

EV-Grid Interactions of the Future

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Transportation electrification and emerging forms of mobility are bringing dramatic changes to how the transportation system is planned, operated, and analyzed. Plug-in electric vehicles (PEVs) present new challenges and constraints around the siting and operation of refueling infrastructure. Electric load from PEVs can exacerbate grid congestion at either transmission or distribution scales if left unmanaged. In addition, sharing and autonomy are changing mobility which will have unique implications for the grid integration of PEVs. In this talk, I will summarize several studies that explore the technical and economic potential for PEVs to supply flexibility services to the electric grid based on a variety of methodological approaches that quantify the opportunity at multiple scales, across multiple geographies, and that cover scenarios with both personally owned and shared autonomous PEVs.