



Ulteig

Grid Modernization

PREPARE TO MEET THE INCREASING RELIABILITY, RESILIENCY AND EFFICIENCY DEMANDS



ULTEIG
SOLUTIONS

- Resiliency
- Visibility
- Adaptability
- System Integration
- Reliability
- Cyber Security
- Accessibility

Our society is more dependent on uninterrupted electricity than ever before. Therefore, it is crucial that electrical distribution systems are prepared to keep up with rapid industry changes and an increasingly decentralized grid driven by customer demand. Is your company prepared for solar, energy storage, and other distributed energy resources to be installed on your grid?

Ulteig's team of grid modernization experts offers an array of innovative solutions to fit your utility's unique needs.

Our Approach

We understand that grid modernization and its strategic priority is unique and defined differently by each utility. However, most utilities share a common goal when developing and implementing their grid modernization strategy: to improve overall system reliability.

When implementing a strategy to address system reliability concerns, it is important to evaluate the uniqueness of individual feeders based on the following criteria:

- ✓ Historical Reliability Indices
- ✓ Feeder Type
 - Overhead
 - Underground
 - Hybrid

- ✓ Customer Profile
 - Primarily Residential
 - Primarily Commercial
 - Mixed Residential and Commercial
 - Primarily Industrial

- ✓ Location
 - Urban
 - Rural
- ✓ Loading
 - Current System Peaks
 - Future System Growth

Ulteig's approach makes the electric grid:

- More reliable for its consumers
- Resilient against major system events
- Secure against cyber-attacks
- Visible through increased data points
- Adaptable to new dynamic loads
- Accessible for prosumers who install distributed energy and energy storage resources

Ulteig Solutions

Ulteig will use the criteria above, along with an electric system model, to develop a unique solution that addresses your reliability concerns. These solutions are typically comprised of one or more of the following principles:

Resiliency

The ability to minimize customer interruptions and bounce back after increasing weather-related events is crucial to improving reliability numbers and customer satisfaction. Identifying key system components that can be upgraded, developing asset maintenance strategies, implementing a vegetation management program and utilizing the latest emerging technology can all play a key role in ensuring optimal reliability of the electric distribution system. Having switches open and close as designed when restoration crews are attempting to isolate a fault can save valuable time during an outage. Designing a system that can automatically locate a fault, isolate it through device operation and restore service (FLISR) to unaffected customers in a matter of seconds can drastically improve reliability metrics.

Visibility

Knowing feeder information downstream of the substation is crucial when attempting to identify, locate, and restore a fault. With solutions like Advanced Metering Infrastructure (AMI), intelligent line sensors, Faulted Circuit Indicators (FCI), and intelligent digital relays, outage response teams can quickly

identify a fault and its location in real time. Implementing these solutions can eliminate the need to patrol an entire feeder, a task that can be time consuming, and save valuable Customer Minutes of Interruption (CMI). Having load data on a segment of line is also critical when attempting to make restoration efforts through switching. This can prevent additional outages caused by overloading another feeder.

Adaptability

Preparing a system for the implementation of emerging technology and Distributed Energy Resources (DERs) can also play a key role in improving reliability. Accurate Geographic Information System (GIS) and electric system

models ensures that adequate system analyses can be performed when evaluating the implementation of new facilities. An adequate communications infrastructure in place ensures that data being collected in the field can be brought back to the Supervisory Counsel and Data Acquisition (SCADA) system as it is being deployed. Ulteig can help build your GIS, construct an electric system model, perform system studies and design communication infrastructure to meet your grid modernization needs.

System Integration

When implementing emerging technology, whether it be Distributed Energy Resource Management Systems (DERMS), line sensors, AMI, remote operable switches and reclosers or other smart technology, these devices must communicate to a central system to utilize them to their full capacity. One platform for this is an Advanced Distribution Management System (ADMS). Our team will help integrate your devices to an ADMS to optimize your distribution system.

About Ulteig

Ulteig delivers comprehensive design engineering, program management and technical and field services that strengthen infrastructure vital to everyday life. Ulteig's footprint spans the nation and provides its expertise in multiple Lifeline Sectors®, including power (both electric utilities and renewables), transportation and water to a wide range of public and private clients. To learn more about Ulteig and how we can enhance the quality and efficiency of your next project, **call us at 888.858.3441 or visit ulteig.com.**

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