POWER DRIVE

How DSOs can integrate the E-Mobility Boom

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The rapid uptake of Electric Vehicles throughout Europe is now very much underway. A recent Eurelectric and EY study on E-mobility estimates that the number of EVs is expected to grow to 65 million vehicles by 2030 and then double to 130 million vehicles by 2035. Just this week, the European Parliament gave its final approval for legislation on car fleet CO2 standards for 2035: it requires a 100% reduction of emissions for all new vehicles put on the market – which effectively rules out new petrol and diesel cars from that date. This will inevitably fast track the deployment of EVs. Likewise, the estimated number of chargers to sustain this ramp up would grow to 65 million by 2035 in order to bear the additional 200 TWh demand caused by wider EV penetration. The grid must be prepared to become one of the key enablers of E-Mobility.

In addition, the recent Eurelectric Study "Connecting the Dots", highlighted a compilation of trends that will substantially impact the European grid and make its upgrade urgent: a general increase of the total power demand (+ 1.8% by 2030), a fundamental change of the generation mix (+70% of the incoming 510 GW of RES capacity will be connected at distribution level). RePowerEU has now added 41 GW of wind power, 62 GW of solar PV to the Fit-for-55 targets, bringing cumulative renewables capacity to 753 GW by 2030. We also observe a very fast and important shift towards a much more electrified society with the use of heat pumps or electric vehicles that will be connected at distribution level. The study estimates that €375-425 billion of investments are needed by 2030 to make them fit-for-purpose in an increasingly decarbonised, decentralised, and digitalised power system. While this may seem challenging, the overall societal benefit massively outweigh the economic impact.

On the other hand, grids and Distribution System Operators (DSOs) will benefit from EV uptake thanks to the flexibility that solutions such as smart and bidirectional charging could offer. Meanwhile, Original Equipment Manufacturer (OEM) clients are concerned about the infrastructure's capacity to sustain their needs to charge up their vehicles. In the middle of the value chain, Charging Point Operators (CPOs) and Mobility Service Providers (MSPs) are linked to both the evolution of grids and OEMs' capacity to transition to EVs. CPOs are especially concerned that grid constraints might represent a roadblock for infrastructure deployment. Finally, institutional bodies and cities planners are directly involved in the ramp up of EVs.

In light of these strong dependencies, it is of mutual benefit that the actors of the whole value chain - DSOs, CPOs, MSPs, OEMs, retailers, consumers and public actors - have a say in E-Mobility discussions to help build a common understanding.

Consequently, Eurelectric has launched a series of Roundtables dedicated to increasing the visibility of DSOs on e-mobility issues, reuniting all members of the ecosystem, identifying bottlenecks in relation to distribution grids, and producing policy recommendations that could alleviate them. Comprehensive conclusions are available in the annex.

Joint Declaration
Power Drive: How DSOs can integrate the e-mobility boom

As part of the Commission's REPowerEU plan and Fit for 55 legislative Package, by 2030 the power system needs to integrate over 750 GW of additional wind and solar capacity generation, 50 million heat pumps and 50-70 million EVs.

It is widely acknowledged that we are shifting towards a much more electrified society where most of the assets will be directly connected at distribution level. This might create challenges for the Distribution System Operators (DSOs) who manage the distribution grid, especially regarding:

- **Connection procedures** which are sometimes so lengthy that Charge Point Operators (CPOs) might have to change their original plans. The critical point is not the connection itself, but the activities related to the authorisation and installation of the charging point, which in a lot of cases accounts for the vast majority of lead time.
- **Network planning** is a forward-looking exercise to estimate the impact of additional future loads, including EV charging infrastructure, on the distribution grids. Getting access to reliable and accurate forecasts is key to security and quality of supply, implementation of interventions in advance, and hosting the capacity necessary to electrify the transport sector. All while establishing the most cost-efficient solution.
- **Congestion management.** An unmanaged approach to charging infrastructure risks creating major congestion. Already heavily loaded grids could become bottlenecks in the e-mobility rollout. The greatest impact in increased load from unmanaged charging will be felt when the EV peak coincides with the peak in general electricity usage.

