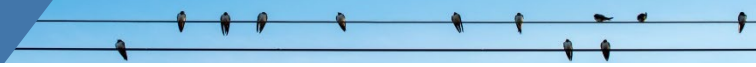
Swift and Smooth
Cross-sectoral recommendations for a swift transport electrification, smooth for the grid



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The transport sector is electrifying across the EU. Optimised integration of electric vehicle (EV) charging infrastructure to distribution grids is one of the main enablers to EV uptake. Currently, System Operators[i] face a high number of connection requests from sectors electrifying in parallel while often being bound to managing these requests on a first-come-first-served basis. At the same time, electrified transport offers significant flexibility potential from battery storage, which can be leveraged to optimise use of existing grid capacity, notably when using smart charging solutions.

In this context, the members of the Platform for Electromobility recognise the need for a policy framework that supports beneficial and grid-friendly transport electrification. We welcome the opportunity to contribute to the development of such a framework following the announcement of the Automotive Action Plan. With this paper, we align our views on three key topics addressed by the upcoming Action Plan:

1. Acceleration of grid connection requests
2. Standardisation for interoperability and data exchange
3. Future needs to guide anticipatory investments

As announced in the Automotive Action Plan, the Commission is working on the Guidance and recommendation on shortening grid connection procedures and grid connection prioritisation. The Platform welcomes the initiative, considering the unprecedented demand for grid connections from various sectors and recognising that Member States need flexibility in their approaches to grid connection queue management beyond 'first-come, first-served' as the default method. We see the upcoming Guidance as going in the needed direction of greater harmonisation of grid connection processes across the EU where currently, practices differ greatly among system operators.

This paper outlines shared recommendations from our sectors on how European legislators can support us in addressing these challenges in a coordinated and forward-looking manner[ii].

I. More efficient grid connection requests

Recommendation 1/ Prioritising grid connection requests

Many system operators have identified inefficiencies with the 'first-come, first-served' approach, such as "ghost applications" to secure potential charging sites. System operators should have the possibility to actively manage these queues, with proper guidance from their national governments and regulators, where 'first-come, first-served' is no longer useful for their customers or themselves. Some Member States[iii] are already moving beyond this principle by introducing criteria for projects to be connected, e.g. mature and fully developed projects, projects that provide system value. The Platform recommends that the Commission consider the options mentioned in this paper in view of accelerating grid connections while using tools to use existing grid capacity most efficiently.

A CROSS-SECTORAL COLLABORATION

All along this project, the members of the Platform for Electromobility joined forces with the members and expertise of E.DSO to bridge the gap between the electricity and mobility sectors by addressing shared challenges and align on key recommendations.

The prioritisation of grid connection requests to manage limited grid capacity more efficiently and reduce connection queues is essential to enable a timelier connection of critical infrastructure for the electrification of transport – particularly charging stations for electric heavy-duty vehicles (e-HDVs). Clear criteria for prioritisation should be established at European and national level by governments and national regulatory authorities (NRAs). These guidelines should allow system operators to prioritise projects that provide the greatest benefit to the grid and society and, at the same time, give system operators legal certainty in their allocations of grid connections.

Recommendation 2/ Balance technological neutrality with emerging markets needs

Guidelines for prioritising requests must be integrated into the regulatory framework to avoid delays and ensure that urgent, high-priority projects are fast-tracked. It is important to note that, under existing regulations, DSOs and TSOs must remain technology-neutral in their planning and investment decisions. While no specific technology type should be prioritised by default, the application of clear and objective criteria can help identify projects that offer the greatest system-wide value. In this context, EV charging projects that enhance overall network efficiency, resilience, and flexibility may merit prioritisation, provided they are assessed based on their contribution to broader system benefits.

In emerging and still-fragile market segments, such as infrastructure for eHDVs, some degree of

prioritisation may be justified, particularly where projects demonstrate clear potential to contribute to grid flexibility or resilience. Similarly to how renewable energy projects were prioritised in the early stages of the energy transition, certain eHDV charging projects may warrant faster access through the connection queue, provided they meet predefined, transparent criteria. The Clean Transport Corridors initiative under the EU Automotive Industry Action Plan offers a relevant example of how public authorities can support the roll-out of strategic infrastructure without undermining technology neutrality for system operators, by focusing on systemic benefits rather than specific technologies.

