SEPTEMBER 2023

MARKET MONITOR

EUROPEAN CAR AND VAN MARKET AND CHARGING INFRASTRUCTURE DEVELOPMENT QUARTERLY: JANUARY–JUNE 2023

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THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

EUROPEAN PASSENGER CAR AND VAN REGISTRATIONS

In the second quarter of 2023, new car registrations in Europe recorded an 18% increase compared to the same period the previous year. Over 5.5 million new cars were registered in the first half of 2023, 17% more than in the first half of 2022. All the top-selling pools saw double-digit gains in new registrations year-to-date, except for Stellantis, which was up by 5% compared to the first half of 2022. As in the previous quarter, the Tesla-Honda-JLR pool stood out, with growth rates well above the average (+85% year-to-date over 2022). Through June 2023, the average market share of battery electric vehicles (BEVs) was about 14%, one percentage point higher than the 2022 average, after second-quarter sales increased 20% over the first quarter. Both Ford and the Mazda-Subaru-Suzuki-Toyota pool continued to lag in BEV sales, with BEV shares of 3% and 2% in the first half of 2023, respectively. During this period, the average plug-in hybrid vehicle (PHEV) share amounted to 7%, remaining below 2022 levels by about three percentage points. All manufacturers are on track to meet their specific CO_2 emissions targets for 2023, with an estimated average over-compliance of about 12 g CO_2/km.

Table 1. New passenger car registrations by manufacturer pool.

New car registrations				
	Q2/2023	vs. Q2/2022	2023 YTD	vs. 2022
Volkswagen	742,352	25%	1,426,776	24%
Stellantis	506,218	1%	1,016,188	5%
Renault-Nissan-Mitsubishi	375,926	17%	724,409	21%
Mazda-Subaru-Suzuki-Toyota	260,662	17%	537,215	20%
BMW	191,749	19%	357,452	13%
Mercedes-Benz	160,228	16%	314,094	16%
Kia	123,065	7%	227,500	3%
Hyundai	111,835	-3%	218,935	1%
Ford	110,872	9%	220,054	4%
Tesla-Honda-JLR	99,231	119%	202,093	85%
Volvo	66,340	34%	126,103	18%
Other	79,122	92%	137,416	99%
ALL	2,827,600	18%	5,508,235	17%

Table 2. Share of plug-in hybrid and battery electric passenger cars by manufacturer pool.

Share of plug-in hybrid and battery electric cars						
	Q2/2023		2023 YTD		2022	
	BEV	PHEV	BEV	PHEV	BEV	PHEV
Tesla-Honda-JLR	78%	7%	78%	7%	66%	5%
Volvo	33%	35%	33%	34%	29%	33%
Other	32%	14%	30%	16%	28%	23%
Mercedes-Benz	17%	18%	16%	18%	14%	22%
BMW	17%	16%	15%	15%	15%	19%
AVERAGE	15%	8%	14%	7%	13%	10%
Hyundai	14%	5%	14%	5%	16%	8%
Volkswagen	13%	5%	12%	5%	12%	7%
Kia	12%	10%	11%	10%	13%	14%
Stellantis	12%	7%	10%	7%	11%	8%
Renault-Nissan-Mitsubishi	9%	1%	10%	1%	13%	4%
Ford	4%	11%	3%	10%	5%	12%
Mazda-Subaru-Suzuki-Toyota	3%	4%	2%	4%	1%	4%

Table 3. New passenger car fleet average CO_2 emission level by manufacturer pool.

