

Remote Substation Monitoring in Utility Operations

Industry Use Case

Challenge

Large transformers in many distribution grids are approaching expected end-of-life. Aging equipment could lead to failures that cause revenue loss, safety risk, and damage to critical downstream equipment. Maintaining backup transformers or replacing them long before reaching end-of-life are capital-intensive and energy-inefficient strategies.

Solution

Wunderlich-Malec connects high fidelity operational data with its VIP Power System to help utilities make smarter decisions that drive efficiency and reliability through operational intelligence and condition-based maintenance (CBM) strategies.

Benefit

Leveraging a 360° view of their assets, utilities can now optimize operations to actual, real-time conditions. Integrated with the OSIsoft's PI System, VIP Power provides improved access to trusted data and eliminates the need for costly data science teams, custom coding, and manual data conversion, while yielding reliable analyses that deliver operating and business results.

Business Challenges

The operating landscape for today's utilities is changing. Aging infrastructure and new demand sources continue to add complexity to everyday tasks and drive the need to find tangible business value in substations and other remote assets. Federal mandates are changing how utilities operate. To deliver reliable power without compromising safety and cost, utilities must provide 24/7 monitoring of their assets and embark on a digital transformation.

The Solution: VIP Tower

To help utility customers make timely, data-driven decisions, Wunderlich-Malec created the VIP (Virtual Information Portal) Tower solution. VIP Tower helps companies to digitally transform their operations by allowing them to visualize their assets via OSIsoft's PI System, the world's leading data infrastructure.

Created in partnership with OSIsoft, Hewlett Packard Enterprises (HPE) and Arrow Electronics, **VIP Tower** is a market ready solution that plugs into all existing data infrastructures. Powered externally or by solar energy, VIP Tower can maintain NERC-CIP compliance and connect into the operator's existing PI System via a dedicated cellular connection. The system provides a comprehensive 360° view of the operational substations and offers the following benefits:

- **Improved Conditional Based Maintenance (CBM)** – Reduce unscheduled downtime through early detection of shifts in real-time asset operating conditions.
- **Faster Troubleshooting** - Capture critical real-time conditions via video, snapshots, thermal scan images, or 3rd party media.
- **More accurate forecasting** and demand response management.
- Streamlined **maintenance costs**, increased asset availability and smarter capital expenditure planning



Receive Alarms



Review Drawings



Conduct E-Rounds

VIP Tower = PI System + HPE + V5 + Arrow Electronics

The integration of VIP Tower with OSIsoft's PI System offers grid operators and T&D maintenance & power engineers the ability to enhance the value of their operational data with a comprehensive, real-time picture of all asset conditions.

Created in collaboration with Arrow Electronics, a proven global master electronic packager, VIP Tower brings together two software and two hardware companies dedicated to the long term success of the utilities marketplace. More tablets and stations can be added as needed. The system is fully scalable.

VIP Tower Solution

- V5 Emergency Power Back-Up
 - Bullet Resistant – Solar Panel
 - 100% Water Back Up for VIP Tower System
 - DC Battery Back Up
 - 48 Hour Back Up for VIP System – if no Sunshine
- HPE Industrial IoT Gateway
 - Encrypted Wi-Fi System
 - Cellular 4G / LTE
 - Verizon / AT&T Capable
 - 500 Tag PI System
 - 250 Asset VIP Tag System
- HP Rugged Tablet(s)
 - VIP Client License(s)
 - 100 Printed VIP QR Tags



Software for the Digital Transformation

The solution utilizes **VIP Power**, a world-class application layer for today's power generation industry. The VIP Power app is a real-time maintenance tool created specifically to improve efficiency and increase productivity for utility operations.

Features	With VIP Power + PI System = Users Can Now...
Self-service Data Access	Anybody familiar with the PI System can quickly and easily publish data from remote assets and receive labeled patterns of asset operation in response.
Easily Tag Existing Assets	Connect unconnected assets at an existing site. VIP Power helps operations gain greater control and transparency over existing equipment.
Fully Integrated, Tested and Easy to Configure	VIP Power is fully integrated with the PI System. VIP Power tablet app is intuitive and easy to use. Users can also include 3rd party information to improve value for VIP usage.

Summary

The utility market is a changing and highly regulated industry demanding safety, security and operational excellence. Real-time information for better business decisions is critical for operational success.

VIP Tower helps find tangible business value in such assets as substations, breakers, and aging infrastructure. . VIP Tower provides a mobile-ready, off-the-shelf solution that supports condition-based maintenance (CBM) and delivers operational success in an aging environment. With VIP Tower, utility customers can gain operational visibility and real-time business insights by connecting mature assets for 24/7 monitoring.