MOBILITY

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Master GLM

Governance of Electric Vehicle Charging Infrastructure, comparing the systems of France, California, Norway, China and the Netherlands.

EDF R&D

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The overarching goal of this project was to analyze the challenges faced by stakeholders of on-street EV charging and the implications of various solutions. By comparing relevant international case studies, this project aims to give critical guidance on the challenges and opportunities of EV charging regulation.

In December 2019, the French Loi Orientation Mobilités (LOM) stated the goal of banning the sales of fossil fuel cars by 2040. The text identifies electric vehicles as one of the viable solutions to this transition. Through cost decreases, technology advances, and favorable policies, barriers to entry have gradually been removed for EVs. Yet, key challenges remain. In particular, this study identified four key tensions that accompany any EV charging market development, including:

- Providing sufficient charging infrastructure to encourage EV market growth while ensuring financial sustainability of the infrastructure
- Competing for public space, as EV infrastructure requires space that could be occupied by other users including conventional vehicles parking. Charing infrastructure is generally at an initial development phase, meaning EV owners have to compete with each other to access the relatively low quantity of PACPs.
- Homogenizing geographical coverage as well as norms and tariffs (interoperability). This challenge arises as EV users, and sometimes CPOs, ask for a comprehensive network that allows them to have access to all PACPs.
- Operating with limited grid capacity, as electricity supply is a scarce good. Although an issue embedded more in the future, EV infrastructure is both a challenge and an opportunity for the grid as it is an additional pressure but EVs can also stock and redistribute renewable energy to the grid.

This report selected five case studies that have unique experiences in dealing with the four tensions: California, China, France, the Netherlands, and Norway. Cherry-picked as they are all at various levels of EV and PACP development stages, and have responded to the tensions with context-specific tools and policies. Early adopters have a lot to teach about tackling those tensions at stake, whilstmore recent markets can illustrate the challenges' evolution and pioneer new instruments to face them.

The report is confidential