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Highlights 2023

Facts & Figures on e-mobility in Austria

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March 2024

Since establishing within the realm of AustriaTech in December 2022, OLÉ - Austria's National Competence Center for E-Mobility, has played an integral part in driving the e-mobility transition in Austria. This report ‚Highlights 2023 - Facts & Figures on e-mobility in Austria' offers an insight into the progress of new registrations, vehicle development and recharging infrastructure. It also describes the most important developments in Austria in 2023.

OLÉ – Austria's National Competence Center for E-Mobility wishes all readers much excitement!

Source: AustriaTech/ Wieser

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What does BEV mean ?
A BEV (Battery Electric Vehicle) is driven by an electric motor and draws the required energy from an accumulator.

47,621
BEV cars (M1)
new registrations

3,265
BEV-LCV (N1)
new registrations

43
BEV-HGV (N2 + N3)
new registrations

58
BEV buses (M2 + M3)
new registrations

2030: 100 % in new registrations

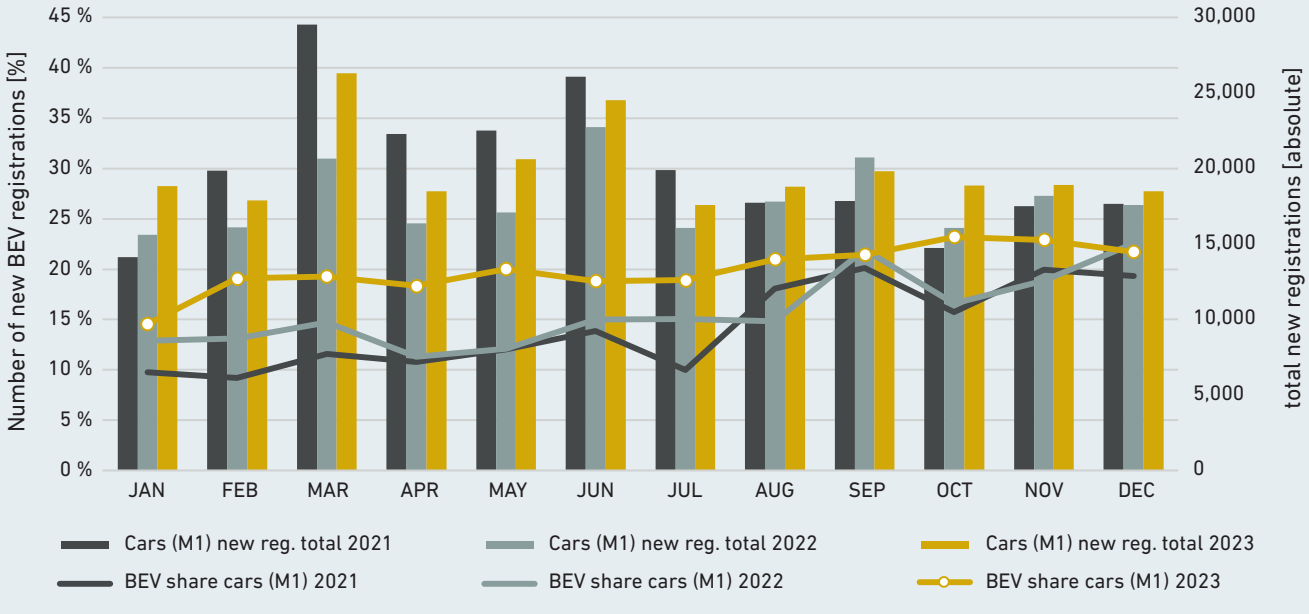
20 % BEV share of cars (M1) in new registrations in 2023

155,490
BEV cars (M1)
in operation

21,344
recharging points
in operation

Source: Statistics Austria, E-Control; Illustration: AustriaTech; Data status: 31/12/2023 resp. 02/01/2024

New registrations per month: BEV cars (M1), 2021-2023

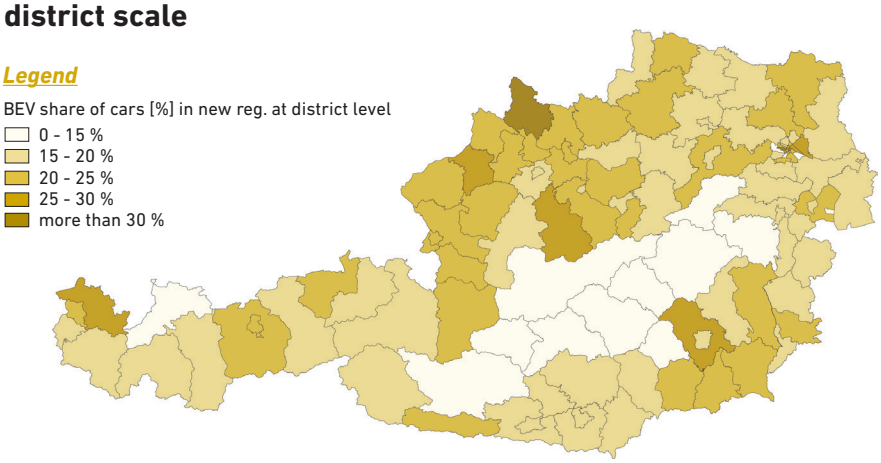


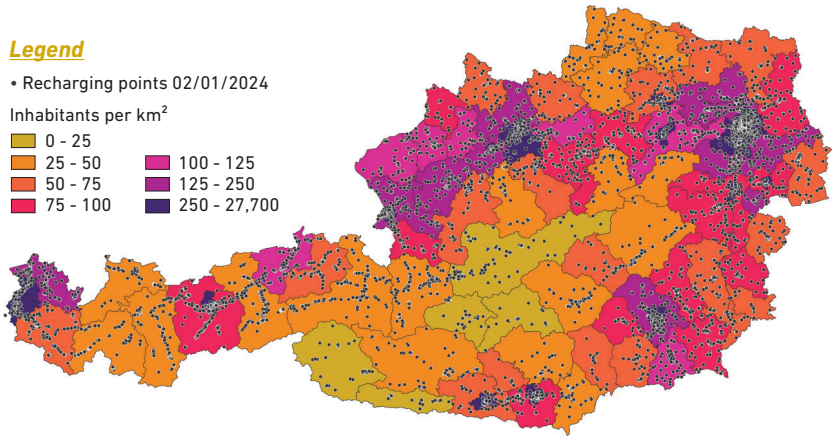
Source: Statistics Austria; Illustration: AustriaTech; Data status: end of the respective month resp. 31/12/2023

Austria, mapped

New registrations in Austria on a district scale

Proportionately, newly registered battery electric vehicles (BEVs) occur particularly often in the districts of Rohrbach, Graz-Umgebung and Bregenz. However, the share of new BEV registrations in far less populated areas is noticeably lower. These differing new registration rates among districts are influenced by specific factors, such as publicly accessible recharging capacity (see the map 'Recharging capacity and motorway and expressway network').



