

Advancing a cleaner, smarter energy system



EnerNex

A CESI Company

EnerNex: your partner to help you solve energy transition challenges

EnerNex, a CESI company, is part of a world-leading energy technology and innovation consulting group operating on five continents. Leveraging expertise across the CESI Group, EnerNex provides innovation and deep sector competence to help with the planning, implementation and operation of power assets and electric infrastructures needed to meet clients' ever-increasing energy transition challenges.

Our team of experienced power engineers, control systems professionals, program managers, and regulatory and business experts have the know-how to develop viable, timely energy solutions that bring measurable benefits to our clients.

Our clients include:

- Utilities and Large Energy Consumers
- Government Agencies and Research Organizations
- Industry Solution Providers and OEMs
- Project Development Firms

We invite you to learn more about how we can help advance technologies and improve the operation and reliability of the electric power system through the 21st century and beyond.

Core Services

- Grid Modernization
- Utility Infrastructure Engineering & Analysis
- Renewable Energy Integration & Interconnection
- Electric Industry Evolution
- Grid Technology Development

Additional Services

Testing & Certification

- Testing Laboratories
- Certification
- Owner's Engineering for HVDC/HVAC Infrastructures

Structural & Environmental Engineering

- Structure & Civil Engineering
- Environmental Monitoring Studies
- Environmental & Sustainability Consulting

Due to our wide range of knowledge and expertise, we're experts at solving clients' electric power industry challenges.

Grid Modernization

As utilities modernize their grids by integrating new technologies, including renewables, and working to meet new policy mandates, they are challenged to improve upon analytical approaches the power industry traditionally trusted to ensure reliable, secure power system performance. Simultaneously, as large energy consumers are adopting renewables, microgrids and other new technologies, there is a set of new market dynamics and policies that are rapidly accelerating utility business transformation processes.

EnerNex's custom-built grid modernization programs define and architect individual systems and system-of-systems eco-structures to deliver value based on both practicality and standards. We help bring clarity to complex technologies and operational challenges in the areas of:

- Smart Metering (SM) and Advanced Metering Infrastructure (AMI)
- Distributed Energy Resource Management Systems (DERMS)
- Demand Response (DR)
- Microgrid Development
- Enterprise Architecture
- Grid Modernization Roadmap
- Utility Communications

Project example

Hawaiian Electric Companies: *Helping with grid modernization strategy (GMS) to help them achieve their 100% renewable energy goal.*



Utility Infrastructure Engineering & Analysis

Understanding the operational and business impacts of electric power generation, delivery and utilization, in particular as they relate to new technologies and modernization, is an ongoing journey for utilities and other energy organizations.

EnerNex provides analyses and studies on both the architectural level as well as on the analytical level, utilizing the latest advanced analytical tools for modeling and simulation. This combination of knowledge and skills sets us apart and provides our clients with comprehensive cutting-edge guidance that is critical to understanding the fundamental changes taking place in the power industry.

Examples include:

- Transmission and Distribution Studies
- Bulk Power System Analysis
- Power Quality/Power Disturbance Trouble Shooting

Project example

NYISO: Conducted controlled system separation study for bulk power systems to better characterize and maintain stability in individual electric islands.



Renewable Energy Integration & Interconnection

Adding renewables to the power system mix, whether state mandated or business-case driven, provides a unique set of challenges for companies. EnerNex helps clients develop models and techniques to study the unique impacts of wind and solar generation on bulk transmission and distribution networks.

Our in-depth knowledge of the unconventional technologies utilized in wind generation, combined with our extensive power system analysis capabilities, allows us to assist a wide range of clients for projects like:

- Solar Converter and Wind Turbine Modeling
- Wind and Solar Integration Studies
- Renewable Plant and Interconnection Studies

Project example

EWITS: Led the Eastern Wind Integration and Transmission Study to help the organization understand the operating impacts due to the variability and uncertainty of large penetrations of wind power.



