SMART WATER UTILITY SOLUTIONS

Optimize your operations with smart water solutions—and make every drop count.

Badger Meter

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ABOUT US

For over a century, Badger Meter has been a leader in flow measurement technology. Founded in 1905 and headquartered in Milwaukee, Wisconsin, Badger Meter now employs more than 1,650 people worldwide across its global network of manufacturing facilities, innovation centers, sales offices and distribution warehouses.

Our mission is to provide tools that help water utilities capture revenue, reduce costs, mitigate risk, improve customer satisfaction, enhance sustainability and optimize assets. With end-to-end solutions ranging from mechanical, electronic and electromagnetic flow meters to proven meter reading technologies and powerful analytics software, we're ideally positioned to be a key partner in helping public and private utilities and municipalities with their water management initiatives.

For water utilities, protecting public health is vital. Water quality monitoring, from source to tap, is critical for the safe, efficient production and distribution of potable water. To further expand our expertise in this area, Badger Meter acquired two leaders in smart water quality monitoring solutions, Analytical Technology, Inc. (ATi) and s::can GmbH.

Many of the world's largest water companies rely on solutions from ATi and s::can for intake protection, process control, disinfection and event detection. Leveraging optical and electrochemical sensor solutions, water utilities have access to tools that provide comprehensive, automated monitoring of a variety of parameters within water distribution networks. These solutions enable utilities to increase water protection and security, prevent risk to human health and the environment and comply with drinking water standards and regulations.

Our smart water solutions empower utilities to optimize the efficiency of their entire operations, from planning to distribution and beyond**—because every drop counts.**

THE FUTURE IS NOW

For decades, smart water solutions that could incorporate advanced metering infrastructure (AMI) were considered a futuristic endeavor. That's no longer the case. Today, utilities across the country are implementing smart water metering technologies to streamline processes, improve operational efficiencies and conserve water.

These solutions feature a network of smart water meters and intelligent infrastructure that provide continuous and historical data to improve system intelligence, visibility, automation and control.

Smart water metering solutions are not one size fits all. Every utility has its own unique needs and challenges that must be carefully considered when deploying a smart water solution. Whether your utility serves a few hundred customers or millions, there is a smart metering solution that is right for you.

And there's no need for utilities to dedicate resources to set up and maintain an AMI network. In fact, smart water solutions using existing cellular networks are available for utilities of all sizes and locations. This eliminates the need for new and complicated network infrastructure deployment and management, enabling water utilities to focus on what's most important: providing clean drinking water.

Regardless of size, water utilities share a number of common objectives. On the following pages, you will learn about the unique benefits our smart water technologies offer to address these goals.

ENHANCE METER READING EFFICIENCY

Collecting accurate and timely meter reads is essential for managing a water system. But for many utilities, a lack of dedicated meter reading staff can mean estimating bills or only billing a portion of their customers on a bi-monthly or quarterly basis.

Instead of manual, walk-by or drive-by meter reads, cellular AMI systems collect and send meter reads to the utility automatically. Cellular-enabled endpoints collect data from smart water meters and then transmit the encrypted information safely and securely to the utility's data management system.

By eliminating the time spent reading meters, utilities can streamline their processes and allow personnel to focus on other priorities, including delivering safe, clean drinking water along with proactive maintenance of the water system.

City of Gonzales

Gonzales, Louisiana
Population served: 11,000

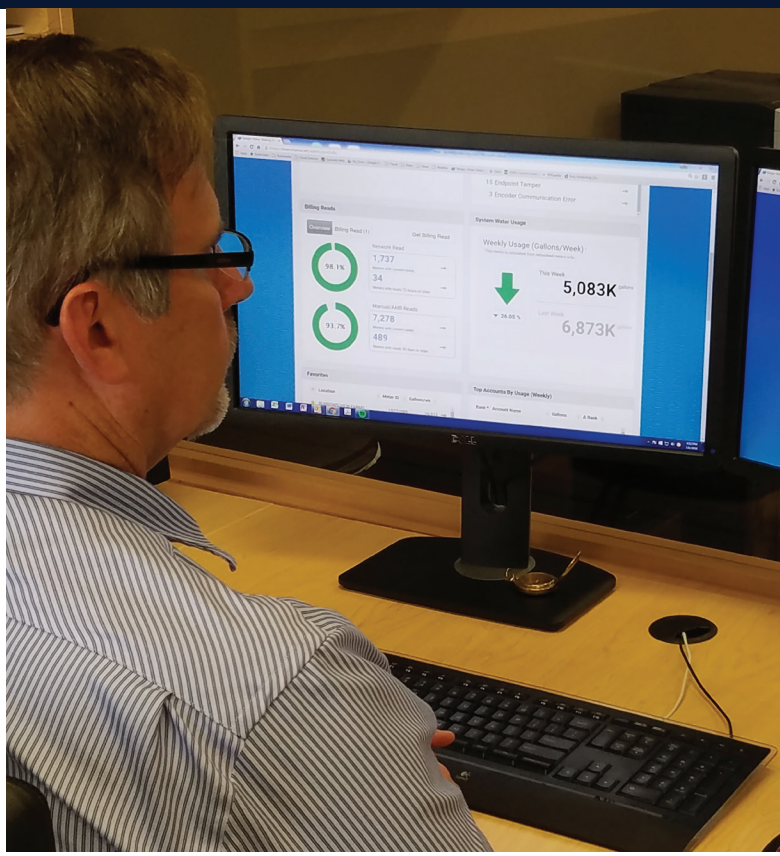
With manual meter reads, aging meters and limited staffing, the City of Gonzales was struggling to give its customers accurate and timely water bills. During a pilot project to replace 500 difficult-to-reach, manually read water meters with a drive-by solution, the city learned about the advantages of Metering as a Service (MaaS).

MaaS gives utilities one comprehensive solution to easily upgrade existing metering programs and enhance customer service capabilities. The new program—offered by Utility Metering Solutions (UMS), one of many Badger Meter installation partners—provided the City of Gonzales with all the AMI equipment, software and services it needed. Plus, it included planning and readiness, installation, integration, training, maintenance and support.

As a result, the city has reduced its meter reading time by 71%. Now, with the push of a button, the utility can read three routes in lieu of taking a week to read the same meters.

