# EV charging interoperability: Recommendations for further development

Eurelectric recommendations

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Eurelectric represents the interests of the electricity industry in Europe. Our work covers all major issues affecting our sector. Our members represent the electricity industry in over 30 European countries.

We cover the entire industry from electricity generation and markets to distribution networks and customer issues. We also have affiliates active on several other continents and business associates from a wide variety of sectors with a direct interest in the electricity industry.

## We stand for

The vision of the European power sector is to enable and sustain:
- A vibrant competitive European economy, reliably powered by clean, carbon-neutral energy
- A smart, energy efficient and truly sustainable society for all citizens of Europe

We are committed to lead a cost-effective energy transition by:

**investing** in clean power generation and transition-enabling solutions, to reduce emissions and actively pursue efforts to become carbon-neutral well before mid-century, taking into account different starting points and commercial availability of key transition technologies;

**transforming** the energy system to make it more responsive, resilient and efficient. This includes increased use of renewable energy, digitalisation, demand side response and reinforcement of grids so they can function as platforms and enablers for customers, cities and communities;

**accelerating** the energy transition in other economic sectors by offering competitive electricity as a transformation tool for transport, heating and industry;

**embedding** sustainability in all parts of our value chain and take measures to support the transformation of existing assets towards a zero carbon society;

**innovating** to discover the cutting-edge business models and develop the breakthrough technologies that are indispensable to allow our industry to lead this transition.

WG E-mobility

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This document builds on previous Eurelectric work on interoperability in the EV charging infrastructure domain and expands on our sector's policy priorities in this area

## Summary

It is our assessment that it is **still too early to opt in for common communication protocols via EU harmonisation measures,** since a number of future standards are in development but not yet finalised. Moreover, multiple international industry initiatives are in progress to harmonise the existing EV recharging technologies to achieve as much interoperability as possible, and technology neutrality should be guaranteed.

Prescribing a **minimum level of charging interoperability** should be achieved **through consultation with industry experts and standardisation committees at the international / European levels**, without mandating specific protocols, leaving the door open for all existing and upcoming technologies and preventing negative effects on innovation.

The paramount goal to further developing EV charging interoperability is to foster the market uptake of electric vehicles and widespread acceptance of electric mobility. Thereby, commonly accepted standards regarding the communication between the vehicles and charging infrastructure may be an important enabler. Instead of mandating protocols or standards for different interoperability use-cases, European policymakers should provide guidance on standards development by setting out clear guiding principles. These principles should ensure standards and protocol to be open and not commercially-driven, while protecting consumer interests, spurring market competition and ensuring a level playing field.

In recent discussion at the European level, for example, the standard ISO 15118 has most often been referred to as this possible communication standard. However, **promoting standardisation for EV charging interoperability must be accompanied by rules for a level playing field and fair competition** that guarantee the **free choice of customers and prevent anti-competitive behaviour.**

This approach is needed not only in EU legislation but also in corresponding transposition of EU laws at national level. Yet, the current market setup does not ensure this level playing field, on the contrary, current implementations of standards (e.g. ISO 15118) by the vehicle manufacturers may lead to market distortion and anti-competitive effects.

**For further development we have elaborated the following recommendations:**

1. EV charging is a market driven activity, and the value chain is not yet defined. The regulator should leave space for market development and innovation.

2. Interoperability between market players is already a competitive market and the European Commission should not specify a single standard or protocol to enable the interoperability but instead, the Commission should take stand only on the core principles. More generally speaking, the following requirements are needed within a level playing field for all market players:

- Customers must be able to change their e-mobility service provider to the extent that the installation and regular update of charging certificates in the case of ISO 15118 shall be guaranteed in a simple, customer-friendly, immediate manner and with maximum protection of its data

- The free choice of EMSPs for the customers when buying a car or before starting the charging process needs to be guaranteed;

- Simple, immediate and costless charging certificate / EMSP change must be enabled for the customers;

- The PLC (powerline communication) technologies are neither mature nor stable without affordable solution, and already out of fashion in comparison with the latest various wireless solutions with/without smartphone. The PLC is only used in CCS while some 90% of all DC chargers in the world use CAN (Controller Area Network) communication, and not widely used in the power-grid.

