acea
DRIVING MOBILITY FOR EUROPE

2022
PROGRESS
REPORT

MAKING THE TRANSITION TO ZERO-EMISSION MOBILITY

Enabling factors for alternatively-powered cars and vans in the European Union

EXECUTIVE SUMMARY

Most figures are for the full year 2021 and chart progress over the past five years (as compared with full year 2017).

1. MARKET UPTAKE ALTERNATIVELY-POWERED CARS AND VANS

- Electrically-chargeable car sales – battery electric and plug-in hybrids combined – account for 18% of all new car sales in the EU.
- Hybrid vehicles made up almost 20% of total EU passenger car registrations in 2021.
- Fuel cell and natural gas-powered cars still only account for a small share of EU sales (0.01% and 0.4% respectively).
- Conventional fuel types – petrol and diesel – still dominated EU car sales in terms of market share (60%) in 2021.
- Almost 3% of all vans sold in 2021 were battery electric, less than 2% were hybrid electric, and 0.1% were plug-in hybrids.
- 90% of all new light commercial vehicles registered in the EU ran on diesel last year, with petrol accounting for almost 4% of the market.

2. AFFORDABILITY

- The market uptake of electrically-chargeable vehicles is largely linked to a country's GDP per capita, showing that affordability remains an issue for consumers.
- Countries with an ECV market share of less than 4% have an average GDP below €27,000, including EU member states in Central and Eastern Europe, but also Cyprus.
- 72% of all electric car sales are concentrated in just four Western European countries, each of which has a GDP of over €45,000.

3. INFRASTRUCTURE AVAILABILITY

- Although there has been a strong growth in the deployment of ECV infrastructure since 2017 (+180%), the total number of charging points available across the entire EU (307,000) falls far short of what is required.
- Indeed, up to 6.8m public charging points would be required EU-wide by 2030 to reach the proposed 55% CO2 reduction for passenger cars[1] – meaning there should be over 22 times growth in under 10 years.
- Electric car sales increased more than 10-fold between 2017 and 2021, whereas the number of public chargers in the EU grew by three times over the same period.
- Almost 50% of all charging points for electric cars are concentrated in only two EU countries – the Netherlands (90,000 chargers) and Germany (60,000). These countries make up less than 10% of the entire EU surface area.
- The other half of all chargers are scattered throughout the remaining 25 countries covering 90% of the region's surface area.
- Only 14% of all charging points in the EU are fast chargers.
- There were 136 hydrogen filling stations available across 10 EU countries in 2021.
- There were 4,000 natural gas filling stations, nearly 60% of which are concentrated in Italy and Germany alone.

Visit www.acea.auto for more information or contact us at communications@acea.auto.

1 https://www.acea.auto/files/Research-Whitepaper-A-European-EV-Charging-Infrastructure-Masterplan.pdf

INTRODUCTION

THE CONTEXT

In April 2019, the European Parliament and Council adopted Regulation (EU) 2019/631 introducing CO2 emission standards for new passenger cars and light commercial vehicles (vans) in the European Union. This regulation set reduction targets of -15% and -37.5% for the tailpipe CO2 emissions of newly-registered cars for the years 2025 and 2030 respectively. The 2030 target set for vans was -31%.

Last year – as part of its 'Fit for 55' climate package – the European Commission proposed a review of the Regulation, maintaining the target of -15% for 2025, strengthening the 2030 target to -55%, and introducing a new -100% target for 2035. In June 2022, both the European Parliament and EU member states endorsed the CO2 targets as proposed by the European Commission.

Also, as part of the 'Fit for 55' package, the Commission published its proposal for an Alternative Fuels Infrastructure Regulation (AFIR). EU member states adopted their position on this in June 2022, with the European Parliament set to vote on this file in September.

THE PURPOSE OF THIS REPORT

The auto industry's investments in alternatively-powered vehicles are paying off. Indeed, against last year's backdrop of a contracting vehicle market, electrically-chargeable cars continued to gain overall market share, accounting for almost 1 in every 5 new cars sold across the European Union. However, this trend can only be sustained if governments step up investments in infrastructure, and maintain meaningful and sustainable incentives.

The European Automobile Manufacturers' Association (ACEA) publishes this statistical report – now in its fifth edition – on an annual basis to track progress on the key 'enabling factors' for zero-emission cars and vans over time.

The report also makes a number of correlations, analysing the influence of certain factors, such as national income or the number of charging points per 100km of road, on the market uptake of alternatively-powered vehicles.

It provides a factual, data-driven picture of progress, bringing together all available data sources (ACEA, EAFO, EEA, Eurostat, IHS Markit). In all cases it is the latest available full-year data for the EU.

GLOSSARY

CONVENTIONALLY-POWERED VEHICLES

Conventional vehicles use fossil fuels (diesel and petrol) to power an internal combustion engine (ICE). Both diesel and petrol engines convert fuel into energy via combustion, with the main difference being the way the combustion process occurs.

ALTERNATIVELY-POWERED VEHICLES

Alternatively-powered vehicles (APVs) are vehicles powered by technologies alternative to, or supplemental to, conventional internal combustion engines using fossil fuels. The main types of APVs, and how they differ from each other, are explained below.

1. ELECTRIC VEHICLES

Electric vehicles include electrically-chargeable vehicles (ECVs) and fuel cell electric vehicles (FCEVs). Both are propelled by an electric motor but require very different infrastructure.

A. Electrically-chargeable vehicles

Electrically-chargeable vehicles (ECVs) include full battery electric vehicles and plug-in hybrids, both of which require recharging infrastructure which connects them to the electricity grid.

Battery electric vehicles (BEVs) are fully powered by an electric motor, using electricity stored in an on-board battery that is charged by plugging into the electricity grid.

Plug-in hybrid electric vehicles (PHEVs) have an internal combustion engine (running on petrol or diesel) and a battery-powered electric motor. The battery is recharged by connecting to the grid as well as by the on-board engine. Depending on the battery level, the vehicle can run on the electric motor and/or the internal combustion engine.

B. Fuel cell electric vehicles

Fuel cell electric vehicles (FCEVs) are also propelled by an electric motor, but their electricity is generated within the vehicle by a fuel cell that uses compressed hydrogen (H2) and oxygen from the air. So, unlike ECVs, they are not recharged by connecting to the electricity grid. Instead, FCEVs require dedicated hydrogen filling stations.

2. HYBRID ELECTRIC VEHICLES

Hybrid electric vehicles (HEVs) have an internal combustion engine (running on petrol or diesel) and a battery-powered electric motor. Electricity is generated internally from regenerative braking, cruising and the combustion engine, so they do not need recharging infrastructure. The hybridisation level ranges from mild to full.