> "We upgraded all 5,000 endpoints throughout the city leveraging a fixed, monthly subscription and then passed the subscription cost to our customers. It's a win-win for the city and for our residents.

Barney Arceneaux
Mayor, City of Gonzales



EJ Water Cooperative

Dieterich, Illinois
Population served: 28,000

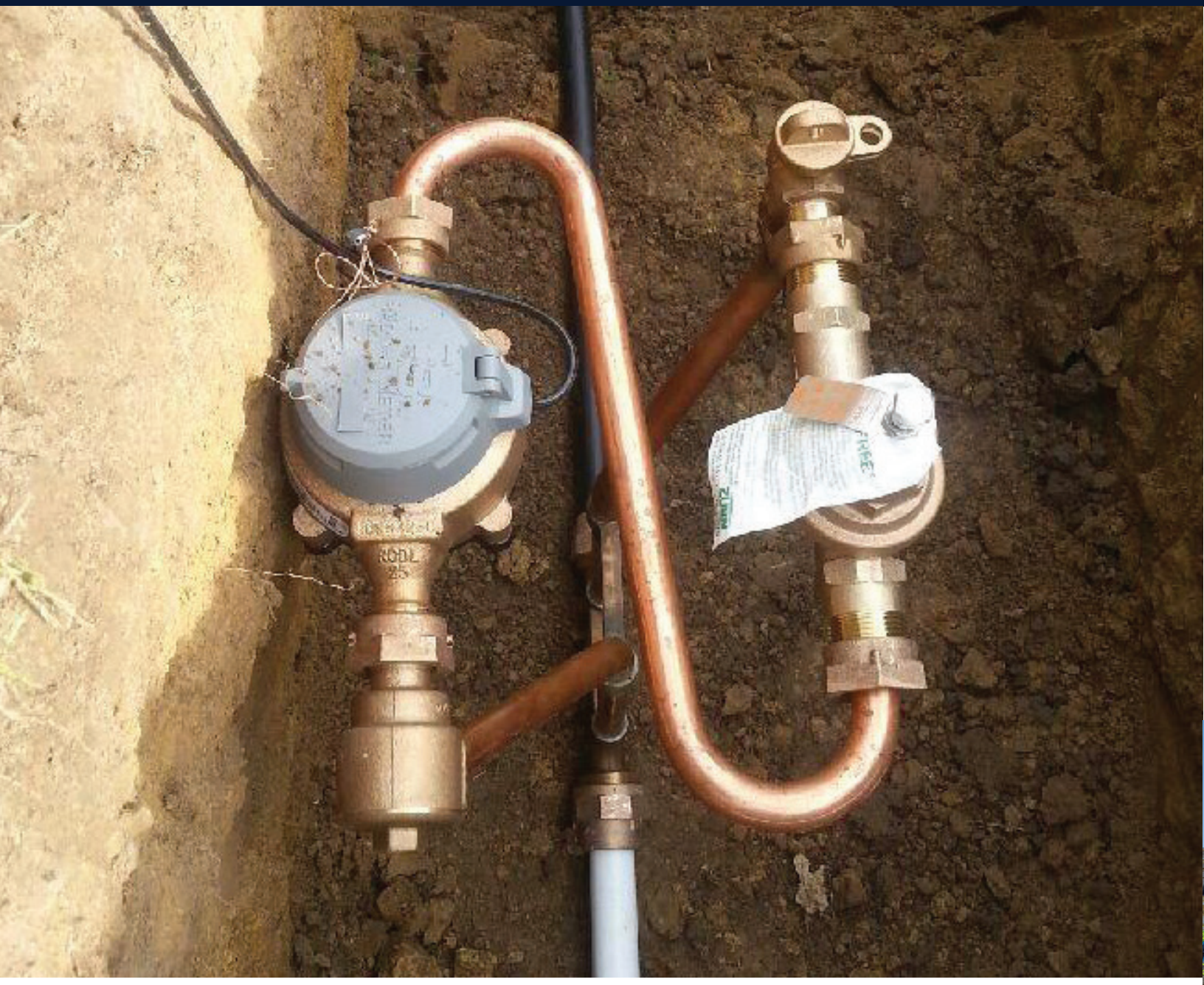
With a 2,400-square-mile service area, EJ Water Cooperative staff would drive nearly 4,000 miles each month to complete a meter reading cycle. The utility had experimented with other approaches to water meter reading, but due to the geography of the service area, a traditional fixed network system would not work. For EJ Water, cellular was the right solution.

With BEACON® Software as a Service (SaaS), ORION® Cellular endpoints and the EyeOnWater® consumer engagement platform, EJ Water eliminated the monthly drive and freed up staff resources, allowing the cooperative to make better strategic decisions about upcoming projects and to be more proactive in repairing high value assets.

> "We strive to be on the forefront of technology, and we knew that a cellular solution for our large geographic service area would be the way to go.

Bill Teichmiller
CEO, EJ Water Cooperative

ASSURE LONG-TERM METER ACCURACY



Declining meter accuracy can be an unfortunate side effect of aging water infrastructure. Over time, some mechanical devices are subject to wear, which in turn may affect their ability to accurately register flow. Consequently, this can adversely impact billing and lead to a loss in revenue.

With a cellular AMI smart water system, utilities gain greater insight into system infrastructure health, thanks to improved meter accuracy and timely flow data. Additionally, utilities can identify flow or usage abnormalities indicated by a drop in meter performance. This ultimately helps reduce maintenance and repair time to ensure long-term meter accuracy.

Harris County Utility District 15

Houston, Texas

Population served: 3,000

With an aging water metering system, Harris County Utility District 15 (UD 15) was experiencing numerous inefficiencies, including inaccurate meter readings that led to lost revenue. After a lengthy search for the right solution, UD 15 chose BEACON, ORION Cellular endpoints and E-Series® Ultrasonic meters from Badger Meter.

The district replaced approximately 900 residential meters, installed 30 commercial meters and retrofitted several existing commercial meters to work with BEACON. UD 15 quickly discovered that the increased accuracy and efficiency of the new system freed up its staff to focus on more pressing projects. In addition, because E-Series Ultrasonic meters have no moving parts, they have greater reliability and a longer life expectancy than mechanical meters. As a result, UD 15 expects to double or triple the life expectancy of its meters.

