How We Serve Power Utilities

April 2025

datasociety.com

WHAT WE DO (1 of 2):

Data Science Training

FOCUSED AND MISSION-DRIVEN DATA SCIENCE TRAINING

- Tailored program for the Advanced Analytics Group
- Designed for Data Scientists for Managers
- Broad array of advanced topics including clustering, supervised machine learning, anomaly detection, neural and feed forward networks

DATA SCIENCE ACADEMIES

- Nine-month program, including both in-person and live remote training
- Expert Instructors, teaching assistants, and coaches
- Included capstone projects that each student presented to peers and managers at the end of the program
- Trained 1,000 professionals across the client organization

Tailored Learning Objectives & Pathways

Expert Live Instruction

Knowledge Checks, Exercises, and Assessments

Coaching & Capstone Project Mentorship

Data Science Consulting and Solutions

Solutions

- Human-centered design & UX/UI
- Data visualization & dashboards
- Forecasting models and predictive analytics
- NLP & NLG
- Search engines
- Custom solutions

Consulting

- Innovation & design thinking
- Data architecting & acquisition
- Data processing & storage
- Digital insights that lead to process change and operational improvement

Most Recent Synchrophasor Work

High Current Flowing Through Underground Transmission Lines

The Task at Hand

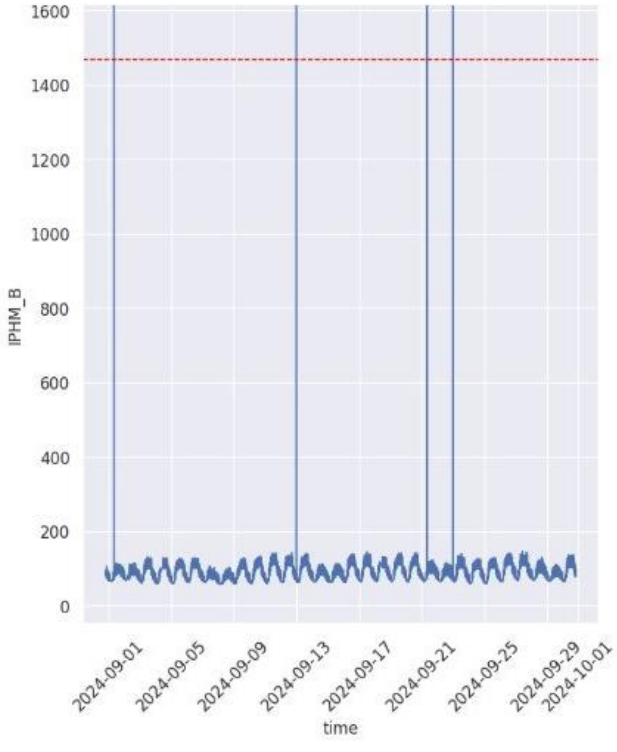
- **Challenge**
  - These faults often occur too fast to be caught by traditional SCADA sensors
  - Detection is important to prevent damage to the power system

- **Solution**
  - Finding high-current events in underground lines using synchrophasor data from Digital Fault Recorders (DFRs)

- **Methodology**
  - 4 lines X 3 phases = 12 IPHM streams on PredictiveGrid
  - 6 months of data between September 1, 2024 - February 28, 2025 (inclusive)
  - Threshold set based on individual line's AMPS rating
  - Combined consecutive timestamps into a single high-current event

Preliminary Results: Summary

- **65 faults** found across **12** synchrophasor streams between September 1, 2024 and February 28, 2025 (inclusive)
- **Average fault duration: 1.5** seconds
- **Maximum fault duration: 9.6** seconds
- **Average amperage** the minute before fault start: **98.90 A**
- **Maximum amperage** the minute before fault start: **597.05 A**



Line	Faults	Avg Max Amplitude During Fault (A)
1	1	137710.25
2	46	7572.87
3	17	6125.37
4	1	137964.50

Data Society x Dominion Energy

- **Data Society**
  - Ishita Jain
  - Poornima Joshi
  - Brian Leist

- **Dominion Energy**
  - Richard Evans
  - Robert Mason
  - Tanner Cullifer
  - Chetan Mishra
  - Maxwell Danku
  - Jaime De La Ree
  - Kevin Jones

This work wouldn't have been possible without Dominion Energy and the close collaboration between our two teams. We are looking forward for what's coming next!

For further information, please find us here. Thank you.

Fred Knops
Sr. Vice President, Solutions
1100 15th St. NW, Floor 4
Washington, D.C. 20005

fred@datasociety.com

Katya Mijatovic
Principal Data Scientist
1100 15th St. NW, Floor 4
Washington, D.C. 20005

katya@datasociety.com