We, the signatories to this declaration, would like to propose policy recommendations that could alleviate the above-mentioned bottlenecks pertaining to the deployment of E-Mobility in relation to the distribution grids:

Connecting Faster

To connect faster, we strongly believe in the importance of digital tools and digitalisation as a means to streamline procedures for a new charging point while making them more transparent from the applicants' point of view. We support streamlining permitting and connection procedures issued by public authorities and DSOs respectively to decrease the amount of time needed for a new connection. We support close coordinated contact between public authorities, DSOs and CPOs. It is of mutual benefit since public authorities will benefit from DSO expertise while DSOs and CPOs will have the opportunity to accelerate the EV Charging Infrastructure ramp-up.

Thus, **we call on European and national policy makers to:**

1. Promote the creation of a digitalised grid connection procedure

- ✓ Achieve the digitalisation of procedures by systematising the use of **DSO digital portals as well as online portals from the relevant public authority** to track progress at the different steps of the connection procedure.

- ✓ **Support the implementation at EU level of one-stop-shop platforms (cf Italian example with Simplification Decree):** To make the entire process, from its very first step (grid request) to final installation more fluid, DSOs, Municipalities, CPOs and other relevant actors should have a digital and integrated platform dedicated to e-mobility to organise all related and interconnected processes, enable progress tracking, and provide specialised support to the entities involved.

- ✓ **Amend article 18 of the Electricity Regulation n°2019/943** "charges for access to networks, use of network and reinforcement" to explicitly integrate the cost related to the digitalisation of connection procedures into the network charges for access to the network. National Regulation should be designed in a way that makes sure that DSOs recover all costs related to digitalisation.

- ✓ **Amend article 33 of the Electricity Directive n°2019/944** "Integration of electromobility to the electricity networks" to mandate Member States set up **minimum standards based on time-based KPIs focusing on the level of digitalisation of connection procedures for DSOs.** These minimum standards shall be defined after a consultation process involving DSOs and market parties.

2. Standardise the grid connection procedure

- ✓ **Create a new provision in the upcoming revision of the Electricity Directive 2019/944 related to the standardisation of grid connection procedures. Request the setup of guidelines at national level for a standardised process that includes a mandatory timeframe based on a best estimate from DSOs and includes a transparent methodology on the status reporting of new requests.** It should be taken into consideration that standardised grid connection procedures are sometimes already defined in national regulations.

Key elements of standardised procedure should include:

1. A timeframe

- ✓ **Support response time requirements for Public Administration** in a similar manner to what is proposed in the current Council Regulation laying down a framework to accelerate RES deployment.

2. A transparent methodology on the status of new requests

✓ **Promote the introduction of a ticketing system involving public authorities and DSOs** as best practice relating to the status report of new requests. A ticketing system is **a management tool that processes and catalogues customer service requests.**

3. A transparent methodology on the sharing of data

✓ **Create fair and transparent data access requirements** (e.g. DSO portals) and specific data points to be provided in the ongoing drafting of Implementing Acts on data access & interoperability as set in article 24 of the Electricity Directive 2019/944 "Interoperability requirements and procedures for access to data", when not already done.

3. Support a stronger cooperation framework between DSOs, CPOs, and public authorities

✓ **Advise DG MOVE** on EV charging infrastructure-related issues **by showcasing best practices of public authorities supporting the deployment of recharging infrastructure** (final report in progress) in the **Sustainable Transport Forum sub-group** so as to ensure streamlined and effective coordination between national, regional, and municipal levels regarding the roles and responsibilities of each competent stakeholder in the deployment of recharging infrastructure.