- Mild hybrid electric vehicles are powered by an internal combustion engine, but also have a battery-powered electric motor that supports the conventional engine. These vehicles cannot be powered by the electric motor alone.
- Full hybrid electric vehicles are powered by both an electric motor and a combustion engine, each of which (or together) can power the wheels.

3. NATURAL GAS VEHICLES

Natural gas vehicles (NGVs) run on compressed natural gas (CNG) or liquefied natural gas (LNG), the latter mainly being used for commercial vehicles such as trucks and the former for passenger cars. NGVs are based on mature technologies and use internal combustion engines. Dedicated refuelling infrastructure is required.

'ELECTRIFIED' AND 'ELECTRIC' VEHICLES

Some people presume that the term 'electrified' or 'electric' refers exclusively to battery electric vehicles (BEVs) that are fully powered by electricity and have no CO2 coming from their tailpipe. However, in practice 'electrified' and 'electric' are often used as blanket terms for all available electrification technologies, ie BEVs, PHEVs and HEVs. The reality is that each of these technologies has different requirements in terms of infrastructure as well as varying CO2 reduction levels.

THE 'ELECTRIFIED' CAR MARKET EXPLAINED

	Electrically-chargeable cars 18.0% of EU car sales in 2021		**Hybrid electric cars** 19.6% of car sales	**Fuel cell cars** 0.01% of car sales
	BEVs Battery electric	**PHEVs** Plug-in hybrid electric	**HYBRIDS** Full and mild hybrids	**FCEVs** Fuel cell electric
Tailpipe CO2 reduction (On average)	100%	50-75%	Mild: 10-20% Full: 20-40%	100%
Share of 'electrified' cars	24.1%	23.8%	52.1%	0.03%

Source: ACEA

MARKET UPTAKE

1.A.1 – NEW CAR REGISTRATIONS IN THE EU, BY FUEL TYPE

Trends over time in the EU (in units, 2017-2021)

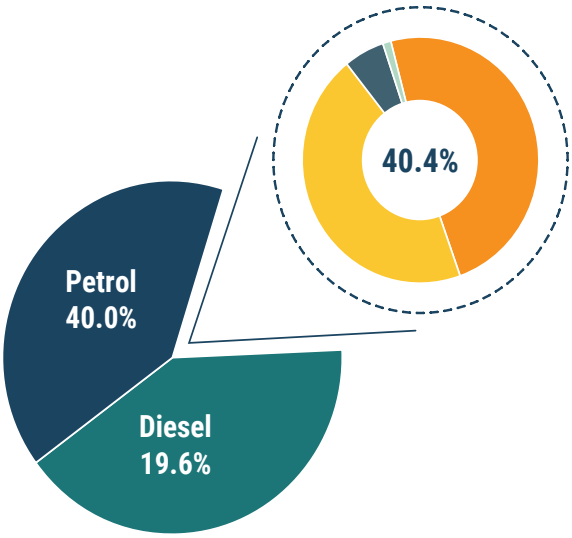
	2017	2018	2019	2020	2021
Petrol	6,205,957	7,055,394	7,514,812	4,724,417	3,885,432
Diesel	5,551,109	4,655,747	4,106,951	2,776,665	1,901,191
Electrically-chargeable	168,901	240,347	387,325	1,045,893	1,744,520
– Battery electric	84,070	131,954	247,371	537,976	877,428
– Plug-in hybrids	84,831	108,393	139,954	507,917	867,092
Hybrid electric	359,093	503,618	742,084	1,184,526	1,901,239
Fuel cell	218	230	483	758	1,004
Natural gas	49,553	65,023	68,129	54,979	43,235
Other (LPG + E85)	156,710	164,270	186,141	153,549	226,702

Source: ACEA

KEY FINDINGS

- Sales of petrol cars dropped by 2.3 million units over the past five years, reaching 3.9 million units last year (down by 37%).
- With 1.9 million cars registered last year, the number of diesel cars sold plummeted by 3.6 million units since 2017, representing a decrease of 66%.
- Electrically-chargeable cars – battery electric and plug-in hybrids combined – increased by a total of almost 1.6 million units (to 1.7 million cars) over the five-year period. This represents more than a 10-fold increase.
  - Within the electrically-chargeable category, there is almost a 50-50 split between battery electric and plug-in hybrids – with both showing a similar growth trajectory over the past five years.
- More than five times more hybrid electric vehicles were sold in 2021 compared to 2017 (+1.5 million units).
- Sales of fuel cell electric cars went from 218 cars in 2017 to some 1,000 last year.

NEW CARS IN THE EU, BY FUEL TYPE (2021)



- **Electrically-chargeable = 18.0%**
  - Battery electric = 9.1%
  - Plug-in hybrid = 8.9%
- **Hybrid electric = 19.6%**
- **Other (LPG + E85) = 2.3%**
- **Natural gas (CNG/LNG) = 0.4%**
- **Fuel cell = 0.01%**

Source: ACEA

KEY FINDINGS

- Conventional fuel types – petrol and diesel combined – still dominated EU car sales in terms of market share (60%) in 2021.
- 40% of all cars sold were alternatively powered last year.
  - Electrically-chargeable cars accounted for 18% of all new car registrations in the European Union in 2021, compared to a 10.5% market share the year before. This means that almost one in five every new car sold had a plug.
  - Hybrid vehicles made up almost 20% of total passenger car sales across the EU, up from 12% in 2020.

1.A.2 – NEW SALES: SHARE OF ALTERNATIVELY-POWERED CARS

Trends over time in the EU (market share, 2017-2021)

	2017	2018	2019	2020	2021	Change 17/21
Electrically-chargeable	1.4%	1.9%	3.0%	10.5%	18.0%	+16.6% points
– Battery electric	0.7%	1.0%	1.9%	5.4%	9.1%	+8.4% points
– Plug-in hybrids	0.7%	0.9%	1.1%	5.1%	8.9%	+8.3% points
Hybrid electric	2.9%	4.0%	5.7%	11.9%	19.6%	+16.7% points
Fuel cell	0.00%	0.00%	0.00%	0.01%	0.01%	+0.01% points
Natural gas	0.4%	0.5%	0.5%	0.6%	0.4%	+0.05% points
Other (LPG + E85)	1.3%	1.3%	1.4%	1.5%	2.3%	+1.1% points

Source: ACEA

KEY FINDINGS

- The electrically-chargeable car market grew by almost 17 percentage points over the last five years.
  - Sales of battery electric cars and plug-in hybrids grew by over 8 percentage points each over this timeframe.
- During the same period, the share of hybrid electric vehicles also increased by nearly 17 percentage points.
- Hybrid electric cars make up more than half the 'electrified' car market, with a market share over twice that of battery electric cars.
- 0.4% of all cars sold in 2021 were natural gas-powered (a slight growth since 2017).
- Fuel cell cars still only account for a small share (0.01%) of EU sales – a market share that has remained stable over the past five years.

