Moving to AMI

Madison Water Utility implements smart water metering

By Robin Piper & Joe Ball

The city of Madison, Wis.'s journey to smart water metering started with a dilemma. The remote meter reading device the utility had been using since the mid-1970s to record customer water consumption was being discontinued. The utility, which serves 235,000 city residents, needed to find a new way to read meters. For decades, Madison Water Utility relied on three technicians to read meters at every home and business in the city twice a year, which meant big changes—as well as opportunities—were on the horizon. When it came to data collection, billing and conservation, Madison Water Utility was lagging behind other utilities. It did not have a timely way of determining how much water it was selling to its customers, and major residential leaks went unnoticed for months. All of that was about to change as the utility made the decision to move to advanced metering infrastructure (AMI).

Choosing AMI

After exploring various technology options, Madison Water decided to adopt Itron's AMI solution, including water communication modules that wirelessly transmit water usage data to the utility. Madison would be able to efficiently and readily detect leaks inside customers' homes and in the water distribution system.

Automating the collection and analysis of water meter reads would allow the utility to eventually move to monthly billing, which would help it effectively manage conservation initiatives and improve metering accuracy. In addition, the AMI system would improve customer service by reporting consumption in gallons instead of hundreds of cubic feet, making bills easier to understand. Customers also would be able to view their hourly water usage online, allowing them to better understand their water usage and potentially save money.

The utility adopted an aggressive two-year timeline for installation and began notifying customers that "Project H2O" was underway. The AMI system would be installed in every home in Madison. Utility officials did not anticipate customer pushback.

Managing Customer Concerns

When Madison Water Utility's customers heard about the project, they told utility personnel that they did not want the new technology in their homes. Customers who conducted Internet searches for "smart meters," found everything from health concerns to conspiracy theories. By early July, a group of citizens had filed a petition with the Public Service Commission of Wisconsin asking for smart meter installations in Madison to be halted.

At the time, the utility had little information available for concerned customers. Not having anticipated these concerns, the utility had to find a way to communicate accurate information to its customers.

The utility started by addressing health concerns. AMI devices, which run on two A-cell batteries, usually are installed in a home's basement and emit low-level radio frequency (RF) for a total of about 15 seconds per day. At the utility's request, Public Health Madison–Dane County (PHMDC) examined the RF emissions and reported that they were far lower than the RF emitted from other devices, such as laptops, cell phones and microwaves. Finding little in the way of health risks, PHMDC's report supported smart meter installation and use. The report calmed most customers' fears.

To allay the fears of remaining skeptics, however, the utility formulated and presented to customers an opt-out policy; such a policy never had been implemented in Wisconsin. The policy allowed customers to pay a one-time fee to have the smart meters installed outside their homes or pay a monthly fee to opt out of the system altogether. The plan was passed by the Public Service Commission of Wisconsin in October 2012.

Realizing AMI Benefits

Today, installation of the AMI solution is complete and Project H2O is in full swing. Approximately 66,000 customers have meters equipped with communication technology, and less than 1%—about 468 customers—chose not to have the new meters installed.

Recently, Madison launched an online water tracking tool, allowing customers to view their homes' monthly, daily and hourly water use to see exactly when they are using water and how much they are using. Customers can set up e-mail alerts to be notified when their usage exceeds a threshold they set. They can compare their usage month-to-month or year-to-year. Through customer engagement, Madison Water Utility aims to reduce water usage by 20% by the year 2020.

Another way in which the utility is helping its customers conserve water is by alerting customers to major residential leaks as early as three days after usage begins to spike. Since the project started, the utility has sent more than 1,000 continuous use letters to homeowners alerting them to possible leaks.

Madison Water Utility has entered a new chapter of conservation. The lessons learned from Project H2O will remain with the utility for a long time. The key is to get the message out, engage customers and educate them about the advantages of the system and what is in it for them. As evidenced at Madison Water Utility, AMI systems are more than just meter reading systems and bring many benefits to utilities and their customers alike. **w&wd**

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