3. Customers shall not be restricted in the choice of their e-mobility service provider nor of the charging station accessed – neither at the point of purchase of an electric vehicle, nor before each individual charging operation.

- It has to be ensured that customers have transparency and access to all EMSP at the point of purchase and freedom of choice regarding their preferred method of authentication and payment.
- The preselection of an EMSP by the OEM by default respectively ex-factory creates market entry barriers for EMSPs and leads to a restriction of the customer's freedom of choice.
- Such preselection creates barriers for the customers as there is a lack of information and uncertainty concerning how to change a pre-installed EMSP and the associated costs and efforts. Moreover, other EMSP do not have any possibility to present and convince customers of their offering if an EMSP is pre-installed.

4. All available methods of authentication and payment at the charging station shall be considered equal and the customers need to be able to choose their preferred option freely without technical restrictions.
- A limitation in the customer's freedom of choice regarding the authentication and payment method represents a step backwards compared to the status quo, where every customer can use different charging contracts, e.g. by using multiple charging cards or mobility apps, easily, at any time and without complications.

5. Digitalisation enables shortening the value chain by digital platforms having more than one role in the value chain. This should be enabled. Market participants – especially those with more than one market role – shall neither establish end-to-end closed corporate ecosystems nor restrict market competition.

6. In principle, charging-related functionalities must be accessible to the customers and all parties that have been authorised by the customer to perform these. Concerning the preparation of charging sessions, the thermal preconditioning of the battery, must be directly accessible to customers and by the customer authorised third parties, without navigation via the on-board unit.

7. Data sovereignty lies with the customer. To ensure a fair level playing field and to promote EV charging interoperability among all market parties to the benefit of the customer, data required for processes relevant to the energy industry, the intelligent managing of charging and the development of innovative services must be made available to all market parties without pre-selection or manipulation of data.

# Annex: Overview of existing interoperability protocols and standards in place in the EV charging ecosystem:

Open standards or open protocols ensure that EV charging systems speak the same language. By providing rules and guidelines for data communication open standards unleash new market opportunities for thousands of businesses around the world. There are different interoperability use-cases and different protocols and standards used in the EV charging ecosystem. Some of the most important protocols and standards are:

- IEC 61851 and ISO 15118: Standards like ISO/IEC 15118, IEC 61851-1 and IEC 61851-23 are developed to ensure base **level interoperability of front-end communication and signaling processes for smart charging between electric vehicles and charge spots.** ISO/IEC 15118 and IEC 61851-24 ensure the communication between the electric vehicle and the charging spot. IEC 61850-90-8 and IEC 63110 communicate between the charging spot and the energy provider.

- OCPP (Open Charge Point Protocol) is an open communication protocol between **the charging station and the central system of the charging station operator**. This protocol handles the charging transaction and in addition can exchange information between the vehicle and the electricity grid.

- OSCP (Open Smart Charging Protocol) is an open communication protocol between **the charge point management system and the energy management system of the site owner or the system of the DSO** (Distribution System Operator). This protocol communicates a 24h forecast of the available capacity of the electricity grid. The Service Provider will fit the charging profiles of the electrical vehicles within the boundaries of the available capacity.

- OCPI (Open Charge Point Interface) is an **open roaming protocol between operators and service providers**. This internationally supported independent interface supports affordability and availability of charging infrastructure. The protocol supplies correct charge station information such as location, availability and pricing, manages bilateral roaming, and allows for real-time billing and mobile access to charge stations.

- Open ADR (Open Automated Demand Response) is an open and standardized way for electricity providers and system operators to communicate DR signals with each other and with their customers using a common language over any existing IP-based communications network, such as the Internet. As the most comprehensive standard for Automated Demand Response, OpenADR has achieved widespread support throughout the industry.

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