DTE Energy: Plug-in Electric Vehicles and the Electric Grid

by

Mr. Nick Carlson

Detroit Edison, DTE Energy’s electric utility, generates and distributes electricity to 2.2 million customers in southeastern Michigan. Founded in 1903, Detroit Edison is the largest electric utility in Michigan and one of the largest in the nation. As evidenced by its involvement in electrical vehicle programs (1980-90s) and its Intelligent Link in-home load control project (1990s), Detroit Edison is considered an industry leader in new technologies and Smart Grid-related activities.

DTE Energy has been very active in the electrification of vehicles and is working closely with automotive manufactures to ensure the grid is ready for the commercialization of electric vehicles. In 2008, DTE Energy was awarded a $5 million grant from the MPSC to study Plug-in Electric Vehicles (PEV). DTE Energy has been analyzing plug-in electric vehicles to understand the near and mid-term vehicle-utility impacts. Additionally, DTE Energy has been studying the transfer of electricity during peak load times, the environmental impact of PHEVs, and how AMI and demand response strategies will impact electric system load curves and generation mix and capacity requirements. In this talk, Mr. Nick Carlson will take a look at the impacts of electric vehicles on the electric distribution system. He will discuss some of the projects that Detroit Edison is involved with and show some of the studies that have been performed on their distribution system.

Mr. Nick Carlson is an engineer in Power Systems Technologies at Detroit Edison (DTE Energy). Currently, he is responsible for managing various Smart Grid and PEV activities. In addition, his recent efforts include investigating the impacts of PEV on the electric distribution system. Mr. Carlson is an active member on DTE Energy’s internal Smart Grid team. In his six years at DTE Energy, Mr. Carlson has also worked as a distributed resource planning (DRP) engineer and a distribution relay engineer. During his time in the DRP group, he managed multiple installations of distributed generation on the DTE Energy electrical distribution system. As a relay engineer, Mr. Carlson performed network protection studies and provided system protection recommendations to his management. Mr. Carlson is also involved in a MPSC PHEV pilot project as well as the DOE FreedomCAR Partnership. The Partnership examines and advances pre-competitive, high-risk research and development to generate the components and fuel infrastructure necessary to enhance the commercialization of a full range of affordable cars and light trucks including fuel cells, hybrids and plug-in electric vehicles. Mr. Carlson received his Bachelor of Science and Engineering on Electrical Engineering at Michigan Technological University in 2003 and his Master of Business Administration at Wayne State University in 2008.