

TANTALUS CONQUERS CHALLENGING MOUNTAIN TERRAIN

CASE STUDY

"We can enhance member service and improve operational efficiency right away, and we've also got a strong foundation for adopting new, cost-effective technologies. That means we can be responsive to new demands and opportunities."

- Jeff Loven, General Manager



CHALLENGE

The challenges faced by French Broad EMC are shared by many cooperatives: tough operating environment, strong focus on member service, and a fundamental need to drive more value from its distribution network. Low member density in remote regions resulted in expensive off-cycle reads and occasionally delayed service to distant communities. Noisy powerlines made PLC impractical in the mountainous service area and did not satisfy French Broad's need for real-time communication with its widely dispersed members.

SOLUTION

French Broad implemented TUNet® in October 2004. TUNet's wide area network leverages the 220 MHz frequency, giving the Coop exceptional radio range and penetration across uneven countryside. The system consists of a fixed wireless network that supports advanced metering, instant outage reporting, remote disconnect/reconnect, and can serve as the backbone network for future applications and multi-utility capabilities.

RESULTS

The Coop now has the ability to communicate with 70% of its meters using only two whip antennas mounted on existing SCADA towers. This gives French Broad the freedom to install meters at key locations within its service area. The ability to set deployment priorities allows the Coop to place meters in hard-to-reach locations and eliminate travel to high cost endpoints. It can also target high turnover rental properties that frequently required a service call in order to "read out" a former tenant's name and "read in" the new renter. Now the service department can perform the function from its Marshall headquarters and significantly reduce the number of truck rolls.

French Broad is well on its way to full deployment with over 26,000 TUNet devices installed to date. At their peak, technicians retrofit 500 meters a week with wireless modems. In the field, TUNet devices automatically associate themselves within the LAN, minimizing the cost and complexity of implementation. The Coop reports typical distances of 1200 feet between LAN endpoints, with ranges of up to 12,700 feet achieved. Each endpoint is mapped on an ESRI-compliant software application, which enables French Broad to plot deployment and remotely view LAN associations. Outage alerts are represented by a color change so the Coop can instantly gauge the extent of a problem, pinpoint affected members, and speed restoration plans.

French Broad gains value-added benefits beyond basic kWh reading for billing purposes. Within two weeks of deployment, staff located power diversions using the data made available by TUNet. The ability to log hourly meter readings allows French Broad to compile load profiles for energy audits at the account level. Similar data can be used to profile voltage drop and load flow analysis to better identify and address problem areas. Automation also benefits member service. Instead of making a special call to investigate a high electric bill, any authorized employee can now provide a member with kilowatt hour consumption data on an hourly, daily, weekly, or monthly basis over the phone. Providing members with precise information on when they use energy is helping French Broad consumers lower their electric bills and become more prudent energy users.

FRENCH BROAD BRIEF

- Marshall, North Carolina
- 35,000 members
- 4,500 miles of line; 21 substations

ADVANTAGES

- 220 MHz delivers exceptional range and coverage across mountainous, densely foliated terrain
- Accelerated payback by eliminating on-site meter reads, reducing off-cycle reads, streamlining data processing & billing, and speeding member bill remittance
- Surgical deployment enables co-op to target high value endpoints first
- Effective method for monitoring and managing widely dispersed rural members
- Remote disconnect for high-turnover locations / delinquent accounts
- PQM for optimizing system performance and regulatory reporting
- Instant outage management for quick identification of problems
- Polyphase metering helps the Coop provide better service and closely monitor high consumption C&I members
- Tools to detect theft & energy diversion
- Easy integration with critical utility backend applications such as CIS, GIS, and OMS