



## Distribution Services Capabilities

### Our Services

#### Modern Distribution Planning

Our Distribution team is comprised of industry experts with extensive utility and consulting experience. We understand that utilities are being required to "stretch" their distribution systems for various reasons while at the same time being asked to prepare for and integrate new loads such as plug-in electric vehicles (PEV) and Smart Grid technologies such as renewable distributed generation. We have a strong customer focus to ensure that our client's objectives are fully and effectively met and our service offerings are flexible so that they can be tailored to meet specific client objectives.

#### Grid Performance Planning

Previously known as load forecasting, this is the foundation of a distribution plan. Without a good forecast, it is likely that unnecessary projects will be funded and needed projects will go unfunded. Our experts have experience in all aspects of load and DER forecasting including weather normalization, transformer loading, feeder loading, urban re-development, regression models, and spatial land-use models. We have helped many utilities in the U.S. and around the world refine forecasts, develop forecasts, and institute improved load forecasting and grid performance.

#### Distribution Performance Planning

Proper system capacity planning ensures that money spent today has lasting value and fits the system move towards a strategic vision. This is in stark contrast to the "fire-fighting", incrementalism and year ahead focus that many utilities now find themselves practicing. We have some of the top system planners in the world that can develop justified medium long term plans that satisfy load growth, reliability, and other strategic considerations in a least cost manner. Although planning criteria is a major driver of cost and system performance, many utilities do not have complete and consistent documentation or have not revisited their criteria for many years. We have helped many utilities review, benchmark, and update their planning criteria to reflect best practices, including the impact of new technologies and new analytical tools.

#### Engineering Analysis and Operations Optimization

We can help you evaluate the impacts of Distributed Energy Resources (DER) on the distribution system. There are increasing amounts of DER, especially photovoltaic distributed generation, being installed on the electric distribution system. These installations need to be studied to understand the impacts they may have on the distribution at various penetration levels and to identify potential solutions to these impacts. We perform studies to identify distribution system impacts of PEVs at various penetration levels and potential mitigation options.

*Quanta Technology can assist electric utilities and owners of transmission, substations, distribution infrastructure with issues related to infrastructure maintenance, engineering, and planning standards and guidelines.*





## Distribution

- Load Forecasting
- Load Management & Load Control
- Planning Criteria
- Distribution System Planning
- Planning Portfolio Optimization
- Capital Budget Review
- EV & DER Impacts on the Distribution System
- Loss Analysis
- Data processing, System Modeling & Analysis
- Grounding
- Predictive Modeling
- Reliability Improvement Planning
- Reliability Roadmap
- Data & Metrics

### Distribution Protection

Overcurrent and overvoltage protection are critical for ensuring reliable service to utility customers. Quanta Technology can provide assistance at all levels of distribution protection, from the preparation, update and review of overcurrent and overvoltage protection standards to the selection and specification of equipment and protection coordination.

### Volt/VAR Control

Optimal volt/VAR control is critical for ensuring customer power quality and system efficiency. The proliferation of intermittent distributed generation such as photovoltaic and wind introduces new challenges such as rapid voltage fluctuations and reactive power flow variations that need to be studied using computational models and simulation tools. Quanta Technology has extensive experience in this area and can provide assistance to utilities to solve these issues via the implementation of modern volt/VAR control schemes and technologies

### Power Quality

The proliferation of technologies that make extensive use of inverters such as PEVs, intermittent distributed generation and storage have prompted a renewed interest on power quality, specifically on potential harmonic impacts and flicker. Quanta Technology can provide assistance on the modeling and analysis of these phenomena and the identification of mitigation measures.

### Distribution Reliability

Predictive modeling allows the benefits of potential reliability improvement projects to be quantified and optimized. We are experts in the reliability modules of all of the major software applications and can model systems, perform studies, validate software modules, help with deployment, train users, and enhance software so that models properly reflect actual system reliability characteristics.



### About Quanta Technology

Quanta Technology is an independent technology, consulting, and testing company providing business and technical expertise, along with advanced methodologies and processes, to utilities and others in the power and energy industries. Our mission is to provide unparalleled value to our clients in every engagement across the value chain by using advanced software and hardware, laboratories, and custom tools for a holistic approach to practical service and the most insightful thought leadership in the industry.

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