Recommendation 3 / Regularly updating grid hosting capacity maps

To accelerate grid connection processes and support efficient deployment of recharging infrastructure, accessible and regularly updated information on available grid capacity should be accessible. Examples from Flanders show that maps with regularly refreshed data and clear visualisation significantly improve stakeholder engagement and planning. Conversely, tools such as the Dutch colour-coded heatmaps, while a step forward, have limited usability. In the UK, the open data portal also is a promising model[ivv] . Overall, increasing the digitalisation, transparency, frequency, and functionality of capacity maps would empower project developers, reduce delays, and support more effective grid usage. In order to ensure harmonisation across the Union, we call upon the European Commission to create open and updated pan-European grid capacity maps to coordinate with project promoters on locations already available for grid connection. Regulators should ensure that such improvements are incentivised or at least cost-neutral for DSOs and TSOs.

Recommendation 4/ Digitalisation of requests via confidentiality agreements

Digitalisation and standardisation are increasingly recognised as essential enablers for managing the growing volume and complexity of grid connection requests. As electricity demand rises, manual approaches are no longer sufficient. Digital tools should not only streamline internal workflows and technical assessments for system operators, but also ensure that those requesting a grid connection, such as CPOs and other stakeholders, have easy and transparent access to key information. This includes the procedures to submit a connection request, timelines for each step, the current status of their application, and any additional relevant updates. Making this information accessible through digital means is crucial for improving transparency, predictability, and efficiency in the connection process and any additional relevant updates and upfront information on costs and fees.

To fully leverage these advancements, there is a clear need for transparent and accessible information for current and future connection request and plans to be provided by CPOs to DSOs. For a competitive and well-functioning market, it is essential to ensure information on CPOs' future connection request and charging network planning is shared bilaterally with involved DSOs in a manner that ensures confidentiality and protect commercial sensitivities when this information is needed for DSOs to prepare network development plans and efficiently plan infrastructure upgrade and modernisation.

Recommendation 5/ Flexible grid connection agreements

Electrification of transport increases the load on electricity distribution grids, leading sometimes to network congestion during specific periods of time of certain days. By introducing flexible, timed connection options while new distribution infrastructures are built, peak-time demand can be managed more effectively, ensuring that more EVs can be connected to the grid without causing congestion or reducing grid expansion cost. When deemed necessary by the system operators, flexible connection agreements can accelerate the efficient and timely connection of new projects to the grid. In some Member States, such as Sweden, certain grid operators already offer flexible grid connections; however, they face uncertainty in managing the technical aspects due to the lack of complete standardisation.

These agreements, often useful as a temporary solution before physical grid reinforcement should include provisions for vehicle-to-grid readiness, smart charging capabilities, and power requirements for different charging use cases (e.g., ultrafast vs. overnight). Such agreements can in some cases, such as charge points with limited hours of operation, be a more permanent solution when there is a specific agreement in place for that situation. It should also be acknowledged that the concept of flexible connection is defined differently across Member States, and national interpretations and frameworks may vary accordingly. This can facilitate the early adoption of zero-emission vehicles of all sorts however, the regulatory framework must support timely investment in the grid, with a clear timetable for the provision of firm capacity. Without replacing market-based alternatives, permanent flexible connection agreements could also be offered as a viable solution only if agreed by both parties.

WHAT ARE FCAs?

Flexible Connection Agreements (FCAs) can facilitate grid connections when there is insufficient capacity to fully guarantee firmness for a customer's entire new demand. This represents a temporary solution until grid reinforcements become operational. However, treating FCAs not as a temporary response to capacity constraints, but as a permanent option available to any customer at any time, could lead to distortions in the recovery of network costs. This, in turn, may require iterative rebalancing of grid charges. For this reason, FCAs should only be a "permanent option" if there is a specific agreement between the parties involved, and represent only one out of many building blocks to optimize gird use and improve grid planning."

