

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



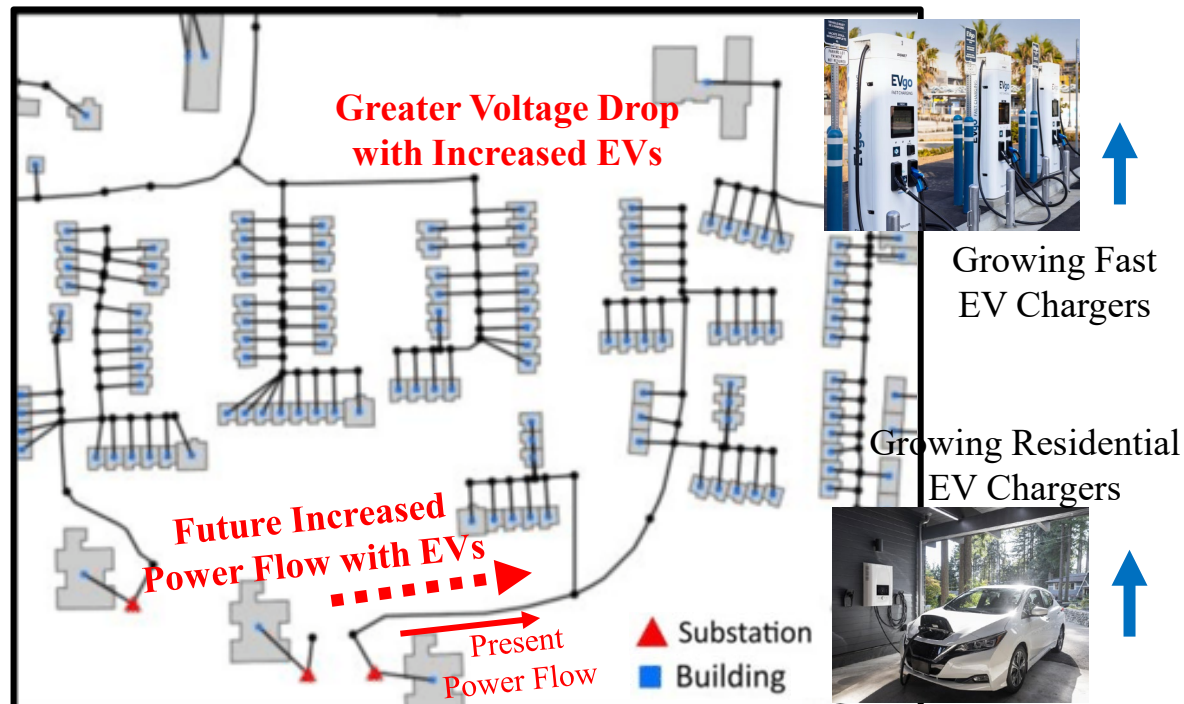
## Background:

- 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



## Completed Tasks:

- Analyzed the CNP data including time-series meter data and cable configurations data.
- Identified the causes of “weird” data and conducted data imputation and correction.
- Implemented three regression methods for future EV prediction and estimated the future load profiles.
- Collected additional data including ambient temperature and underground cable depth.
- Implemented cable thermal model and estimated cable remaining useful time.

## 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.