		New car fleet average CO_2 (in g/km)					
	Target gap	Q2/2023	2023 YTD	Compliance credits	Status 2023	Target 2023	Target gap
		WLTP	WLTP	eco-innovations	WLTP	WLTP	WLTP
Tesla-Honda-JLR	-79%	29	30	0.3	29	137	-108
Volvo	-53%	62	64	0.4	63	134	-71
BMW	-16%	107	109	1.4	108	128	-20
Stellantis	-10%	107	109	1.7	108	120	-12
AVERAGE	-9%	109	110	1.2	109	121	-12
Mercedes-Benz	-9%	113	117	0.6	116	127	-11
Mazda-Subaru-Suzuki-Toyota	-7%	111	112	0.8	111	119	-8
Kia	-7%	104	106	0.4	105	112	-7
Hyundai	-5%	109	108	0.6	108	113	-5
Ford	-2%	123	123	2.0	121	124	-3
Volkswagen	-1%	121	123	1.4	122	123	-1
Renault-Nissan-Mitsubishi	0%	113	112	1.7	110	111	-1

Note: All CO_2 values are estimates. See methodology section.

In the first half of 2023, BEV and PHEV registrations made up at least half of total new registrations in four countries: Norway (90%), Sweden (58%), Finland (52%), and Iceland (50%). Other countries with above-average BEV and PHEV market shares were the Netherlands (42%), Denmark (42%), Belgium (35%), and Luxembourg (30%). The largest increases occurred in the Netherlands and Belgium, where BEV shares year-to-date were up by six percentage points compared to 2022. In Germany, new BEV sales showed signs of recovery in the second quarter, with a market share of 17%, after dropping to 14% in the first quarter. This was not the case for PHEVs, whose share of Germany's new registrations exhibited no change over the first quarter and remained at 6%, although down from 14% in 2022. Among the leading countries in new electric vehicle sales, only in Belgium did new PHEV registrations exceed those of BEVs. New PHEV sales also outpaced BEVs in Italy, Spain, and Greece.

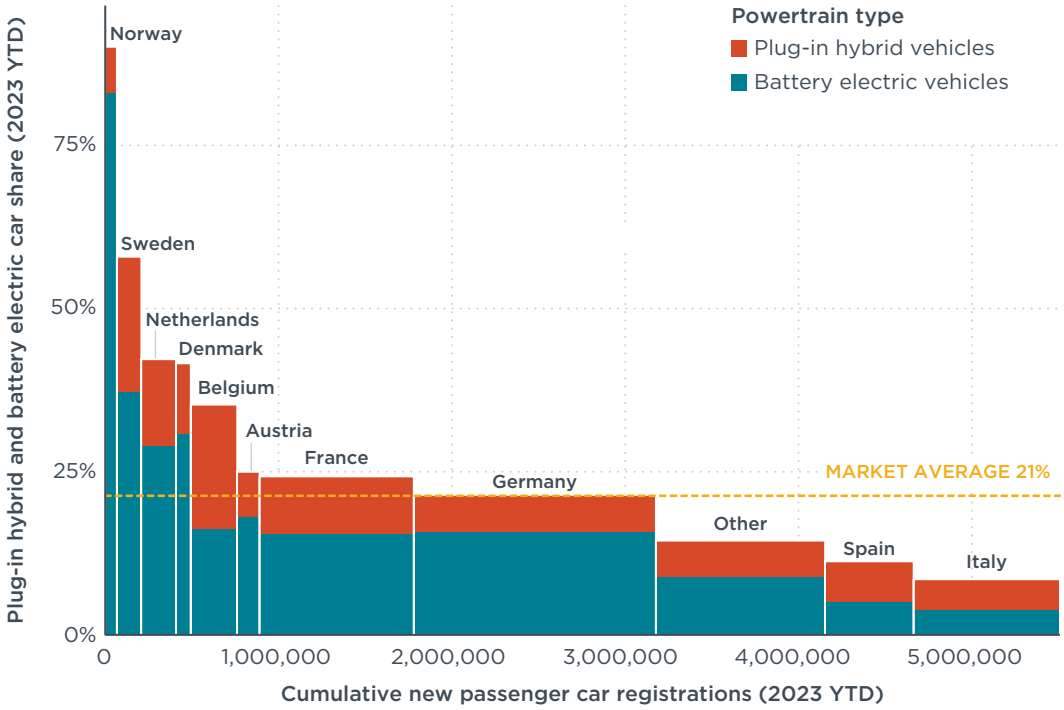

Figure 1. Share of plug-in hybrid and battery electric vehicles by country, including information on market size (cumulative car registrations).