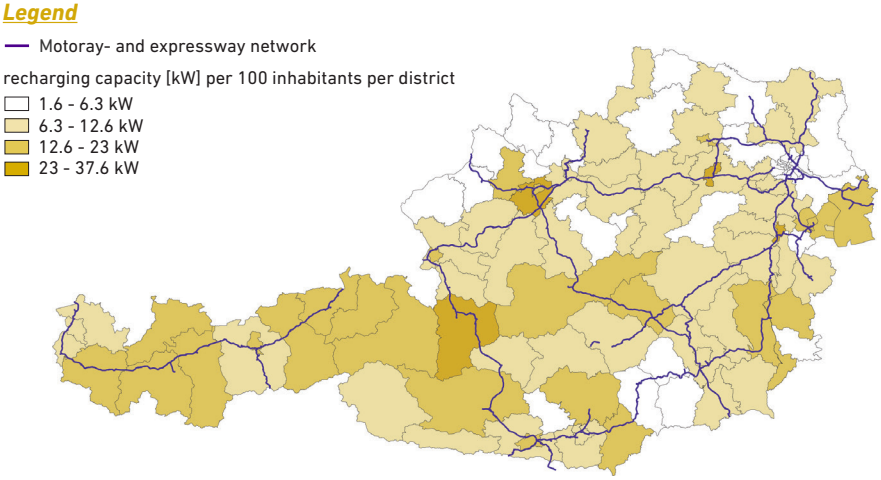


Population density and recharging

The map shows the relationship between population density and publicly accessible recharging points on a district level/scale. In densely populated areas, the recharging infrastructure network is likewise dense, while it is less developed in sparsely populated regions. A glance at the map 'New registrations in Austria on a district level' shows that the charging infrastructure network is not always the determining factor for new registrations.

Recharging capacity and motorway and expressway network

The road network shown highlights connection between the availability of public recharging capacity and the network. A look at the map 'New registrations in Austria on a district level' shows that there are links between new registrations and the availability of public recharging points. However, comparing the 'Population density and recharging points' map clearly suggests that this link is influenced by other factors, such as recharging point distribution and population density.



Sources & Data status: E-Control (02/01/2024; recharging points & recharging capacity), GIP (12/2023; motorway and expressway network), Statistics Austria (31/12/2023; vehicle new registrations resp. 01/01/2023; population density & district areas); Illustration: AustriaTech

Facts

Electrifying achievements

January
As of 1st January 2023, recharging company cars at home is exempt from tax as a benefit in kind. An investment allowance of 15 % was also Introduced in order to incentivise businesses to prioritise the procurement of electric cars.

February
As part of the 'E-Mobilitätsoffensive 2023' e-mobility funding scheme, the Austrian federal government provides around EUR 111 million for the procurement of vehicles and recharging infrastructure.

March
As part of the first and second tender of the 'Zero-emission vehicles and infrastructure' subsidy programme – known as ENIN – support was awarded for 1,600 zero-emission vehicles in classes N1, N2 and N3 and the associated infrastructure.

June
A new calibration legislation for electrical tariff devices entered into force. It establishes provisions for nationwide billing by kilowatt hour on recharging infrastructure.

July
The third and fourth EBIN ('emissions-free buses and infrastructure') tender saw 18 projects supported to the tune of 190 buses in total and funding worth approximately EUR 71 million.

August
Through the third, fourth and fifth tenders under the ENIN funding programme, support was granted for 1,155 battery electric light-duty vehicles (N1), 130 emissions-free heavy goods vehicles (N2+N3) and 20 special vehicles and modifications.

August
Austria reached the milestone of 20,000 public recharging points in August.

September
The Regulation on the deployment of alternative fuels infrastructure (AFIR) was published in the Official Journal of the European Union on 22 September 2023. The AFIR constitutes the central legal basis for the EU-wide expansion of recharging infrastructure.

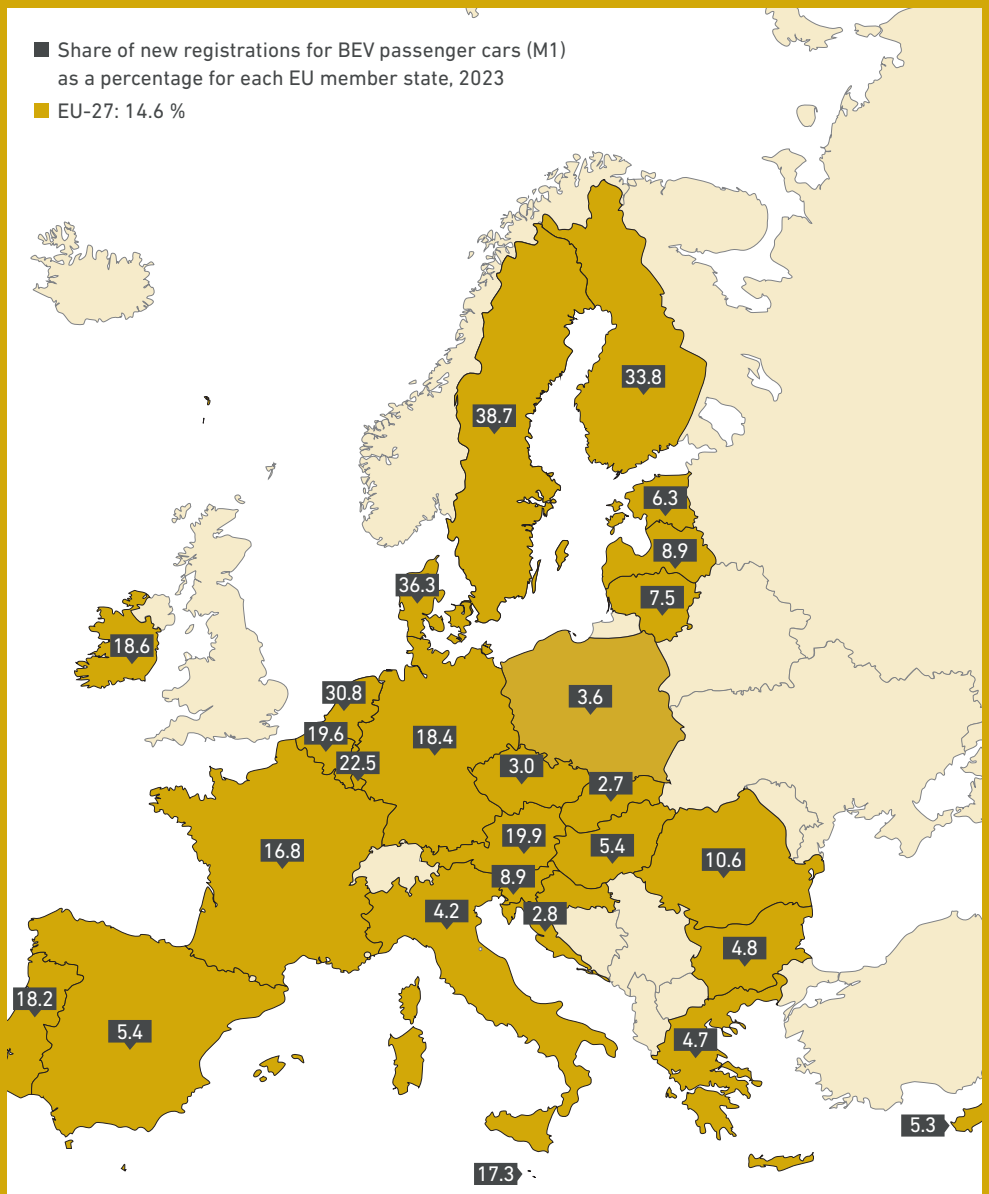
October
At the Alpine Convention in Innsbruck co-organised by OLÉ – National Competence Center for E-Mobility, discussions took place on framework conditions for zero-emission corridors on the top-tier road network in the Alpine region. This laid the foundation for cross-border emissions-free transport.