✓ Revise the **Communication of the Urban Mobility Package** that sets definition and implementation conditions of SUMPs under its 3rd paragraph to integrate that **SUMPS shall be coordinated with DSO network development plans and vice versa**, and that SUMPs shall prescribe mandatory consultations with DSOs and **CPOs.**

Planning better

It is important to distinguish between:

- ***Short-term planning:*** *network planning performed for a specific connection requirement (e.g., integration of a known number of EV chargers in a specific area on a specific network capacity in LV)*
- ***Mid/long term planning:*** *overall network planning based on mandatory Network Development Plans (NDP) to be published by the DSO at least every two years according to Article 32.3 of the Electricity Directive (EU) 2019/944.*

Both are forward-looking exercise where access to reliable and accurate forecasts of future electrification trends is key, notably to limit congestion.

Thus, **we call on European and national policy makers to:**

1. Support the implementation of the Network Development Plan in Europe (NDP)

- ✓ **Amend Article 32(4) of the Electricity Directive in a way that would expand the system users to be consulted to include CPOs, OEMs, MSPs, or their relevant associations as well as technical agencies and other stakeholders when relevant.** They can provide information and data to improve the accuracy of a DSO's forecast.

- ✓ **Set a Mandatory publication of a NDP consultation's outcome, such as via a DSO or NRA website.** By providing more information about current and future network requirements, DSOs will help the e-mobility industry identify opportunities – notably flexibility assets.

- ✓ Advocate for the use of **aggregated and anonymised data and metadata at national and European level** potentially coupled with collaborative and advanced transparency tools such as **pre-formatted maps.**

- ✓ **Include a clear prioritisation for the cooperation of public authorities with DSOs** in preparing for network development, in particular in view of improving data transparency for siting decisions for charging service providers and charge point operators, e.g. through hosting capacity maps.

2. Support a "building based on forecast" approach

- ✓ **Make a provisional regulatory map** of the proposed measures and add a clear statement that national regulation should be designed in a way that does not obstruct **grids being built, forecast as far as 2040**. Possible options include a proper implementation of the Clean Energy Package specifically: the Electricity Regulation, Article 18 of the Electricity Directive, Article 32 (3) and (4) of the Electricity Directive, the relevant national legislation.

- ✓ Acknowledge **the need for expanding electricity grids** in legal texts for as long as the sector is on its way to reaching carbon net-zero by 2050.

- ✓ Support **ambitious targets for preparing buildings for charging points, by including pre-cabling in** The Energy Performance of Buildings Directive (currently under revision). These targets can be part of DSOs grid forecast.

- ✓ **Implement long-term grid planning** (integrated with transport and parking policies, including SUMPs) and investment consistent with the planned expansion of recharging infrastructure, considering the current and future requirements in the rollout of alternative fuels infrastructure, under the Alternative Fuel Infrastructure Regulation (AFIR).

3. Better include Logistics and Heavy-Duty Vehicles in planning

- ✓ Call for the implementation **of ambitious technical requirement for HDVs and LDVS** in AFIR (currently under revision).

- ✓ **Call to include logistics as a use case in the revised EPBD,** in particular in requirements for **pre-cabling depots** (giving depot owners more flexibility as to the charging solution and capacity installed), by changing definitions of non-residential buildings with "adjacent car parks" to "adjacent vehicle parkings."

4. Support a transparent and efficient access to data and information

- ✓ Consider the implementation of a **consumption tracking device for EVs** through which data will be transmitted, aggregated, and anonymised at European and National level, in a similar fashion to the Commission Implementing Regulation on the monitoring and reporting of data related to CO2 emissions from passenger cars and LDVs.

- ✓ Encourage CPOs, MSPs, OEMs and public authorities to provide DSOs crucial insights on these parameters in the framework of the Network Development Plan's consultation thanks to a series of following tools mentioned in the second Roundtable. In return, **DSOs shall make their NDPs public**.