Table 4. New passenger car registrations by country.

New car registrations				
	Q2/2023	vs. Q2/2022	2023 YTD	vs. 2022
Germany	730,052	19%	1,396,870	13%
France	468,889	15%	889,776	15%
Italy	415,741	20%	844,220	23%
Spain	270,349	10%	510,706	23%
Belgium	134,851	43%	268,106	35%
Poland	115,842	5%	238,973	12%
Netherlands	102,784	36%	200,674	31%
Sweden	77,565	4%	141,164	-3%
Austria	64,942	12%	128,867	15%
Czechia	59,207	15%	115,548	17%
Other	387,378	18%	773,331	17%
ALL	**2,827,600**	**18%**	**5,508,235**	**17%**

Table 5. Share of plug-in hybrid and battery electric passenger cars by country.

Share of plug-in hybrid and battery electric cars						
	Q2/2023		2023 YTD		2022	
	BEV	PHEV	BEV	PHEV	BEV	PHEV
Sweden	**38%**	21%	**37%**	21%	**33%**	23%
Netherlands	**32%**	13%	**29%**	13%	**23%**	11%
Other	**22%**	8%	**20%**	8%	**20%**	8%
Austria	**19%**	7%	**18%**	7%	**16%**	6%
Germany	**17%**	6%	**16%**	6%	**18%**	14%
Belgium	**17%**	21%	**16%**	19%	**10%**	16%
France	**16%**	9%	**16%**	9%	**13%**	8%
AVERAGE	**15%**	**8%**	**14%**	**7%**	**13%**	**10%**
Spain	**5%**	6%	**5%**	6%	**4%**	6%
Italy	**4%**	5%	**4%**	5%	**4%**	5%
Poland	**4%**	3%	**4%**	3%	**3%**	2%
Czechia	**3%**	2%	**3%**	2%	**2%**	2%

With around 375,000 new van registrations, the second quarter of 2023 displayed a 15% increase compared to the same period the previous year, contributing to an average year-to-date growth of 11% over 2022. Volkswagen showed the largest growth in total sales in the second quarter (46%), followed by Mercedes-Benz (23%), compared to the same period in 2022. On average, new battery electric vans captured 7% of the new fleet in the second quarter of 2023, up from 6% in the previous quarter and 5% over 2022. Stellantis, which led the market with approximately one third of all new van registrations in the first half of 2023, increased its battery electric van share for this period to 9%, up from 7% in 2022. In Germany, battery electric vans regained market share in the second quarter of 2023, growing to 8% from 5% in the first quarter and reaching the same level as in 2022. According to newly available

2022 data on manufacturer-specific average vehicle mass and eco-innovation credits, all manufacturers are on track to meet their estimated specific CO_2 targets for 2023. Stellantis remains the leader in terms of overcompliance, and is currently set to exceed its 2023 target by about 33 g CO_2/km.

Table 6. New van registrations by manufacturer pool.

New van registrations				
	Q2/2023	vs. Q2/2022	2023 YTD	vs. 2022
Stellantis	120,413	12%	231,541	4%
Renault-Nissan-Mitsubishi	72,137	13%	137,944	14%
Ford	49,233	10%	100,751	16%
Volkswagen	42,936	46%	86,940	33%
Mercedes-Benz	40,297	23%	76,943	15%
Other	49,672	6%	95,989	3%
ALL	**374,688**	**15%**	**730,108**	**11%**

Table 7. Share of plug-in hybrid and battery electric vans by manufacturer pool.