November
To advance the expansion of fast recharging infrastructure in underserved areas, the 'LADIN' funding programme was launched to the tune of EUR 10 million. The fifth EBIN tender also began in November.

December
BEVs constituted 3 % of the existing fleet in Austria for the first time as of the end of 2023.

Sources: AustriaTech, BMK, FFG EBIN, FFG ENIN, Statistics Austria; Illustration: AustriaTech; Data status: 31/12/2023

Global perspectives



USA

Following California's example, 15 federal states have already committed to only issuing new registrations for e-vehicles (including PHEV) from 2035.

New Zealand

The 'Metlink' transport company in Wellington is planning to decarbonise its bus fleet by 2035. A quarter of the fleet already runs on electricity as of 2023.

Kenya & Tanzania

Kenya and Tanzania are becoming regional e-mobility hubs for the continent of Africa. The focus is on retrofitting BEV buses and two-wheelers.

India

In the years ahead, India is set to replace 800,000 diesel buses with e-buses. In 2023, there were 2.3 million diesel buses and 4,000 electric buses.

Colombia

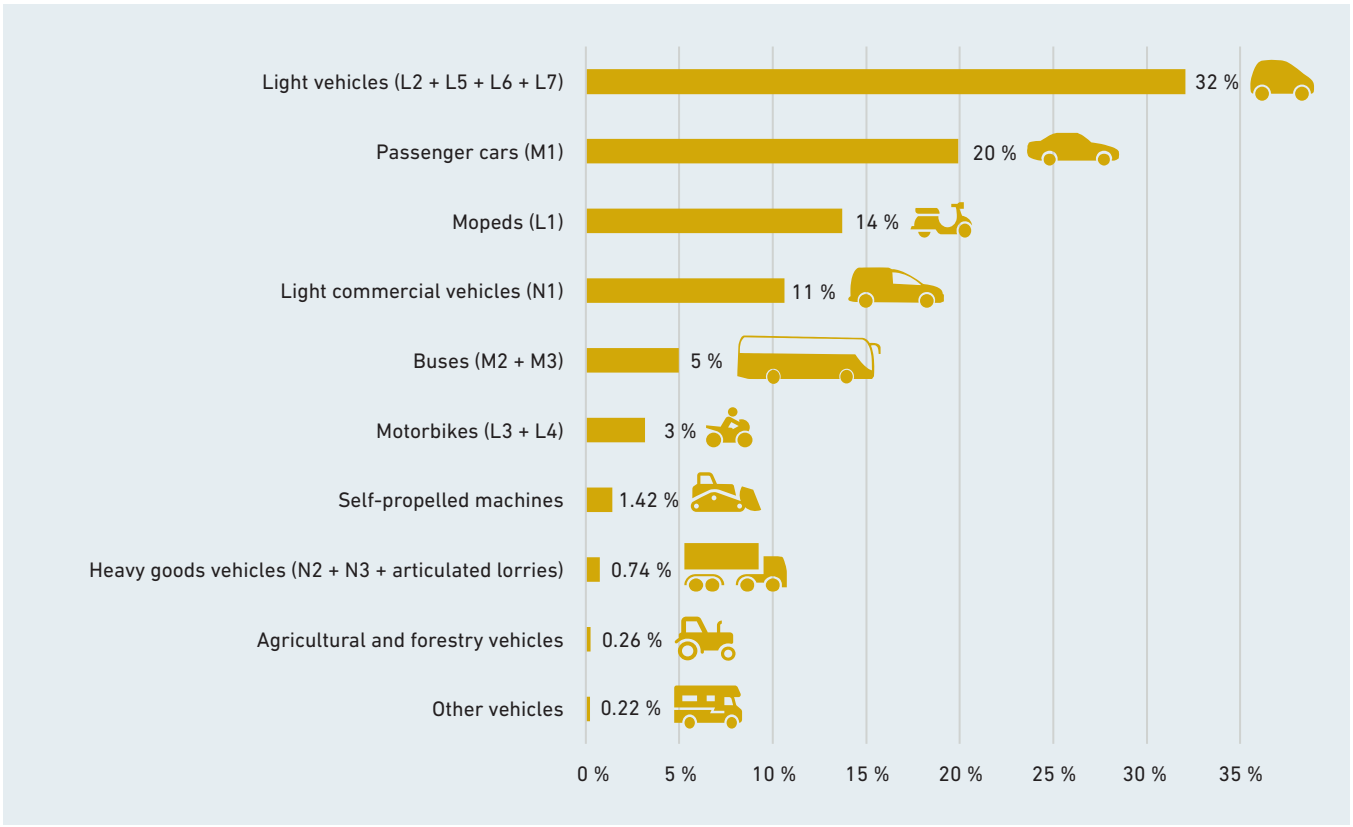
Columbia's first all-electric bus company, 'La Rolita', has been in operation since 2022. Currently, runs 1,485 BEV buses in Bogotá.

Sources & Data status: OpenStreetMap, WikiMaps, ACEA (2024), Economic Times (04/01/2024), Roam (2023), BloombergNEF (01/12/2023), Metlink (03/04/2023), Bloomberg (08/03/2023); Illustration: AustriaTech