> "One of our objectives as a utility is to help customers save money. The accuracy and efficiency of the Badger Meter solution has truly helped us to achieve that objective.

Phillip Givens
Board Director and General Manager, UD 15

Paducah Water

Paducah, Kentucky

Population served: 27,000

In its quest to ensure water quality, safety and reliability for customers, Paducah Water identified a need to update its aging water system. After a short pilot, the utility selected BEACON with E-Series Ultrasonic meters and ORION Cellular endpoints.

In addition to eliminating the time and expense of manual meter reads, Paducah Water saw that the improved accuracy led to an increase in revenue of 9.6% for the E-Series Ultrasonic 1-1/2 in. meters and 20.3% for the E-Series Ultrasonic 2 in. meters—in just the first six months of data (April to September).

> "If increased revenues continue at this rate, we will be able to use the additional revenue to pay for replacements of our larger 3 in., 4 in. and 6 in. meters in less than two years.

Bill Robertson
General Manager, Paducah Water

DECREASE NON-REVENUE WATER

Treating and distributing clean drinking water is expensive. It is discouraging to lose even a small percentage of such a precious resource, never mind the average losses of 10-30% seen across the United States. Finding and eliminating sources of non-revenue water, such as leaks in the distribution system, is essential for both water management and successful utility operation.

With smart water metering systems, utilities can better monitor their infrastructure down to individual components. Certain smart water meters even provide temperature, pressure and alarms, giving utilities access to additional critical network performance information in near real time. In turn, this helps prevent leaks and decrease non-revenue water to protect the world's most precious resource.

Highway 71 Water District No.1

Alma, Arkansas

Population served: 2,500

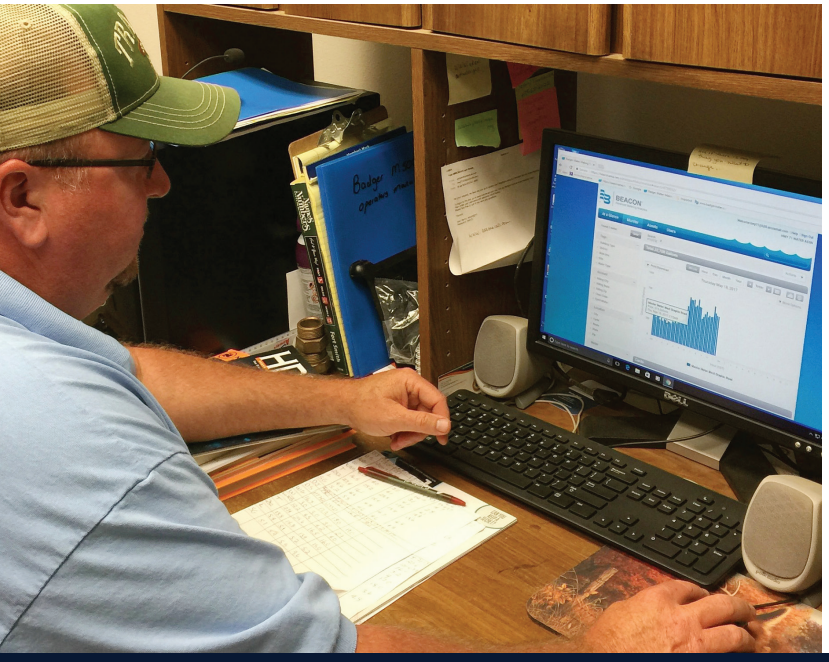
With a large, rural service area, Highway 71 Water District No. 1 had a difficult time detecting leaks, resulting in significant water loss. Because Highway 71 purchases its treated water, that meant it was likely losing water that it wasn't actually using.

The utility found a solution that would meet its needs: BEACON and ORION Cellular endpoints. And, because BEACON is also compatible with fixed network and drive-by meter reading systems, it provided flexibility in deployment for areas where those were better options.

To further isolate the location of the leaks, Highway 71 implemented a district-metering solution with 10 zones. As a result, Highway 71 was able to identify numerous leaks throughout its system, approximately 125 gallons of water a minute. With the new solution in place, Highway 71 easily located the leaks and repaired the damage, saving the utility $260,000 a year in non-revenue water purchased from its supplier.

> "When we combined the data-monitoring capabilities of BEACON with our zoning strategy, we located leaks in just a few hours compared to the two or three days it had taken us in the past.

Jesse McChristian Jr.
Manager, Highway 71 Water District No. 1



City Corporation

Russellville, Arkansas

Population served: 21,000

Prior to working with Badger Meter, City Corporation's largest challenge was managing non-revenue water loss. The utility was losing water at a high rate of 19%, which made it difficult to provide service at a fair price.

City Corporation implemented BEACON, ORION Cellular endpoints and E-Series Ultrasonic meters to collect accurate, near real-time consumption data and track unaccounted-for water.

With the new system, the utility has also been able to decrease non-revenue water by notifying customers of a potential leak within 24 to 48 hours after receiving the data, rather than within a 30-day billing cycle.

> "With BEACON, we receive an accurate monthly total for water usage and non-revenue water. We don't have to worry about lag times from monthly manual meter readings.

