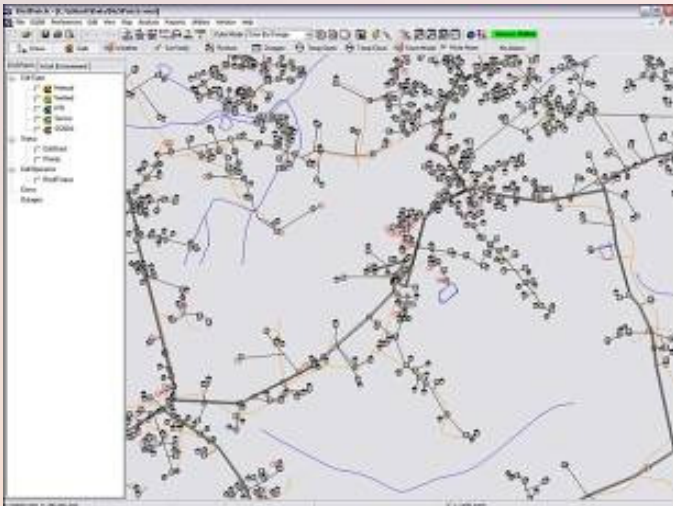


As the aging workforce of today's electric utility industry continues to erode the experience and capability of engineering organizations, more and more companies are searching for outside assistance for what have traditionally been internal company functions. Among these are engineering standards, equipment specifications and standards, and basic system planning and studies. Some situations require staff assistance to handle the regular work volume while others are driven by complex system needs or customer driven requests that require a larger manpower commitment than the host utility may be able to adequately support. In either case, Quanta Technology experts provide services to assist our clients in areas of engineering studies and planning, as well as review, revision and development of technical standards.



Engineering Standards. Engineering criteria, standards, and guidelines have been established by utilities to be used by planners and engineers as the basis for their day to day decision making. Utilities now find it necessary to reevaluate their criteria and revise them accordingly to meet current needs and changing regulations. Quanta Technology can review your engineering standards and guidelines and provide expert advice on industry best practices and revisions that will meet your specific needs in the most advantageous manner in terms of cost-benefit.

Equipment Utilization. Another all-important step in any standards review is the evaluation of existing equipment utilization and loading guidelines. Utilities have had a tendency to increase equipment-loading limits in an effort to reduce cost. Substation projects can be deferred or even eliminated, more customers can be served by individual pieces of equipment and conductors can be loaded higher before requiring upgrades. These decisions are in many cases driven almost entirely by up front costs without weighing the impact on future costs and reliability. Quanta Technology will work with you to determine the optimal loading guidelines for your organization based on your specific financial, reliability, and risk level targets.

System Analysis. Quanta Technology engineers are experienced in many different software applications that are common to the electric utility industry. These applications include CYME, SynerGee, PSS/E, PSLF, Aspen, SKM, WindMil, Pole Foreman, and others. Their software proficiency, coupled with practical utility experience, creates a depth of knowledge and capability that can support any utility need. Specific areas of analysis that are commonly part of our work are: power flow studies, capacitor optimization, arc flash analysis, wood pole strength and loading, lightning protection, and grounding and stray voltage.

Distribution Design Philosophy. Quanta Technology experts review the various engineering standards, specifications and construction standards for consistency of design practices and assurance that the stated philosophies for system design and operation are supported by operating guidelines and industry best practices. This sometimes involves challenging utility personnel to actively consider their overall practices for protection schemes, conductor and equipment loading, line design and other issues to ensure that a well developed design philosophy drives the more detailed standards and specifications in use at the company.

Training. Our consultants provide industry leading instruction in utility engineering practices. Specific courses in basic utility engineering, grounding and stray voltage, lightning protection, capacitor application, and system protection and coordination are offered as custom sessions for utilities as well as being available to the industry through open offerings.

About Quanta Technology. Quanta Technology LLC provides expert-based management and technical consulting for utilities, heavy industry, and related entities. It is a wholly-owned subsidiary of Quanta Services (NYSE: PWR). Quanta Services, employs about 18,000 people and is both the largest union contractor and non-union contractor for the electric utility industry in North America.

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