

Charging infrastructure in Europe fit for the next decade: five key priorities

A Eurelectric Policy brief – April 2020



This document builds on **previous work** by Eurelectric on [policies for sufficient charging infrastructure deployment](#) as well as the results from survey with Eurelectric members on [state of play of EV charging infrastructure in Europe](#).

Electrification of transport within an increasingly cleaner electricity mix¹ is the most effective, efficient and sustainable way to decarbonise the sector, reduce its dependence on fossil fuels imports from outside Europe and eliminate air pollution. This requires an improved strategy for the deployment of charging infrastructure for electric vehicles as quickly as possible, calling for the urgent revision of the Alternative Fuels Infrastructure Directive and TEN-T Guidelines Regulation.

In this policy brief, the European power sector proposes a set of policy priorities for action in the context of the review of Directive 2014/94/EU and Regulation (EU) 1315/2013:

Overarching principles and objectives:

- ✓ Placing clean and smart electrification in the transport sector at the core of the Green Deal;
- ✓ Ensuring the availability of electric vehicles and the relevant charging infrastructure for citizens will be the prominent catalyst for the clean transition of the automotive and energy sectors;
- ✓ Accelerating the roll out of electric charging infrastructure within a competitive environment by increasing financial support schemes and lifting remaining barriers to smart charging in order to ensure the effective integration of electric vehicles in the power system.

Priority 1: Develop a ‘sustainable fuel’ definition with clear focus on electricity for passenger cars

The definition of ‘alternative fuel’ in Directive 2014/94/EU is not fit-for-purpose and does not fully support decarbonisation in the transport sector. **Eurelectric proposes new and separate ‘sustainable fuels’ definitions for light and heavy-duty vehicles as well as maritime** that would address the required levels of ambition under the Green Deal² and the assessment by the European Commission³ on achieving climate neutrality. Classifying fossil fuels as a clean alternative in Article 2 of the Directive is not acceptable in view of the Green Deal objectives. Similarly, charging infrastructure requirements must align with the objective of climate neutrality by 2050.

¹ As of 2019, 60% of Europe’s electricity mix is carbon neutral

² [European Commission, European Green Deal](#)

³ [European Commission, 2050 long-term strategy](#)

What's more, the recently revised Clean Vehicles Directive (CVD)⁴ links with AFID. The CVD defines light-duty vehicles (LDV) in terms of tailpipe emissions expressed in CO₂ g/km and for heavy-duty vehicles (HDV) refers to the definition set in AFID. More specifically, the 50 grams per kilometre definition for LDVs has been accepted as the benchmark for zero- and low-emission vehicles in the CO₂ emissions performance standards post-2020. This benchmark was further reasserted in the EU's green finance taxonomy, whose technical annex also defines low-emission vehicles as those with tailpipe emissions of 50g CO₂/km or less by 2025. To avoid a negative domino effect, Eurelectric proposes a consistent approach in legislation and amended list of sustainable fuels for light-duty vehicles which answers the significantly greater need to invest in zero-emission solutions. This would also reflect the market maturity for passenger cars. Increased attention and political support is at the same time needed for buses and trucks charging infrastructure to attain the desired decarbonisation efforts for these vehicle segments.

Largely in line with the Commission's own figures for achieving net-zero, Eurelectric modelling for deep decarbonisation of the EU economy by 2050 suggests 94% of direct electrification for passenger cars, 48% for trucks and 58% for buses.⁵ This requires a stronger focus on zero-emission technologies leading towards 2025 as transport decarbonisation is essential for achieving EU's 2030 goals.

Technology neutrality should be guaranteed only for energy carriers that can effectively deliver climate neutrality and electricity should be acknowledged as a key energy vector. Recent European Commission decisions on State aid⁶⁷ further asserted that **measures incentivising electric mobility contribute to the Green Deal goals and at the same time outweigh any potential distortion of competition they could lead to**. In this sense, the European Commission should display greater assertiveness in policy making in addition to such ad-hoc decisions.

Priority 2: Revise coverage criteria for charging infrastructure

Eurelectric favours reassessing the assumptions for charging point sufficiency using a new set of criteria, as proposed in our previous work.⁸ Infrastructure sufficiency requirements currently recommend one charging point for ten electric vehicles on the road or at least every 60km on TEN-T Core network. The ratio of electric vehicles to charging points can reveal trends on average but cannot be conclusive for all locations and countries.⁹ Moreover, the minimum distance of 60 km between charging points on Europe's roads has been derived as a recommendation¹⁰ in 2014, primarily based on vehicles with range of about 160 km. Experience in our sector shows that fixed targets usually do not represent customer requirements or user behaviour. In any case, our

⁴ Directive (EU) 2019/1161

⁵ [Decarbonisation Pathways, Eurelectric](#)