Jeremy Myers
Customer Service Manager, City Corporation

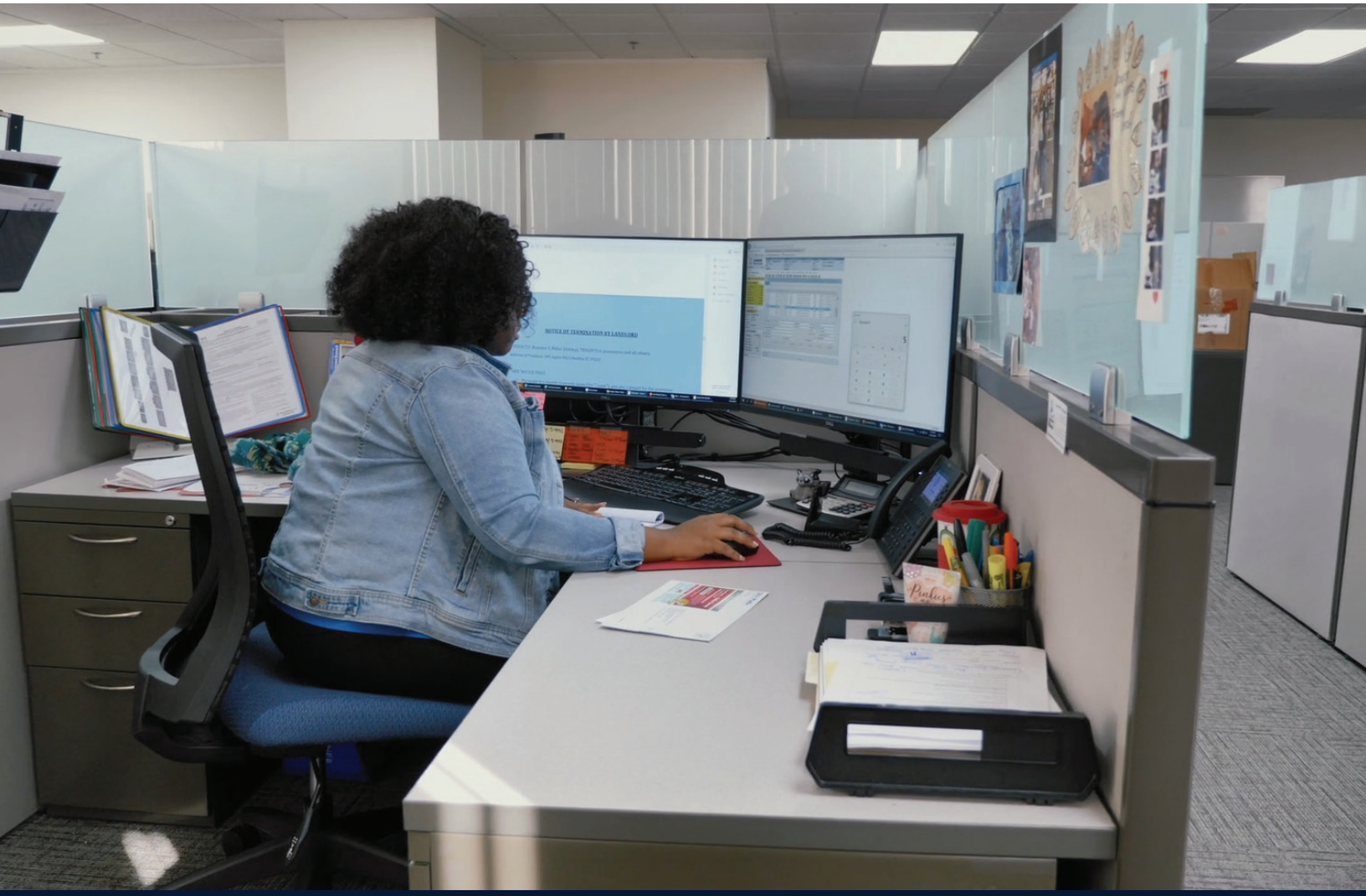
PROVIDE EXCEPTIONAL CUSTOMER SERVICE

A water utility's relationship with its customers transcends a monthly or quarterly transaction; it's a partnership. When utilities have frequent, positive interactions with their end users, it results in a customer base that feels valued and satisfied—and a satisfied customer is a supportive one.

One way to ensure customers are happy with their service is by proactively informing them of their water usage and billing details, which is nearly impossible without accurate data.

With a smart water system, utilities can reference detailed usage data to notify customers as they approach water consumption limits or if leaks are present. They can show customers how and where water is used within their homes and suggest ways to reduce their consumption—and, in turn, lower their water bills. This increases consumer awareness, which can reduce calls to the utility.

On occasions when customers must call the utility to resolve a complaint, having detailed system data available equips customer service representatives with the information they need to address the issue quickly and efficiently. This results in a positive experience that the customer will appreciate and remember.



Town of Orleans

Orleans, Massachusetts
Population served: 5,200

The historic seaside Town of Orleans on Cape Cod is a vacation destination where more than 75% of the water department's customers are rental or seasonal properties. For several months of the year, many homes are empty—an ideal situation for leaks to go undetected.

As part of its smart water solution, the Town of Orleans implemented BEACON, ORION Cellular endpoints and the EyeOnWater consumer engagement platform. Within the first few months of using the system, the Town of Orleans was able to identify and address several leaks, including a 400-gallon-per-hour leak at a rental property where a hose was left running.

Furthermore, EyeOnWater smartphone and tablet apps give customers peace of mind by providing insight into their water usage, even when they are away for the winter.

> "This upgraded solution allows us to concentrate on what we do best—managing water—so our customers, the Town of Orleans residents, can enjoy their vacations and what makes our town special.

Susan Brown
Assistant Superintendent, Orleans Water Department

City of Avon

Avon, Ohio
Population served: 24,000

The water utility team for Avon, Ohio, previously used meter reading technologies that weren't efficient at determining customers' water consumption. Utility technicians spent more than 160 hours per month monitoring the water system and manually reading meters. By implementing BEACON and automating meter read data, Avon cut that time down nearly 88% to about 20 hours per month.

EyeOnWater has also helped the customer service team reduce time spent on billing disputes. What used to take upwards of 2-3 hours between office and field staff in order to identify a resolution now only takes a 5-10 minute phone call with a customer—without rolling a truck at all.

> "This solution has been transformative for us. We now know that we receive timely, accurate data every day. It has also helped us improve accountability with our customers and ratepayers.

Anthony Lorenzo
Utilities Superintendent, City of Avon

MAXIMIZE STAFF RESOURCES

With traditional fixed network AMI systems, utilities are typically responsible for monitoring, managing and maintaining their own infrastructure. Not only is this expensive but it often pulls individuals away from focusing on other priorities.

Cellular AMI is an ideal solution because it incorporates a Network as a Service (NaaS) model. With a cellular AMI smart water system, infrastructure is monitored, managed and maintained for the utility, since the system takes advantage of the existing cellular network.

Instead of worrying about infrastructure, utilities can focus resources on top priorities, like providing safe drinking water and improving customer service processes.

