

At a glance

# Charging infrastructure after 2025/2030

Study commissioned by the BMVI

Nationale

 **LEITSTELLE**

Ladeinfrastruktur

National Centre  
for Charging Infrastructure



**The electrification of road transport is indispensable to protecting the climate, and a demand-oriented charging infrastructure must be in place to facilitate it. But how great will the demand be over the coming years?**

**The study: “Charging infrastructure after 2025/2030 – Scenarios for market ramp-up” by the National Centre for Charging Infrastructure provides us with this information.**

## **Background**

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The federal government has set itself the target of reducing CO<sub>2</sub> emissions in Germany by 55 per cent by 2030 compared to 1990 levels. This objective can only be attained when emissions in the transport sector drop significantly: through the broad-based electrification of transport.

The assessments of policymakers and industry associations about how much charging infrastructure is needed to supply 10 million vehicles by 2030 vary. A broad spectrum of 350,000 to 1,000,000 publicly accessible charging points makes it clear how important a solid knowledge basis is for a demand-oriented development of charging infrastructure. That is why the German Federal Ministry of Transport and Digital Infrastructure (BMVI) commissioned this study to be undertaken by the Reiner Lemoine Institute (RLI) via the National Centre for Charging Infrastructure under the umbrella of the National Organisation Hydrogen and Fuel Cell Technology (NOW GmbH).

Using scientific methodology, for the first time it is being examined how much and, above all, what kind of charging infrastructure must be built by 2030 to meet demand. The study takes into account new technological developments such as high power charging (HPC) and places user needs at the forefront.

## Results at a glance

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- The stock of e-vehicles may increase much more dramatically by the year 2025/2030 than currently assumed. This is demonstrated by confidential data from the car manufacturers surveyed. Up to 14.8 million battery-electric e-vehicles and plug-in hybrids could be registered in Germany by 2030.
- According to calculations, there will be a charging point available at around 61 per cent of private residential parking spaces by 2030. Publicly accessible charging points will be required to bridge this gap.
- Whether it is at work, while shopping or taking a recreational trip, every single charging situation is important. But apart from private parking spaces, the street environment will play a key role. A demand of 420,000 charging points was calculated for locations where cars are most frequently parked: at the side of the road or in public car parks.
- The demand for publicly accessible charging infrastructure in 2030 is estimated to lie between 440,000 and 843,000 charging points. This number is dependent on how much private charging infrastructure is available and how busy the publicly accessible charging infrastructure is, but also on user charging behaviour: If more charging hubs with fast charging points are used in future, demand will be significantly lower.
- The share of private charging is predicted to increase to 76–88 per cent by 2030, leaving the share of public charging at 12–24 per cent.
- Better availability of private charging infrastructure and the increasing charging capacity of vehicles ensure that in future, fewer publicly accessible charging points will be required. The ratio of e-vehicle to charging point is calculated to be 11:1, and 20:1 by 2030.



## Methodology and data basis

For a valid prognosis on e-mobility of the future, detailed information on current user behaviour and the stock of e-vehicles up to 2030 is needed. The study team conducted intensive stakeholder dialogue with the relevant actors and confidential discussions with the car manufacturers active in Germany. Based on this data, the researchers determined the mobility and charging behaviour of households and thus deduced charging infrastructure demand. Different development scenarios were considered in this process.

The scenarios reflect different assumptions about user behaviour, different speeds of development of private charging infrastructure as well as the capacity of publicly accessible charging infrastructure.

The study applies seven typical charging situations (charging use cases) for the classification of charging infrastructure demand. They include both private and public spaces.



1 Home

**PRIVATE**

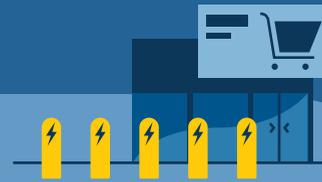
Everyday charging



2 Apartment block



3 Employer



6 Customer car park

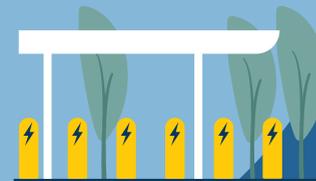


7 Street area



4 Urban charging hub

5 Charging hub at road axes



Interim charging

**PUBLIC**

Fast charging

**⚡ Charging poles**

- 1 Place of residence**  
Garage or parking space at place of residence
- 2 Apartment block**  
Car park (e.g. underground car park of residential buildings, apartment blocks)
- 3 Employer**  
Company car parks on private property
- 4 Urban charging hub**  
Urban charging hub, filling station
- 5 Charging hub at road axes**  
Charging hub at road axes (e.g. truck stops, motorway service stations, motorway car parks)
- 6 Customer car parks**  
Customer car parks or multi-storey car parks (e.g. shopping centres)
- 7 Street area**  
Roadside, public car parks

# Outlook

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The results and the methodology of this study offer a solid basis for the revision of the Masterplan and for providing scientific support to the targeted development of charging infrastructure – also for the future. There should also be a regular exchange between various actors to combine their interests and better estimate the charging demand of users.

Only when the development of charging infrastructure is seen as a common challenge, and when technological variety can be seen as a solution and a strength, can this development be successful.

## IMPRINT

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