Vehicles

Share of new registrations of BEV in selected vehicle classes

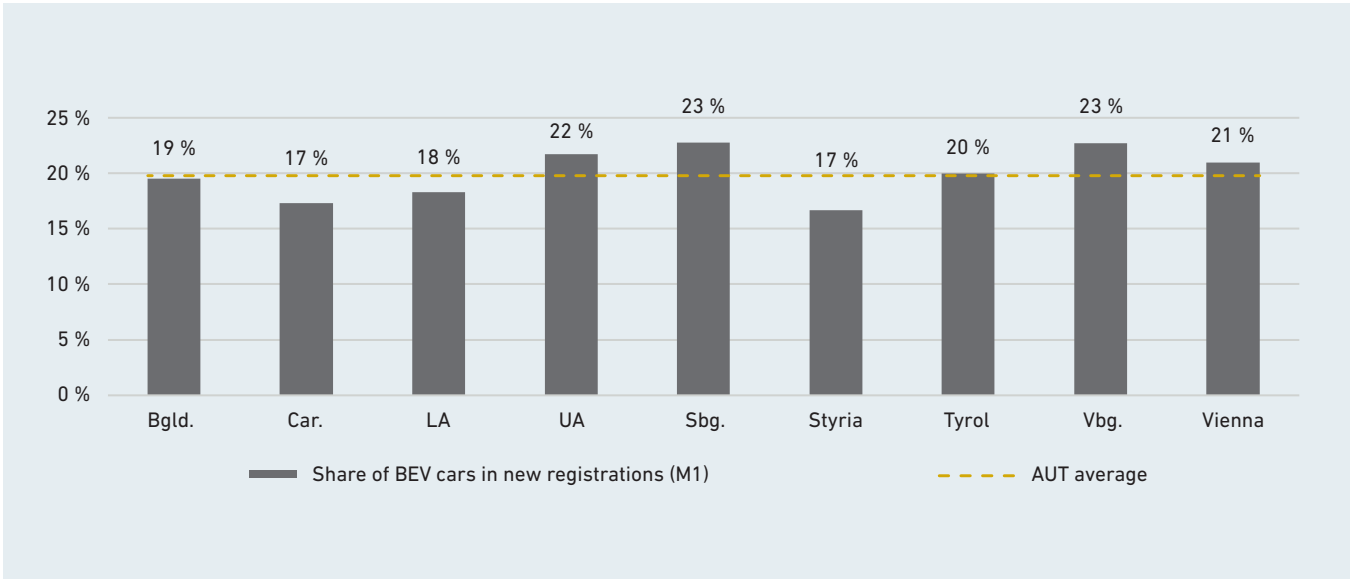
↗ BEV-LV (L2 + L5 + L6 + L7): 495



Source: Statistics Austria; Illustration: AustriaTech; Data status: 31/12/2023

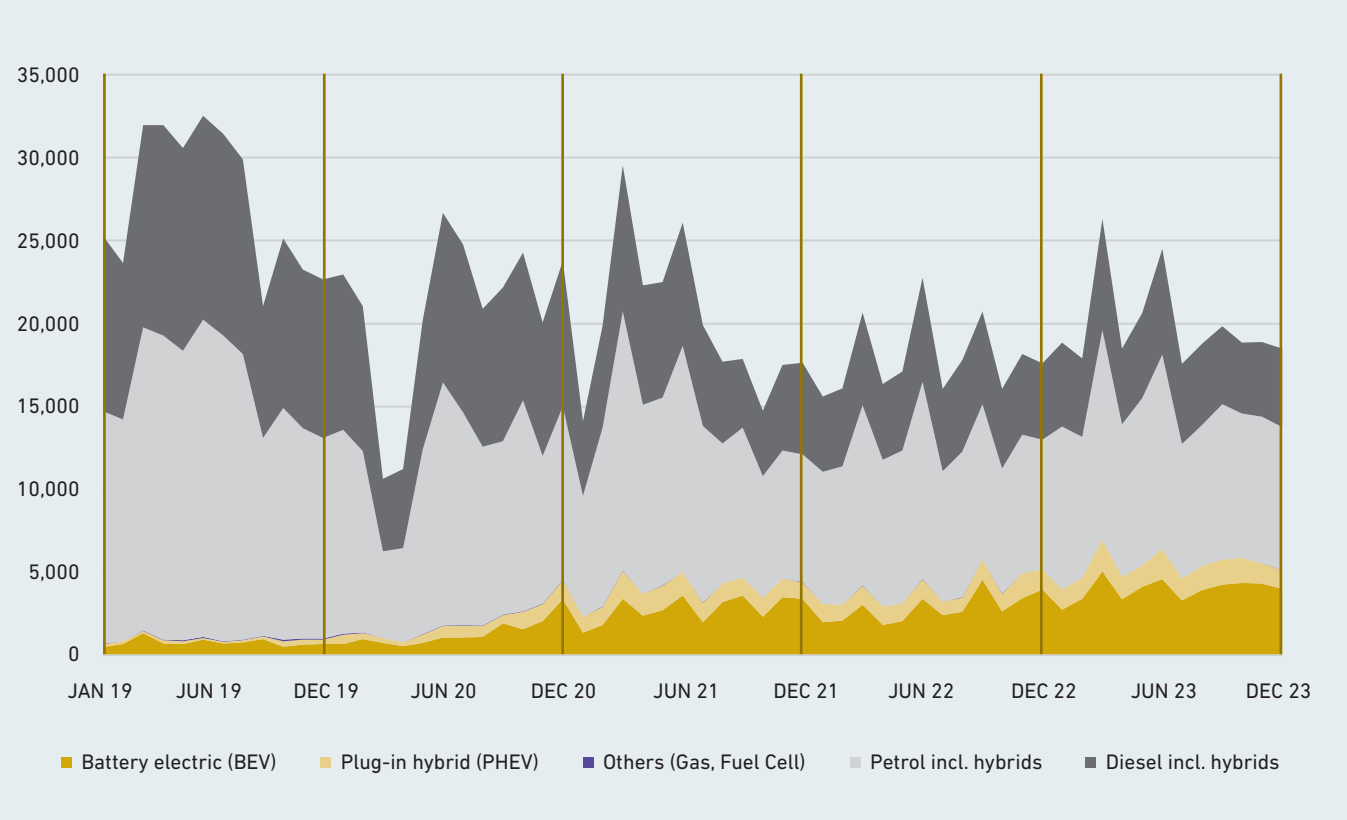
New registrations of BEV cars (M1) by federal state

↗ Top 3 in BEV cars (M1): Sbg. 23 % Vbg. 23 % UA 22 %



Source: Statistics Austria; Illustration: AustriaTech; Data status: 31/12.2023

New registrations of cars (M1) 2023: 5 year trend [absolute values]



Source: Statistics Austria; Additional alternative drive types, particularly monovalent and bivalent natural gas-powered and hydrogen-powered vehicles, are shown in aggregated form for presentation purposes; Illustration: AustriaTech; Data status: End of the respective month

