Quanta Technology, LLC

Who We are:

- The high-growth, independent consulting arm of Quanta Services
- Now 70+ professional staff, with many industry-renowned experts
- Headquarters in Raleigh, NC and regional offices in MA and CA

Our Mission:
Provide business and technical expertise to solve strategic and operational problems for energy utilities and industry.

VISION:
Be the company that energy companies seek to solve their needs and provide a work environment that attracts the best energy industry experts

Value Proposition

- Best expert, practical advice in the industry
  - Full range of technical and business capabilities
  - Creativity and thought leadership
- Maintain independence & objectivity
- Staff extension requiring technical skills
- Services leaders involved in client projects to assure success
- Ability to implement recommendations through Greater Quanta
- Timely, high quality deliverables

Range of Quanta Technology Services

- Visioning, Strategic Planning and Capital Budgeting
- Delivery Infrastructure Planning and Engineering
- Enterprise Process and Technology Integration
- Operations Management
- Regulatory Support
- Power System Automation and Protection
- Sustainable Energy Resources Planning and Management
- EPC (Engineering, Procurement, Construction) Projects
- Staff Training and Seminars
The Quanta Technology team has helped more than 70 international clients with a full range of technical and analytical services.

**Energy Delivery Companies**
- Alliant Energy
- Ameren
- Baltimore Gas & Electric
- BC Hydro (Canada)
- BC Transmission Corporation (Canada)
- Bonneville Power Authority
- Central Hudson Gas & Electric
- ConEdison
- Dominion
- Duke Energy
- Entergy
- EPCOR Utilities (Canada)
- Exelon (ComEd)
- Exelon (PECO)
- First Energy
- Georgia Transmission
- Idaho Power
- Kansas City Power & Light
- Madison G&E
- Nashville Electric Service
- National Grid USA
- Nevada Power
- New Brunswick Power (Canada)
- Northeast Utilities
- Northern Virginia Electric Corporation
- Pacific Gas and Electric
- Pepco Holdings, Inc.
- Public Service of New Mexico
- Public Service Electric & Gas
- Puget Sound Energy
- Rocky Mountain Power (Pacificorp)
- San Diego G&E
- Southern California Edison
- Spectra Energy
- United Illuminating
- Xcel

**International**
- CPD International (Australia)
- ENECO (Netherlands)
- Eskom (South Africa)
- Israel Electric
- Marubeni Caribbean Power
- NOOR-Karachi Electric Supply (Pakistan)
- ONS (Brazil)

**ISOs and Other Industry Organizations**
- Midwest ISO
- New York ISO
- PJM Interconnection
- Southwest Power Pool

**Energy Suppliers**
- Calpine
- Deerpath Energy
- Direct Energy
- Exelon Generating Company
- FPL Energy
- Intermountain Electric
- Oak Creek Energy
- Southern Nuclear Operating Company

**Industrials**
- Huntsman
- Shell Oil
- Tesoro Refining & Marketing

**Energy Industry Organizations**
- Canadian Electricity Center for Power IT (S. Korea)
- DOE National Energy Technology Laboratory (NETL)
- Electric Power Research Institute (EPRI)
- MAPPCOR
- Natural Resources Canada
- North America Electric Reliability Corporation (NERC)
- North Carolina Sustainable Energy Association
- Public Utility Research Center of Florida

**Other Organizations**
- Dashiel
- East Carolina University
- Penn State University
- Quanta Energy Services
- Pennwell
- Realtime Utility Engineers
- Sirius Solutions
Our staff expertise and credentials include:

**Senior Staff**

- 20+ years each serving utility industry  
- 6 IEEE Fellows  
- 57 Patents Awarded  
- Industry recognized experts for asset management, system reliability, planning, protection and training  
- 10 Published Books  
- Hundreds of Published Articles  
- Actively solicited and participate in Industry Forums  

**Mid/Junior staff:**

- Prior utility experience  
- Bright, advanced electrical engineering degrees, including doctoral  
- Senior staff mentors junior staff  
- Recognition awards provided for outstanding performance
Quanta Technology Representative Services

The following sections highlight services provided by the Quanta Technology staff.

Delivery Infrastructure Planning Services

- Capital Budgeting
- Asset Management Planning
- Equipment Condition Assessment
- Risk Management
- Load Forecasting
- System Modeling and Analysis
- Storm Hardening
- RTO/ISO Coordination
- Generation Interconnection & Design Reviews
- Distributed Generation System Integration
- Power Quality
- Smart Grid / Smart Meters / AMI Impacts

Quanta Technology has many of the world’s top experts in delivery infrastructure planning and engineering and has helped many utilities address nearly every aspect of the subjects.