City of Sunnyvale Utilities

Sunnyvale, California
Population served: 152,000

The City of Sunnyvale Utilities provides water, sewer and disposal services to its customers. With a limited staff and budget, the utility was looking to upgrade its water system with a smart solution that would not require additional infrastructure or extensive IT resources.

With BEACON, Sunnyvale found a solution that eliminates the burden of maintaining infrastructure outside the comfort level and expertise of its staff. Cellular endpoints offer the freedom to install anywhere throughout the city—with no towers or poles to climb. And, BEACON is continually updated, taking the responsibility off the utility to keep the product current.

> "A cellular endpoint gives us the ability to get all the benefits of a traditional AMI solution without the infrastructure.

Tim Kirby
Director of Finance, City of Sunnyvale Utilities

City of Hermiston

Hermiston, Oregon
Population served: 18,200

Hermiston is the largest city in eastern Oregon—and it's still growing. However, state requirements and financial limitations meant the water department could not add more labor to support this growth. This prompted the city to identify a more efficient approach to managing operations.

With a cellular network solution, Hermiston eliminated the need for a dedicated person to maintain the network, as is required with a traditional fixed network. In addition, the water department avoided the additional equipment and capital expense to deploy and maintain gateway transceivers.

Looking toward the future, Hermiston will be able to add new endpoints as the city continues to grow—without adding infrastructure. And, most importantly, the solution helped resolve one of their biggest financial challenges: having enough labor to support a growing city.

> "In the past…we had to estimate reads for three months during the winter. Now, we are reading our system every day of every month. But, most importantly, BEACON freed up one of our meter readers to work on other infrastructure projects across our water system.

Roy Bicknell
Water Superintendent, City of Hermiston

IMPROVE UTILITY MANAGEMENT

With smart water technologies, utilities have access to a greater amount of data to make informed decisions and manage their water infrastructure. Tools like customized dashboards deliver system-wide information to a desktop or other device, unique alert conditions can be set to define and proactively monitor exceptions, and automatic software updates ensure accuracy is maintained.

City of Merced

Merced, California
Population served: 83,000

Located in a drought-prone region of Northern California, Merced is acutely focused on managing its water resources. An expanding population, along with new business developments, were contributing to a strain on the city's water system. Knowing that expansion would only continue in the coming years, the City of Merced's water department implemented a smart water solution to manage the increasing demands on its water system.

The upgrades in Merced's system helped the city and its citizens meet and exceed a state-mandated 25% reduction in water and energy consumption. And, the water department is now able to find, and more importantly, address leaks within 24 hours as opposed to 30 days.

> "We recently found a leak that was losing 500 gallons of water per hour every hour. Because BEACON is a real-time solution, we identified and fixed the problem immediately.

Johnnie Baptista
Public Works Manager of Water, City of Merced

Bella Vista POA

Bella Vista, Arkansas
Population served: 30,000

Bella Vista is a top retirement destination, with amenities overseen by the Bella Vista Property Owners Association (Bella Vista POA). The association also manages the city's water service to 30,000 customers across 36,000 acres, divided into 17 district-metered areas (DMAs).

Previously, Bella Vista obtained water measurement and billing data through a drive-by automated meter reading (AMR) system—which took three employees nearly 20 days to complete. This delayed water leak detection and created customer service challenges.

An upgrade to a smart water system made a positive impact on utility operations. Before, information from the DMAs was limited and not truly comparable since zone meters and customer meters could not be read on the same date. With BEACON, Bella Vista now receives true water usage data for each zone, allowing the utility to watch for trends and changes from day to day.

> "We are now able to read meters on a daily basis and have the ability to view 15-minute interval consumption history. Before the smart water meters, meter readings were only obtainable once per month. Currently, daily water meter reads are reporting with a 99.9% to 100% success rate.

Charlie Holt
Water Operations Manager, Bella Vista POA.

SUPPORT CITYWIDE SMART INITIATIVES

Smart water systems shouldn't just address the challenges utilities are currently facing. The right solution should meet their future goals and objectives, too. With today's smart water systems, utilities can upgrade and expand as they grow.

Additionally, smart water systems provide an opportunity for interoperability with other smart systems that may be added in the future to support efficient city management.

Columbia Water

Columbia, South Carolina
Population served: 400,000

As part of its smart city initiative, Envision Columbia, the City of Columbia, South Carolina, is upgrading to a smart water metering system. When completed in, the project will be among the largest cellular AMI installations in the world.

Through its commitment to smart city initiatives, Columbia is endeavoring to become one of the most talented, educated and entrepreneurial cites in America. With the upgrade, the city will improve not only the quality of service it provides to its residents, but also the efficiency and accuracy with which it delivers those services. By implementing a smart water solution, the city is building its AMI infrastructure in a way that's not only focused on the present but on the future as well.

> "We're excited… to not only improve the quality of service we provide to our residents but also to improve the efficiency and accuracy with which we deliver those services. Columbia is one of many cities across our nation implementing smart city measures that allow us to become the city we desire to be.

Stephen Benjamin
Mayor, City of Columbia

City of Milpitas

Milpitas, California
Population served: 79,000

The City of Milpitas, California, is embarking on a major smart city initiative that will result in significant upgrades to its energy and water infrastructure. Central to the plan is the installation of a smart AMI water metering system, which will improve reading accuracy, allow for more frequent and remote data collection and enable the water department to quickly and easily identify leaks.

The smart water infrastructure, combined with the city's plans for solar energy and citywide LED lighting upgrades, will demonstrate the city's continued commitment to environmental stewardship while helping Milpitas to better serve customers, support conservation efforts and reduce operating costs. Plus, water infrastructure improvements are expected to result in more than $14 million in net cost savings for the city over the lifetime of the program.

> "The City of Milpitas is proud of our continued commitment to fiscal and environmental stewardship, and this comprehensive Smart Cities program will showcase Milpitas as a responsible and innovative community.

Rich Tran
Mayor, City of Milpitas

STRENGTHEN RESILIENCE AND EMERGENCY PREPAREDNESS

With the frequency of severe weather and natural disasters on the rise—and the possibility of security attacks and source water issues always present—municipalities are under more pressure than ever to prioritize resiliency within their water systems.