Share of plug-in hybrid and battery electric vans						
	Q2/2023		2023 YTD		2022	
	BEV	PHEV	BEV	PHEV	BEV	PHEV
Stellantis	**10%**	1%	**9%**	0%	**7%**	0%
Other	**9%**	0%	**9%**	0%	**9%**	0%
Mercedes-Benz	**8%**	0%	**6%**	0%	**5%**	0%
AVERAGE	**7%**	**0%**	**7%**	**0%**	**5%**	**0%**
Volkswagen	**7%**	0%	**6%**	0%	**3%**	0%
Renault-Nissan-Mitsubishi	**6%**	0%	**5%**	0%	**5%**	0%
Ford	**3%**	0%	**3%**	0%	**1%**	1%

Table 8. New van fleet average CO_2 emission level by manufacturer pool.

		New van fleet average CO_2 (in g/km)					
		Q2/2023	2023 YTD	Credits	Status 2023	Target 2023	Target gap
	Target gap	WLTP	WLTP	eco-innovations	WLTP	WLTP	WLTP
Stellantis	-17%	159	161	0.3	161	194	-33
AVERAGE	**-12%**	**179**	**180**	**0.6**	**180**	**203**	**-23**
Volkswagen	-11%	182	180	1.2	179	201	-22
Renault-Nissan-Mitsubishi	-10%	186	186	1.0	185	205	-20
Mercedes-Benz	-8%	204	208	0.6	208	225	-17
Ford	-6%	200	199	0	199	212	-13

Table 9. New van registrations by country.

New van registrations				
	Q2/2023	vs. Q2/2022	2023 YTD	vs. 2022
France	101,124	9%	188,359	3%
Germany	62,850	22%	125,584	15%
Italy	45,184	12%	89,860	10%
Spain	35,584	28%	67,209	32%
Other	129,946	15%	259,096	12%
ALL	**374,688**	**15%**	**730,108**	**11%**

Table 10. Share of plug-in hybrid and battery electric vans by country.

Share of plug-in hybrid and battery electric vans						
	Q2/2023		2023 YTD		2022	
	BEV	PHEV	BEV	PHEV	BEV	PHEV
Other	**9%**	0%	**8%**	0%	**6%**	0%
Germany	**8%**	0%	**7%**	0%	**8%**	0%
France	**8%**	0%	**7%**	0%	**5%**	0%
AVERAGE	**7%**	**0%**	**7%**	**0%**	**5%**	**0%**
Italy	**4%**	1%	**4%**	1%	**3%**	0%
Spain	**3%**	0%	**4%**	0%	**3%**	0%

CHARGING INFRASTRUCTURE DEVELOPMENT

Over 607,000 public charging points were installed in Europe by the end of June 2023, which represents an increase of around 7% compared to the end of the first quarter and about 49% compared to June 2022. Approximately 83% supply alternating current (AC). While Sweden registered the largest growth in terms of AC chargers compared to the previous quarter (+22%), Belgium saw the highest increase in direct current (DC) charging points (+21%). Generally, expansion of the DC charging network slowed in the second quarter, with an increase of 3% over the previous quarter. This is down from the 27% growth seen between the end of 2022 and March 2023. In contrast, the AC charging infrastructure recorded an 8% increase, which is aligned with the levels of growth seen earlier this year. On average, at the end of June 2023, there were about 3.5 22 kW-equivalent publicly accessible charging points installed per thousand passenger cars and vans on the road, up from the 3.3 reached by the end of March. Norway (29) and the Netherlands (12) continue to lead, while Italy (1.6) and Spain (1.3) are well below the European average.

