Grids Hub Series: Season 2 | Episode 2 -What's preventing me to drive my electric car from Stockholm to Rome? Rolling out charging infrastructure for free driving

08 Sep 2020

14:00 - 15:30 Europe

Grids Series



This session will address the key issues that need to be resolved in the grid on the way of the massive necessary transition to electric vehicles.

The EU is committed to reducing greenhouse gas emissions by 80-95% by 2050 compared to 1990 with an intermediate target for 2030 of 40%. Transport represents almost a quarter of Europe's greenhouse gas emissions and is the main cause of reduced air quality in cities, which poses a serious threat to public health. Road transport alone is responsible for almost a fifth of total EU emissions. **Over the last 30 years, all the other sources of greenhouse gas emissions have reduced their impact by 20 to 40%, while in the same period emissions from the transport sector grew 29%.** To achieve the EU's emissions targets, the transport sector will have to address decarbonisation. This includes switching to sustainably sourced low, or zero, emission alternative energy sources and to ultimately achieve zero-emission transport modes. Electrification is going to play a major role in the decarbonisation of European transport.

An increase in electric mobility and the accompanying charging infrastructure will have a large impact on the network notably in the medium and low voltage portion. Primarily fast charging infrastructure will be connected directly to medium voltage networks.

When referring to electric vehicles on the road, people normally refer to **cars**, while a big importance shall be given also to **public transportation** and to **electric trucks**.

Running vehicles on electricity instead of fossil fuels shifts energy requirements from petrol stations to power systems. A wide uptake of electric vehicles will increase electricity demand on an electricity network that is already constrained at certain times of the day in certain areas of Europe. It is worth to point out that these constrained networks will be already challenged by the rise of electricity demand caused by the higher share of domestic loads being electrified. The increasing

digitalisation of infrastructure already enables smart management of the grid, hence the management of charging points. This makes "smart charging" possible: **charging at the most convenient time for the electricity grid and at the lowest cost for the consumer.** Moreover, **bidirectional-charging infrastructure** offers the opportunity to use the electric car fleet as a source of grid flexibility during shortages. The directive on common rules for the internal market in electricity, which builds upon provisions of the Energy Efficiency directive, aims to provide a coherent framework for demand response that enables smart charging, gives consumers incentives to charge at off-peak times and gives distribution system operators the ability to manage actively the grid. As an example, the Italian Energy Authority have already started to foster pilot projects to develop the proper regulatory framework that will enable a wider uptake of these technologies.

Despite these opportunities, analyses also reveal that an increasing electric vehicle penetration heavily affects the operation of the energy sector and integration of **electric vehicle demand poses very diverse challenges on the management of power system at local, national and European level depending on the respective status of the energy system.**

Up to 2030 only local grid congestions due to peak loading of the grid need to be considered. Due to energy efficiency gains, electricity consumption in the EU is likely decreasing faster than the rate of electrification. Therefore, **the start-off for electric vehicles market introduction seems to be practically feasible. However, for specific areas** with fast charging infrastructure, high concentrations of electric vehicles like city centres or pollution regulated city districts **a grid re-enforcement needs to be taken into account.**

Moderator: Guillermo Amann, Vice-President, T&D Europe

Speakers:

- Alex Volkery, Team Leader Clean Transport, DG Move
- Carlos Bergera, Head of Green Mobility, IBERDROLA
- Christelle Verstraeten, Charge up Europe
- Paolo Perani, Chairman of the WG E-mobility, T&D EUROPE
- Russell Fowler, Senior Project Manager, National Grid
- Torsten Knop, Head of European Regulation, Innogy SE