

Charging infrastructure for electric vehicles

As most of the energy used for transport in the EU is dependent on oil, facilitating the transition to low-emission mobility is key to reducing greenhouse gas emissions to 40 % below 1990 levels by 2030. Although electric vehicles (EVs) are making inroads into the European automotive fleet, the market for EVs cannot grow unless users can charge them. Accelerating infrastructure development across the EU is therefore crucial to support the transition to a decarbonised transport sector.

Context

One major barrier to market entry for EVs is '[range anxiety](#)' – the [fear](#) of driving one's EV for longer distances without being able to re-charge it. While improving the driving range and battery capacity of EVs is critical, given that the most commonly used lithium-ion batteries carry [limited](#) energy densities and have high manufacturing costs, developing a [network](#) of charging stations on European roads would facilitate market uptake. The creation and deployment of this infrastructure network depends on the supply of electricity keeping pace with heightened energy demand, which is likely to place a [burden](#) on the European electricity grid. [Countries](#) such as the Netherlands, Germany and Denmark are currently capable of handling the heightened demand for electricity – and in turn hold the largest market share of EVs. However, of all new cars bought in 2015 in the EU, only 1.2 % were EVs. All Member States are in the process of improving their network capacities to keep up with a growing EV market share – an issue that also concerns electric buses and bikes.

Towards a single market for electro-mobility

To facilitate the market uptake of electric mobility across the EU, Directive [2014/94/EU](#) on the deployment of alternative fuels infrastructure (AFI) envisages the deployment of a minimum level of infrastructure for both refuelling and charging with alternative fuels such as electricity, hydrogen and natural gas – in both the public and private domain. Furthermore, it seeks to address the standardisation of charging points' technical specifications, in addition to access to information for consumers on the use of alternative fuels. Infrastructure within homes will continue to gain ground, as the Commission has also [proposed](#) that electric charging facilities should be built into new residential buildings with over ten parking spaces as of 2025. The Trans-European Transport Network ([TEN-T](#)) Regulation supports the promotion of low-carbon transport infrastructure, and the Connecting Europe Facility ([CEF](#)) provides financial support. Progress has been made: there are currently over [100 000](#) public charging points available for EVs across the EU – a figure that has almost doubled in the space of two years. The majority are located in the few Member States in which [90 %](#) of all new EVs were sold in 2015: for example, the Dutch network is the [most developed](#), with almost 30 000 charging stations; followed by Germany at 25 000 and France at 16 000. Taking per capita figures into account, Estonia, Luxembourg and Slovenia follow closely behind, with [Estonia](#) becoming the first country in the world to open a nationwide fast-charging EV network. The least-developed networks, with under 30 stations, are in Bulgaria and Lithuania. Member States were required to submit their national policy frameworks on accelerating a coordinated deployment of EV infrastructure in November 2016 – 2017 is therefore set to be a year of further advances.

The European Parliament's position

In its [legislative resolution](#) of 15 April 2014 on the deployment of alternative fuels infrastructure, the Parliament called for an appropriate number of EV charging stations to be accessible to the public by 2020. Their number will depend on how many EVs are registered, with at least one charging point available for every 10 cars. For the Parliament, operators of recharging points accessible to the public should be allowed to purchase electricity from any electricity supplier within the EU, while the prices charged must be reasonable and comparable, as well as transparent and non-discriminatory.