MARKET SHARE OF ALTERNATIVELY-POWERED CARS, BY COUNTRY (2021)

	AT	BE	BG	HR	CY	CZ	DK	EE	FI	FR	DE	GR	HU
BEVs	13.9%	5.9%	1.3%	2.9%	0.8%	1.3%	13.4%	2.2%	10.3%	9.8%	13.6%	2.2%	3.5%
PHEVs	6.1%	12.5%	0.4%	0.9%	0.9%	1.9%	21.8%	0.7%	20.5%	8.5%	12.4%	4.7%	3.5%
FCEVs	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HEVs	17.5%	5.1%	2.5%	14.0%	23.3%	12.3%	4.8%	28.6%	28.5%	17.5%	16.4%	23.2%	39.5%
NGVs	0.0%	0.3%	0.4%	0.0%	0.0%	0.4%	0.0%	2.1%	0.9%	0.0%	0.1%	1.3%	0.0%
OTHER	0.0%	0.5%	0.0%	4.3%	0.0%	1.1%	0.0%	0.0%	0.0%	2.9%	0.4%	2.0%	0.6%

	IE	IT	LV	LT	LU	NL	PL	PT	RO	SK	SI	ES	SE
BEVs	8.2%	4.6%	2.9%	3.7%	10.5%	19.8%	1.6%	9.0%	5.2%	1.5%	3.2%	2.8%	19.1%
PHEVs	7.5%	4.8%	1.0%	0.0%	10.0%	9.6%	2.1%	10.7%	2.2%	1.5%	0.4%	5.0%	25.9%
FCEVs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HEVs	18.3%	29.0%	25.1%	39.6%	16.3%	22.2%	27.4%	13.0%	25.1%	20.0%	10.7%	25.5%	7.4%
NGVs	0.3%	2.2%	0.1%	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.1%	0.5%
OTHER	0.3%	7.3%	1.8%	1.0%	0.0%	0.7%	3.0%	2.4%	13.1%	1.3%	1.1%	1.5%	0.4%

BEVs = Battery electric
PHEVs = Plug-in hybrid
HEVs = Hybrid electric
FCEVs = Fuel cell
NGVs = Natural gas (CNG/LNG)
OTHER = Other alternatively powered (LPG+E85)

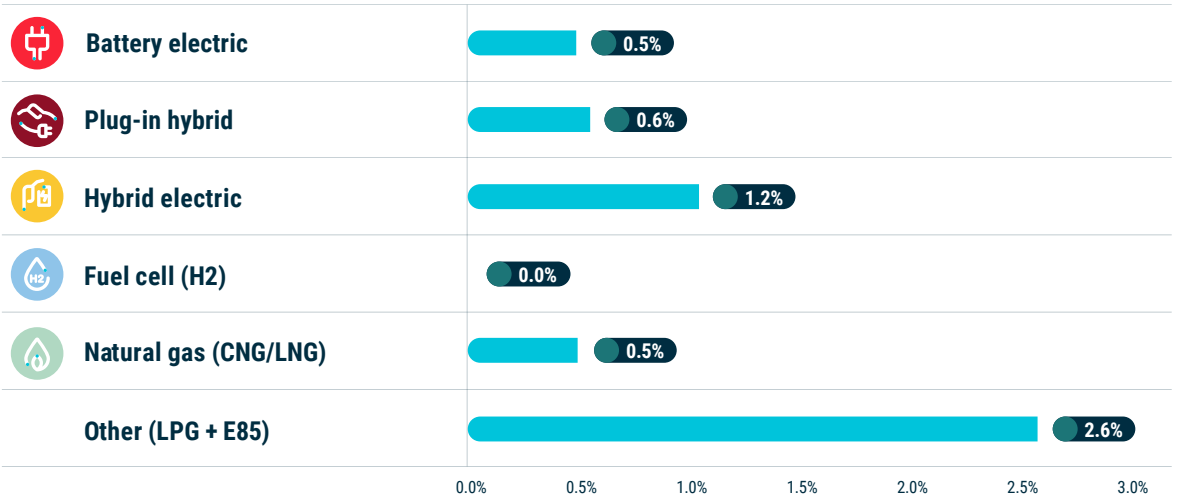
Source: ACEA

KEY FINDINGS

- 13 member states have a battery electric car (BEV) market share of less than 4%.
- Five EU member states have a BEV market share less than 2%.
- 12 countries have a BEV market share of over 5%.
- Hybrid electric cars (HEV) dominate the alternatively-powered car market in most countries.
- 22 member states have a HEV share of over 10%.

1.A.3 – CARS ON THE ROAD

SHARE OF ALTERNATIVELY-POWERED VEHICLES IN THE EU PASSENGER CAR FLEET (2020)



Source: ACEA[2]

KEY FINDINGS

- Battery electric and plug-in hybrid cars combined make up just over 1% of all cars on EU roads today.
- Hybrid electric vehicles also make up over 1% of all cars in the European Union.
- Passenger cars fuelled by natural gas account for 0.5% of the EU car fleet.
- Other alternatively-powered vehicles account for under 3% of all passenger cars on EU roads.
- LPG (2.5%) and the E85 ethanol-petrol mix (0.1%) make up the vast majority.

