

The evolution of meter reading with IFS MWM



The genesis of AEP's modern day meter reading operations can be traced back 15 years to when the company implemented a Windows-based, wireless solution for route control and meter reading.

As evolutions go, it's a relatively short time frame, but the distance that the utility has put between past and present practices for meter reading has been significant.

Route control solution makes relics of paper card

AEP's initial exposure to IFS MWM meter reading solution was in 1996 when its Appalachian Power utility unit launched new rerouting capabilities. For decades, the West Virginia-based utility had relied on paper-based routing and billing practices. Meter readings were recorded in pencil on paper cards that later went to a card reader for routing. For each station, supervisors sorted through and organized literally a truckload of paper cards for routes. Routes were planned by an "intelligent account number", which included cycle, route and sequence information on a customer-by-customer basis. To reroute or resequence a route, the account number had to be physically changed, which was a cumbersome process. The IFS MWM solution helped AEP to eliminate these manual and resource-intensive procedures for route management. For electric, gas and water meters, the system provides utilities with the ability to automatically coordinate route splits and sizes, optimally rebalance routes, identify the most costly reads in the system and generate reports for improved visibility into route performance. At AEP, the system was deployed in approximately six months. It was initially implemented in Tennessee and subsequently rolled out in Virginia and West Virginia. At the same time, it also was integrated with a new CIS system that AEP was simultaneously deploying.

With new route control capabilities, AEP was able to decrease the costs of field operations by consolidating routes, optimizing the productive time of field workers and better managing the labor costs associated with its evolving meter reading operations. In addition, the integration between the two systems supported a new concept of cycle, route and sequence. Account number is now more of a customer identifier and is no longer tied to a location and how work is completed in the field, which has simplified the process of changing routes.

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Uncovering a major find with automated meter reading

While AEP had made significant progress by moving from cards to computers with its new route control system, office operations presented another opportunity to propel the utility forward. The company had some capabilities for reading meters automatically using handheld computers but wanted a solution that was more technically sophisticated and dependable regardless of weather.

When AEP decided in 2002 to evaluate what the market had to offer, it chose the IFS MWM meter reading solution and the two organizations went to work together again.

The deployment unfolded over approximately 10 months. The system was first rolled out in Tennessee as the team there had significant experience with back office operations, which made for effective troubleshooting during implementation when minor issues occurred. The framework from the initial route control project also was in place already, so the team was in familiar technology territory. As the system went live from office to office, it was readily adapted and configured to existing procedures by state.

By using mobile devices to capture meter data automatically, AEP shortened the time it took to read and collect metering-based data across all routes, improved the accuracy of meter data and gained productive time in the field and the office. It also improved safety. Crews can use the system to record hazard codes, along with notes, that are associated with a particular meter reading location.

In this way, the entire field team can be alerted to important or potentially dangerous site conditions. By using this feature, for example, AEP was able to decrease instances of dog bites to zero, which translates into increased protection for employees as well as tangible savings in medical expenses that can result from this type of incident.

The solution also simplified the process of getting temporary meter readers up to speed. Historically, training people in manual practices was time consuming, and the errors and customer complaints that often arose from a temporary worker's lack of expertise took up supervisor time better directed toward managing meter reading operations. Because the system is intuitive and easy to use, supervisors can sit down with a field tech or lead and walk them through how routes are organized and how work is assigned. This orientation can be accomplished more quickly and efficiently than in the past. Increased proficiency has significantly reduced errors and the expense of revisiting a site.

Ease of use was an important factor in the decision to extend the IFS MWM solution to Texas, Oklahoma, Louisiana and Arkansas when, in 2000, AEP merged with Central and South West Corporation (CSW). Once AEP was able to acclimatize CSW to the technology it was using, the organization as a whole decided to consolidate operations on AEP's route control and meter reading platform and its existing CIS.

Benefits seen using IFS

- Automatically coordinate routes in real-time and optimally rebalance routes without any manual intervention
- Lower the cost of reading and maintaining meters
- Increase productivity, accuracy and safety by automating meter reading operations



Mobile collectors dig up more advances

In 2005, AEP extended the capabilities of its IFS MWM meter reading solution again, this time by incorporating vehicle-based mobile collectors for the ability to capture meter data automatically from a moving vehicle. It was another jump forward, and in 2010, the company essentially tripled the number of mobile collectors in use with the successful implementation of 60 second-generation units that use laptops hardwired into a receiver. Laptops also provide the advantage of opening up wireless access to other enterprise applications from the field. AEP can now read thousands of meters at a time. In an urban area, these units are extremely efficient at gathering high volumes of data in minutes. AEP also leverages the system's "auto complete" functionality to automatically complete check reads/re-reads using meter reading data captured by mobile collectors. This drives completion rates up without the expense of having to physically revisit a site.

Enter the AMI era

Win 2010, AEP ushered the organization into yet another new era of energy delivery and customer service by moving forward with the AEP Texas Advanced Metering Infrastructure (AMI) program. As the first step of its gridSMART initiative, AEP Texas began installing smart meters in 2010 and is now in the process of extending its IFS MWM solution to schedule and perform service work on the new meters. With the AMI deployment, field workers will no longer read customer meters on a monthly basis as they did with mechanical meters. There is a need, however, to visit customer sites every two years to verify that smart meters are accurately recording usage, to check for unsafe meter and premise conditions, and to perform inspections for possible tampering. The solution will support this work. In addition, field workers can use the system to record smart meter GPS coordinates and append photos of meters and overall site conditions as required. AEP Texas expects the AMI initiative to continue through 2013, when the new smart meters will be available to all customers in its service territory.

A platform of progress

In 15 years of the utility industry's 100+ year history, AEP has moved from paper cards, a communications "black hole" with the field and reams of paper reports to a Windowsbased, wireless solution for rerouting and meter reading—and for postdeployment smart meter service work in support of its new AMI initiative. During this time, AEP has been able to modernize its field operations, realize productivity gains in the field and the office, and enhance crew safety by successfully fitting the technology to its operations without having to change its business practices substantially.



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