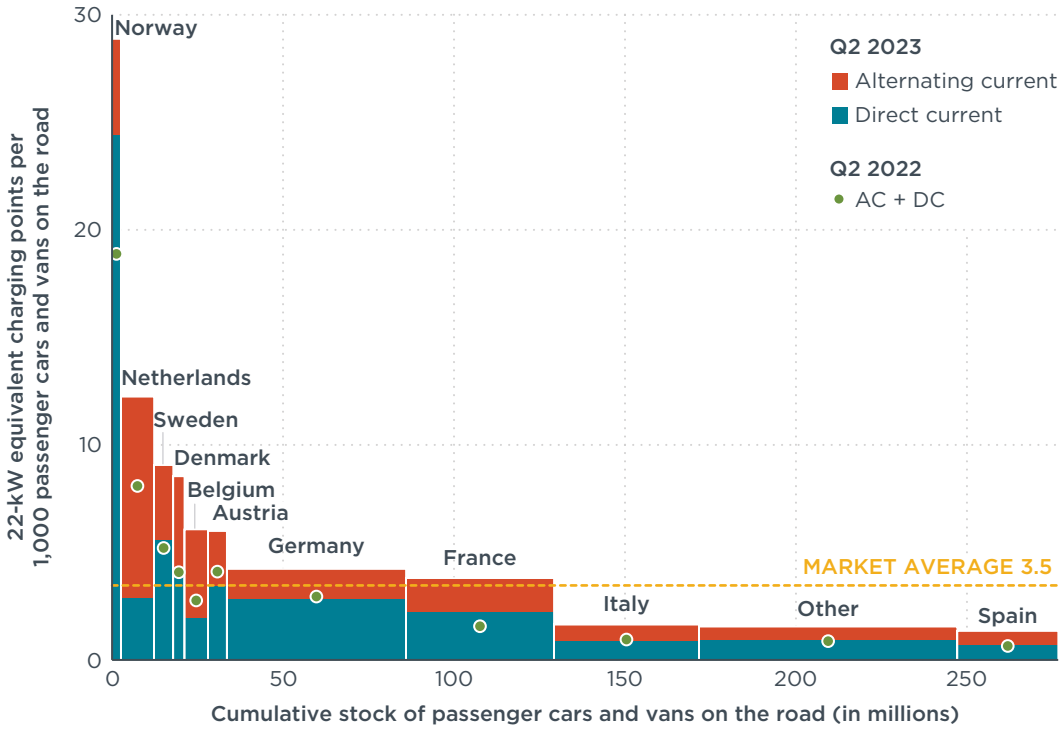

Figure 2. 22 kW-equivalent publicly accessible charging points installed per thousand passenger cars and vans on the road, by type of power output and country by the end of June 2023. The width of the bars provide information on 2022 vehicle stock size. 22 kW-equivalent is used to take into account different power outputs while allowing for comparison among countries.

Table 11. Number of publicly accessible charging points installed, by country and type of power output.

	Number of charging points installed					
	Q2/2023		vs. Q1/2023		vs. Q2/2022	
	AC	DC	AC	DC	AC	DC
Netherlands	135,532	3,935	7%	-8%	42%	42%
Germany	78,183	19,728	6%	2%	26%	49%
France	76,938	15,311	6%	6%	56%	197%
Italy	37,906	6,578	7%	2%	39%	105%
Belgium	32,350	1,960	13%	21%	105%	139%
Sweden	28,402	4,531	22%	0%	48%	79%
Spain	24,938	5,536	15%	-2%	104%	81%
Norway	18,553	9,761	1%	-2%	13%	54%
Austria	21,663	3,334	7%	0%	21%	53%
Denmark	14,809	1,667	16%	8%	58%	151%
Other	49,568	16,476	9%	7%	49%	86%
Total	**518,842**	**88,817**	**8%**	**3%**	**45%**	**82%**

Note: Negative values for Q2 over Q1 2023 growth in DC charging infrastructure for Norway, the Netherlands, and Spain are due to artifacts in the raw data.