2 Latest data available

1.B.1 – VAN REGISTRATIONS IN THE EU, BY FUEL TYPE

Trends over time in the EU (in units, 2017-2021)

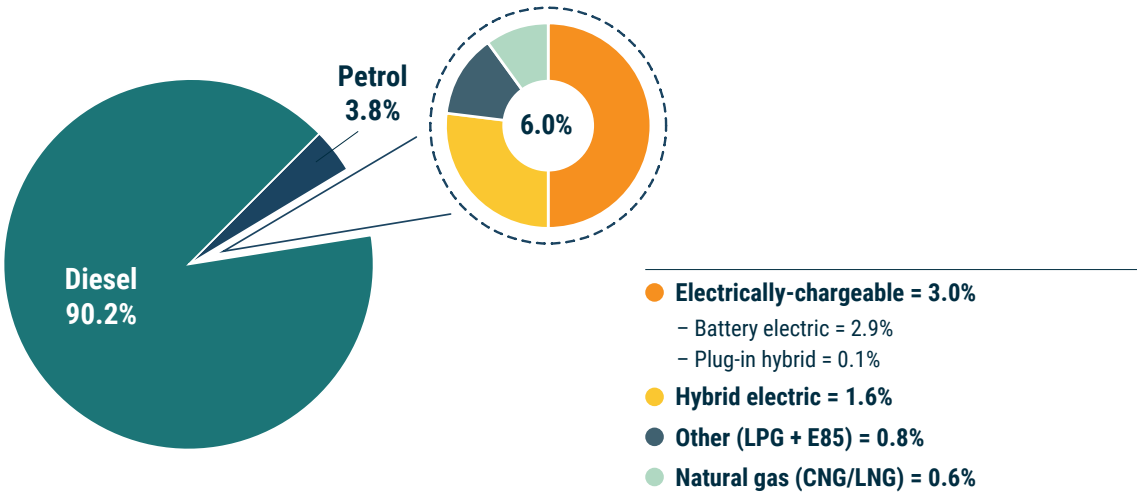
	2017	2018	2019	2020	2021
Petrol	38,999	77,567	89,925	48,775	58,757
Diesel	1,273,138	1,557,479	1,605,325	1,326,718	1,408,376
Electrically-chargeable	13,045	19,945	22,667	28,701	46,847
– Battery electric	13,045	19,853	22,404	27,536	44,608
– Plug-in hybrids		92	263	1,165	2,239
Hybrid electric	50	1,762	4,617	12,652	25,496
Fuel cell	0	38	1	14	6
Natural gas	8,246	10,608	14,263	11,769	9,385
Other (LPG + E85)	6,085	9,829	13,160	7,599	11,955

Source: ACEA (2018-2021), EEA (2017)

KEY FINDINGS

- After peaking at almost 90,000 vans sold in 2019, the new petrol van market dropped by 35% to reach almost 60,000 units last year. Compared to 2017 figures, the market grew by about 20,000 units (+51%).
- Sales of diesel vans grew from 1.2 million units in 2017 to 1.4 million in 2021.
- The number of battery electric vans sold in the EU went up more than three-fold (by over 30,000 units) over this five-year period.
- The hybrid electric van market increased significantly in 2021, with over 25,000 units sold (compared to 50 in 2017).
- Only six fuel cell electric vans were sold across the European Union last year.

NEW VANS IN THE EU, BY FUEL TYPE (2021)



Source: ACEA

KEY FINDINGS

- Overall in 2021, 90% of all new light commercial vehicles registered in the EU ran on diesel, a decrease compared to 2020 (92%).
- Petrol accounted for almost 4% of all new vans sold last year (up from 3.4% in 2020).
- 6% of all new light commercial vehicles were alternatively-powered in 2021 (+1.8 percentage points on the previous year).
  - Almost 3% of all vans sold in 2021 were battery electric, less than 2% were hybrid electric, and 0.1% were plug-in hybrids.

1.B.2 – NEW SALES: SHARE OF ALTERNATIVELY-POWERED VANS

Trend over time in the EU (market share, 2017-2021)

	2017	2018	2019	2020	2021	Change 17/20
Electrically-chargeable	1.0%	1.2%	1.3%	2.0%	3.0%	+2.0% points
– Battery electric	1.0%	1.2%	1.3%	1.9%	2.9%	+1.9% points
– Plug-in hybrids	0.0%	0.0%	0.0%	0.1%	0.1%	+0.1% points
Hybrid electric	0.0%	0.1%	0.3%	0.9%	1.6%	+1.6% points
Fuel cell	0.0%	0.0%	0.0%	0.001%	0.0004%	+0.0004% points
Natural gas	0.6%	0.6%	0.8%	0.8%	0.6%	-0.01% points
Other (LPG + E85)	0.5%	0.6%	0.8%	0.5%	0.8%	+0.3% points

Source: ACEA (2018-2020), EEA (2017)

KEY FINDINGS

- The battery electric van market grew by 1.9 percentage points over the last five years.
- During the same period, the share of hybrid electric vehicles increased by 1.6 percentage points.
- 0.6% of all vans sold in 2021 were natural gas-powered, remaining nearly unchanged compared to 2017.

MARKET SHARE OF ALTERNATIVELY-POWERED VANS, BY COUNTRY (2021)

	AT	BE	HR	CY	CZ	DK	EE	FI	FR	DE	GR	HU
BEVs	3.5%	1.0%	0.9%	0.1%	0.9%	4.6%	0.6%	2.6%	2.8%	4.7%	1.0%	1.2%
PHEVs	0.0%	0.1%	0.0%	0.0%	0.0%	1.0%	0.0%	0.3%	0.2%	0.1%	0.0%	0.1%
HEVs	0.4%	0.0%	0.1%	0.1%	0.0%	1.1%	0.1%	2.2%	1.5%	0.6%	1.7%	0.2%
FCEVs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NGVs	0.1%	1.0%	0.1%	0.0%	2.4%	0.0%	0.0%	0.1%	0.5%	0.1%	1.4%	0.4%
OTHER	0.2%	0.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	1.0%	0.1%	0.0%

	IE	IT	LV	LU	NL	PL	PT	RO	SK	SI	ES	SE
BEVs	2.3%	2.0%	1.0%	2.5%	4.6%	0.8%	1.2%	0.6%	0.7%	0.6%	2.0%	7.5%
PHEVs	0.1%	0.3%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
HEVs	0.7%	6.6%	0.0%	0.0%	0.7%	0.2%	0.0%	0.3%	0.0%	0.6%	2.3%	0.0%
FCEVs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NGVs	0.0%	2.1%	0.3%	0.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.5%	1.4%
OTHER	0.0%	2.8%	0.0%	0.0%	1.3%	0.1%	0.0%	0.0%	0.1%	0.3%	1.6%	0.3%

BEVs = Battery electric
PHEVs = Plug-in hybrid
HEVs = Hybrid electric
FCEVs = Fuel cell
NGVs = Natural gas (CNG/LNG)
OTHER = Other alternatively powered (LPG+E85)