Analysis of new registration data

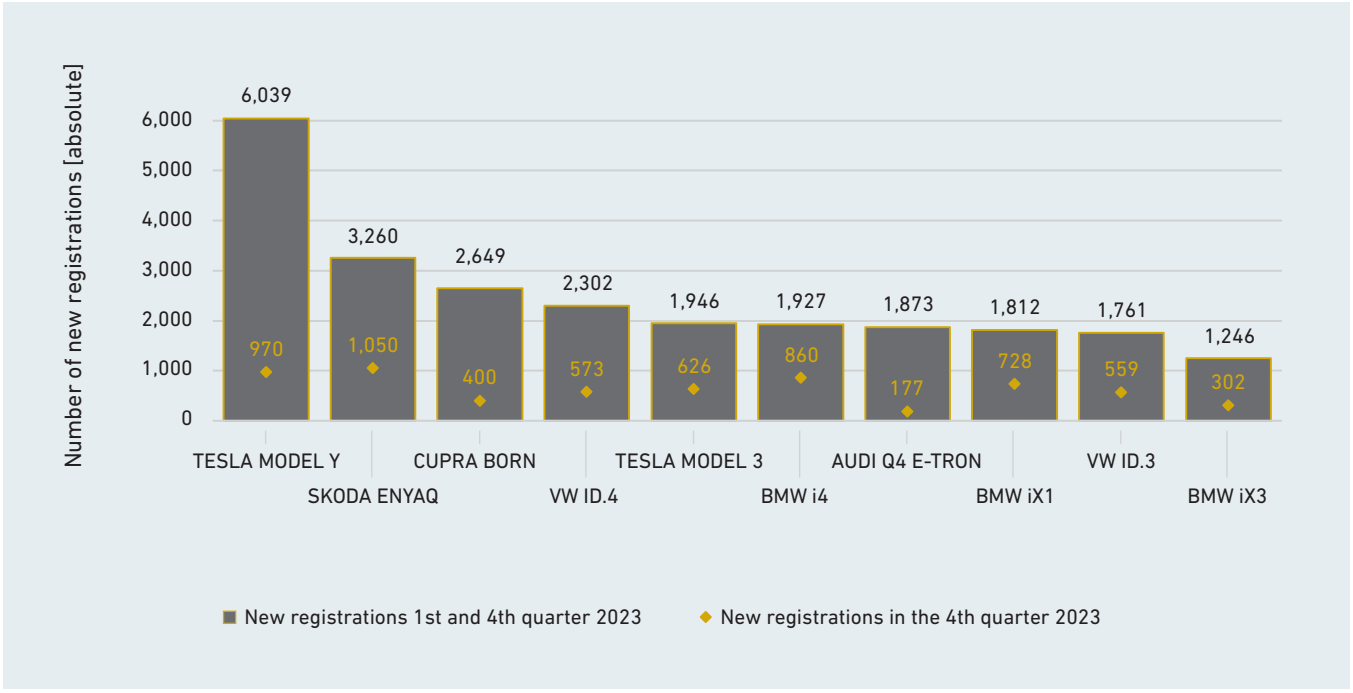
The growth trend for battery electric vehicle (BEV) registrations continued in 2023. New registrations for passenger cars (M1) are also on the rise, but are still below pre-pandemic levels.

Accordingly, the share of BEV new registrations for passenger cars (M1) made up 2.8 percent overall in 2019. In 2021, the share amounted to 13.9 percent, and in 2023, as much as 19.9 percent. Diverse trends are apparent in the federal states: while the 2023 national average of 19.9 percent was reached in Upper Austria, Tyrol, Salzburg, Vorarlberg and Vienna for almost the entire year, BEV new registration figures varied in Lower Austria, with an annual average of 18.3 percent. Burgenland achieved an average new registration rate of 16.4 percent in the first half of 2023. There was a steep growth curve in the second half of 2023 which averaged 22.8 percent. The annual averages for Carinthia and Styria, however, were below the national Austrian average of 19.9 percent. Salzburg achieved a record monthly registration rate of 29.4 percent in November.

For 2023 decarbonising commercial vehicles was established as the focal point. While BEVs reached an annual average share of 10.6 percent of new registrations for N1 classified vehicles, they only made up 0.74 percent for classifications N2 and N3. The ENIN subsidy programme laid the foundation for a successful transformation, with funding commitments for around 512 battery electric and 70 hydrogen-powered N2 and N3 vehicles. The proportion of light-duty vehicles run on electricity also grew. For instance, there was a BEV new registration share of 14 percent in the L1 class and around 3 percent in vehicle classes L3 and L4.

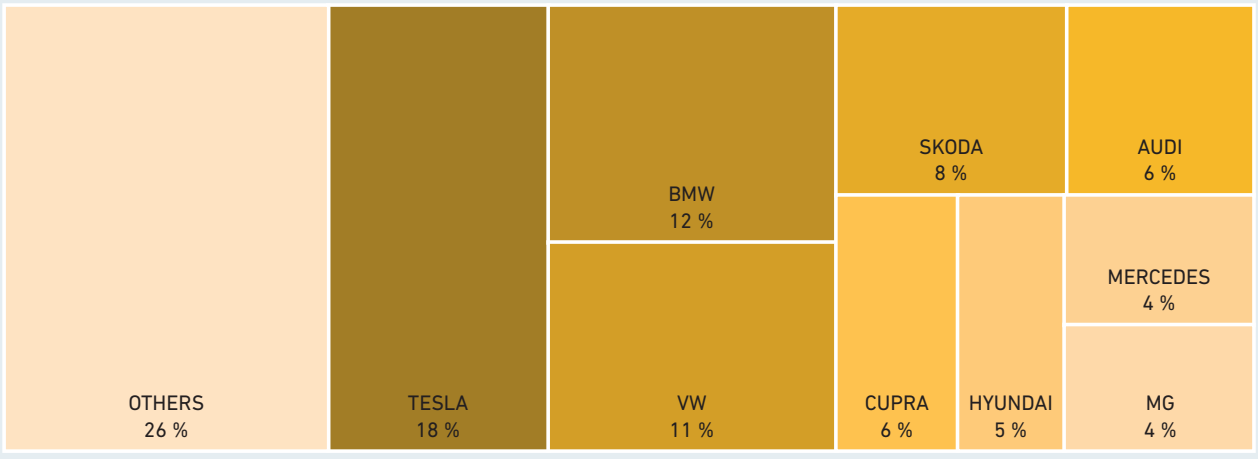
Sources: FFG ENIN, Statistics Austria; Data status: 31/12/2023

Best selling BEV passenger cars (M1) by model, 1st to 4th quarter 2023



Source: Statistics Austria; Illustration: AustriaTech; Data status: 31/12/2023

Best selling BEV passenger cars (M1) by brand, 1st to 4th quarter 2023



While only 23 BEV models appeared in Austrian registration statistics in 2019, 2023 featured as many as 103 different BEV models, quadrupling over the span of only five years. It is also important to note that there are many more model versions. Market shares are becoming increasingly fragmented, resulting in stronger competition between manufacturers. This market expansion is essential for reaching a broader population.

Sources: Statistics Austria; Illustration: AustriaTech; Data status: 31/12/2023

New registrations by vehicle type, fuel type and energy source

Vehicle types, fuel types and energy source	2019	2020	2021	2022	2023
Passenger vehicle class M1	329,363	248,740	239,803	215,050	239,150
Petrol incl. hybrids*	186,943	125,949	120,929	106,805	114,059
Diesel incl. hybrids*	130,423	98,757	70,782	60,735	60,493
Gas (CNG, LNG; mono- & bivalent)	580	407	86	63	11
Plug-in hybrid electric vehicle (PHEV)	2,156	7,641	14,626	13,268	16,956
Battery electric vehicle (BEV)	9,242	15,972	33,366	34,165	47,621
Fuel cell electric vehicle (FCEV)	19	14	14	14	10
BEV registrations: Change compared to previous year	36.78 %	72.82 %	108.90 %	2.39 %	39.39 %
BEV share of new registrations	2.81 %	6.42 %	13.91 %	15.89 %	19.91 %
Further BEV of the classes L, M, N	3,141	3,558	6,155	6,485	6,453
Motorbikes/Tricycles/Quadricycles (class L)	2,617	2,805	3,765	4,335	3,087
Buses (classes M2 + M3)	22	14	11	26	58
Light commercial vehicles LCV (class N1; < 3.5 t)	500	739	2,341	2,067	3,265
Heavy goods vehicles HGV (class N2; 3.5 t < x ≤ 12.0 t)	0	0	36	43	29
Heavy goods vehicles HGV (class N3; > 12.0t)	2	0	2	14	14
Articulated lorries classes (class N1 + N2 + N3)	0	0	0	1	16

