

Power Monitoring for Chesapeake Bay Bridge-Tunnel Completed by Affinity Energy

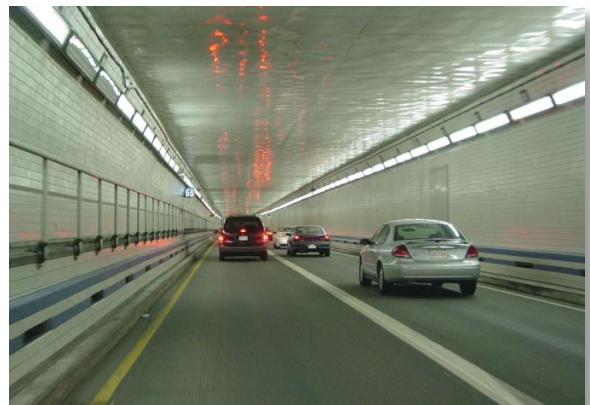
For over 50 years, the Chesapeake Bay Bridge-Tunnel (CBBT) has captured worldwide attention as a modern engineering wonder and an important East Coast travel convenience. The 23-mile (37 km) fixed link crosses over and under the open waters at the mouth of Chesapeake Bay in the U.S. state of Virginia, providing a direct link between southeastern Virginia and the Delmarva Peninsula. It has carried over 100 million vehicles and cuts 95 miles from the journey between Virginia Beach and points north of Wilmington, Delaware.

The Chesapeake Bay Bridge-Tunnel Commission chose Affinity Energy to upgrade their power monitoring SCADA system. The completed system, which Affinity Energy developed using VTScada software from Trihedral, went into service in January 2015.

The Old System - The CBBT was using a system based on FactoryTalk to communicate with electrical substations in the two toll plazas and on each of the four islands in the bridge-tunnel complex. Communication was through their existing PLC network to the protective relays, meters and trip units in the substation. CBBT indicated severe problems with the data refresh rate and performance in controlling the breakers.

Design Process - "VTScada was a good solution versus other providers because it met the qualifications for redundancy, remote viewing via workstation as well as mobile devices, and was very economical," says Allan Evora, President of Affinity Energy. "We developed this system to mimic the existing system because the users were very comfortable with the look and feel. We submitted a complete design package with network diagrams, points lists, equipment lists and example work from other projects."

New SCADA Design - The system includes two redundant Dell Poweredge® Servers (located in the tunnel control rooms on Islands 1 and 3) which host the SCADA application and server screens. Two workstations were installed for the operators to view screens and manage the system. The servers communicate with the equipment in the substations over a new fiber backbone directly through to Eaton Power Xpert® gateways within the gear.



Evora explains the requirements of the commission, "The CBBT was interested in capturing live data of voltage, current, load, etc., from electrical feeders in the substation. They also wanted to capture the breaker status, have the ability to remotely open/close breakers in the substations, and start/stop emergency generators. Alarms and notification were also of interest for the operators."

Mobile Access - "The CBBT can now view the system via mobile devices. They can now operate breakers from anywhere on the network within five seconds. They know they can reliably view system live data, status, events, alarms and history. It also gave them a real ease-of-mind with the redundant servers."



About Affinity Energy - Affinity Energy is a vendor-neutral control systems integrator with a national portfolio of over 800 power automation projects and a rich depth of expertise working with mission critical facilities, distributed generation plants, energy companies, engineering firms, and construction contractors who seek open, turnkey systems for power management and energy optimization. Providing systems and services in the design and build phases of new construction and retrofit projects, Affinity Energy uses its industry-specific background to help customers throughout the U.S. operate efficiently, safely and reliably. Founded in 2002, Affinity Energy is headquartered in Charlotte, NC.

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