Because millions of people rely on cellular networks for daily communication, they are managed, monitored and maintained to a 99.999% uptime to keep individuals connected, even in an emergency. In fact, cellular networks are one of the first services restored after a big storm or natural disaster. Smart water solutions leverage the advantages of a cellular network to ensure water systems remain online, safe and secure following an unexpected event.

Further, advanced flow meters running with battery power and transmitting signals through wireless networks allow remote monitoring of distribution systems. When those meters also include temperature and pressure readings, water utility managers gain significant insight into system issues that may need immediate action during an emergency to prevent compromised water from reaching customers.

City of Monroe

Monroe, Louisiana
Population served: 50,000

Monroe experiences its share of extreme weather, but freezing temperatures can wreak unusual havoc on this Southern community. After back-to-back winter storms in February 2021, the Monroe Water Department took advantage of its smart water system to quickly identify the source of increased water demand that threatened to deplete its capacity.

The utility was able to locate and repair thousands of leaks coming from customers' burst pipes, even at commercial locations where a citywide shutdown had left buildings unoccupied.

In fact, because the water utility was able to quickly identify and address the source of increased demand, it could continue operating throughout the duration of the storms without disruption—something that could not be said of neighboring communities.

> "BEACON allows us to be more efficient with how we deliver water and how we distribute and collect it on the backend.

Sean Benton
Director, Monroe Water System

Bethpage Water District

Long Island, New York
Population served: 34,000

Bethpage Water District (BWD), established in 1923, is one of the oldest water districts on Long Island. It serves an area of five square miles, including Bethpage, Old Bethpage, Plainview, Farmingdale and Levittown.

The district was operating with a combination of traditional fixed AMI systems in some areas and cellular-backed AMI in others. When Hurricane Sandy hit in 2012, BWD's water system was directly impacted. The areas supported by the traditional fixed-network gateways went dark for a significant length of time—the utility lost all system visibility into those areas. However, the sections of the region served by cellular solutions remained online and were much easier to manage.

BWD had an emergency response plan in effect prior to Hurricane Sandy, which ensured an efficient and effective response to the natural disaster. And, once the utility recovered from the storm, it replaced the fixed-network AMI systems with cellular solutions.

> "We have taken a proactive role in preparing for a hurricane or other natural disaster. Our No. 1 priority, as always, is to ensure our customers that they will receive the cleanest water without interruption.

Mike Boufis
Superintendent, Bethpage Water District

AID UTILITY SUSTAINABILITY AND CONSERVATION EFFORTS

It is estimated that global water use will continue to grow at a rate of about 1% annually.[1] By 2050, usage rates are likely to increase 20-30% above today's levels.[2] Consequently, national and local governments are mandating strict water conservation measures. To meet the urgent demand for accountability and water conservation, water utilities need more data—intelligent data—and they need it delivered quickly.

Smart water solutions, such as flow measurement dashboards and cloud-based analytics, provide the means to ensure proactive leak detection and detailed consumption information, conserve resources, reduce lost water and improve operational efficiencies.

By leveraging existing, reliable cellular infrastructure, smart water systems can be expanded to meet future needs, rather than disrupting the environment or exponentially raising water bills to deploy new infrastructure. They are also credited with helping utilities—and customers—monitor water use, especially in areas where outdoor watering is limited by specified times or days, or if time-of-use watering restrictions are in place.

[1] *Boretti, A., Rosa, L. Reassessing the Projections of the World Water Development Report. npj Clean Water (2019). https://doi.org/10.1038/s41545-019-0039-9*

[2] *Burek, P. et al. Water Futures and Solution: Fast Track Initiative. International Institute for Applied Systems Analysis (2016). http://pure.iiasa.ac.at/id/eprint/13008*

City of Yakima

Yakima, Washington
Population served: 93,000

For the City of Yakima, frequent droughts have made conservation a new issue. With its additional challenges of above average water loss and inaccurate meters, the city realized it would face long-term water supply issues as the cost of producing potable water continues to increase. In order to keep costs down, the city sought a solution that could communicate to customers how much water they were using and when they had leaks.

With BEACON and EyeOnWater, Yakima's customers are now able to manage their usage themselves. With access to this information, they can make behavioral changes to help control long-term water costs and conserve resources. It also enables the city to reach out to consumers during times of drought in order to meet its overall conservation goals.

In the future, the city plans to utilize BEACON to monitor water usage by pressure zone and customer class in order to pinpoint areas of concern and advance their conservation efforts even further.

> "As installations began, we realized that we were not just obtaining an AMI system; we were obtaining a partner that was there to help us meet and succeed on our objectives.

David Brown
Water and Irrigation Manager, City of Yakima

City of Meadows Place

Meadows Place, Texas
Population served: 4,600

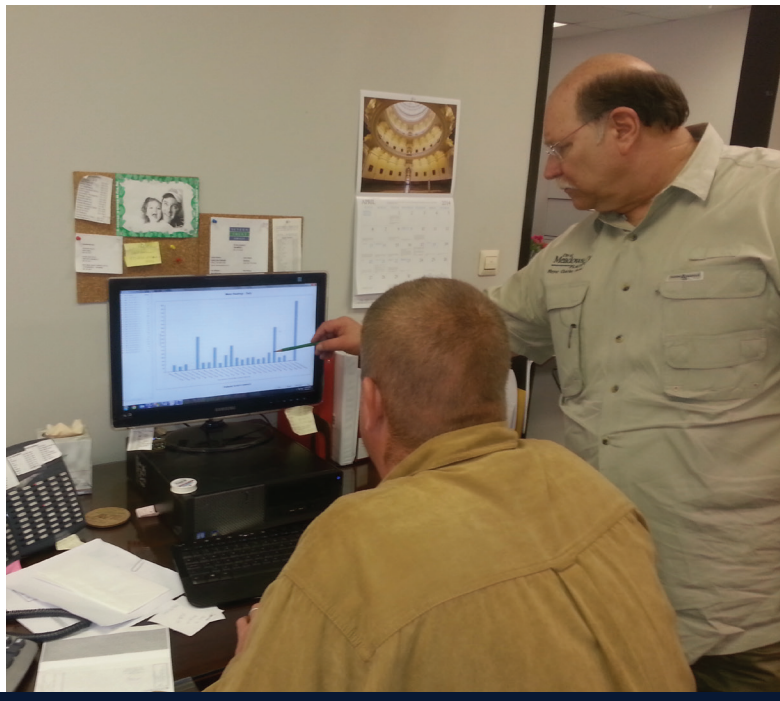
Located just 20 minutes from downtown Houston, Meadows Place is a member of the Fort Bend Subsidence District, an area designated by Texas legislature as a conservation and reclamation district. Previously using meters dating back to the 1980s with a manual read operation, the utility experienced a 10-12% monthly water loss on average.