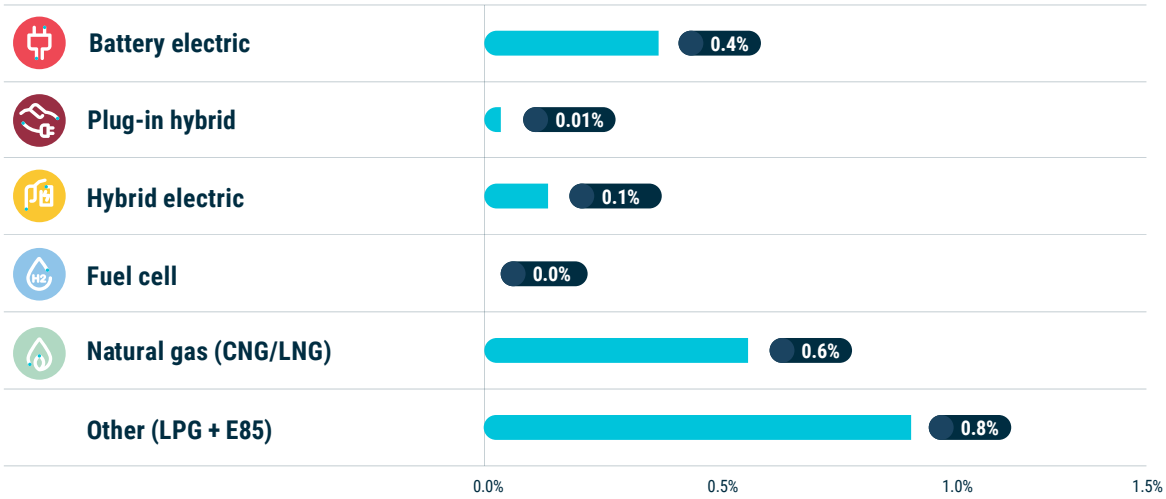
Source: ACEA

KEY FINDINGS

- Battery electric vans have a market share of over 3% in just five EU countries.
- 11 member states have a battery electric van market share of 1% and under.
- Italy, Spain and Finland are the only countries with a market share of hybrid electric vans above 2%.

1.B.3 – VANS ON THE ROAD

SHARE OF ALTERNATIVELY-POWERED VEHICLES IN THE EU PASSENGER CAR FLEET (2020)



Source: ACEA[3]

KEY FINDINGS

- Battery electric, plug-in hybrid, and hybrid electric vans combined make up 0.5% of all light commercial vehicles on EU roads today.
- All other types of alternatively-powered vans together account for under 1.5% of the EU van fleet.

3 Latest data available

AFFORDABILITY

2.1 – NATIONAL INCOME AND ELECTRICALLY-CHARGEABLE CARS

Correlation ECV uptake and gross domestic product (GDP) per capita (by country, 2021)

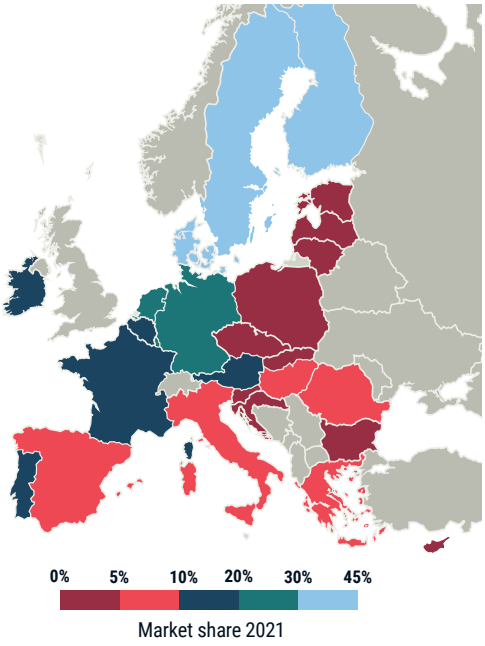
ELECTRIC CAR SALES AND NATIONAL INCOME

72% of all electric cars are sold in just 4 countries (with some of the highest GDP)

Top 5: Lowest market share = average GDP < €27,000

Bulgaria	Cyprus	Estonia
1.67%	1.68%	2.91%
418 ECVs	179 ECVs	650 ECVs
GDP €9,850	GDP €26,030	GDP €23,060

Slovakia	Czech Republic
3.00%	3.19%
2,270 ECVs	6,598 ECVs
GDP €17,820	GDP €22,320



'Electric car' = electrically-chargeable vehicles (battery electric + plug-in hybrid)
Source: ACEA, EUROSTAT

Top 5: Countries with the LOWEST ECV market share

1. Bulgaria – 1.7% (GDP of €9,850)
2. Cyprus – 1.7% (GDP of €26,030)
3. Estonia – 2.9 % (GDP of €23,060)
4. Slovakia – 3.0% (GDP of €17,820)
5. Czech Republic – 3.2% (GDP of €22,320)

Top 5: Countries with the HIGHEST ECV market share

1. Sweden – 45.0% (GDP of €50,910)
2. Denmark – 35.3% (GDP of €57,350)
3. Finland – 30.8% (GDP of €45,620)
4. Netherlands – 29.5% ECVs (GDP of €49,090)
5. Germany – 26.0% ECVs (GDP of €42,920)

KEY FINDINGS

- The market uptake of electrically-chargeable vehicles is largely linked to a country's GDP per capita, showing that affordability remains an issue for consumers.
- Across the EU, 18% of all new cars registered in 2021 were electrically-chargeable (ECV). However, nine EU member states still have an ECV market share lower than 4%.
- Countries with an ECV market share of less than 4% have an average GDP below €27,000, including new EU member states in Central and Eastern Europe, but also Cyprus.
- 72% of all electric car sales are concentrated in just four Western European countries, each of which has a GDP of over €45,000.
- On the other end of the spectrum, Bulgaria, with a GDP of less than €10,000, has an ECV market share of just 1.7%.
- There is a clear split in the affordability of ECVs between Central-Eastern Europe and Western Europe.

INFRASTRUCTURE AVAILABILITY

3.1 – ELECTRICALLY-CHARGEABLE VEHICLES

Both types of electrically-chargeable vehicles (ECVs) require appropriate charging infrastructure:

- Battery electric vehicles (BEVs), which are fully powered by an electric motor, need to plug into the electricity grid to charge their on-board battery.
- Plug-in hybrids (PHEVs), which have an electric motor that is complemented by a combustion engine, also need to charge the battery by connecting to the grid.