- ✓ Regarding APIs and interoperability, support the EU Action Plan on Digitalising the energy system. We especially endorse and advocate for:

  - **Adoption by the Commission of an implementing act on interoperability requirements, and non-discriminatory and transparent procedures for access to metering and consumption data** (as provided by article 24 of the Electricity Directive 2019/944 "Interoperability requirements and procedures for access to data").
  - **Promoting a code of conduct for energy-smart appliances to enable interoperability and boost their participation in demand response schemes.**

- ✓ Regarding in-situ access right, **support the provisions of PSD2**.

Managing smarter

When DSOs are looking to solve or prevent network congestion, all options should be considered. The solution may include reconfiguration of the network, flexible connection agreements, procurement of distributed flexibility, network tariffs etc.

More specifically, **we call on European and national policy makers for enabling DSOs to opt for the following options:**

1. Procurement of flexibility services

- ✓ **Support a European Regulatory framework for Demand Side Flexibility** (e.g. the future Network Code on Demand Response as set in article 59 of the Electricity Regulation)

- ✓ Set up a proper regulatory framework to set **adequate remuneration schemes** for grid investment with longer term vision and a more innovative approach by increasing rewards for EV participation in power markets as flexibility resources to allow **value-stacking** of smart charging services, which in turn support demand side flexibility and optimal grid use.

- ✓ Make publicly available the appreciation of **EVs flexibility potential** which shall be based on a common European methodology, to be defined by **ENTSO-E and the EU DSO Entity.**

2. "Non-firm access connection agreement" or "voluntary conditional agreement"

- ✓ **Promote "non-firm access connection agreement" or "voluntary conditional agreement"** which allow creation of more connections and better load management for the short to medium term. These agreements will be made on a voluntarily basis and serve as a transitory measure to grid reinforcement. Non-firm access connection agreements could benefit both the final customer and the DSO.

3. Smart Charging

- ✓ **Advocate for a mandatory obligation regarding smart charging**.

- ✓ Advocate **for advertising campaigns and sharing of best practices issued by the relevant e-mobility players towards customers to highlight these benefits based on the best practice set up in the UK with the Smart Charge Points Act 2021** which sets all new chargers to "smart" by default and mandates consumer information.

- ✓ Support the **full transposition by the relevant National Authorities of the Energy Market Directive that aims to increase the active role of consumers in the energy system.**

- ✓ After acknowledging the importance of smartness at customer level (smart meters**), call for the complete transposition into national law of the Electricity Directive fostering smart meters at individual level.**

- ✓ After acknowledging the importance of smartness in the load infrastructure and at customer level, seize the opportunity presented by the EU Action Plan on Digitalising the energy system to **encourage Commission efforts to support the European Union Agency for the Cooperation of Energy Regulators (ACER) and the national regulatory authorities (NRAs) in their work to define common smart grid indicators, as well as objectives for these indicators,** so that NRAs can monitor smart and digital investments in the electricity grid annually as of 2023.

- ✓ After acknowledging the importance of smartness in the load infrastructure, seize the opportunity presented by the EU Action Plan on Digitalising the energy system **to encourage the Commission efforts to support the development of a Digital Twin of the EU Electricity Grid.**

- ✓ **Call for the removal of unnecessary taxes and levies in the wholesale market** that are unnecessary burdens preventing effective dynamic retail prices for smart charging.

4. "Vehicle to Grid" Technology

- ✓ **Advocate for the deployment of V2G ready infrastructure when appropriate**.

- ✓ **Recommend considering in European codes the fact that injection of power into the grid could come from different locations (rather than a fixed location). This would allow AC V2G from cars which would a cheaper solution to implement.**

- ✓ **Push legislation so that DSOs assess the potential contribution of bidirectional charging to the penetration of renewable electricity into the electricity system. That assessment shall be made publicly available and be based on a common European methodology, to be defined by ENTSO-E and the EU DSO Entity.**

The signatories

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