DEFINITIONS, DATA SOURCES, METHODOLOGY, AND ASSUMPTIONS

Manufacturer pools: Automakers are allowed to form pools to jointly comply with CO_2 targets. For this factsheet, the definition of pools according to the European Commission, "M1 pooling list", version of 13 January 2023 applies (main brands listed here): BMW Group (BMW, Mini), Ford (Ford), Hyundai (Hyundai), Kia (Kia), Mazda-Subaru-Suzuki-Toyota (Lexus, Mazda, Subaru, Suzuki, Toyota), Mercedes-Benz (Mercedes-Benz, Smart), Renault-Nissan-Mitsubishi (Dacia, Mitsubishi, Nissan, Renault), Stellantis (Alfa Romeo, Citroën, Fiat, Jeep, Lancia, Opel, Peugeot), Tesla-Honda-JLR (Honda, Jaguar, Land Rover, Tesla), Volkswagen (Audi, Cupra, Porsche, SEAT, Škoda, VW), and Volvo (Volvo). For light commercial vehicles, the "N1 pooling list", version 12 January 2023, applies: Ford (Ford), Mercedes-Benz (Mercedes-Benz, Mitsubishi Fuso), Renault-Nissan-Mitsubishi (Mitsubishi, Nissan, Renault), Stellantis (Citroën, Fiat, Opel, Peugeot), Volkswagen (MAN, Volkswagen).

Abbreviations: AC = alternating current; **CO_2** = carbon dioxide emissions; **DC** = direct current; **g/km** = grams per kilometer; **YTD** = year to date.

Technical scope: This factsheet focuses on new **passenger car** and **light commercial vehicle** registrations. **Electric vehicles** here include battery electric (BEV), plug-in hybrid electric (PHEV), and fuel cell vehicles.

Geographic scope: The European CO_2 regulation for vehicle manufacturers applies to all countries of the European Economic Area (EEA). This includes the 27 Member States of the European Union, plus Iceland, Liechtenstein, and Norway. Data for new car registrations and shares of electric vehicles in this factsheet cover all of these countries, with the exception of Bulgaria, Liechtenstein, and Malta. Data for CO_2 emission levels additionally omit Hungary, Lithuania, Poland (until April 2020), Portugal, and Romania (together less than 10% of the total market). Charging infrastructure data are presented for the 27 EU members plus the 4 EFTA countries (Iceland, Liechtenstein, Norway, Switzerland).

Data sources: Dataforce (new vehicle registrations), Eco-Movement (charging points).

Results may change over time: Registrations and/or CO_2 data may be retrospectively updated by some of the national type approval authorities. Similarly, charging infrastructure data may also be retrospectively updated by Eco-Movement. Historical values are regularly updated to reflect all latest data available.

Test procedures: CO_2 values are provided according to the Worldwide harmonized Light vehicles Test Procedure (**WLTP**).

Flexible compliance mechanisms: To facilitate meeting their CO_2 targets, manufacturers can make use of a number of compliance mechanisms. Manufacturers can reduce their CO_2 level by up to 7 g/km by deploying **eco-innovation** technologies. To incentivize eco-innovations, CO_2 savings from eco-innovations per passenger car and light commercial vehicle are amplified by multipliers in the years 2021, 2022 and 2023. For 2023, the multiplier is set to 1.5. As a conservative estimate, we apply the 2022 level of eco-innovation CO_2 emission reductions per manufacturer.[1]

Mass-based targets: For each manufacturer pool, a specific **2023 CO_2 target value** applies, depending on the average mass of the new vehicles registered. For this factsheet, we assume the average mass per manufacturer pool to remain constant with respect to the market situation in 2022.

Charging point: As defined in the Alternative Fuel Infrastructure regulation, a charging point "means a fixed or mobile interface that allows for the transfer of electricity to an electric vehicle, which, whilst it may have one or several connectors to accommodate different connector types, is capable of recharging only one electric vehicle at a time, and excludes devices with a power output less than or equal to 3.7 kW the primary purpose of which is not recharging electric vehicles."

1 Applying the methodology outlined in: Uwe Tietge, Peter Mock, and Jan Dornoff, *Overview and evaluation of eco-innovations in European passenger car CO2 standards*, (ICCT: Washington, DC, 2018), https://theicct.org/publications/eco-innovations-european-passenger-car-co2-standards.

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