Charging points for ECVs per country, plus percentage of EU total (2021)

Country	Chargers	% of EU total	Country	Chargers	% of EU total
Austria	13,110	4.3%	Italy	23,543	7.7%
Belgium	13,695	4.5%	Latvia	420	0.1%
Bulgaria	531	0.2%	Lithuania	207	0.1%
Croatia	1,730	0.6%	Luxembourg	1,782	0.6%
Cyprus	57	0.02%	Malta	98	0.03%
Czech Republic	2,189	0.7%	Netherlands	90,284	29.4%
Denmark	5,752	1.9%	Poland	2,811	0.9%
Estonia	385	0.1%	Portugal	4,124	1.3%
Finland	5,497	1.8%	Romania	1,161	0.4%
France	37,128	12.1%	Slovakia	1,367	0.4%
Germany	59,410	19.4%	Slovenia	1,309	0.4%
Greece	514	0.2%	Spain	10,480	3.4%
Hungary	2,541	0.8%	Sweden	25,197	8.2%
Ireland	1,542	0.5%	**EU total**	**306,864**	

Source: EAFO

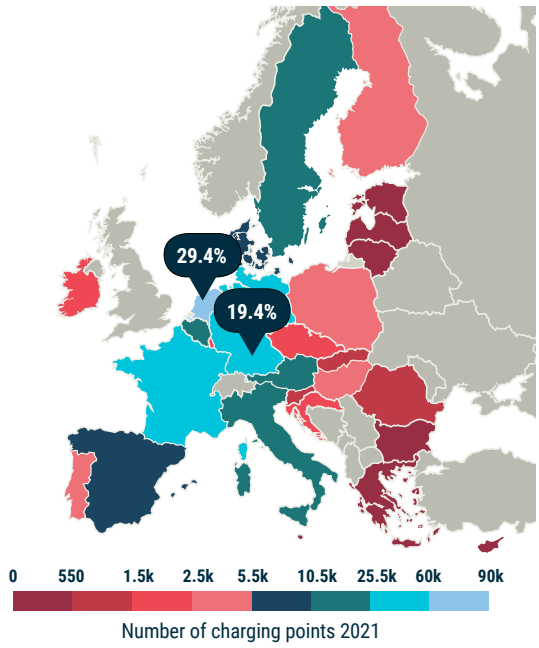
DISTRIBUTION OF ELECTRIC CAR CHARGING POINTS ACROSS THE EU

Some 50% of all charging points:
Concentrated in just 2 EU countries

29.4% Netherlands	19.4% Germany

Top 5: Fewest charging points in 2021

Cyprus 57	Malta 98	Lithuania 207
Estonia 385	Latvia 420	



'Electric car' = electrically-chargeable vehicles (battery electric + plug-in hybrid)
Source: ACEA, EAFO

Top 5: Countries with MOST ECV points

1. Netherlands (90,284)
2. Germany (59,410)
3. France (37,128)
4. Sweden (25,197)
5. Italy (23,543)

Top 5: Countries with LEAST ECV points

1. Cyprus (57)
2. Malta (98)
3. Lithuania (207)
4. Estonia (385)
5. Latvia (420)

Rollout of charging points for ECVs – Trend over time in the EU (2017-2021)

EU total	2017	2018	2019	2020	2021	%17/21
ECV charging points	109,896	123,727	171,287	231,842	306,864	179.2%

Source: EAFO

KEY FINDINGS

- Although there has been a strong growth in the deployment of ECV infrastructure since 2017 (+180%), the total number of charging points available across the entire EU (307,000 charging points[4]) falls far short of what is required.
- Indeed, up to 6.8m public charging points would be required across the EU by 2030 to reach the proposed 55% CO2 reduction for passenger cars[5] – meaning there should be over 22 times growth in under 10 years.
- Almost 50% of all charging points for electric cars are concentrated in only two EU countries – the Netherlands (90,000 chargers) and Germany (60,000). These countries make up less than 10% of the entire EU surface area.
- The other half of all chargers are scattered throughout the remaining 90% of the region's surface area.
- The Netherlands – the country with the most infrastructure – has almost 1,600 times more charging points than the country with the least infrastructure (Cyprus, with 57 charging points).

Correlation ECV infrastructure and surface area, by country (2021)

Country	% of total EU ECV points	% of total EU area	Country	% of total EU ECV points	% of total EU area
Austria	4.3%	2.1%	Italy	7.7%	7.4%
Belgium	4.5%	0.8%	Latvia	0.1%	1.6%
Bulgaria	0.2%	2.7%	Lithuania	0.1%	1.6%
Croatia	0.6%	1.4%	Luxembourg	0.6%	0.1%
Cyprus	0.02%	0.2%	Malta	0.03%	0.01%
Czech Republic	0.7%	1.9%	Netherlands	29.4%	0.8%
Denmark	1.9%	1.0%	Poland	0.9%	7.7%
Estonia	0.1%	1.1%	Portugal	1.3%	2.3%
Finland	1.8%	7.6%	Romania	0.4%	5.8%
France	12.1%	13.7%	Slovakia	0.4%	1.2%
Germany	19.4%	8.7%	Slovenia	0.4%	0.5%
Greece	0.2%	3.2%	Spain	3.4%	12.5%
Hungary	0.8%	2.3%	Sweden	8.2%	10.2%
Ireland	0.5%	1.7%			

Source: EAFO, WORLD BANK

4 Includes all types of charging points, many not suitable for fast charging (eg ordinary, low-capacity power sockets).

5 https://www.acea.auto/files/Research-Whitepaper-A-European-EV-Charging-Infrastructure-Masterplan.pdf

ECV market share/charging points per 100km of road* (by country, 2021)

Country	ECV share	Charging points per 100km	Country	ECV share	Charging points per 100km
Austria	20.0%	9.9	Italy	9.4%	9.2
Belgium	18.4%	8.8	Latvia	3.9%	0.7
Bulgaria	–	2.3	Lithuania	3.7%	0.2
Croatia	4.1%	6.0	Luxembourg	20.5%	57.9
Cyprus	1.7%	0.4	Malta	–	3.4
Czech Republic	3.2%	1.6	Netherlands	29.5%	64.3
Denmark	35.3%	7.7	Poland	3.7%	0.7
Estonia	2.9%	0.6	Portugal	19.7%	24.9
Finland	30.8%	4.8	Romania	7.3%	1.3
France	18.3%	3.4	Slovakia	3.0%	2.9
Germany	26.0%	25.8	Slovenia	3.5%	3.3
Greece	6.9%	0.4	Spain	7.8%	1.6
Hungary	7.0%	1.1	Sweden	45.0%	12.2
Ireland	15.8%	1.6			

Source: ACEA, EAFO, ERF, EUROSTAT
* Includes motorways, state, provincial and communal roads