Delivery Infrastructure Engineering Services

- Capital Budgeting
- Business Case Development
- System Design
- System & Equipment Testing
- Forensic Analysis
- Engineering Standards Review
- Benchmarking
- DG Interconnection Design
- OVHD & Underground Analysis
- Power Quality Improvement
- Smart Grid / AMI Design
- Procurement Assistance
Enterprise Process and Technology Integration Services

- Business Process Design
- System Architecture, including:
  - Smart Grid / AMI
  - Cyber Security
  - Utility Business Automation
- Technology Integration Strategy
- Systems Design and Testing:
  - Geographic Information System (GIS)
  - Work Management
  - Outage Management
  - Maintenance Management
  - Meter Data Management
  - Demand Response
  - SCADA/EMS
- Procurement Assistance

Operations and Design Services

- Operations Standards and Practices Utilization (ie, Safety, Cost, Reliability, Operating, Inspection, Maintenance)
- Equipment Condition Assessment
- Maintenance Management
- Large Equipment Replace/Maintain Decisions
- System Outage Analysis
- Energized Systems Work Planning
- Change Management for Enterprise Process and IT Integration
- Safety Management
- Specialized safety studies, including:
  - Grounding and stray voltage
  - Arc flash
  - Pole loading
  - Capacitor optimization
Regulatory Support Services

- Rate Case Support
- ERO Compliance
- Expert Witness and Testimony
- Strategy for:
  - Asset Management and System Renewal
  - System Reliability
  - Sustainable Energy Resources
  - Energy and Emission Management
  - Demand-side Program Development
  - Smart Grid and AMI

Protection and Automation Services

- System Performance Review
- Business Case Development
- Upgrade Strategies and Design
- Control Systems and Communications:
  - Substation / Distribution Automation
  - SCADA & EMS Interface
  - Smart Grid, DG and AMI Interface
  - Demand Side Management
  - Cyber Security
- System Protection:
  - Regulatory Compliance (NERC/CIP) and Support
  - Adaptive Relays and Settings Support
  - WAMPAC (Wide Area Monitoring, Protection, and Control)
  - NASPInet for Phasor Measurements and System Sharing
Smart Grid and Services

The services we provide include:
- Business case development
- Roadmap development
- Enterprise system design and technology acquisition consulting
- System acceptance testing & commissioning
- Align and integrate engineering, automation, customer solution, energy, and IT technologies with business strategy & processes
- Foster and manage business process transformation and benefits across the utility hierarchy
- Implementation of Smart Grid applications, including use of Quanta Services for EPC projects

Sustainable Resources Planning and Management

- Sustainable Energy Programs
  - Resources Portfolio Management
  - Business Case Development
  - Regulatory and Market Policy
  - Carbon Footprint Assessment
  - Emission Management and Utility Operations
  - Project Development
  - EPC Project Planning

- System Modeling and Interconnection Studies
  - Power Flow Analysis
  - Contingency and Power Quality Analyses
  - Static and Dynamic Reactive Power Requirements and Optimization
  - Low Voltage Ride-through Analysis
  - Lightning Protection
  - Ground and Stray Voltage Analysis
  - Interconnection with DG, HVDC, HVAC and FACTS
Energy Efficiency and Demand Management

- Customer Portals
- From enrollment to incentive payment, and reporting
- Straight-through-process for business automation
- Web portals to facilitate information-based solutions
- Demand-side Applications
- Energy efficiency and DSM program development
- Demand Response program design and development
- AMI integration solutions
- Program Assessment
- Risk management and cost/benefit analysis
- Impact analysis of various EE/DSM implementation
- Systematic analysis of DG and PHEV penetration
- System operation and planning
- Power system impacts

Training Services

- T&D Asset Management
- Business Essentials for Power Engineers
- Aging Infrastructure
- Power Delivery Planning I & II
- Transmission Infrastructure Development
- Transmission Planning
- Renewable Energy Implementation and its Impact on System Performance
- Application of Synchronized Measurement and PMU Technology
- Distribution Engineering Fundamentals
- Distribution, Transmission, Substation and Generation System Protection I & II
- Distributed Generation: Integration / Interconnection, Protection, Automation and Control
- Substation and Distribution Automation and Integration I & II
- Spatial Load Forecast
- Stray Voltage/Neutral Grounding
- Telecommunication Architecture
- Protective Relaying Upgrade Strategies