



E.DSO position regarding the revision of the Alternative Fuels Infrastructure Directive

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Introduction

European Distribution System Operators (E.DSO) is the key-interface between the leading electricity distribution system operators and the European institutions and stakeholders. E.DSO promotes the development and large-scale testing of smart grid technologies in real-life situations, new market designs and regulation. E.DSO gathers 44 leading electricity distribution system operators (DSOs) in 25 countries, including 3 national associations, cooperating to ensure the reliability of Europe’s electricity supply for consumers and enabling their active participation in our energy system.

E.DSO does recognize the strive for a rapid adoption of the revised Alternative Fuels Infrastructure Directive (AFID) and the urge for more ambitious targets regarding the installation of charging infrastructure. In this perspective, mandatory targets for Member States should be expected. E.DSO will, however, support dynamic targets, as the expansion goals for the infrastructure should be designed dynamically, since both vehicle technologies and their use have a significant impact on the required charging infrastructure. The members of E.DSO represent various European countries and accordingly there are different views regarding the adequacy of the National Policy Frameworks (NPFs) in individual countries. Therefore, E.DSO does not react to the adequacy of the NPFs.

Related to this development, correct grid integration of the charging infrastructure is also becoming more important. E.DSO’s recommendations are primary related to the subject of “grid integration”.

From the DSO point of view, the integration of electric vehicle (EV) charging can be considered as a:

- opportunity –EV is a source of additional flexibility in distribution grids. It is part of a wider flexibility system, including other demand response sources. DSOs shall have an active role to enable the maximization of the penetration flexible sources by safeguarding stability of the grid in a cost-effective manner for the common benefit;
- sustainable development – E.DSO supports the EV infrastructure development to contribute to the overarching goal of CO₂ savings and better air quality.

E.DSO recommendations

E.DSO's recommendations regarding the revision of the AFID focussing on charge infrastructure for electromobility are summarized below.

DSO involvement in locating public charging infrastructures

E.DSO's vision is to facilitate the smooth development of e-mobility. E.DSO members strive for a collaborative approach in the development of charging infrastructure. Therefore, **E.DSO supports the involvement of the DSO in early stages of infrastructure planning.**

The procedure to determine the location of public charging points should involve the DSO in order to optimally use the available hosting capacity, which leads to minimization of investment costs related to network reinforcements. Close cooperation of DSO with Municipalities is required for public charging points' localization.

Furthermore, E.DSO is in favour of a strategic and data-driven approach to the implementation (planning) of charging infrastructure. E.DSO recommends stimulating the development of national outlooks for the roll-out of charging infrastructure to predict the growth of EV and the emergence of needed types and location of charging infrastructure. This enables targeted preparation and development.

Support smart charging¹

E.DSO promotes smart charging possibilities for all involved stakeholders. It is our believe that smart charging is needed for the successful integration of electro mobility in the European energy system.

From DSO perspective, smart charging is targeting capacity (and only partially energy) in order to incentivize grid-friendly charging also aiming to minimization of investment costs related to network reinforcements. The European Commission should intensify its efforts to prepare the ground for capacity based smart charging.

Therefore, **E.DSO promotes regulations to support smart charging.** The DSOs need to cooperate with the national regulatory authority to develop a network tariff system that will meet the general challenges of energy transition and in particular EVs. The EC should promote this development. The DSOs should be offered the legal possibility of creating new network tariff systems and enabling the conclusion of specific capacity agreements with customers.

Furthermore, E.DSO promotes that charge stations are able, under specific or critical circumstances, to respond to signals from DSO.

¹ In this document, "smart charging" means all types of functionality, methodology and services that a charging infrastructure can provide. It includes V1G, V2G, V2H/B and any other synergy with the grid or user.

'Connected' and 'smart charging ready' stations²

E.DSO supports the pursuit of "connectivity" and "smart charging ready". These concepts will enable to manage the capacity with which EVs can be charged or discharged. This issue is relevant to several stakeholders, first and foremost EV owners.

