



- Rural Electrical Cooperative
- 2450 Members
- 8750 Energy Meters
- 2800 Sq. Miles
- Average 3.2 Meters/ Sq. Mile
- Primary Industry - Agriculture

**Primary Use of Advanced AMR**

- AMR
- Outage Management

**Monthly Revenue per Meter**

- Range - \$800-\$8000 per Month
- Average - \$4000 per Month

**Projected Yearly Savings from Advanced AMR**

\$675,360 primarily from avoiding revenue loss from out-of-service meters

## Lamb County Cooperative Adopts Cost Effective AMR for Irrigation Pumps

### About Lamb County Electrical Cooperative

Since 1938, Lamb County Electrical Cooperative in Littlefield, Texas has served the local community with rural electrical services. Located 35 miles west of Lubbock in the Texas panhandle, the 41 employees of LCEC service all of Lamb County and parts of the five surrounding counties, an area encompassing almost 2800 square miles. LCEC not only provides electricity, but also water, sewer, and Internet access to the local community.

Lamb County is part of the rich agricultural region of West Texas and is ranked #6 in Texas for milk production. The fields are planted with cotton, corn, wheat, grain and alfalfa. LCEC has 2400 members; primarily farm families or community members in agriculture related services. Irrigation in these dry west Texas counties is a critical component of successful agriculture. In fact, more than 80% of the Cooperatives 8750 meters are dedicated to irrigation pumps.

### The Challenge Facing Rural Irrigation Cooperatives

LCEC was evaluating AMR solutions to better manage the geographically distributed meters at irrigation pumps. Most are located far from main roads where there are no phone lines, radio or cellular towers. During the height of the growing season access to many of these meters can be difficult. LCEC averages 3.2 energy meters per square mile, requiring any

AMR solution to reliably communicate over large distances cost effectively. The long distances between irrigation pumps means reading and servicing the meters is a labor-intensive task. A major source of problems on these open plains is lightning strikes'. A lightning strike can knock out a meters monitoring capability without interrupting the flow of power. It can be up to 30 days before a meter failure is detected resulting in a loss of revenue for LCEC.

Depending on the size of the motor on the well pump the Cooperative bills for between \$800 and \$6000 in electricity revenue for each meter. Aside from this lost revenue there is the cost of replacing the meter and related service. On average, due to storms or malfunctions, the Cooperative loses a meter a day, a significant loss of revenue. Outage management, therefore, was a key component of their search for an AMR solution.

### Evaluating Traditional Offerings

Don Stubbs, Engineering Service Manager, headed up the search for an AMR solution that would reduce meter reading costs, provide better outage management, and reduce service and maintenance costs. Acutely aware of the unique problems facing Lamb County, Mr. Stubbs needed a solution that was cost effective to deploy, able to communicate information over a large area without phone lines, cellular or radio towers, and provided both AMR and Outage Management.



LCEC initially considered telephone lines and cellular based communications, however, they were determined to be cost prohibitive due to the monthly recurring fees that would be paid to the telephone companies. A privately owned tower-based radio network was not feasible due to the high cost of infrastructure to cover the large distances. They also considered solutions using power line carrier (PLC) technology but rejected it because of two major issues. The first issue was the speed in providing all 8750 meter reads on a timely basis each month and the ability to receive timely outage notification. Secondly, the PLC offerings were not designed to support the heavy duty 3 phase 480-volt meters used on irrigation pumps.

### An Innovative Solution

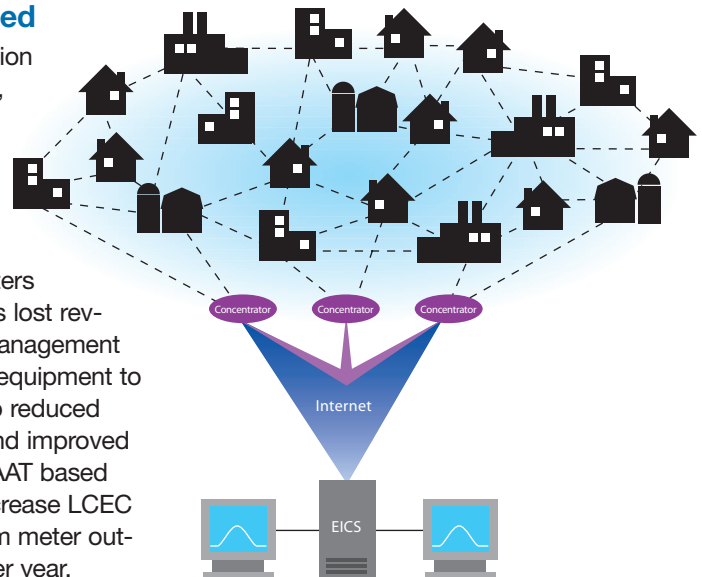
After evaluating traditional solutions, Mr. Stubbs contacted Advanced AMR Technologies (AAT), a Peabody, MA, based provider of wireless AMR and Energy Management solutions. AAT utilizes innovative wireless mesh network technology that requires no phone lines, cellular or radio towers to communicate data over large distances.

AAT provided LCEC with the Model #8650 Commercial Wireless Monitor that sends and receives meter data in 15-minute intervals, providing a real time view of every monitored meter in the field. Wireless Concentrators installed on top of some of Lamb County Cooperatives' 43 power poles collect the data and forward it to the Energy Information and Control System where the data is available for analysis by LCEC. Some Wireless Remote Monitors forward data more than 40 miles to the nearest tower mounted Concentrator for collection. Each data packet is received and acknowledged through the two-way communications network in less than six seconds.

Future plans for LCEC include utilizing Advanced AMR remote control devices to turn on and off irrigation well pumps during periods of peak demand. The ability to remotely control load management will provide substantial saving to the members' of LCEC and improve customer service. The West Texas Panhandle has suffered from severe drought conditions over the last few years and the relationship that Lamb County Electrical Cooperative and Advanced AMR have formed will help reduce the costs of energy and services in support of critical irrigation needs and contribute to maintaining the regions' economic health.

### The Results Achieved

The Advanced AMR solution met LCECs' need for fast, accurate, cost effective meter reading. Further, knowing which meters are not responding allows them to rapidly bring non-performing meters back on line. This reduces lost revenue and allows better management of service personnel and equipment to lower costs. In addition to reduced meter reading expense and improved meter management, the AAT based system is projected to increase LCEC revenue currently lost from meter outages by over \$675,000 per year.



**About Advanced AMR Technologies** Advanced AMR is a division of AES Corporation. AES Corporation, founded in 1974, was a contract-engineering firm providing PCB design and manufacturing services. In the early 1990s, responding to a U.S. Government request to develop a wireless communications network that worked in remote and often hostile parts of the world AES Corporation created and patented a long range 2-way wireless mesh network that requires no dedicated radio towers, phone or cellular services. The fast communications, high reliability, easy installation, and low cost of ownership quickly made AES-IntelliNet the industry leader in the Fire and Security Alarm industry and today AES-IntelliNet products provide Home Arrest Monitoring, Vehicle Tracking, and Vending Machine Management. In 2000, AES Corporation introduced Advanced AMR to meet the needs of the Energy Management industry with energy monitoring, reporting, and control products. AES-IntelliNet based products are deployed in over 100,000 locations in over 130 countries around the world.



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