thanks the national publishers listed in section 9, and Robbie Andrew (CICERO), whose [vehicle registration data](#) supply the history for several countries and the full series for others. Ember also thanks New AutoMotive for Singapore's 2023–2025 data. Ember's fleet estimates start from year-end totals from Eurostat for most European countries and the EU, and from IEA (2026), Global EV Data Explorer, IEA, Paris, for other countries and the World. The annual World sales totals also come from the IEA data. The monthly World figures are Ember estimates (section 5). The European Alternative Fuels Observatory's figures were used to validate the European series.