Recommendation 6/ Smart pricing to ensure best use of existing power networks

Enabling smart and, where possible, bidirectional EV charging, based on the growing offer of smart charging tariffs and services, would help consumers use the grid most efficiently. National energy regulators implementing time-varying network tariffs , based on recent EU guidance recognising the pressing nature of network pricing reform[vi] are a basic key ingredient to drive efficient grid utilisation from grid customers such as EV fleets and CPOs.

II. Standardisation for interoperability and data

Recommendation 7/ Establishing common standards

The importance of interoperability between EVs and the grid is critical for ensuring seamless connectivity across borders and vendor-independent. This includes establishing common standards for charging infrastructure and vehicle-to-grid (V2G) communications to ensure that EVs and charging stations can interact with the grid across the EU. Adopting common standards for data exchange across the EU is essential to seamlessly exchange information on charging infrastructure, capacity needs, and vehicle data. Therefore, clear guidelines for data sharing formats need to be developed to ensure that all parties involved can easily access and use the relevant data. Standardisation ensures interoperability, safety, and efficiency in the integration of electric vehicles with the power grid.

WHAT IS THE PLATFORM FOR ELECTROMOBILITY?

A unique alliance of Europe-based producers, infrastructure managers, operators, transport users, cities and environmental civil society organisations from across industries and transport modes, collaborating to reach a sustainable, multimodal transport system in which people and goods are moved across land in Europe using exclusively fossil-free electricity. We unite all sectors constituting the electromobility ecosystem to pragmatically ensure the conditions for the full electrification of new light-duty vehicles by 2035, and build a sustainable European zero-emission transport system by collectively sharing their expertise, challenges and solutions.

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The promotion of common standards is paramount for ensuring interoperability and reliability across V2X systems. These should allow the Electric Vehicle Charging System (EVSE) to provide smart and bidirectional charging. and communicate with the grid. The necessary standards should be implemented as soon as the standardisation processes are finalised, in the charging stations, the cars and the grid. , while taking into consideration industry capabilities. This is key to deploy future-proof infrastructure and to deliver the smart-charging services we will need for the energy transition to succeed. Standardisation bodies should prioritise development of standardised protocols for battery efficiency and warranty and for EV charging protocols between both the grid and vehicle. This will bolster consumer confidence and trust in V2X technologies.

Recommendation 8/ EU-wide interoperability grid data and asset certification

The data sets and formats based on common definitions concerning available grid capacity across EU distribution system operators would significantly facilitate project development for grid users operating in multiple EU countries, by improving transparency and comparability of grid information. In parallel, certification for assets connecting to the grid plays a crucial role in

ensuring that charging infrastructure complies with quality standards and safety requirements.

This certification process typically involves a formal assessment to verify that electrical assets, such as charging stations and associated equipment, meet defined technical, safety, and quality benchmarks prior to grid connection.

Technical compliance ensures that the infrastructure is compatible with the operational requirements of the grid and does not introduce disturbances or compromise stability. Safety standards are assessed to protect both users and grid operators, covering aspects such as protection against electrical faults, fire risks, and correct installation procedures. Quality assurance confirms the infrastructure's reliability, durability, and performance over time, supporting long-term functionality and user confidence.

Establishing common EU-wide certification requirements and procedures would support cross-border deployment of charging infrastructure and reduce administrative complexity for manufacturers and operators alike.

III. Future needs to guide anticipatory investments

Recommendation 9/ Detailed forecasting and transparency in demand

Accurate forecasting of future transport demand and the capacity needs for EVs is critical to guide infrastructure investments and grid planning. Early data on power requirements per station enables system operators to have better-informed decisions and to prioritise grid connection requests more effectively. A clear guidance on how this data needs to be collected and shared in full respect of protection of commercial interests among the stakeholders involved is needed to reduce connection queues and help manage grid capacity congestion efficiently.