⁶ [European Commission approval of State aid measures](#) in Germany

⁷ [European Commission approval of State aid measures](#) in Romania

⁸ [Policies for sufficient EV charging infrastructure](#), Eurelectric (see Section 2.1)

⁹ [Emerging best practices for electric vehicle charging infrastructure](#), International Council on Clean Transportation

¹⁰ [Individual mobility: from conventional to electric cars](#), European Commission Joint Research Centre

sector supports the creation of an EU-wide ‘safety net’ along the TEN-T Core and Comprehensive networks through dedicated and streamlined EU support under the European Commission funding call for the deployment of 1 million public chargers.¹¹

Eurelectric recommends an increase in the number of chargers at single locations along high occupancy roads and spaces according to vehicle range increases and market developments. This could notably occur in the so called ‘urban nodes’ as defined in the TEN-T Guidelines Regulation (EU) 2013/1513, where also project partners can benefit from direct EU funds¹² when their costs are not fully commercially recoverable. In addition, mandating the availability of charging infrastructure in logistical nodes will have critical contribution for enabling last-mile zero-emission freight transport.¹³ Developments of private infrastructure must also be taken into consideration and market gaps have to be addressed, especially for drivers who do not have a private charging option. This would require a more granular approach by Member States’ authorities.

Priority 3: Charge seamlessly all over Europe via an EU-wide harmonisation and interoperability

Eurelectric supports a single market approach to e-mobility services in Europe. In this sense, interoperability is an integral aspect for the development of the e-mobility market in Europe. Ensuring that drivers can conveniently charge at thousands of charging stations across Europe should be prioritised. The focus should be on the ‘what’ and not the ‘how’. The EU should not prescribe how to ensure interoperability, but let the market decide instead. Openness to all methods and technologies in respect to authorisation and payment systems will ultimately create a more competitive market leaving the best choice for consumers. Full service cross-border continuity should occur at the lowest costs for the driver, based on independent, open-access and royalty-free protocols.

A significant obstacle for the functioning of European-wide market is the diverging interpretation across Member States regarding VAT treatment of EV charging services with regards to cross-border transactions. **Eurelectric would like to emphasize that a harmonised EU-wide treatment is necessary to create a predictable framework for investors**, and we remain engaged in the ongoing discussions on this subject. The European Commission could consider special VAT legislation regarding e-mobility or alternatively bring this issue under the scope of EU’s optional VAT Mini One Stop Shop (MOSS) scheme.

Priority 4: Ensure integration of renewables

Eurelectric encourages measures ensuring that **decarbonised electricity is the favoured option for charging**, especially in Member States where CO₂ intensity of the energy mix remains

¹¹ European Commission call for 1M charging points by 2025, Green Deal implementation agenda

¹² Connecting Europe Facility, Cohesion Fund, Horizon and Interreg-programs

¹³ [InterGreen-Nodes](#), Interreg

relatively high. This possibility is becoming a reality as operators of charging points largely select decarbonised energy suppliers but it must be further promoted.¹⁴ This could be achieved via specific requirements in public tenders and green tariff plans on the basis of Guarantees of Origin or via power purchase agreements near ports for example. Moreover, the increased integration of renewables goes hand in hand with smart charging and also has the potential to transform the vehicle as a resource of system flexibility.

Priority 5: Accelerate smart charging and advanced services

Eurelectric strongly advocates for the implementation of smart charging¹⁵ in order to optimise the charging process and reduce costs for grid extensions. As shown by many studies and pilot projects, the impact of electric mobility on the power system can largely be handled if a smart management of charging events is implemented. With regard to public charging infrastructure, smart charging will mainly be needed for public charging in residential areas and cities where people may have no access to private charging points. If not managed properly, simultaneous public charging of electric vehicles at peak hours will severely impact the grid and necessitate important grid reinforcement. As a concrete example, the city of Hamburg downsized the cost of EV charging impact on its distribution grid from EUR 20 million to EUR 2 million by implementing smart charging solutions to manage the 1,000 public charging stations installed in 2019¹⁶.

Moving further, advanced services are expected to further enrich drivers' experience, which will require a minimum set of open and secure data, in particular from the vehicle batteries, to be shared through standardised and secured data access protocols between trusted parties in order to steer the charging procedure. In addition to this, planning of charging strategies should be developed in close cooperation with network operators and vehicle manufacturers.

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¹⁴ [Eurelectric survey](#): 93% of the EU population has the option to charge their electric vehicle on a 100% RES basis but the actual percentage of clean energy is lower

¹⁵ [Joint call to action by Eurelectric, ACEA and Transport&Environment](#)

¹⁶ [IRENA Innovation Outlook, Smart charging for Electric Vehicles](#)