This connectivity as well as the appropriate hardware and software enable the EV owner / charging point owner to execute smart charging. This in turn allows the EV owner / charge point owner to adjust the charging capacity to (new) network tariff schemes and other flexibility services (from other stakeholders). In addition to enabling contractual smart charging, it is also necessary that the technical feasibility is guaranteed.

E.DSO promotes that **all** charging stations are “connected” and “smart charging ready”, including charging stations on private and semi-private terrain above a certain capacity demand.

Furthermore, E.DSO notes that publicly accessible and private charging points should be registered for the awareness of DSOs, for network loads analysis & operation, including the possibility of using it as a sources of flexibility.

3-phase charging over 1-phase charging

E.DSO promotes 3-phase charging over 1-phase charging to prevent phase imbalance and grid problems. Single-phase EV charging stations should be limited to the common power consumption of household devices, up to 3.7 kW.

Interoperability and further standardization of technical requirements for charging stations and involved communication standards

E.DSO supports interoperable technical standards that enable an open and uniform environment for the benefit of EV users, manufacturers and market actors. Such standards are aimed, in addition to facilitating the EV market, also to allow DSOs to efficiently and safely operate the grid. E.DSO in this area especially strives for communication standards utilizing smart charging like e.g. ISO 15118 and sees existing potential for improvement (in terms of standardisation). E.DSO considers the completion of appropriate communication protocols and standardisation in this area a necessary precondition for smart charging.

Furthermore, **E.DSO supports the open and free availability of data** useful from a grid perspective for smart charging (and other means).

² There is a connection that allows communication with the charging station and the charging station (and the system communicating with the charging station) contains appropriate hardware and software for receiving and processing smart charging signals.

Mandatory implementation of cyber security requirements for charge infrastructure

E.DSO considers mandatory cyber security requirements as a precondition for grid integration and well-functioning charge infrastructure.

Charging infrastructure must be secure throughout Europe, both in terms of physical security (safety) and cyber security. The combined capacity of charging stations of a certain size can affect the continuity of energy supply in Europe. Vulnerabilities in cyber security could potentially endanger this continuity.

In addition to developing the appropriate cyber security requirements, charge point operators (CPOs) should be classified as Operators of Essential Services (OES) in accordance with NIB guideline. This is necessary to ensure that proper cyber security measures are mandatory. The purpose of the NIS Directive is to guarantee continuity of energy supply in Europe. All the measures in the Directive are aimed at this, including the definition of the OES. There is no doubt that CPOs of a certain size also meet this definition.

Power quality impact of EV's research

E.DSO promotes more research on power quality (PQ) impact of EV's and as such will support any subsequent additional mandatory PQ requirements and tests/certification.

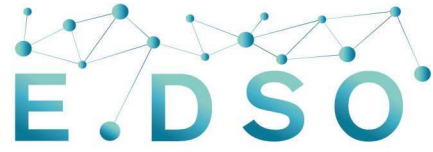
Now it is gradually becoming clear that EV charging will have an impact on the power quality of the grid, even if it is not yet clear what exactly this dimension will be. Therefore, E.DSO calls for further research and collaboration in the field of PQ and EV, more tests, as well as preparation for additional standards (and their enforcement) in this area.

Final remarks

E.DSO sincerely hopes that this document will contribute to the sustainable and well-planned development of the charging infrastructure. In relation to the review of the Alternative Fuels Infrastructure Directive, attention was drawn to the recommendations regarding:

- stimulating DSO involvement in locating public charging infrastructures;
- smart charging support;
- stimulating “connected” and “smart charging ready” stations;
- supporting 3-phase charging compared to 1-phase charging;
- improving interoperability and further standardizing technical requirements for charging stations and related communication standards;
- stimulating the mandatory implementation of cyber security requirements for charging infrastructure;
- promoting further research on power quality impact of EVs.

The above-mentioned aspects will significantly improve the integration of electromobility in the power grid. In this way, the increased hosting capacity of the grid for EV's can be achieved and thus contribute to the complete transformation of the energy system, the overarching goal of CO₂ saving and improved air quality at acceptable network reinforcements costs.



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