City of Meadows Place strives to be a city of the future, and city leaders recognized that water stewardship was a key component in that mission. In order to more accurately and efficiently manage its water consumption, the city upgraded to an AMI system.

Before long, the utility was up and running with its new analytics software. The customer analytics tools, data reporting and leak detection capabilities are helping the City of Meadows Place track usage and proactively detect leaks, a key feature for both the city and the water-conscious subsidence district.

> "This system provides us with the information we need to accurately and efficiently manage our consumption, both to capture revenue—and to conserve water.

Dan McGraw
Public Works Director, City of Meadows Place



OUR SOLUTIONS

WHAT IS CELLULAR AMI?

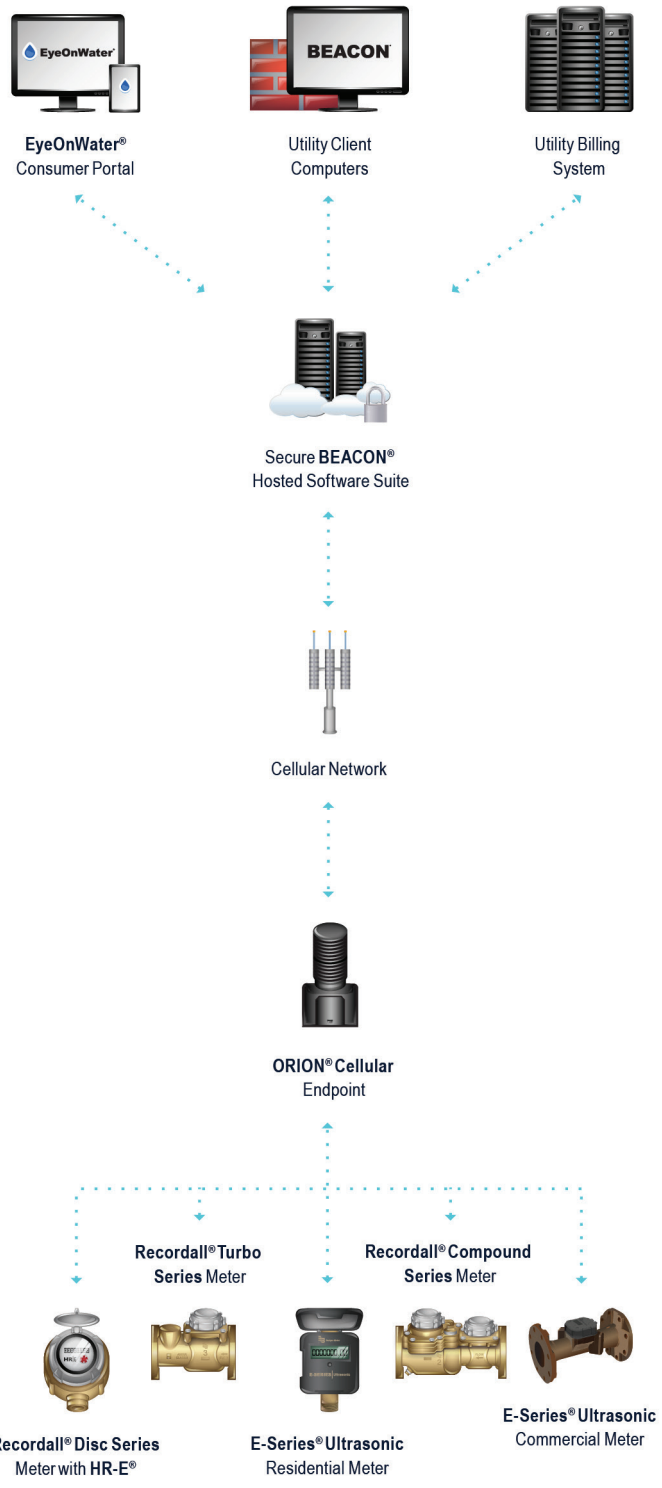
Advanced metering infrastructure (AMI) is an integrated system of water meters, communication networks and data management systems that enable two-way communication between meter endpoints and utilities. Data is sent at predetermined intervals directly to utilities to help improve operational efficiencies by monitoring usage and system efficiency in real time.

The technology is based on specifications developed by the 3GPP, an international telecommunications standards organization. These standards assure that the cellular networks of today and tomorrow are developed according to a global standard for compatibility and advanced security.

WHAT IS NETWORK AS A SERVICE?

Network as a Service (NaaS) empowers utilities to focus on key operational efficiencies by leveraging an existing cellular network that is monitored, managed and maintained on your behalf. It eliminates the need for you to build your own network infrastructure and provides unmatched resilience, security and performance.

NaaS uses the highly secure, purpose-built Low Power Wide Area (LPWA) Cellular network designed for machine-to-machine (M2M) applications like our ORION Cellular endpoints, which communicate directly with the LPWA Cellular network. The endpoints efficiently and securely accomplish two-way communication of 15-minute interval meter reading data with BEACON Software as a Service (SaaS) and provide configurable call-in schedules four times each workday, individually suited to the needs of your utility. BEACON SaaS provides NaaS as part of our standard offering for full life of the product—not a limited period like other manufacturers.



BENEFITS OF CELLULAR AMI AND NETWORK AS A SERVICE

Managed by a single-source provider, cellular AMI and NaaS leverage existing cellular networks. The system can be deployed quickly on virtually any service. There is no need to install gateway infrastructure, erect radio towers or lease infrastructure space. It's all handled by a team of professionals on your behalf, meaning you never have to deal with the daily operational and maintenance challenges that come with owning and maintaining a traditional data-collector fixed network. The resulting cost savings mean faster return on your investment.

