

CAPABILITIES



Distribution Services Capabilities

Core Capabilities

- ◇ System Planning
- ◇ DER & PV Integration
- ◇ Advanced System Analysis
- ◇ Smart Distribution
- ◇ Reliability Planning & Management
- ◇ Management & Regulatory Support

The Distribution System directly impacts the utility's service to customers and faces the frontal impact of today's distributed resource and energy demand management enabling technologies, such as Smart Metering/Demand Response, Programmable and Communicating Devices (e.g., smart thermostats and load cycling switchers), advanced energy storage, Plug-in Hybrid Electric Vehicles, etc. Proper distribution planning and engineering to leverage and support these technologies are quickly becoming a necessity. Quanta Technology has many of the world's experts in distribution planning, reliability and engineering. We have helped numerous utilities meet their distribution challenges. Our services and solutions are tailored to meet your specific needs. We provide end-to-end distribution system solutions to help utilities increase reliability, resiliency and efficiency.

System Planning

Modern and Future System Planning

Develop and justify short, medium and long-range plans that meet load growth, achieve system reliability and system operation efficiency targets, and address other strategic considerations in the most cost-effective manner possible. Ensure that money spent today will have long-lasting value and align with the strategic direction of the company. Prepare plans, review and update classic distribution planning methodologies, guidelines and tools and develop new ones to help utilities plan modern and future power distribution systems.

Load Forecasting

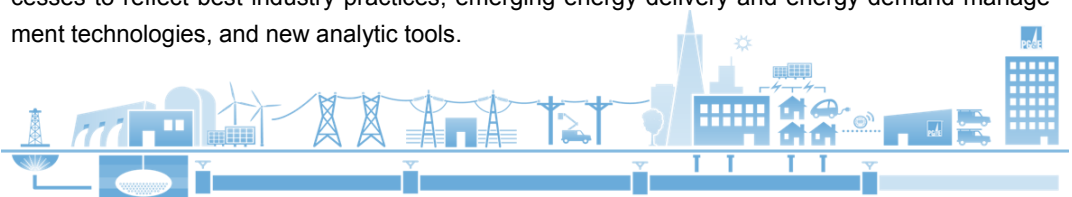
Develop and refine forecasts of weather-normalized transformer, feeder, substation, and area loads using spatial land-use, regression and urban redevelopment models. Help institute sound load forecasting processes and defensible justification documentation.

Planning Criteria and Methodology Development

Review, benchmark and update the utility's planning criteria, guidelines, methodology, and processes to reflect best industry practices, emerging energy delivery and energy demand management technologies, and new analytic tools.

For more information, contact:

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Capital Budget Review

Validate the reasonableness of capital project scopes, cost and benefit estimates to ensure that they are accurate and defensible. Verify adequate consideration of plausible alternatives.

Aging Distribution Infrastructure

Assess trends in deterioration of the distribution system and equipment due to the wear and tear of service. Develop optimized plans for achievement of corporate reliability, performance, and cost goals on a sustainable basis. Revise planning guidelines and processes in the best manner possible.

Equipment and Technology

Evaluate equipment suitability and specifications for operating and economic fit to requirements. Assess control and communication technologies and smart equipment from best fit to the utility's strategic and operating needs. Develop technology strategies and plans.

DER & PEV Integration and Advanced System Analysis

Distributed Energy Resources and Plug-in Electric Vehicle Integration

Impact analysis and mitigation measure identification for integration of Distributed Energy Resources (e.g., photovoltaic and wind distributed generation) and Plug-in Electric Vehicles on power distribution systems. This includes data handling, steady state, dynamic and other advanced analyses, and evaluation methodologies that can fully meet utility needs to study these technologies to determine technical and capital spending requirements for integration.

Efficiency Improvement, Optimization & Advanced Systems Studies

Detailed study of existing system conditions (8760 hour and stochastic-based analyses) and identification of solutions for efficiency improvement and optimization (e.g., loss minimization) of power distribution systems. Advanced power distribution system studies, including dynamic, transient, stability, protection and power quality analyses.

Smart Distribution

Distribution Automation

Identification of solutions and evaluation of costs and benefits (e.g., reliability improvements) of implementing Distribution Automation technologies on power distribution systems.

Volt-VAr Optimization

Identification of solutions and evaluation of costs and benefits (e.g., reliability improvements) of implementing Volt-VAr Optimization and Conservation Voltage Reduction approaches on power distribution systems.

Reliability Planning & Management

Reliability Modeling & Planning

Develop and calibrate distribution system models against historical system reliability and system characteristics. Perform reliability studies using popular applications like SynerGi, Cymdist and WindMil. Develop custom and special applications where needed.

Distribution Storm Hardening

Evaluate distribution system configuration, switching, equipment strength and expected reliability in stressed conditions and with respect to industry best practices. Develop optimized guidelines and roadmaps to achieve targeted capability. Justify strategy, plans, and spending (and not spending) to regulators.



Reliability & Power Quality Assessment

Strengthen utility management and regulatory reporting with appropriate data collection and application of power quality (such as harmonics measurements) and reliability indices (such as SAIFI, SAIDI and CAIDI). Support benchmarking, root-cause analysis and data mining.

Reliability Policy, Strategy & Roadmap

Develop a roadmap to justify reliability spending and obtain dramatic reliability improvements by clearly defining the desired future state, assessing the current state, and formulating a well-coordinated plan that identifies and prioritizes near-term improvements, as well as long-term goals with clearly defined metrics and milestones.

Management & Regulatory Support

Budget and Project Portfolio Optimization

Optimize project portfolios using a robust and proven approach to ensure proper ranking and selection of projects, eliminating "gold plating" and enabling appropriate project deferrals. Avoid the pitfalls of simple benefit-to-cost ranking that commonly fails due to excessive blanket budgets, inappropriate project classifications, tunnel vision on single-year budgets, and inadequate considerations of potential risks.

Regulatory Support

Provide independent, expert written and oral testimonies in support of rate cases, infrastructure upgrade and reliability improvement projects, reliability audits and storm assessments, etc. Help responding to intervenor and regulatory staff rebuttals.

Benchmarking & Best Practices

Knowledge bases of current industry best and common practices in planning, distributed resource integration. Peer benchmark studies. Leading practice development.



About Quanta Technology

Quanta Technology, LLC is an expertise-based independent technical consulting firm that helps electric utilities and other power industry entities by providing objective and practical solutions to their most complex transmission and distribution challenges. Our services span the spectrum of the power system and include:

- Transmission and distribution infrastructure planning and analysis
- Sustainable energy impact evaluation and portfolio assessment
- Energy storage conceptual design, specifications and integration
- Equipment condition, design and maintenance standards assessment
- Best practices assessment and utilization
- RTO/ISO, regulatory, Electric Reliability Organization (ERO) and Regional Reliability
- System protection and automation
- "Smart Grid / Grid of the Future" development and deployment
- Enterprise systems integration
- Staff training

The company draws from a vast network of experienced power system experts from around the world, ensuring efficient objective and credible outcomes. As an independent consulting arm of Quanta Services, we are able to deliver end-to-end solutions that span the entire transmission and distribution (T&D) spectrum, from business consulting all the way through to engineering, procurement and construction.



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