

## **The Interaction of Electric Vehicles with the Power Grid**

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The transportation sector has a significant impact on the environment, being responsible for around 25% of the total greenhouse emissions globally. As a result, the number of EVs in the last years has significantly increased, while many types of EV-charging options are available. In this respect, uncontrolled charging of EVs could provoke significant issues for the grid, which would require significant infrastructure reinforcements. The presentation will discuss smart charging and V2G methodologies that can mitigate the impact of uncontrolled charging on the network. Moreover, synergies among the EV-charging and Renewable Energy Resources (RES) will be presented, indicating the effective shifting of the EV charging demand towards hours with increased RES production and the potential to increase both the number of EV-chargers and the grid's RES hosting capacity. The presentation will also discuss future trends in electromobility in Europe, including interoperability and the need for a unified system approach (EVs - Charging Infrastructures - Services provision - Business activities) for efficiently serving the relevant transportation needs. On-going e-mobility projects in non-interconnected islands will be finally presented.