



Plugging into potential: unleashing the untapped flexibility of EVs

Eurelectric policy recommendations

An energy system transitioning to net zero and phasing out Russian oil and gas imports is going to need more flexibility. Electric vehicles (EVs) can become a flexibility asset for Europe's electricity grid thanks to smart charging and vehicle-to-grid technologies (V2G).

Eurelectric's EVision joint report with EY shows that, by 2030, 15% of vehicles on Europe's roads will be electric and by 2050, EVs will reach approximately 250 million, roughly 20 times up from today.¹ Based on this current estimate of EV uptake, this means that by 2030 there will be an estimated 114 Terawatt hours (TWh) of battery capacity available for grid purposes. This could play a huge role in avoiding renewables curtailment during periods of excess supply if drivers are able to store electricity in their EVs.

Smart charging, especially V2G, can pave the way to a more sustainable and resilient energy system. By ensuring the necessary technical standards, market readiness, consumer consent and overall regulatory framework for data exchange, we can unlock this technology to support the grid with flexibility and cut costs for electric drivers.

To unlock this potential, Eurelectric proposes the following actions:

- 1. Implement agreed-upon EU legislation.** Implementation is a key requirement for the large-scale rollout of charging infrastructure, electric vehicles (EVs), flexibility sources and smart charging services. Not only recent legislation such as the Electricity Market Design reform (EMD), Alternative Fuels Infrastructure Regulation (AFIR), Energy Performance of Buildings (EPBD) and the revised Renewable Energy Directive (RED) need to be swiftly implemented, but also previous legislation such as the Clean Energy Package from 2019, with its requirements on flexibility procurement at the distribution level.

EMD

- The revised EMD acknowledges the need to provide price signals in favour of scaling flexibility from resources like EVs, by requiring energy suppliers to offer flexible connection agreements, static time of use (ToU) tariffs or dynamic electricity price contracts.
- When the procurement of local services is deemed the most efficient and effective solution for grid flexibility, market-based mechanisms should be used in accordance with a cost/benefit analysis carried out by the relevant system operator.
- When data coming from dedicated measurement devices (DMDs) are available, they may be used for balancing and settlement purposes to complement the data coming from the main (smart) meter.

¹ "Plugging into potential: unleashing the untapped flexibility of EVs" EY, 2025

AFIR

- AFIR sets binding targets for public charging infrastructure based on EV fleets and distances along the main transport corridors. It also requires that all recharging points built or renovated after April 2024 support smart charging. This should be amended to also require that new or refurbished charge points be made bi-directional, where relevant.

EPBD

- The recast of EPBD requires pre-cabling in new and renovated buildings and mandates charge points in large non-residential parking areas. Each of the installed charge points should be capable of smart charging, and where relevant, be bidirectional. However, the EPBD-targets for pre-cabling should become more flexible and adaptive to the specific use case (e. g. setting targets only on the power output of the charging stations – this target can then be fulfilled by DC or AC chargers suitable for the use case).

RED III

- Article 20a of the revised RED requires Member States to ensure that charge points support the smart-charging functionality, and that relevant vehicle data is shared by car manufacturers with vehicle owners and third parties acting on the owners' and users' behalf at no cost. This includes the ability to adjust electricity delivered to the vehicle in real time, based on data received electronically and, where appropriate, support bidirectional charging.

- 2. Build networks and accelerate connections.** Distribution grid buildout and the acceleration of grid connection processes will be critical to support the rapid uptake of charging infrastructure and electric vehicles, as well as to smartly manage their charging. As demonstrated by our Grids for Speed study, demand-side flexibility, once materialised, can help to reduce annual grid investments of EUR 67 billion to EUR 55 billion alongside anticipatory investments and the digitalisation of grid assets.
- 3. Ensure data protocols and standards.** Data is key for unlocking the flexibility potential of e-mobility, as explicitly outlined in our 2024 report on data interoperability. Alongside charging points and vehicles complying with technical standards such as ISO 15118-20, EU legislation must ensure that customers and third-party service operators have full access through API/open interfaces to a predetermined set of in-vehicle data at no cost (during & outside the charging session), including the battery's state of charge.

Furthermore, customers should be able to choose, based on the data available to them, who will manage the charging of their EV.

4. **Adopt bidirectional chargers onboard.** Bidirectional onboard chargers that are interoperable should be considered for all newly sold EVs on the market. In addition, the application of ISO15118-20 needs to be made mandatory for automakers, as it is the only communication protocol for V2G applications.
5. **Adequate secondary legislation.** Policymakers should ensure that secondary legislation such as the **Network Code on Demand Response finds an adequate balance** between necessary technical requirements for the e-mobility sector while not hindering the rollout and market access of nascent industries, such as V2G.
6. **Revise the Energy Taxation Directive (ETD)** to avoid double taxation and instead apply taxes and tariffs exclusively on the amount of energy exploited by the final user, by means of proper metering. In this regard, the revision should provide guidance on how to exempt electricity consumed for not only stationary but mobile storage in order to cover V2G.

Moreover, subsidies and any fiscal incentives for fossil fuels in the transportation sector should be reduced and ultimately phased out with close attention to the social consequences that may face vulnerable consumers.

7. **Ensure competition.** Overall, the political framework for e-mobility and charging infrastructure should ensure competition and avoid overregulation and regulatory interventions in business models or pricing structures, as this can lead to a distortion of competition and slow down the rollout of charging infrastructure and EVs.

Eurelectric pursues in all its activities the application of the following sustainable development values:

Economic Development

- Growth, added-value, efficiency

Environmental Leadership

- Commitment, innovation, pro-activeness

Social Responsibility

- Transparency, ethics, accountability



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