

Flexibility of EV charging : use-cases, actors and technologies



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MS TEAMS

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ABSTRACT

The studies carried out and published by the French Transmission and Distribution System Operators (resp. Enedis and RTE) in 2019 show that the integration of 15 million of electric vehicles in 2035 should not present any particular difficulties for the network, nor at the local level, nor at the national level. However, these studies show that controlling the charge of EVs should make it possible to reduce the impact of the charge on the electrical system, and to reduce the cost of upgrading electrical networks. The end users should also save money by controlling the charge of their vehicles.

In the training session, we will describe which flexibility levers can be activated thanks to electric vehicles, for different contexts of use of these vehicles: fleet of utility vehicles, private vehicles charging at home, in business or on public charging stations. In a second step, we will describe which actors intervene in the management of these flexibilities and, for certain cases, we will analyse the value created by these flexibilities. For some cases also, we will describe which technologies are or have to be implemented.

Bruno Robisson holds a thesis (Paris VI, 2001) in artificial intelligence and an HDR (French grade to supervise PhD students) in computer science. He focus his research on the integration of renewable energy sources in the electricity network. He has developed advanced control algorithms to co-optimize incomes of PV power plants participating both in energy and ancillary markets. He has acquired a very good knowledge about the French grid code and has deeply analyzed data related with the European electricity market. He is currently leading a project on charging electrical cars with solar power. Formerly, he led a ~30 people research group working on side channel and faults attacks and working on the development of secure cryptographic hardware. He was reviewer for international conferences and scientific journals and was strongly involved in national and european research projects as participant but also as coordinator. He has also supervised 7 PhD on hardware security and he supervises a PhD thesis on the modelization of electricity market.