** Hybrids with no external recharging option*
Source: Statistics Austria; Illustration: AustriaTech; Data status: 31 December of the year in question resp. 31/12/2023

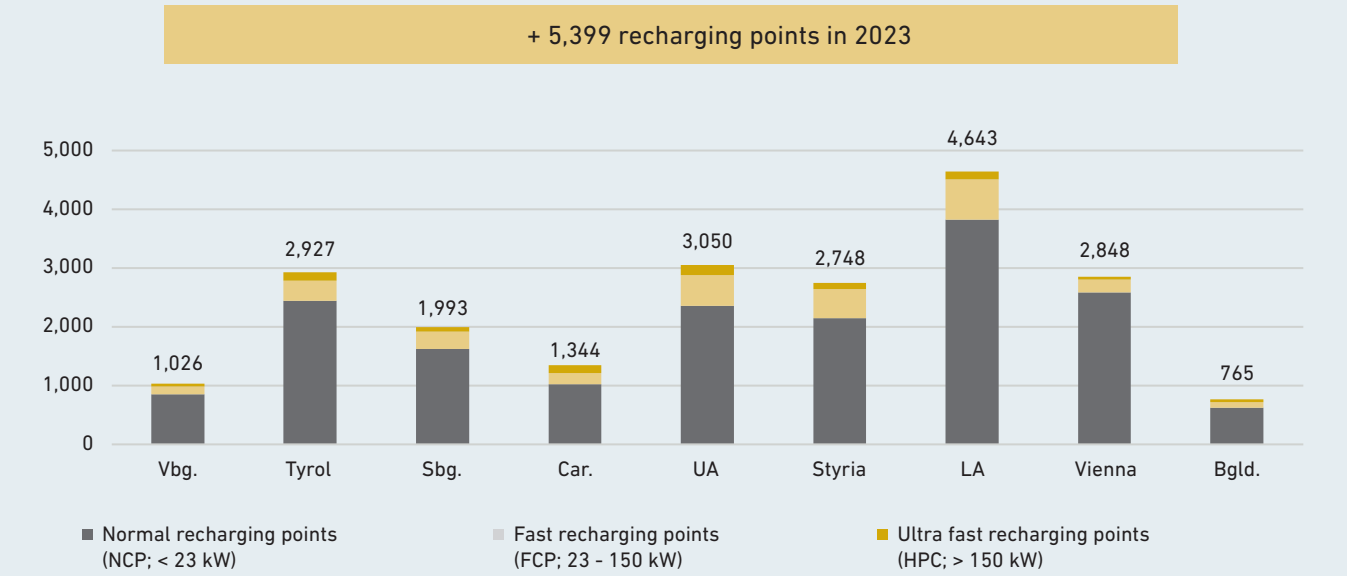
Vehicle fleet by vehicle type, fuel type and energy source

Vehicle types, fuel types and energy source	2019	2020	2021	2022	2023
Passenger vehicle class M1	5,039,548	5,091,827	5,133,836	5,150,890	5,185,006
Petrol incl. hybrids*	2,217,132	2,250,050	2,278,751	2,303,486	2,330,348
Diesel incl. hybrids*	2,778,732	2,775,925	2,743,683	2,690,025	2,637,123
Gas (CNG, LNG; mono- & bivalent)	6,078	6,063	5,787	5,512	5,114
Plug-in hybrid electric vehicle (PHEV)	8,042	15,237	29,021	41,580	56,864
Battery electric vehicle (BEV)	29,523	44,507	76,539	110,225	155,490
Fuel cell electric vehicle (FCEV)	41	45	55	62	67
BEV vehicle fleet: Change compared to previous year	41.73 %	50.75 %	71.97 %	44.01 %	41.07 %
BEV share of vehicle fleet	0.59 %	0.87 %	1.49 %	2.14 %	3.00 %
Further BEV of the classes L, M, N	13,314	16,083	21,564	26,508	31,668
Motorbikes/Tricycles/Quadricycles (class L)	10,533	12,565	15,716	18,621	20,688
Buses (classes M2 + M3)	161	172	174	202	242
Light commercial vehicles LCV (class N1; < 3.5 t)	2,605	3,330	5,627	7,582	10,584
Heavy goods vehicles HGV (class N2; 3.5 t < x ≤ 12.0 t)	2	3	40	81	105
Heavy goods vehicles HGV (class N3; > 12.0t)	10	10	4	18	29
Articulated lorries classes (class N1 + N2 + N3)	3	3	3	4	20

** Hybrids with no external recharging option*
Source: Statistics Austria; Illustration: AustriaTech; Data status: 31 December of the year in question; The 2023 fleet figures for plug-in hybrids and 'Additional BEVs in classes L, M, N' were projected based on old fleet (31/12/2022) and cumulative new registrations in 2023.

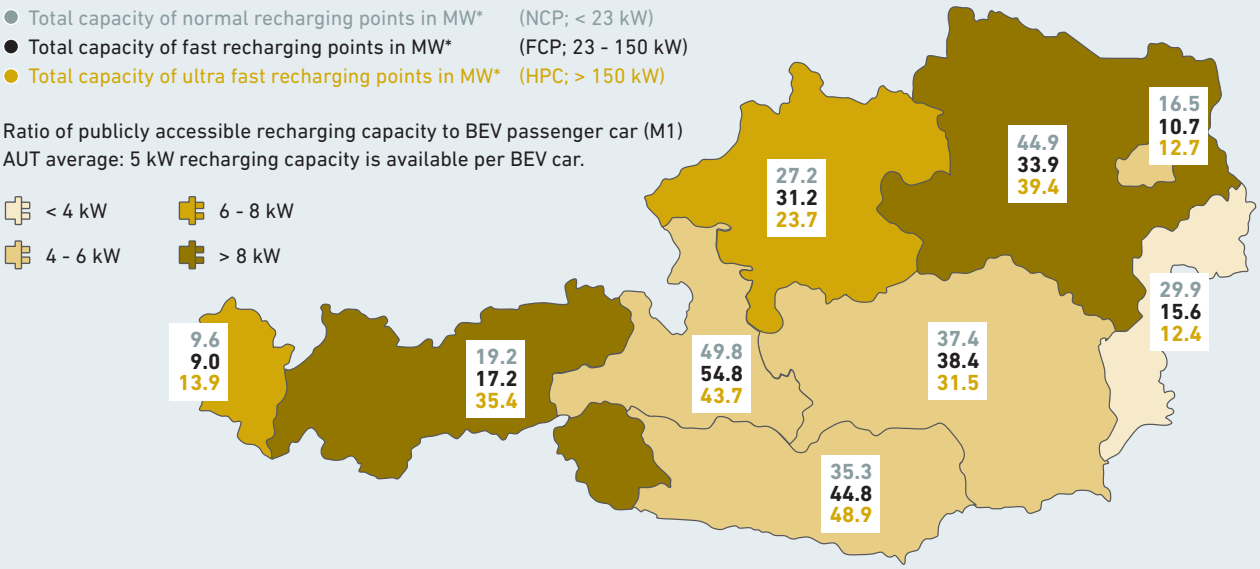
Recharging

Publicly accessible recharging points per federal state, 2023



Source: E-Control; Illustration: AustriaTech; Data status: 02/01/2024

Publicly accessible recharging capacity per federal state, 2023



* Explanation: The white boxes represent the total recharging capacity for the relevant category in megawatts (MW). The map's colour scheme shows how much public recharging capacity (in kilowatts, kW) is available per BEV passenger car in the relevant federal state. Example Vorarlberg: In this state, normal recharging points feature 9.6 MW, just under 7 kW of public recharging capacity is available per BEV overall.

