



CASE STUDY

A NATIONAL TELECOM DATA CENTER
SEATTLE, WA

UPS System Upgrade

Goals & Challenges

A large, national telecom provider with data centers in Puget Sound Energy (PSE) territory in the Pacific Northwest was facing challenges associated with the aging electrical/mechanical equipment that supports their mission-critical network and IT systems.

Willdan performed energy assessments at multiple data center buildings and presented the provider with our recommended energy conservation measures. Based on our findings, they decided to proceed with early replacement of eight Uninterruptible Power Supply (UPS) systems that were fully functional but approaching their end of life. Due to the make and model of this older UPS equipment, these systems were operating inefficiently when compared with newer UPS technologies.

Willdan worked with the provider's operations team to obtain four weeks of baseline energy trending data on each of the eight existing UPS systems. The mechanical HVAC system was also evaluated to determine how much of the mechanical cooling load was being used to address the heat loss from these inefficient systems. The new, highly efficient UPS systems were then evaluated to predict the anticipated reduction of heat loss. Willdan submitted an energy savings estimate for the project to the provider with a custom incentive program application for a PSE cash incentive.

Because multiple UPS systems were impacted, the provider's team established maintenance procedures to ensure that the data center experienced zero downtime. Willdan worked alongside the provider's team to look at optimization modes to maximize the energy savings and cash incentive to improve the financial payback of the project.

Solutions & Outcomes

Measurement and Verification (M&V): Using Building Management System (BMS) 15-minute UPS Interval power data, Willdan calculated total energy savings for each new UPS system. Savings methodology and custom calculations were approved by PSE's energy efficiency program. Project results delivered substantial electric power and annual energy savings while also providing a cash incentive from PSE.



Total Savings
4,163,241 kWh



Average Load Reduction
475 kW



Total Incentives
\$ 1,798,000

