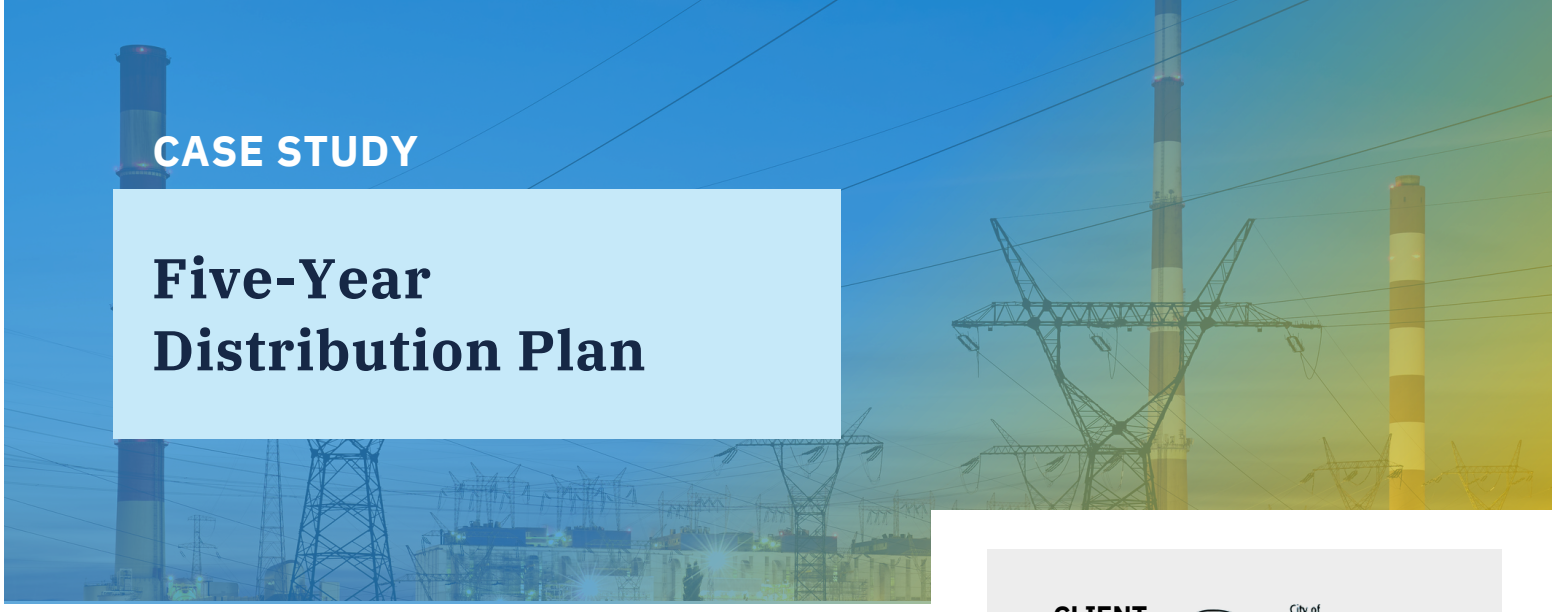

CASE STUDY

Five-Year Distribution Plan

BACKGROUND

Glendale Water & Power (GW&P) is a municipal utility owned by the City of Glendale, California. It provides electric services to more than 89,000 customers within the community. Committed to delivering reliable, high-quality, and sustainable services, GWP has proactively invested in modernizing its electric grid to support Distributed Energy Resources (DER) and Electric Vehicles (EVs). To support this efforts, EPE was contracted to conduct a comprehensive analysis and load growth study for GWP's distribution system. The scope of work included the application of machine learning algorithms to develop a load forecast based on the GWP's recorded load data and circuit substation topology models. This forecast would provide critical insights into future demand trends, enabling GWP to strategically plan capital projects and develop a work plan to prepare the system for the next five years of accelerating DER integration and EV adoption.

CHALLENGE

GWP needed a system-wide study to assess the impact of future load growth and California's electrification initiatives. With over 10 substations and over 100 feeders, managing vast data quantities, some with quality issues, posed a significant challenge, requiring extensive validation and analysis. The study identified thermally constrained infrastructure unable to support projected demand, requiring a targeted replacement plan. Additionally, the coexistence of 4kV and 12kV systems created compatibility issues, including limited capacity and switching constraints. Developing effective mitigation strategies was essential to ensuring system reliability.

SOLUTION

The primary recommendation for GWP was to continue replacing its aging 4kV infrastructure with 12kV equivalents. While this is a significant investment, it provides several key benefits. The increased capacity of 12kV circuits better support GWP's electrification goals, including EV charging infrastructure for city-owned vehicles and the Beeline Bus depot. Additionally, the conversion addresses existing thermal overloads, making it a more effective long-terms solution than simply upgrading feeders. Expanding the 12kV system also enhances operational flexibility by increasing tie capacity, allowing seamless load transfers between feeders of the same voltage during maintenance and emergencies. This improves system reliability and minimizes service disruptions, ensuring GWP's grid is prepared for growing demands and future energy needs.

CLIENT

City of Glendale Water & Power
GWP
Your Trusted Community Utility

TYPE

Municipality

SECTOR

Distribution Utilities

ISO

CAISO

LINE OF BUSINESS

Distribution Planning

SERVICES PROVIDED

- Power flow Analysis
- Steady State Analysis
- Long Terms Strategic Planning

LOCATION

Glendale, CA

COMPLETED DATES

2023 - Present

REFERENCE

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Delivering Energy Intelligence