Electric Industry Evolution

Power utilities are transitioning to become more market-oriented businesses. These transitions frequently are based on changes in public policy, the role of customers/consumers, technology innovation, competition from third parties and a need to properly value electricity provision in a digital society. Utilities must transform their business models to address these and other factors.

In support of these business transformation challenges, EnerNex offers:

- Strategic Consulting Services
- Utility Investment and Pilot Review
- Position Paper Development
- Business Case Development

Project example

The United Illuminating Company: *Developed microgrid business cases and cost benefit analyses to help quantify the value of these assets for all stakeholders.*



Grid Technology Development

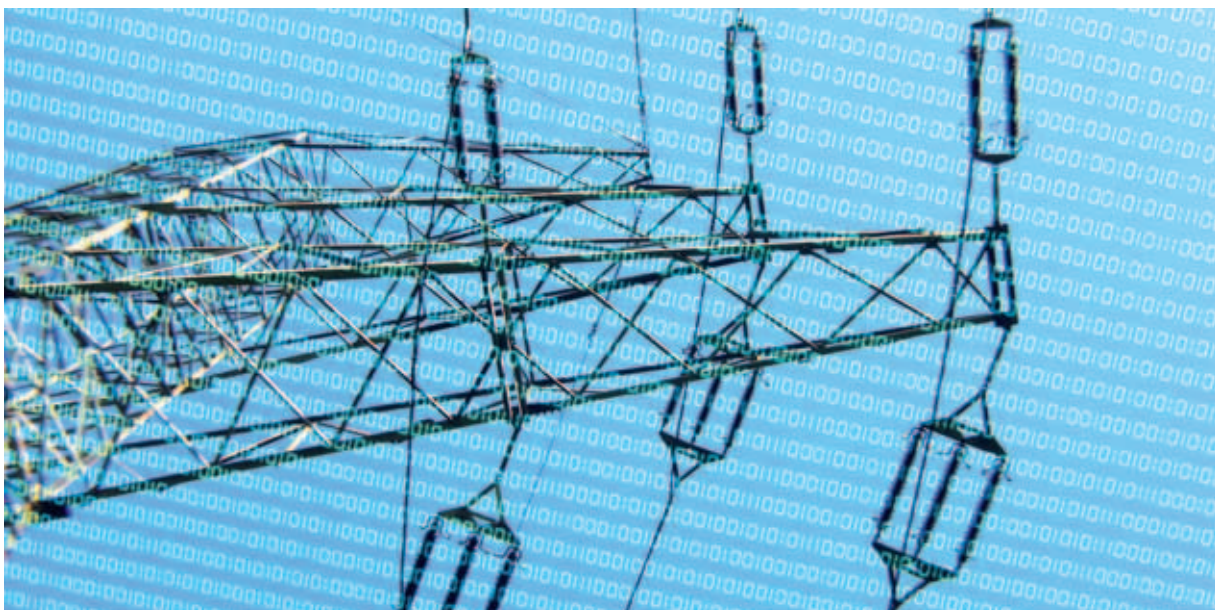
The rapid evolution of advanced control and communication technologies that are being applied to the electric grid has presented a challenge both to utilities and the organizations who serve them. Similarly, new industry entrants are unprepared to deal with the unique environment of utility technology deployment (e.g., harsh physical environment, life safety critical systems, very high degrees of reliability, inaccessibility of devices, unique cyber security requirements).

EnerNex offers vendors, utilities and regulatory bodies a place to evaluate and understand technology readiness for smart grid in the areas of:

- Cybersecurity
- IEC 61850
- Utility Procurement Assistance
- Vendor Due Diligence
- Pre-certification Testing
- Communications Cyber Assurance

Project example

A Southwestern-area transmission and distribution utility: *Supporting its security architecture and NERC CIP compliance efforts to help protect the organization from potential threats.*



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