

# Electric Utilities Simplify Battery Management and Regulatory Compliance With Albér Solution



A Vertiv Case Study



## Background

The ability of electrical utilities to provide reliable power to residential and commercial customers depends on an expansive network of power generation facilities, transmission cables, substations, and local transformers. This infrastructure is instrumental in moving power from the generation facilities to the consumer.

Power substations transform electrical power into usable voltages and also balance the distribution of power to multiple locations. The substations themselves are populated with a variety of electrical distribution equipment including transformers, switchgear, circuit breakers, batteries, busbar, panel boards, and capacitor banks — components that must be properly monitored and maintained so that the utility can ensure around-the-clock stable power and can successfully re-route power whenever both minor and major power outages occur.

## Challenge

### Reducing the cost of regulatory compliance

A number of utilities in the United States, with millions of customers, required modernization across a network of thousands of substations. Utility executives recognized a need for enhanced battery monitoring and management within the substations that would make the reporting needed for regulatory compliance easier and more cost-effective.

As is the case for all electric utility companies, reliability is not just paramount, it is required. Therefore these utilities had installed hundreds of 120-volt and 48-volt DC battery systems in their substations as emergency backup power for switchgear in the case of AC power loss. In partial outage situations, for example, the switchgear serves to divert power from the portions of a utility's network that are still functioning to provide electricity to areas most in need. These behind-the-scene activities explain why users will only experience a momentary glitch in power when, in reality, their normal source of power has been out of commission for several hours. The supplementary power supply

### Challenge:

Reduce the complexity and cost of achieving regulatory compliance within the substation network.

### Solution:

- Vertiv™ Albér™ Universal Xplorer Industrial Monitor (UXIME) for batteries
- Vertiv™ Albér™ ELS2 electrolyte level sensors

### Results:

- Drastic reduction of on-site substation battery testing
- Far more accurate North American Electric Reliability Corporation (NERC) PRC-005 compliance reporting
- Lower risk of regulatory fines and negative public scrutiny
- Ongoing insight to system health for enhanced substation maintenance and improved availability

re-routed by the local substation takes over and acts as a bridge until the issue with the original power source is resolved.

In terms of regulatory compliance, NERC establishes requirements for battery maintenance activities and intervals as seen in its Protection System Maintenance (PRC-005) standard. This standard, and the [NERC](#) authority as a whole, aims to reduce reliability and security risks to the Bulk Electric System (BES).

Prior to implementing the Albér™ battery monitoring solution, addressing these requirements was extremely labor intensive for the utilities' staff. The companies would have to physically dispatch trucks and technicians to thousands of substations to perform the needed inspection and testing. Such an exercise would take place at least four times a year. A key factor involved in proving compliance was to document the maintenance tasks, a manual exercise that increased the risk of human error in the reporting.

## Solution

### Remote battery monitoring as cost-effective alternative

To reduce the risk of errors and regulatory penalties, and to decrease substation battery system monitoring costs, utility stakeholders decided to invest in a more automated solution. These utilities turned to [Exponential Power](#), their trusted provider of batteries, chargers, and DC equipment. Exponential Power strongly recommended the Albér™ monitoring solution sold by [Joe Powell & Associates](#), a Vertiv partner. The utilities were amenable because they had a history of benefitting from Albér products and other Vertiv solutions such as uninterruptible power supply (UPS) units and power distribution equipment.

The solution proposed combined both the [Albér™ UXIME battery monitor](#) and the [Albér™ ELS2 electrolyte level sensors](#), which allowed utility technicians to remotely gather battery measurements and perform checks on internal resistance and string voltages as mandated by NERC requirements. Monitoring tasks can now be executed without physically having to send a truck with personnel to perform the on-site work.



Vertiv™ Albér™ UXIME battery monitor

## Results

### Lower risk of human error and better compliance reporting

The Albér™ battery monitoring solution now provides the utilities with a number of business advantages. First, they require far fewer truck rolls to maintain NERC compliance. Useful battery life is also extended because the monitoring of the batteries' internal condition occurs on a near-constant basis. In addition, data available from hundreds of distributed substations is accessible from one central location for reporting purposes and is especially helpful during on-site NERC audits.

Technicians normally dispatched to physically inspect substations can now focus on more complex grid network challenges. Much less time is spent collecting data from substations and on generating reports. Utility trucks are also more available for tasks that improve customer service and overall grid reliable.

In addition, the data that is automatically collected by the Albér solution is never lost, and the potential for human error in the reporting is greatly diminished. This higher level of data accuracy helps the utilities avoid costly reputation damage that can accompany non-compliance and significantly lowers the risk of fines or penalties.

The Albér™ UXIME and Albér™ ELS2 products not only enable compliance with current NERC standards, but are designed to anticipate future regulations. Albér product engineers, for instance, have proactively added features for extra resistance testing of charger load cables, as well as AC ripple and battery cell temperature monitoring.

The utilities plan to continue rolling out hundreds of the Albér solution because of the demonstrated ease of installation and use, the smaller footprint of the solution, the ergonomic design, and the high quality of the service and support they receive from Vertiv and its partners.

*Go online to learn more about the  
Vertiv™ Albér™ battery monitoring solutions  
for utilities or contact your local Vertiv partner for  
help with NERC compliance.*

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