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# Utility Communications

EnerNex Corporation provides recognized expertise in utility communications, particularly in industry standards and communication protocols. Our staff has decades of experience with numerous utilities, research organizations and government agencies in the development, implementation, integration and verification of communication standards and protocols.

Our involvement in international standards-making organizations and other standardization efforts such as the IEEE, IEC, ANSI and Cigré is the key to our work. We not only use these utility communications standards, but we help create them. Our personnel have been key to the development of such standards and protocols as IEC 61850, IEC 60870-5 and DNP3. Our staff played a key role in the EPRI Utility Communication Architecture (UCA®) project as well as the EPRI Intelli-Grid Architecture, a pivotal effort to establish a roadmap and process for integrating utility power systems and communications networks. This expertise ideally positions us to help you with implementation, integration or deployment of communications technologies. EnerNex Corporation is the pre-eminent consulting firm for **Utility Communications**.

## Our Services

*EnerNex is a research, engineering, and consulting firm specializing in the development and application of new electric power technologies. Our focus is to aid in the understanding and solution of electric power related issues, as well as the development of technology and expertise that will ultimately improve the operation and reliability of electric power systems. We offer services organized around these areas of emphasis:*

- ▶ Power Systems Analysis
- ▶ Wind Integration
- ▶ Information Security
- ▶ Systems Monitoring & Analysis
- ▶ Testing and Research & Development
- ▶ Smart Grid Development
- ▶ Advanced Metering Infrastructure
- ▶ Utility Communication Architecture & Implementation
- ▶ Utility Automation
- ▶ Demand Response & Energy Efficiency





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## Our Services

- *Training personnel in communications protocols and technologies*
- *Assessing and making recommendations for your communications network*
- *Supervising or coordinating your communications project*
- *Facilitating information exchange with standards and regulatory organizations*
- *Researching the usefulness of new communications technologies to your business*
- *Helping to define requirements for your new utility communications products*
- *Designing hardware and software systems to fit your communications needs*
- *Developing communications software*
- *Testing equipment against industry communications standards*
- *Notifying you of opportunities for interoperability demonstrations and partnerships*

## Specific Communications Technologies

- *IEC 61850 Substation Automation suite*
- *EPRI IntelliGrid communications architecture*
- *Distributed Network Protocol (DNP3)*
- *IEC 60870-5 Telecontrol suite*
- *Modbus*
- *IEC 61968/61970 Common Information Model/ Generic Interface Definitions*

## Communications Techniques & Methodologies

- *Requirements and use case development*
- *Object-oriented design*
- *Real-time embedded software development*
- *Protocol design and interoperability*
- *Quality assurance and testing*
- *Security assessment and management*
- *NERC Critical Infrastructure Protection (CIP) compliance*

## Our Involvement

IEC Technical Committee 57 Working Groups // TC 88 IEC 61400 Part 25 Working Group on Wind Power Plant Communications // IEEE Power Engineering, Computer, Instrumentation and Measurement Societies and Standards Association // OpenAMI and UtilityAMI // UCA International Users Group The DNP User's Group // The DNP Technical Committee // Cigre` working groups

## Our Experience

Our staff has extensive experience utility communications applications experience, including:  
**Supervisory Control and Data Acquisition (SCADA), Energy Management Systems (EMS) and Distribution Management Systems (DMS) // Power system equipment and power quality monitoring**  
**Advanced metering infrastructure // Demand response infrastructure**  
**Substation automation and control // Data acquisition from generation assets**

