

## FIBER BACKBONE PROVIDES LIGHTNING FAST AMI

### CASE STUDY

“We chose TUNet because it’s a communications network and application suite built for the future. It clears the path for a range of Smart Grid services and a distribution system in which consumers & utilities play an active role in reducing consumption and costs.” Ron Holcomb, CEO



### CHALLENGE

Pulaski is a growing community with an aggressive economic development focus. Situated midway between Nashville, TN and Huntsville, AL, it attracts residents seeking a small town way of life combined with modern conveniences. As Tennessee's oldest municipal electric system – and the first in the state to receive power from Tennessee Valley Authority – Pulaski Electric System (PES) has earned a reputation for providing customers with top tier service through the use of new technologies. In 2008, a utility owned and operated FTTH (Fiber to the Home) network was implemented. The goal of PES was to get double duty from this high-speed network by also using it as the backbone for Smart Grid applications.

### SOLUTION

Tantalus gives Pulaski the option to use either FTTH or 220 MHz RF for rapid and reliable two-way data transport. This allows PES to drive additional value from its FTTH system as well as extend Smart Grid functionality to outlying areas of the community via the wireless TUNet wide area network. TUNet is an end-to-end WAN / LAN / HAN data communications system that operates with both RF and IP-based networks. WAN options can be used individually or combined to meet a utility’s economic, coverage and redundancy needs. It enables a utility to precisely monitor consumption and power quality, automatically pinpoint outages and energy losses, and remotely manage meters and other apparatus, even in challenging urban, rural and industrial environments.

### RESULTS

A fiber optic network cleared the path for utility modernization by allowing PES to use a single network for triple-play media services (Internet, TV and phone) and Smart Grid applications including automated meter reading, instant outage detection and continual power quality monitoring. It also enable PES to introduce Demand Response programs that require two-way communications between the utility and energy consumers.

In the city of Pulaski, where all the fiber is deployed, a Tantalus data collector that plugs into the meter socket is connected to the FTTH network and serves as the WAN gateway. Only the collector needs to be physically connected to the FTTH. TUNet smart meter endpoints communicate via 900 MHz and form a self-configuring, self-healing local area network. Data from a cluster of LAN endpoints is funneled through this central WAN collector and relayed to the utility’s operations center. Data delivered via TUNet can be integrated into backend applications including billing, forecasting and customer service.

The wireless RF network provides rural reach and redundancy for the FTTH network, which helps ensure a high level of system reliability.

By leveraging its FTTH network for AMI communications rather than using a separate network, PES expects to achieve a variety of benefits. A common infrastructure offers immediate cost advantages as well as on-going network maintenance efficiencies. It also has the freedom to evolve according to its own business goals, operational priorities and desire to improve the customer service experience.

PES forecasts power savings as a result of its ability to detect and correct chronic system losses from theft and malfunctioning equipment, faster outage restoration, and especially by automating data collection along hard-to-read rural meter routes.

### PULASKI BRIEF

- Giles County, Tennessee
- 15,000 electric customers
- 5,000 FTTH customers
- 1200 miles of electric line
- Urban and rural mix

### ADVANTAGES

- Combines existing Fiber-to-the-Home network with Tantalus wireless RF to provide total territory coverage
- Drives additional value from FTTH network
- Communications overlay strategy embraces different WAN technologies
- Ability to extend Smart Grid functionality to outlying rural areas at minimal cost via RF network
- Precisely monitor consumption and power quality, automatically pinpoint outages and energy losses in real time
- Remotely manage meters and other apparatus, even in challenging urban, rural and industrial environments
- End-to-end WAN/LAN/HAN for advanced metering and THE Demand Response applications proposed by the TVA

### Awards

- PowerGrid Magazine Smart Metering Project of the Year (2010)
- Metering International Award of Excellence - Innovation (2010)
- UTC Apex Award Finalist (2009)