



AMR system delivers outstanding efficiency while improving water conservation in Pacific Northwest

Skagit Public Utility District upgrades to Badger Meter ORION® CE mobile meter reading solution

Public Utility District No. 1 of Skagit County (Skagit PUD) in Washington state was at a crossroads, facing a number of challenges related to its meter reading system. Because the utility was using a touch-read/visual-read system, it was highly dependent on its water meter readers' acquired route knowledge. Two of the PUD's three meter readers were planning to retire soon, and it would take at least a year to hire and train new employees to fill their experienced shoes. At the same time, the community was growing at a steady pace, and a significant number of its existing meters were reaching the end of their useful lifecycle.

With an aging infrastructure, ongoing growth that would require an increasing number of new meter installations, maintenance and other tasks, as well as eminent employee retirements, Skagit PUD decided it was prudent to upgrade its system. An Automatic Meter Reading (AMR) system from Badger Meter has proved to be a highly effective solution.

Committed to customer service, resource management and conservation

Located between Seattle and Vancouver, British Columbia, Skagit PUD is one of 28 public utilities in Washington. With 24,000 accounts in Skagit County and accolades for its great-tasting water, the PUD provides nine million gallons of water to 65,000 residential, commercial and agricultural customers every day.

Skagit PUD's upgrade from manual meter reading began in 2005 with the deployment of the Badger Meter ORION® CE mobile system. Besides the motivation to increase efficiency and quality, precise measurement was a vital factor to support Skagit PUD's conservation and reporting requirements.

Badger Meter products deliver unmatched accuracy

"Accuracy was one of the main reasons we went with Badger Meter," explains Kevin Tate, community relations manager at Skagit PUD. "We bench-tested Badger Meter and a host of others. Badger Meter outperformed every one of them. Its meters are extremely accurate, even at low flows. We were also quite impressed with the meter quality."

The utility's in-house construction crew handled the installation, and within four years, the new system was fully deployed. Skagit PUD is using Badger Meter Recordall® Disc Series meters from 5/8 inch to 2 inches for residential applications and Recordall®



Meter Technician Gary Riddle prepares to install a new meter in the field.



Reading meters is faster and more accurate now that Meter Technician Pat Smyth uses a Toughbook loaded with Badger ReadCenter software on his routes.

Compound and Turbo Series meters for commercial applications, along with ORION water endpoints. Other system components include a Panasonic® Toughbook® laptop, Trimble® Ranger handheld computers and ReadCenter® software.

For distribution and source metering applications, the utility replaced about a dozen existing propeller meters with M-Series® Electromagnetic Flow meters in sizes from ½ inch up to 8 inches. The completely open flow tube design of the electromagnetic (mag) meters virtually eliminates pressure loss and with no moving parts, maintenance is kept to a minimum.

According to Mike Fox, operations manager at Skagit PUD, accuracy was a motivating factor behind the change. "The mag meters are more accurate than the previous meters we were using for distribution measurement," says Fox. "And with state laws that require us to maintain less than 10 percent accountable water loss, measurement is critical."

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Fox echoes Tate's comments about product quality: "The new meters are definitely better quality than what we had been using. We also decided it was best to source all of our meters from the same manufacturer. Any new meters on the distribution system will be mag meters from Badger Meter."

AMR streamlines reading process; improves safety

Previously, three of the five people in Skagit PUD's water department held the job of meter reader, conducting touch reads and visual reads on 12,000 meters per month. This meant initiating physical contact with every meter, and they might be located near the sidewalk or under a bush, and the meter readers had to know where to find them.

From 2000 to 2005, the utility was adding approximately 500 meters per year, resulting in 10 additional days of meter reading. It was a challenge just to keep pace with bimonthly residential billing and monthly commercial billing.

"Our readers can now read a route in a couple hours versus a couple days," Tate says. "They just drive down the street and beep, beep, beep—they pick up the readings. It's so much easier than before."

The increased efficiency has enabled more time to perform meter maintenance, an important task in this rural area where blackberry bushes and other shrubbery grow profusely and require regular trimming. Plus, it provides more flexibility for scheduling vacations and considerably reduces physical stress on meter technicians because they no longer need to bend down to make physical contact with each meter.

Safety is improved because meter readers can avoid encounters with unfriendly dogs, as well as weather- or traffic-related hazards. And, the utility spends less time training personnel since it's not necessary for each reader to know the exact location of every meter box.

Proactive leak detection improves customer service and supports conservation goals

Tate says the ability to track potential leaks for individual homes and buildings is "just really good customer service." Badger Meter ReadCenter software provides notification if a meter is showing continual use because it signals a potential leak. Skagit PUD then uses that information to inform its customers. "We created door tags to put on customers' homes to notify them of a possible leak, along with information about how they might identify the leak," shares Tate.

In addition, Skagit PUD's bills contain a graph showing a customer's two-year water usage history by month. "If a customer sees a spike in usage, we can help pinpoint potential causes, so they can fix the problem. It's a great feature of the Badger Meter software. Customers are motivated to fix these leaks as it can result in a credit back on their water bill," explains Tate. "With the leak detection feature, we've seen the number of leaks go down and stay fairly stable, helping us keep overall system leakage under the required 10 percent."

Washington's Water Use Efficiency Program requires municipal water suppliers to set conservation goals and report on their performance annually. These measurable, water-saving objectives are set for a six-year period, and the ability to conduct leak notifications is helping Skagit PUD achieve its conservation goals. "Water is a precious commodity, and the AMR system from Badger Meter is one more tool we can use to help reduce our customers' water consumption," says Tate. "It integrates with everything we're doing."

Skagit PUD Solution

- **ORION CE AMR System**
- **Badger Meter Recordall Disc Series meters from 5/8 inch to 2 inches for residential applications, Recordall Compound and Turbo Series meters for commercial applications along with ORION water endpoints, and replace existing propeller meters with M-Series Electromagnetic Flow meters in sizes from 1/2 inch up to 8 inches**
- **Other system components include a Panasonic Toughbook laptop, Trimble Ranger handheld computers and ReadCenter software**

Results

- **Better efficiency through automation**
 - Faster meter reading frees up staff to handle maintenance and other needs
- **Improved accuracy, measurement tracking and reporting**
 - New meters provide better accuracy to measure complete use, while also providing tracking that enables leak detection and easier reporting
- **Faster leak detection boosts customer service and conservation measures**

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www.badgermeter.com

The Americas | Badger Meter | 4545 West Brown Deer Rd | PO Box 245036 | Milwaukee, WI 53224-9536 | 800-876-3837 | 414-355-0400
México | Badger Meter de las Américas, S.A. de C.V. | Pedro Luis Ogazón N°32 | Esq. Angelina N°24 | Colonia Guadalupe Inn | CP 01050 | México, DF | México | +52-55-5662-0882
Europe, Middle East and Africa | Badger Meter Europa GmbH | Nürtinger Str 76 | 72639 Neuffen | Germany | +49-7025-9208-0
Czech Republic | Badger Meter Czech Republic s.r.o. | Maříkova 2082/26 | 621 00 Brno, Czech Republic | +420-5-41420411
Slovakia | Badger Meter Slovakia s.r.o. | Raciánska 109/B | 831 02 Bratislava, Slovakia | +421-2-44 63 83 01
Asia Pacific | Badger Meter | 80 Marine Parade Rd | 21-04 Parkway Parade | Singapore 449269 | +65-63464836
China | Badger Meter | 7-1202 | 99 Hangzhong Road | Minhang District | Shanghai | China 201101 | +86-21-5763 5412