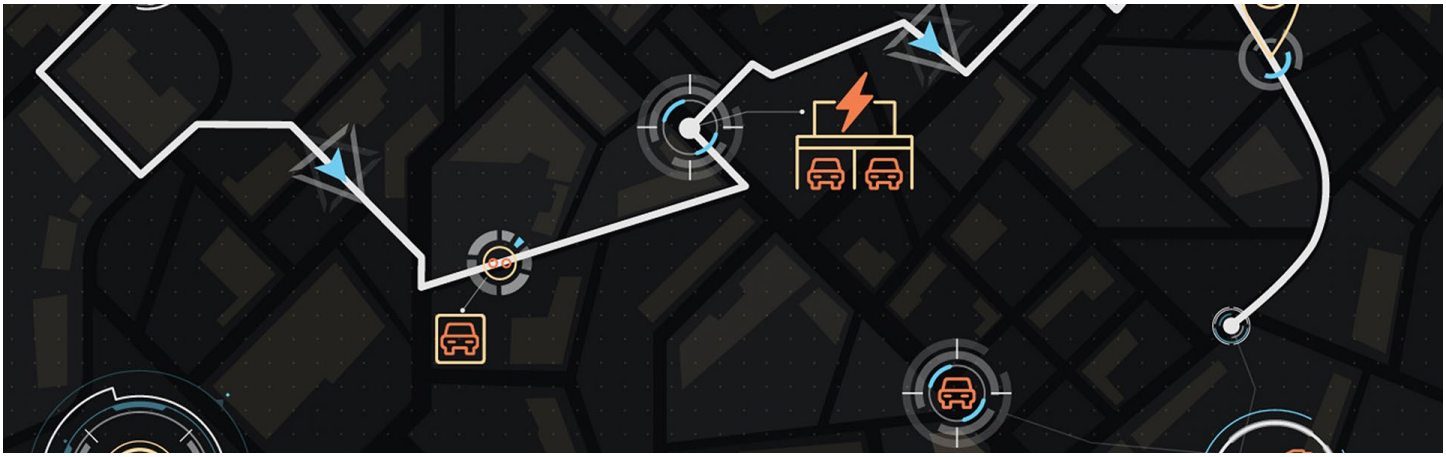
1898 & CO.
PART OF BURNS McDONNELL

CASE STUDY

Utility Company Accelerates DC Fast Charging Station Deployment

The need to decrease carbon emissions is accelerating the popularity of electric vehicles. A DC Fast Charging Corridor Study and the interactive tool developed as part of the analysis are being used to grow a utility's EV charging infrastructure in a way that minimizes impact on the grid.



Challenge

The electric vehicle (EV) market in the U.S. is projected to expand to $137 billion by 2028. Utilities in many states across the country will contribute significantly to this growth and are committed to supporting infrastructure expansion and providing the investment needed to strengthen the grid as EV use becomes more pervasive.

Anticipating the growth of EV adoption in its service area, our client — a large utility — needed to understand where DC Fast Charging (DCFC) stations could or should be located to help evaluate potential impacts to the grid at those locations.

Solution

With extensive federal infrastructure funding available and a need to streamline the time required for the identifying, handling and processing of potential DCFC stations, the utility required a comprehensive analysis of its EV distribution infrastructure. The company engaged 1898 & Co., part of Burns & McDonnell, to execute the DCFC Corridor Study.

Project Stats

Client
Utility company

The project's goals included identifying potential DCFC stations and prioritizing locations based on grid capacity and other factors. After applying our screening criteria to the service territory and accounting for grid capacity, we generated dozens of initial sites for consideration.

To provide power for DCFC stations, the circuit and substation required at least 1 megawatt of combined charging capacity at any location. Since a DCFC station requires service from a three-phase circuit, overhead circuits were assessed at locations across the service territory. The corridor study focused on circuits and substations that could support one or more 75-kilowatt DCFC stations, with up to 1 megawatt of combined charging capacity. Where capacity existed, larger-capacity chargers were also analyzed.

Systemwide Screening for Site Identification

Using ArcGIS mapping software, data gathering and geospatial analysis, the team looked at spatial queries based on existing circuit infrastructure with applied load values. Asa baseline and to analyze peak load events, the evaluation used historical summer peak loading data. Without a need to do site-level analysis, the data and GIS insight enabled the team to inventory large geographic areas, including layering in current EV adoption data and traffic counts. Theresulting analysis and insight allowed the project team to develop an interactive tool built on the ArcGIS platform that the utility deployed internally and provided to users across its organization.

Site Prioritization Based on Grid Capacity

Using the resulting DCFC stations suitability data, including EV adoption and traffic count information, the project team focused on developing a system to prioritize potential locations and created a systemwide method of screening and assessing distribution infrastructure. Circuits were narrowed and prioritized based on meeting the following criteria:

- Circuits within a mile of exits on state and interstate highways.
- Circuits serving rest areas, multimodal transportation centers and the local Department of Transportation carpool lots along state and interstate highways.

The ArcGIS tool is now invaluable to the utility. Not only does it help identify optimal DCFC stations based on circuit capacity, proximity to interstates, carpool assets and other factors, but the data can help accelerate the deployment of state and federal investment by identifying preferential locations that meet funding requirements.

Results

The approach taken in this study saved the utility valuable time by allowing it to analyze its entire service territory and efficiently gain the information needed to begin fine-tuning potential charger counts and other site-specific details.

The DCFC Corridor Study has provided an inventory of circuit capacity and the analysis and insight needed to support deploying DCFC stations across the utility's service area. Thanks in part to this study and the interactive tool developed as part of it, the utility company is well positioned to grow its EV charging infrastructure, enable additional services for customers, and capture federal and state incentives.

With a valuable tool in place to help build an EV fast-charging network, our client is now better able to support residents and businesses who want to install chargers in identified high-traffic corridors. Planners are using the geospatial tool developed as a result of the study to understand potential system constraints in areas where DCFC stations might be installed. The tool is also helping developers quickly find suitable DCFC stations that do not require extensive grid upgrades, allowing stations to be installed more rapidly and at a lower cost. Similarly, the utility has the data to support the customers using EVs who may be eligible for charging rebates.

About 1898 & Co.

1898 & Co. is a global business, technology and security consultancy serving critical infrastructure industries. We partner with clients to plan, secure and optimize their business. As part of Burns & McDonnell and our 120 years of industry experience, we understand the complexity of your asset-intensive business model, the trends impacting your industry, and the need to ground big ideas in operational realities. For more information, visit **1898andCo.com.**

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