Top 5: MOST charging points per 100km of road

1. Netherlands (64.3)
2. Luxembourg (57.9)
3. Germany (25.8)
4. Portugal (24.9)
5. Sweden (12.2)

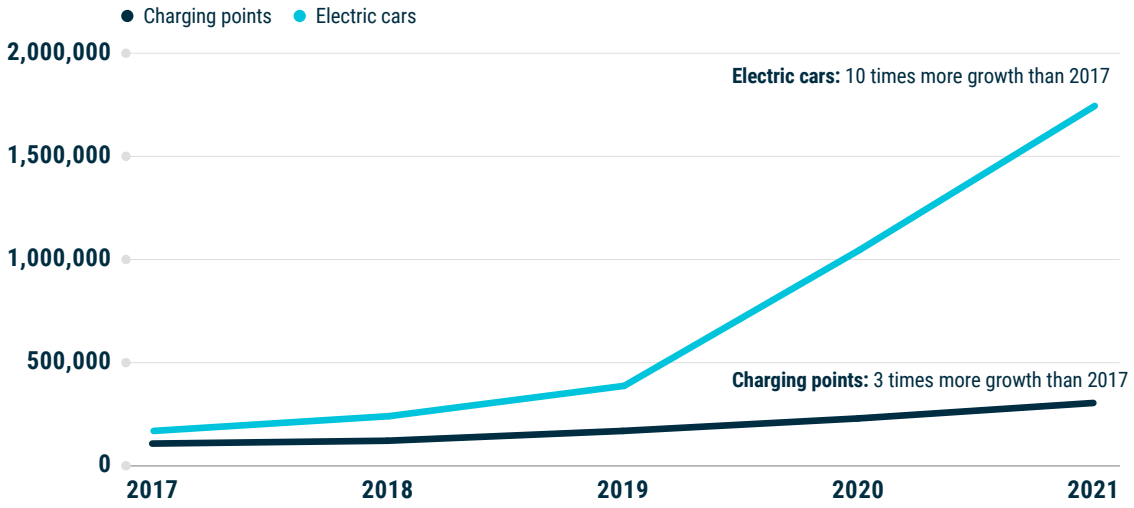
Top 5: LEAST charging points per 100km of road

1. Lithuania (0.2)
2. Cyprus (0.4)
3. Greece (0.4)
4. Estonia (0.6)
5. Poland (0.7)

KEY FINDINGS

- Four countries – covering a third of the EU's total surface area – the Netherlands, Germany, France and Sweden – account for 70% of all EV charging points in the EU.
- The other 30% of infrastructure is scattered throughout the remaining two-thirds of the region (23 countries).
- A vast country like Romania – roughly six times bigger than the Netherlands – only has 0.4% of all the EU's charging points (over 1,100).
- 11 countries do not even have two charging points for every 100km of road; six do not have one charging point along every 100km of road.
- Those countries with less than one charging point per 100km of road have an ECV market share of under 4% (except for Greece).

CHARGING POINT DEPLOYMENT VERSUS SALES OF ELECTRICALLY-CHARGEABLE CARS



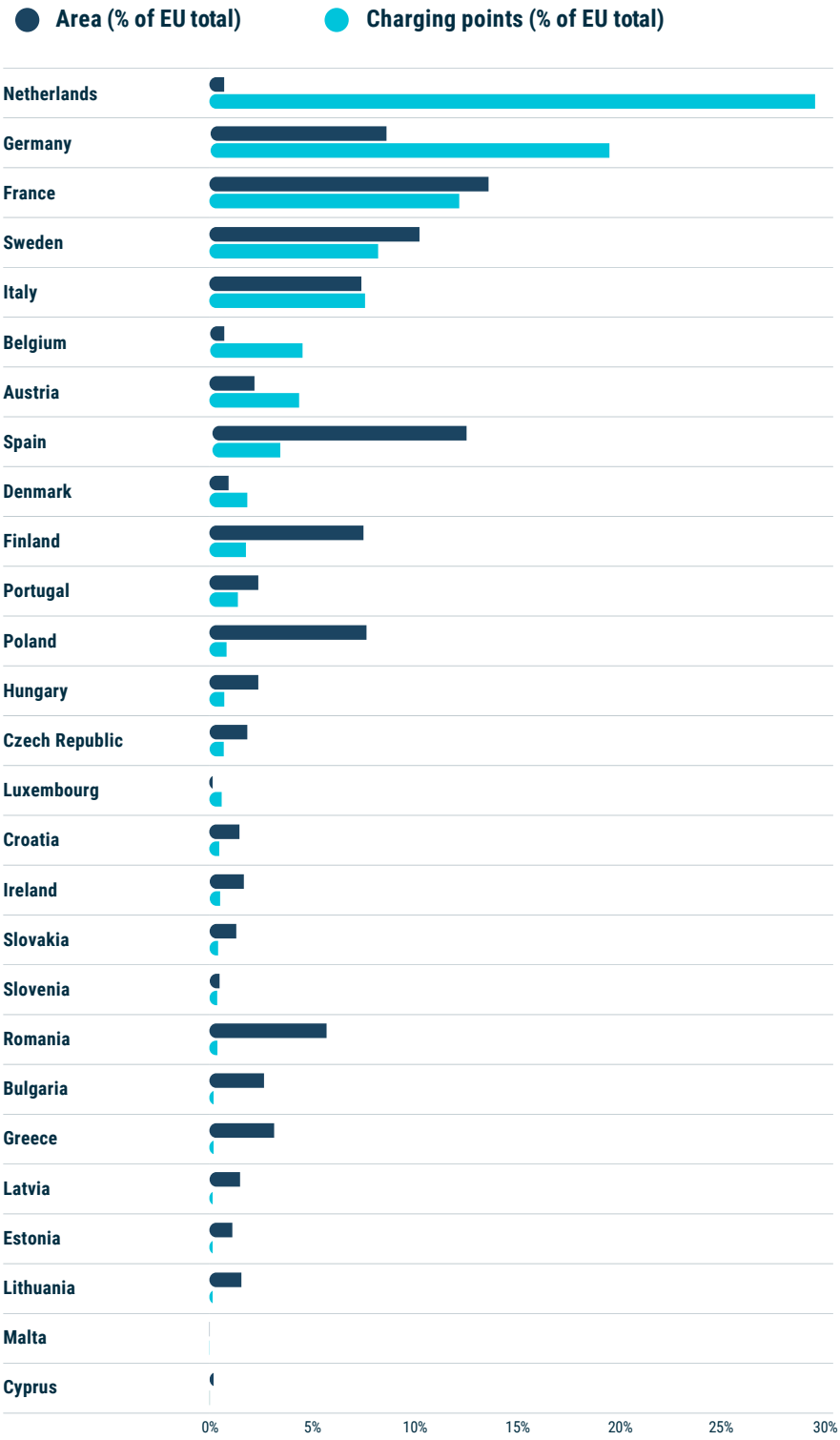
Number of charging points and sales volumes of ECV cars – Trends over time (2021)

