CASE STUDY

Helping a Data Center and Utility Work in Harmony

The Challenge

When a public utility experienced an influx of flicker complaints from customers in northern Virginia, they needed to find and fix the issue quickly. Fortunately, they knew just where to look. Using a PQube® 3 power analyzer already installed in the system, the utility was able to quickly diagnose the source of the problem — the interaction between a mission-critical data center conducting load testing nearby and the utility's capacitor bank. Combined, these factors created the flicker issues experienced by customers:

- A significant harmonic event caused by the data center's uninterruptable power supply (UPS) system.
- An improperly sized capacitor bank tied to the utility's network, exacerbating the impacts of the harmonic distortion.

Ultimately, the flicker issue was a symptom of a system resonance condition caused by the shared responsibility of the data center and utility, but — with the right tools and communication — it was a solvable problem.

Challenge
Harmonic distortion impacting utility customers and data center operations

Project Type
Data center

Diagnostic Tools
PQube® 3, QubeScan Monitoring Software

The Solution

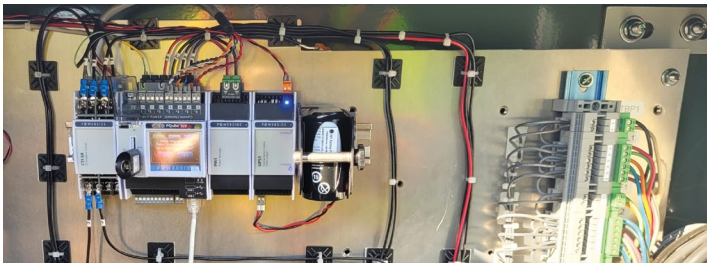
Equipped with the insights of the power quality diagnosis, the utility quickly switched the data center off of the bridging circuit and onto a different feeder to mitigate the impact on customers while both parties implemented a long-term solution. For the data center, this meant the installation of a harmonic filter to counteract harmonics and interharmonics and prevent unintended strain on the grid, plus replacing the capacitor bank.

Throughout the process, the utility shared detailed power quality insights with the data center from QubeScan, Powerside's cloud-based monitoring platform, enabling both teams to work together to resolve the issue.

Impressed by the precise diagnostics of the PQube 3, the data center decided their team needed these capabilities, as well. In close collaboration with the data center operators, the Powerside team designed and deployed a tailored monitoring solution to meet their needs.

The turnkey monitoring solution consisted of:

- Five PQube 3 power analyzers retrofitted into the data center's switchgear — the ideal location to monitor each circuit connected to the facility.
- High-accuracy voltage sensors and metering-class current transformers, enabling ultra-precise power quality analysis.
- Rugged outdoor antennas for dependable remote monitoring.



Once installed, the equipment immediately began uploading to QubeScan, allowing operators to access real-time power quality data from any location.

The Results

Thanks to the compact, plug-and-play design of the PQube 3, which comes preconfigured out of the box, the Powerside team was able to integrate and activate the solution in a fraction of the time required by other power quality devices employed by the facility. **With minimal setup required, the center's engineers can now remotely monitor system health, track trends and rapidly troubleshoot issues though one intuitive platform.**

Beyond delivering in-depth power quality insights, the QubeScan platform also operates air-gapped from the data center's SCADA system, providing an independent layer of visibility and ensuring continued insight even if SCADA becomes unavailable. The engineers can now set up automatic compliance reporting and custom alerts for harmonic distortions, as well — so their team can take action at the first sign of trouble, before an issue impacts their facility or the grid.

Data centers demand the very best power quality. See how we can help your team stay ahead of unseen issues, prevent downtime and promote more efficient, resilient operations.

powerside.com/industries/data-centers