

Batteries on the Move: Overload Mitigation with Mobile and Connected Electric Vehicle

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Abstract: As electric vehicle (EV) becomes prevalent in the automobile market, extensive charging stations will be deployed in the smart grid, resulting in charging overloads and severe system operation issues. Considering the rechargeable nature of EV batteries, EVs can provide mobile energy storage (MES) service to carry energy from power nodes with excess energy to the nodes with overload issues. However, the MES service is confronted with various challenges due to vehicular mobility, battery degradation, and coupled operation of transportation networks and power system. In this talk, I will present our research works addressing the MES operation challenges along with future research directions with focus centered on the vehicle.

Biography: Nan Chen is an assistant professor with the Department of Electrical and Computer Engineering, Tennessee Tech University, TN, USA. She received her PhD degree in electrical and computer engineering from the University of Waterloo, ON, Canada in 2019. Before joining Tennessee Tech, she was a post-doctoral fellow in the Broadband Communication Research Lab (BBCR), University of Waterloo. Her research interests include electric vehicle charging and discharging scheme design, mobile vehicle-to-grid technology, next-generation wireless networks, and machine learning applications.