Advanced meter reading

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Automated meter reading is the communication technology water utilities use to automatically collect water consumption and status data from water meters. AMR systems can be either walk-by or drive-by. An endpoint is connected to the meter"s encoder register. The endpoint captures water flow and alarm data which is collected by utility personnel by walking or driving by with a data receiver in proximity to the device.

After collection, the meter data is transferred to a database where utilities can monitor and analyze usage, troubleshoot issues and bill customers based on actual consumption, rather than predictions that were often required with bi-monthly or quarterly manual reads.

Advanced metering infrastructure is an integrated system of water meters, communication networks and data management systems that enables two-way communication between meter endpoints and utilities. Unlike AMR, AMI doesn"t require utility personnel to collect the data. Instead, the system automatically transmits the data directly to the utility at predetermined intervals.

Meter data is sent to utilities via a fixed network. The utility can use the data to improve operational efficiencies and sustainability by effectively monitoring water usage and system efficiency, detecting malfunctions and recognizing irregularities.

With a fixed network, utilities work with specific vendors to get their infrastructure and technologies up and running. And today, existing cellular networks, designed to minimize downtime, can be used to make sure meter data is collected securely and without interruption.

Smart water solutions that incorporate AMI are no longer a concept of the future. Utilities across the country are implementing smart water metering technologies to streamline processes and improve water preservation. 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 solutions are credited with:

Badger Meter is an industry-leading innovator in flow measurement, water quality and control products, serving water utilities, municipalities and commercial and industrial customers worldwide.

AMR hosting is a back-office solution which allows a user to track their electricity, water, or gas consumption over the Internet. All data is collected in near real-time, and is stored in a database by data acquisition software. The user can view the data via a web application, and can analyze the data using various online analysis tools such as charting load profiles, analyzing tariff components, and verify their utility bill.

RF-based meter reading usually eliminates the need for the meter reader to enter the property or home, or to

locate and open an underground meter pit. The utility saves money by increased speed of reading, has less liability from entering private property, and has fewer missed readings from being unable to access the meter.

In handheld AMR, a meter reader carries a handheld computer with a built-in or attached receiver/transceiver (radio frequency or touch) to collect meter readings from an AMR capable meter. This is sometimes referred to as "walk-by" meter reading since the meter reader walks by the locations where meters are installed as they go through their meter reading route. Handheld computers may also be used to manually enter readings without the use of AMR technology as an alternate but this will not support exhaustive data which can be accurately read using the meter reading electronically.

Transmitters for data collection satellites can be installed in the field next to existing meters. The satellite AMR devices communicate with the meter for readings, and then sends those readings over a fixed or mobile satellite network. This network requires a clear view to the sky for the satellite transmitter/receiver, but eliminates the need to install fixed towers or send out field technicians, thereby being particularly suited for areas with low geographic meter density.

There are also meters using AMR with RF technologies such as cellular phone data systems, Zigbee, Bluetooth, Wavenis and others. Some systems operate with U.S. Federal Communications Commission (FCC) licensed frequencies and others under FCC Part 15, which allows use of unlicensed radio frequencies.