ROVISYS®
Automation & Information Solutions

CASE STUDY

PRESERVING POWER ON CAMPUS

RoviSys delivers a Power Preservation System to remedy reliability and resiliency issues for UofM.

ROVISYS

Based on a design by the University's engineer of record, Black and Veatch, The Christman Company would be responsible for hardware asset updates and hospital retrofitting. RoviSys was contracted to design and implement a Power Preservation System that provided supervisory control and monitoring capabilities at all five locations and integrated with the local utility.

RoviSys was able to address challenges with assets and strategy that other integrators couldn't match. Specifically, the design of a tailor-fitted solution that leveraged existing controls, and decades of experience with Schweitzer Engineering Laboratories control system components. Together, these ingredients were critical to an adaptable solution that would be familiar to operators and enable ongoing efficiency.

When UofM operations teams became aware that the central power plant and sub-stations weren't equipped to handle harsh weather events or utility outages adequately, an upgrade was needed. To meet the demands of the 3000+ acre campus and neighboring University of Michigan Medical Center teams were assembled by the University's engineer. RoviSys evaluated existing systems and options, and delivered a solution focused on cost savings and operational benefit.

THE PROBLEM

The University of Michigan Central Power Plant (CPP) and remote switching stations (substations) were in need of hardware and controls updates to increase system resiliency during harsh weather events and utility outages. Operations teams were aware of existing issues and an unsustainable model. In order to avoid any major incidents that would impact the 3000+ acre campus and neighboring University of Michigan Medical Center improvements were necessary.

> *Ultimately, the Power Preservation System utilizes modern platforms and is* ***designed to directly remedy issues of reliability and resiliency*** *of the entire 13.2kV electrical system.*

THE SOLUTION

RoviSys evaluated existing systems and recommended a solution plan focused on cost savings and operational benefit. A team of six engineers are designing and implementing a Schweitzer Engineering Laboratories-based control system that performs complex microgrid control functions, including electrical system monitoring (over 100 breakers), high speed load shedding, bus synchronization, generation dispatch (for five units), and event recording. The Power Preservation System is comprised of redundant SEL Real-Time Automation Controllers (RTACs) and redundant SEL networking equipment with encryption, and utilizes IEC-61850 GOOSE messaging for relay communications. All data and control points are transmitted to the plants existing DeltaV DCS. This DCS is the main system for operator interaction and monitoring.

THE RESULT

The solution is currently in development and is on schedule to be delivered to site in Q3 2019, with commissioning to occur in phases through 2020. Ultimately, the Power Preservation System utilizes modern platforms and is designed to directly remedy issues of reliability and resiliency of the entire 13.2kV electrical system. A reduced reliance on manpower to stabilize plant conditions when timing is critical for preventing major outages across campus is expected. The PPS will work in conjunction with protective relaying to ensure proper operation during utility-connected and islanded modes. Cost savings and operational benefits will be defined when the complete system is functional.