Sources: E-Control, Statistics Austria; Illustration: AustriaTech; Data status: 02/01/2024

Analysis of the development

The public recharging network grew significantly in 2023. OLÉ – National Competence Center for E-mobility analyses the figures and links them to evaluations of the key developments.

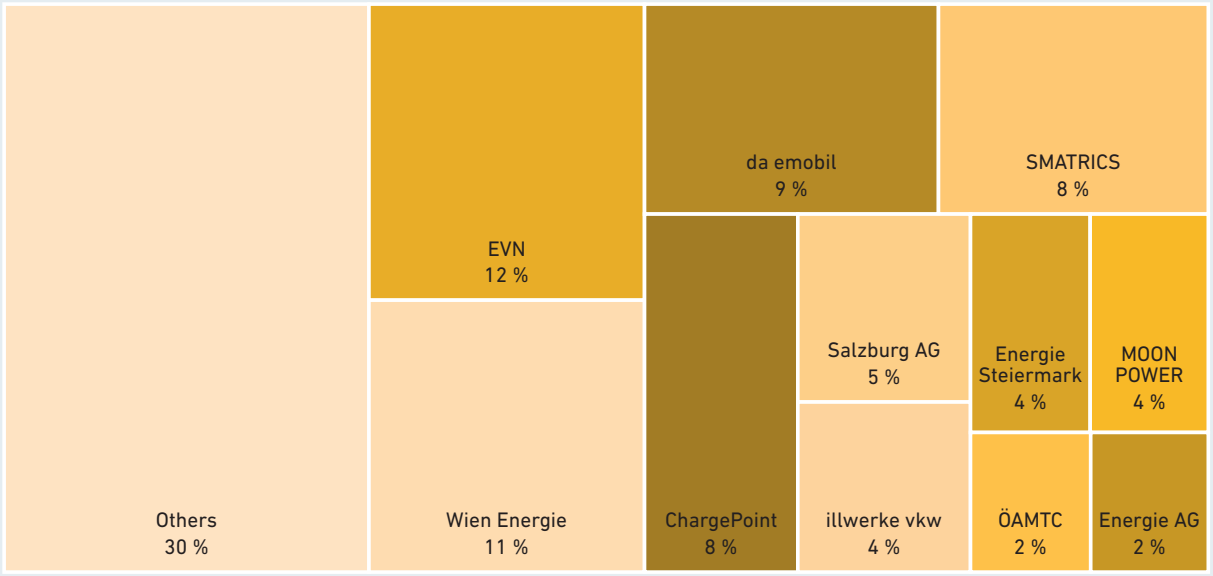
As of the end of 2023, there were 21,344 publicly accessible recharging points. This represents an increase of 34 percent compared to the end of 2022 and 105 percent compared to the end of 2021 – with the figure doubling in just two years. Growth is evident in all federal states, despite differences in their respective expansion strategies. Population density, personal and company recharging options and the local overall transport arrangements have a significant impact on expansion. The number of ultra fast recharging points (HPC > 150 kW) in particular has risen sharply to a total of 902 recharging points. This figure has therefore more than tripled in the past year. The LADIN subsidy programme was launched in November 2023 to ensure comprehensive recharging infrastructure provision. LADIN recharging infrastructure offers targeted support for high-speed recharging infrastructure in underserved areas. The increased focus on HPC recharging points is also evident in the analysis of recharging capacity. The cumulative recharging capacity has risen to a total of 787 megawatts over the past year – increasing by 72 percent compared to the previous year. As of the end of 2023, around 5.1 kilowatts (kW) of recharging capacity was available per BEV in the existing vehicle fleet, indicating an increase since 2022 (4.1 kW). This trend will strengthen due to the ongoing establishment of recharging infrastructure for heavy duty vehicles, allowing for the recharging capacity to soon enter the megawatt range.

There are currently around 450 active charge point operators (CPO) in Austria. Most recharging points are operated by EVN AG (12 percent), Wien Energie (11 percent) and da emobil GmbH & Co KG (9 percent).

Further expansion of recharging infrastructure, particularly for trucks and lorries, is expected to see other players enter the market. The entry into force of the Regulation (EU) 2023/1804 on the deployment of alternative fuels infrastructure (AFIR for short) is expected to result in quality improvements during recharging.

Source: E-Control; Data status: 02/01/2024

Market shares for operators of publicly accessible recharging infrastructure



Source: E-Control, Illustration: AustriaTech, only operators with at least 500 registered recharging points are depicted; Data status: 02/01/2024

Outlook

OLÉ's Outlook – Austria's National Competence Center for E-Mobility

**Electrification of the transport sector is gaining momentum, although there are still numerous obstacles to overcome. Necessary conditions for e-mobility to progress include the establishment of comprehensive (fast) recharging infrastructure, appropriate framework conditions on a national and European level, and greater evidence- and fact-based awareness.
OLÉ – Austria's National Competence Center for E-Mobility is involved in all of these areas.**

Since December 2022, in its role as OLÉ – Austria's National Competence Center for E-Mobility, AustriaTech has been the central coordination office for e-mobility activities nationwide. The database for public recharging infrastructure, new registrations and existing vehicle fleets was expanded in 2023, providing the foundation, on which the determination of different interest groups is being built.

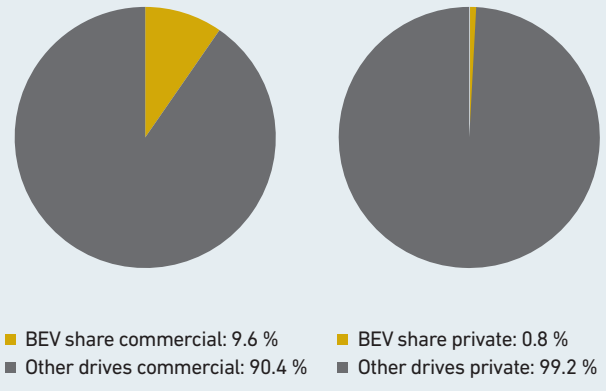
Together with the Federal Ministry for Climate Action (BMK) and the Austrian Research Promotion Agency (FFG), OLÉ – Austria's National Competence Center for E-Mobility developed the 'LADIN' funding programme. The aim of the programme is to build a comprehensive and user-friendly high-speed recharging network in underserved areas. Additional work on subsidy programmes and improved framework conditions is under way with national partners. This is how OLÉ – Austria's National Competence Center for E-Mobility actively supports the new regulation on the deployment of alternative fuels infrastructure (AFIR), which was published in the Official Journal of the European Union on 22 September 2023. The regulation includes binding EU-wide provisions and targets for the setup of e-mobility infrastructure. The EU-wide legal framework offered by AFIR opens up new cooperation opportunities with neighbouring European countries. OLÉ – Austria's National Competence Center for E-Mobility plays a key role in the coordination process, such as at the international networking conference in October jointly organised with the Federal Ministry for Climate Action and the state of Tyrol, which focused on cross-border establishment of infrastructure for alternative fuels on the top-tier road network.

