37ème Séance du Séminaire de Recherches en Economie de l’Énergie

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Ecole des Mines (Salle 118)
60 Boulevard Saint-Michel, Paris 6°

L’économie du développement des véhicules électriques dans les systèmes électriques et de transport

Yannick PEREZ, Université Paris-Sud et Professeur associé à CentraleSupélec, membre de la Chaire « Economie de l’Electromobilité » (Centrale- Supélec et ESSEC Business School)

L’intégration des flottes de véhicules électriques dans les marchés de réserves de capacité électriques : quelles conditions de changement du market design des marchés électriques?

As the share of intermittent renewable energy sources increases rapidly, it will be necessary to increase the volume of frequency regulation reserves (FRR). Electrical Vehicles (EVs) are among the new main sources of reserves besides controllable loads and decentralized generation units. However, it is necessary to adapt the FRR market-design in order to allow for participation of these new resources through new market actors called “aggregators”. The aim of this presentation is to provide a modular framework to analyze frequency regulation markets or mechanisms in order i) to make a comparative assessment of four major European frequency regulation markets; ii) to identify barriers to entry for aggregators and iii) to identify some options to overcome them. Then a simulation model is used to identify the market rules which maximize the provision of reserve power supplies by EVs’ batteries: reducing the product duration from 4h to 1h: asymmetrical market design of FRR (where upward and downward reserves are procured separately) rather than symmetrical ones.

Oliver SARTOR, Chargé de mission, IDDRI (Institut du Développement Durable et des Relations Internationales)

Les conditions de succès d’une politique de déploiement des véhicules électriques en France : comment surmonter l’obstacle financier?

Current deployment rates of EVs are significantly off track for deep decarbonisation of the French transport system by 2050. In the short to medium term, large-scale penetration is far from assured, unless there are further policies to address a number of barriers. Our analysis highlights the importance of the upfront financing challenge to the rollout of EVs. Moreover, if one assumes that some consumer myopia leads to a discounting of future fuel savings, then effective financing solutions will be needed to overcome this challenge in the longer run, even once the technology reaches its long-run equilibrium. Thus EV support policy should be designed with a dynamic, at least decadal perspective. For that purpose we consider a three-phase financing strategy corresponding to the described challenges. This strategy would i) minimize net government outlays; ii) take into account the evolving role for policy as technology learning occurs, markets mature and costs come down. But EV support policy should also be designed and monitored with distributional impacts in mind, in order to ensure its social acceptability. Distributional issues will be considered in a crosscutting way.


Le séminaire se tiendra en français.