With limited budgets, utilities are conscious of how every dollar is spent. Cellular AMI and NaaS are designed to have a flat, predictable price. Costs are upfront with no unbudgeted expenses for the life of the system; there are no ongoing maintenance costs, cellular carrier contracts or negotiations to manage. With cellular AMI and NaaS, you and your team can focus on what's most important: managing operations, serving customers and protecting long-term system investments.

OPTIMAL UTILITY MANAGEMENT

You can't manage what you don't measure. With 15-minute interval data at your fingertips, the system can proactively analyze large amounts of data so you can better manage your water system: identify leaks, reduce non-revenue water losses and provide exceptional service to your customers.

Technology is continually evolving. With NaaS, utilities are guaranteed to have the latest hardware, security protocols and software, ensuring your system remains current, reliable and protected 24/7.

INDUSTRY-LEADING PERFORMANCE

NaaS provides access to one of the largest and most reliable cellular networks in North America, making it a dependable choice for utilities of all locations and sizes. And, with a 99.999% failure standard, network downtime is virtually eliminated. Following a storm or natural disaster, cellular networks are first in line to get back up and running.

ACTIONABLE DATA

BEACON transforms meter reading data into actionable information for proactive decision-making and optimized utility management. And, it gives water utilities greater visibility, efficiency and control through a simple, yet powerful, end-to-end solution.

BEACON SaaS is compatible with our managed, traditional fixed network and mobile communications infrastructure to meet your system management, water meter reading, reporting and outreach needs. The integrated consumer engagement platform, EyeOnWater, gives customers direct access to their water consumption data, allowing them to easily view, understand and manage their water usage through an online portal or smartphone and tablet app.

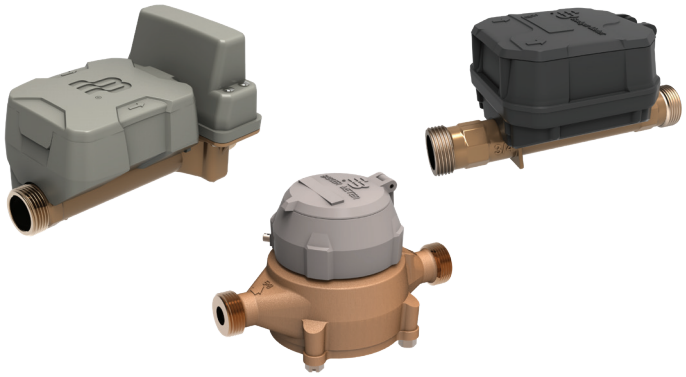
THE WIDEST RANGE OF METERING SOLUTIONS

At Badger Meter, we believe choice matters, so we offer the widest range of metering solutions to help every utility find their tailored solution. With an array of options to choose from, including technology, material and size, our experts help utilities choose the technology that best fits their needs.

RESIDENTIAL METERS

Our residential meters deliver reliable flow measurements with long-term accuracy and precision. Our wide selection of industry-leading meter technologies is designed to meet the diverse requirements specific to utility water customers.

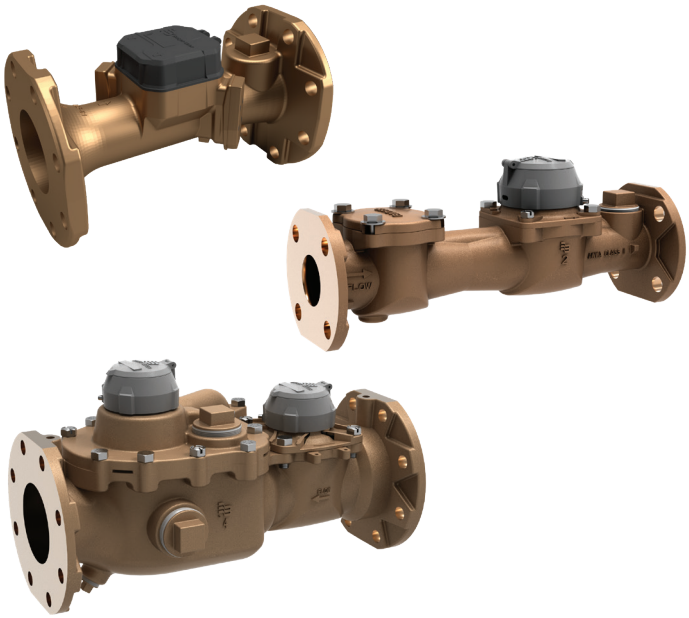
- **E-Series® Ultrasonic meters** have no moving parts, improving reliability with greater extended low flow accuracy. These meters are ideally suited for residential smart water meter applications.
- **Recordall® Disc Series meters** combine the precision accuracy of positive displacement meters with the reliability and economy of nutating disc technology, offering a cost-effective solution for measuring flow in your water system.



COMMERCIAL METERS

Our commercial meters provide flexibility and control when measuring the rapid, fluctuating water usage of large facilities, such as hospitals, universities, manufacturing or process facilities and high-volume industrial or commercial applications.

- **E-Series Ultrasonic meters** feature high accuracy and reliability with no moving parts. They increase performance and maximize revenue in measuring potable, cold water applications.
- **Recordall Compound Series meters** have the flexibility to measure multiple flow rates at the same time. They combine a positive displacement chamber to measure low flow and a turbine element to record intermediate and high flow in one package.
- **Recordall Turbo Series meters** are designed for cold water applications with consistent medium to high flows. These meters will help you reduce your day-to-day maintenance and replacement costs while delivering accurate and efficient performance.



SMART WATER SOLUTIONS START WITH BADGER METER

Thinking of transitioning to a smart water metering system? Tell us what your utility is hoping to achieve, and we'll help you build a smart water solution that's perfectly fit to your utility, no matter its size or location.

Badger Meter offers the widest range of metering solutions because we believe in providing smart water solutions for any and every municipality. Learn more about our smart water offerings at badgermeter.com, and reach out to one of our experts to discuss how it can become a reality.

SMART WATER IS: **BADGER METER**

www.badgermeter.com

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