In addition to successfully positioning OLÉ – Austria's National Competence Center for E-Mobility on a national level, it is establishing itself as a coordinator of international e-mobility planning activities. Points of intersection with cross-sector areas such as automated transport, car sharing and (local) public transport will be addressed more closely in the years ahead.

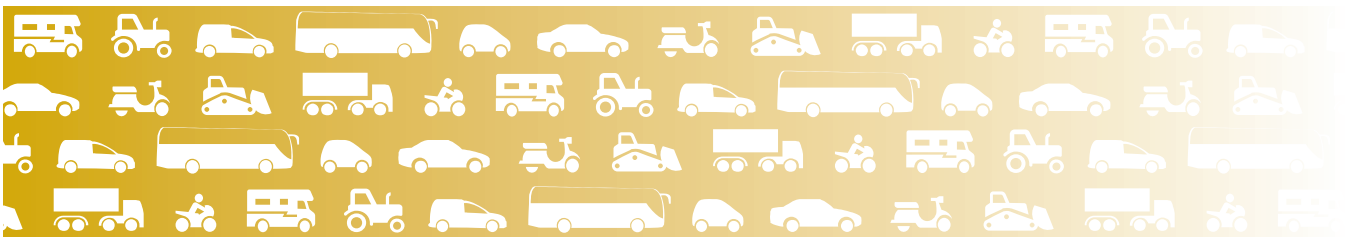
However, decarbonisation of the transport sector still requires support, particularly the decarbonisation of goods vehicles (especially vehicle classes N2 and N3), and of construction site logistics. There are also major challenges on a regional level, where targeted support services are required for local areas, particularly where there are no alternative transport options for individuals (see left). Urban areas also face specific challenges, such as managing private recharging infrastructure in apartment buildings. Finally, and importantly, support is required for raising awareness in e-mobility, as there are still too many myths in circulation.

The team at OLÉ – National Competence Center for E-Mobility will continue to work towards forward-thinking solutions for the e-mobility sector with an evidence-based and committed ethos.

**BEV share of vehicle fleet, 2022:
Commercial and private passenger cars**



BEV share (M1) of commercial fleets (l) and private cars in operation (r)
Source: Statistics Austria; Illustration: AustriaTech; Data status: 31/12/2022



Ladegrund

For the progress of e-mobility, the needs-based and comprehensive expansion of effective and future-proof recharging infrastructure is fundamental. Austria has one of Europe's highest-density recharging networks. To ensure this remains the case, targeted measures are required to assist with the expansion. One major step towards this goal is the launch of the 'matchmaking' platform Ladegrund.

The Ladegrund platform, provided and operated by OLÉ – Austria's National Competence Center for E-Mobility at AustriaTech, helps connect available real estate with recharging infrastructure operators and investors in Austria quickly and easily.

This tackles one of the key challenges of recharging infrastructure projects: suitable locations for investors are rare and their properties (connection capacity, excavation options, official regulations) are difficult to determine. At the same time, site owners can struggle to make connections with recharging infrastructure operators willing to invest and looking to expand their offering in the region.

As a new, free platform for the Austrian e-mobility sector, Ladegrund helps make this process of 'matchmaking' between owners and investors simpler and quicker. Site owners can create and list their properties on the platform in just a few simple steps.

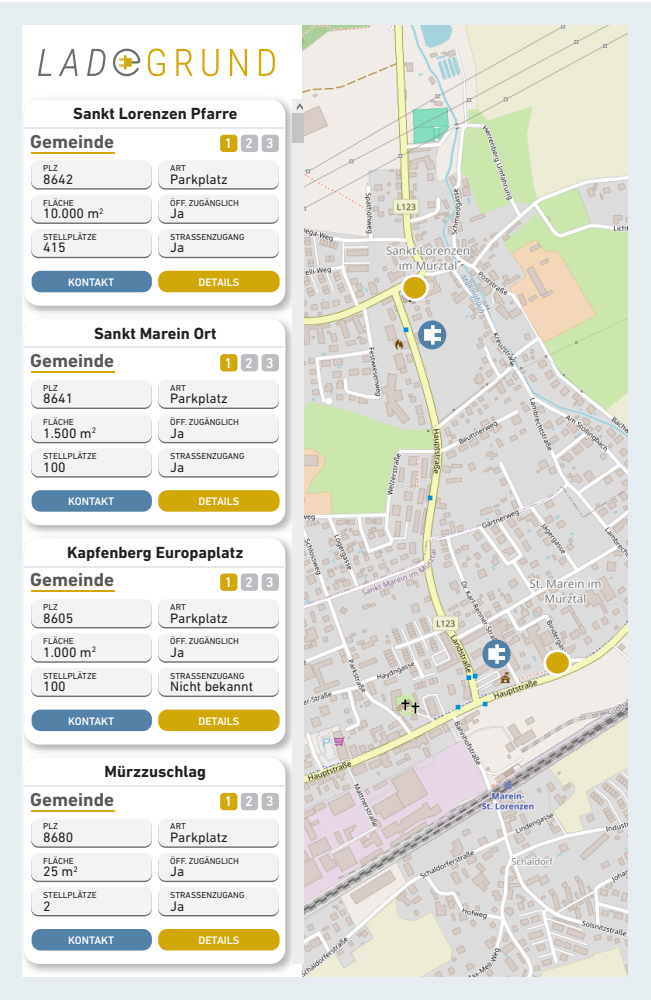
Investors can then use the platform to get in touch with the owners directly. The details required to create a new listing are deliberately kept to a minimum to make the process quick and simple.

The platform lives and grows with the number of listed sites. Full added value for everyone involved can only be achieved if a large number of sites are listed.

The German version of this tool (FlächenTOOL) illustrates the potential these platforms offer. As of spring 2023, over 1,000 sites across Germany had already been registered.

The Ladegrund platform is scheduled to launch in April 2024 at www.ladegrund.at. The team at OLÉ – Austria's National Competence Center for E-Mobility is available to provide more information via email or on LinkedIn.

The AustriaTech team would like to thank the National Centre for Charging Infrastructure at NOW GmbH for their collaboration and cooperation. Together with the German FlächenTool and the Luxembourg version Pro-Charging, Ladegrund is an example of successful European cooperation!



Source: own preliminary visualisation based on the NOW GmbH FlächenTOOL platform; Illustration: AustriaTech

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