EU total	2017	2018	2019	2020	2021	% change 17/21
ECV charging points	109,896	123,727	171,287	231,842	306,864	179.2%
Electrically-chargeable cars	168,901	240,347	387,325	1,045,893	1,744,520	932.9%

KEY FINDINGS

- Over the past five years, sales of electric cars have been growing more than three times faster than the build-up of charging points.
- Electric car sales increased more than 10-fold between 2017 and 2021, whereas the number of public chargers in the EU grew by three times over the same period.

ELECTRIC CAR CHARGING INFRASTRUCTURE VERSUS AREA, PER COUNTRY (2021)



'Electric car' = electrically-chargeable vehicles (battery electric + plug-in hybrid)
Source: EAFO, WORLD BANK

Normal and fast charging points (by country, 2021)

Country	Normal (≤ 22kW)	Fast (> 22kW)	Country	Normal (≤ 22kW)	Fast (> 22kW)
Austria	10,930	2,180	Italy	11,842	2,545
Belgium	12,756	939	Latvia	56	359
Bulgaria	358	173	Lithuania	74	154
Croatia	936	794	Luxembourg	1,051	23
Cyprus	54	3	Malta	96	1
Czech Republic	1,045	1,144	Netherlands	64,236	3,934
Denmark	4,883	869	Poland	1,039	1,100
Estonia	209	176	Portugal	1,976	1,393
Finland	4,533	964	Romania	317	464
France	33,329	3,799	Slovakia	656	445
Germany	48,169	11,241	Slovenia	481	266
Greece	480	34	Spain	5,279	3,813
Hungary	2,038	503	Sweden	8,804	4,019
Ireland	1,130	412	**EU total**	**265,117**	**41,747**

Source: EAFO

KEY FINDINGS

- Of the 307,000 charging points available across the EU today, less than 42,000 are suitable for fast charging (with a capacity of > 22kW), while 'normal' points (≤ 22kW) account for the vast majority (over 265,000).
- The so-called 'normal' charging points also include many common-or-garden, low-capacity power sockets that are not suitable for charging vehicles at an acceptable speed.
- Just 14% of charging points in the EU are fast charging.

3.2 – FUEL CELL VEHICLES (HYDROGEN)

Hydrogen (H2) refuelling points (by country plus percentage of EU total, 2021)

Country	Refuelling points	% of EU total	Country	Refuelling points	% of EU total
Austria	4	2.9%	Italy	1	0.7%
Belgium	3	2.2%	Latvia	–	–
Bulgaria	–	–	Lithuania	–	–
Croatia	–	–	Luxembourg	–	–
Cyprus	–	–	Malta	–	–
Czech Republic	1	0.7%	Netherlands	7	5.1%
Denmark	6	4.4%	Poland	–	–
Estonia	–	–	Portugal	–	–
Finland	–	–	Romania	–	–
France	19	14.0%	Slovakia	–	–
Germany	89	65.4%	Slovenia	–	–
Greece	–	–	Spain	3	2.2%
Hungary	–	–	Sweden	3	2.2%
Ireland	–	–	**EU total**	**136**	

Source: EAFO

Top 5: Countries with MOST hydrogen points

1. Germany (89)
2. France (19)
3. Netherlands (7)
4. Denmark (6)
5. Austria (4)

Rollout of hydrogen (H2) refuelling points – Trend over time in the EU (2021)

EU total	2017	2018	2019	2020	2021	%17/20
H2 filling stations	39	39	113	124	136	+248.7%

Source: EAFO

KEY FINDINGS

- There were 136 hydrogen filling stations available across 10 EU countries in 2021.
- 17 EU member states did not have a single hydrogen filling station.
- Two-thirds of all filling stations for fuel cell cars and vans (89) are located in Germany.

3.3 – NATURAL GAS VEHICLES (CNG + LNG)

CNG + LNG refuelling points (by country plus percentage of EU total, 2021)

Country	Refuelling points	% of EU total	Country	Refuelling points	% of EU total
Austria	127	3.0%	Italy	1,571	37.4%
Belgium	182	4.3%	Latvia	5	0.1%
Bulgaria	120	2.9%	Lithuania	6	0.1%
Croatia	4	0.1%	Luxembourg	2	0.05%
Cyprus	–	–	Malta	–	–
Czech Republic	227	5.4%	Netherlands	215	5.1%
Denmark	17	0.4%	Poland	32	0.8%
Estonia	23	0.5%	Portugal	24	0.6%
Finland	70	1.7%	Romania	3	0.1%
France	206	4.9%	Slovakia	18	0.4%
Germany	881	21.0%	Slovenia	6	0.1%
Greece	24	0.6%	Spain	185	4.4%
Hungary	19	0.5%	Sweden	229	5.5%
Ireland	3	0.1%	**EU total**	**4,199**	

Source: EAFO

Top 5: Countries with MOST CNG/LNG stations

1. Italy (1,571)
2. Germany (881)
3. Sweden (229)
4. Czech Republic (227)
5. Netherlands (215)

Top 5: Countries with LEAST CNG/LNG stations

1. Cyprus (0)
2. Malta (0)
3. Luxembourg (2)
4. Romania (3)
5. Ireland (3)

Rollout of CNG + LNG refuelling points – Trend over time in the EU (2021)

EU total	2017	2018	2019	2020	2021	%17/21
CNG + LNG stations	3,221	3,349	3,727	3,974	4,199	+30.4%

Source: EAFO

KEY FINDINGS

- There are over 4,000 natural gas filling stations across the EU, up 30% since 2017.
- Nearly 60% of all CNG and LNG filling points in the EU are concentrated in two countries alone: Italy (37%) and Germany (21%).
- Two EU member states do not have a single natural gas filling station (Cyprus and Malta).

acea

DRIVING MOBILITY FOR EUROPE

ACEA
European Automobile
Manufacturers' Association

+32 2 732 55 50
info@acea.auto

www.acea.auto

twitter.com/ACEA_auto

linkedin.com/company/ACEA/

youtube.com/c/ACEAauto