UNIVERSITY of HOUSTON
CULLEN COLLEGE of ENGINEERING
Department of Electrical & Computer Engineering

Data-Driven Proactive Power Cable Replacement considering Fast-Growing Electric Vehicles

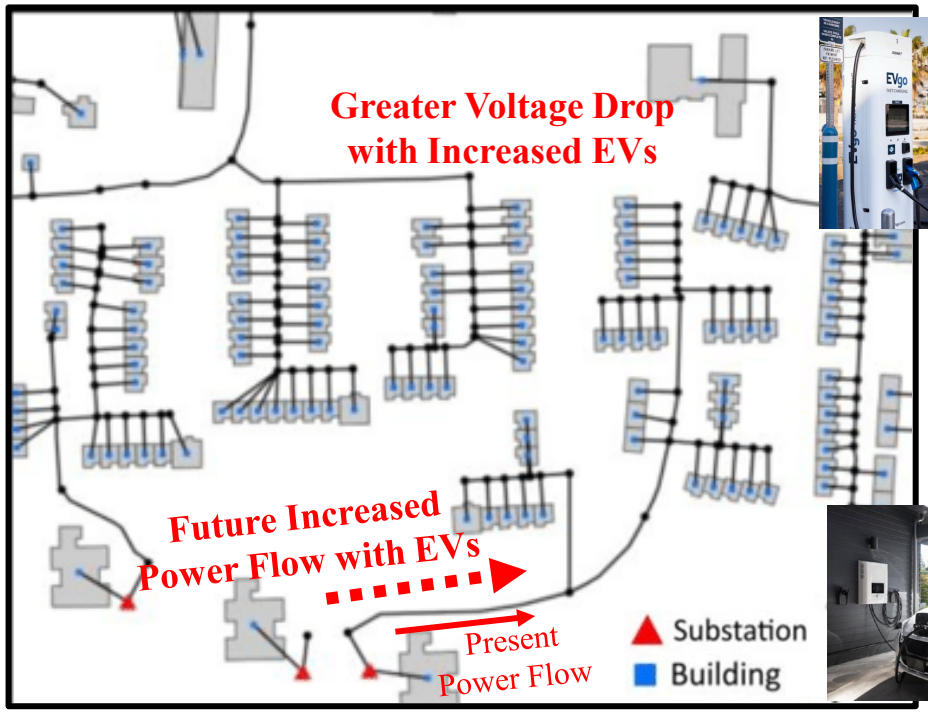
Background:

- The rapid growth of electric vehicles (EVs) has substantially increased the electrical demand and the cable currents, leading to greater cable temperature and accelerated cable degradation.

Proposed Solution:

Data-Driven Method for Growing-EV-Accelerated Power Cable Failure Projection and Proactive Replacement

Cable Replacement Solutions ⇩ ⇧ Historical Meter Data



Growing Fast EV Chargers

Growing Residential EV Chargers

Proposed Tasks:

- System data and measurements scanning, correction, imputation and cleaning.
- Feeder-level EV adoption rate projection and load estimation.
- System scenario generation and cable violation/impact analysis
- Cable failure prediction and proactive cable replacement.

Mathematical Methods:

- Optimization.
- Network Science.
- Data Analytics.
- Machine Learning

Project Team: RPG Lab

- The Renewable Power Grid (RPG) Lab in the ECE Department at the University of Houston.

Utility Partner: CenterPoint Energy

- Territory: Greater Houston region.
- Serve 2.8 million customers.