Recommendation 10/ Anticipatory Investments in grid capacity and Infrastructure

A stable and predictable legal framework that also allows anticipatory investments enables the network to meet capacity requirements when needed. Such a framework needs to be built on holistic European and national energy plans formed with policies that fully deliver on decarbonisation ambitions, keeping in view sufficiently long-time horizons, and implemented and monitored by independent energy regulators. Anticipatory investments[vii] are not a new form of grid investment, and as such do not require a brand-new regulatory framework, though regulatory frameworks can often be further improved in this respect. Optimal investment still entails investing so that the additional cost of build matches the expected societal benefit of this extra capacity.

The need for anticipatory investments[viii] and a concomitant regulatory framework that facilitates their implementation are key for ensuring that grid infrastructure is developed ahead of demand. This includes addressing the growing demand from transport while simultaneously investing in grid upgrades to prevent future congestion. To target these investments optimally, demand forecast processes should be structurally embedded in a wider and regular scenario building exercise and joint grid planning process.

Based on the aforementioned outlined checks and risk evaluation with regards to future utilisation, DSOs should be empowered to make anticipatory investments that can handle future needs, particularly in areas where high-capacity charging stations are required (e-HDVs). These investments should support the implementation of the AFIR provisions and the rollout of grid-optimised e-HDV charging infrastructure TEN-T networks, e.g. via the Clean Corridor

WHAT ABOUT V2G AND TYPE-APPROVAL?

As the objective of the document is to follow through the Automotive Action Plan on the abovementioned points focusing on grid planning, we acknowledge the importance of also establishing a policy framework enabling vehicle-to-grid technologies (see our recommendations here) as well as the important issue of type approval which will be the focus of an upcoming publication.

initiative, with a specific focus on enabling cross-border traffic, thereby avoiding price distortion in the emerging market for truck charging services.

Recommendation 11/ Implementing a “blueprint for recharging infrastructure".

The costs and complexity of grid connections can be rationalised by optimising the deployment of recharging infrastructures, in accordance with charging infrastructure needs (number of points to be installed per EVs on the road, location, power, type of socket, etc.). If the infrastructure is installed at the right place, taking into account EV user demands and patterns of charging behaviour, namely where the grid is already available or sufficiently robust, with consistent sizing, the cost and length of grid connection processes can be mitigated. To this end, it is necessary to promote the cooperation between local/regional authorities and stakeholders of the electromobility ecosystem in the deployment of recharging infrastructures, for instance by implementing a “blueprint for recharging infrastructure". This document, defined by local authorities in consultation with relevant stakeholders, would comprise the local planning rules for the implementation of recharging infrastructure in main highways and national roads and would assess charging infrastructure needs, considering the existing publicly accessible infrastructure and also the existing and expected private charging infrastructure. It could further enhance existing work completed by the Sustainable Transport Forum (STF).[ix].

PLATFORM FOR electromobility

The members of the Platform for Electromobility

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END NOTES

[i] System Operators in this document refers to both DSOs and TSOs

[ii] The Platform would like to thank the Regulatory Assistance Project (RAP) for its technical advice supporting this paper.

[iii] European Commission. (2023, December 14). Communication on future-proof network charges for a decarbonised and increasingly digitalised electricity system. https://energy.ec.europa.eu/publications/communication-future-proof-network-charges-reduced-energy-system-costs_en

[iv] UK Power Networks. (n.d.). *Open Data Portal*. Retrieved June 30, 2025, from https://www.ukpowernetworks.co.uk/our-company/open-data-portal

[vi] *European Commission. (2024). [Title of the publication] (Publication No. 96b7e60d-9efe-11ee-b164-01aa75ed71a1). Retrieved July 9, 2025, from* https://op.europa.eu/en/publication-detail/-/publication/96b7e60d-9efe-11ee-b164-01aa75ed71a1

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[viii] European Commission. (2025, June 2). EU guidance ensuring electricity grids are fit for the future. Retrieved June 13, 2025, from https://energy.ec.europa.eu/news/eu-guidance-ensuring-electricity-grids-are-fit-future-2025-06-02_en

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