

Search for:

- [Subscribe](#)
- [Search](#)
  
- [Subscribe](#)
- [Search](#)
  
- [News](#)
- [Insights](#)
  - [Editor's Notes](#)
  - [Expert View](#)
  - [Trends](#)
  - [White Papers](#)
  - [Ask The Experts](#)
- [Industries/Topics](#)
- [Events & Resources](#)
  - [Events](#)
  - [Event Recordings & Videos](#)
  - [Get Started](#)
  - [RFID Journal Glossary](#)
  - [RFID Journal Awards](#)
  - [Magazine Archive](#)
  - [FAQs](#)

Select Page

## **Badger Meter, Aeris Bring Cellular-Based Smart Water Meters to Santa Fe**

California is suffering through a historic drought. The water level in Lake Mead is at only 42 percent of capacity, which not only means likely water shortages for cities and

industries dependent on the Colorado River, but also reduced power generation at Hoover Dam. A new study conducted by the National Aeronautics and Space Administration (NASA) predicts that the changing climate means parts of the Western United States are likely to suffer from decades-long droughts during this century. As it becomes ever more precious, potable water is also going to command a higher price from ratepayers.

Water scarcity is a major reason why water utility providers are replacing analog meters with advanced metering infrastructure, which relies on various radio frequency technologies to establish two-way communication links between the meters and the utility's network. The technology also empowers utilities to monitor water usage in real or near-real time, while also providing ratepayers with tools that help them understand their water usage and employ water-saving practices.



The Badger smart water meter line  
Badger Meter, a manufacturer of flow measurement and control

systems, and Aeris, a provider of cellular-based machine-to-machine communication systems, are partnering to provide advanced metering to the city of Santa Fe, N.M. The city's water department is currently rolling out Badger smart water meters to its 34,000 customers (both households and businesses).

"We offer a managed solution," explains John Fillinger, Badger Meter's director of marketing. "Rather than the utility owning and operating the communications infrastructure and software, we deploy the meters and host the software. The utility does not need to buy servers or manage software updates."

At each location, Badger Meter is swapping out the old water meters for new units, which contain integrated encoders (which translate the mechanical movement in the meter into a digital format) and an Aeris cellular modem.

Instead of dispatching manual meter readers, the utility will now be able to track usage and issue bills electronically. Badger uses Aeris' AerPort software portal to provision each Badger meter and activate metering, and then utilizes its Beacon cloud-based advanced metering analytics platform, Badger manages all accounts and usage analytics. Santa Fe's water division can then log into the platform and set thresholds for the accounts, which the analysis software uses to trigger alerts to the utility if a meter detects unusually high or constant water flow, likely indicating a leak. The utility can then dispatch a technician to the site of the likely leak, or contact the ratepayer.

The Beacon platform also monitors which meters are not transmitting data at a set interval, allowing Badger and Aeris to resolve any communication issues. This ensures that the utility maintains proper billing records.

In addition, Beacon maintains usage profiles for every ratepayer. By knowing where and when water is used, the

utility can use this information to help ratepayers conserve water.

Badger also maintains EyeOnWater, a customer-facing software portal and smartphone and tablet application that gives ratepayers a means of monitoring their own water usage. They can use EyeOnWater to set alerts, which they'll receive via text or e-mail, in the event that meter readings show unusually high usage or possible leaks, or if usage hits a set threshold within the billing period. In this way, ratepayers can use EyeOnWater to set water or financial conservation goals, or alert the utility if they think there might be a leak in their water pipes.

One benefit of employing Aeris as its cellular connectivity partner, Fillingier explains, is that through a set of cooperative agreements, Aeris can transmit metering data via a number of different telecommunications companies' networks. "That is important, because no single cellular provider has coverage across the entire U.S.," he explains. "So if network A is, for whatever reason, not accessible, Aeris will automatically [move the transmission] to network B, C or D, until it finds one that will connect."

### **Other Approaches**

While not having to install and manage a smart metering communications infrastructure is a major selling point to utilities, using a cellular network also means paying a small monthly cellular subscription fee for each meter. The other option for smart metering is to install a fixed infrastructure of smart meters that communicate wirelessly via a mesh network created by the radios installed on all water meters within a community, sending usage data to gateways installed across a service area. (These gateways often use a cellular network to send the aggregated usage data to the utility's network, but the number of gateways is very small compared with the number of smart meters.)

Many electric utility providers have installed this type of network. According to Fillinger, utilities consider a number of factors when deciding between the two types of smart meter approaches. Sometimes, a service area may have relatively few smart meters that are too widely dispersed to support a mesh RF system, in which case cellular would make more sense.

But Vijay Kannan, Aeris' director of IoT enterprise product strategy, says he is seeing a growing number of water utilities moving toward cellular-based smart metering as of late, which he attributes to the establishment of long-term evolution (LTE) cellular networks. "Companies in the utility segment need longevity," he says. "They want the device they install on a smart meter to work for 10 to 20 years, and with LTE they are starting to feel comfortable" because they feel it's a cellular network standard that will be in place for a long time.

That said, Badger's Fillinger notes that the lithium batteries that power Badger's water meters have an expected lifespan of 10 to 12 years. Moreover, given the pace of change and improvement in smart meter designs, Badger does not offer battery-replacement service, but instead asks utilities to consider upgrading to the latest meter designs at the end of the battery lifecycle. So while the cellular infrastructure on which the meters operate may not change throughout a two-decade period, the meter's battery life will not meet that timescale. Battery life in smart water meters that function as part of a mesh RF network, however, are comparable to those of cellular-based meters, due to the power requirements of both sending out data packets at set intervals but also receiving and passing along data packets from nearby meters, per the mesh topography.

Kannan adds that Aeris monitors the cellular traffic from its modems, and its customers can set thresholds for data transmissions over a given period. "If, for whatever reason, a device malfunctions or there is a cellular problem... it could

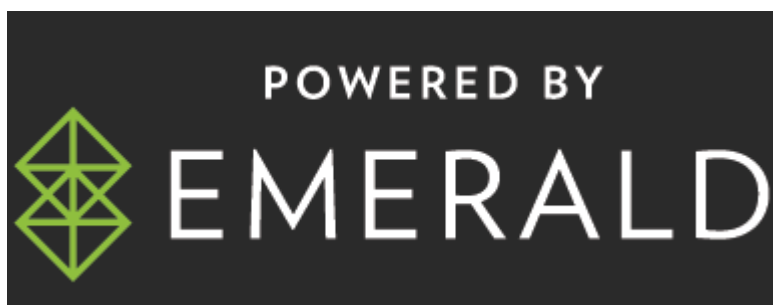
transmit 10 kilobytes over a given period. The utility needs to know this is happening, because they get charged overage fees based on higher than normal data rate. We have an alerting feature that does near-real-time analytics and checks for analogous behavior. The customer can set a threshold and have our system alert him if data transmissions from any smart meter exceed a set limit.”



- ABOUT
- ADVERTISE
- CONTACT

FOLLOW US ON

- Follow
- Follow
- Follow
- Follow



© 2024 Emerald X, LLC. All Rights Reserved  
ABOUT CAREERS AUTHORIZED SERVICE PROVIDERS Your Privacy  
Choices TERMS OF USE PRIVACY POLICY