Where is electricity recharged in electric vehicles?

![Diagram showing the distribution of electricity recharges: 8% at home, 4% at work, 1% destination, and 97% on route.

(source: Ofgem, 2017)

Roles in EVs recharge in places accessible to the public

EV drivers are NOT customers of the power system: the Charging Point Operator is a final customer of the power system. Therefore, regulators shouldn’t introduce any special regulation for charging stations, where EV recharge electricity usage coexists with other traditional electricity uses; furthermore, energy regulators should treat charging stations in a technologically neutral manner, in order not to distort electricity market.

A cooperation among energy and transport NRAs is advisable.

What regulators can do for supporting the take-off of electro-mobility?

- Promote a capacity-based, cost-reflective network tariff structure, especially for households
- Promote smart charging, for instance through appropriate arrangements of smart meters especially for households
- Promote participation of electric cars’ batteries to ancillary service markets, through “vehicle-to-grid” technology
- Avoid proliferation of electricity delivery points dedicated to EV recharge and promote connection of EV charging stations through delivery points already existent
- Ensure and enforce adequate response time to requests for connection demanding new capacity, but also promoting a rational usage of existent capacity already connected
- Introduce, in experimental ways, the possibility for DSOs to buy flexibility services in case of congestions on distribution grids.

Regulators should be aware of benefits of electrification of transport, especially in power systems with a large share of renewables.

Reference Materials

- TE (Transport and Environment), Life Cycle Analysis of the Climate Impact of Electric Vehicles, October 2017
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- Ofgem (Office for gas and electricity markets), Future Insights Paper 5 - Implications of the transition to electric vehicles, 23 July 2018

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electric vehicles, recharge, tariffs, charging points, smart charging

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