ADVANCED METERING INFRASTRUCTURE (AMI)

UTILITY CHALLENGES

AGING METERS
Water meters, whether mechanical or electronic, are subject to wear and eventually lose the ability to correctly measure and record flow. AWWA recommends testing periodically. [1]

NON-REVENUE WATER
Water loss (80% real loss + 20% apparent loss) + unbilled consumption [2]
Significant cost to US utilities, $4.9 billion per year. [3]

CUSTOMER SERVICE
Overall customer satisfaction score for water utilities is 702 on a 1,000-point index. A score lower than those of airlines and mortgage servicers.[4]
Billing questions are among top reasons customers contact their utility. [5]

AGING WORKFORCE
Retirements in the water sector result in staffing vacancies in utilities of up to 50% in some cases. [6]

LACK OF CAPITAL INVESTMENTS
In 2019, the total capital investment of water infrastructure was approximately $48 billion while investments totaled $129 billion creating an $81 billion gap.[7]

WATER CONSERVATION
Water Conservation / water supply availability is #3 most important issue for utilities. [8]

WHY METERS ARE IMPORTANT?

1 They are your cash register
In the U.S. water utilities collect over $61.8 billion in revenue each year. All of this is achievable thanks to meters.[9]

2 They help you track non-revenue water
We estimate that water systems in the US may have as much as 50% non-revenue water.[10]

3 Charge equitable share
Your meter systems allow you to charge customers an equitable share of water they use by recording actual usage.

4 Encourage water conservation
Meters encourage water conservation compared to flat rates. Plus, they help with detection of water leaks and waterline breaks in the distribution system.

METER READING EVOLUTION

Manual reading — AMR — AMI

Reactive : manual monthly reading

Advanced Meter Reading (AMR)
Technology used by utilities to collect automatically consumption and status data from meters. AMR systems can be either walk-by or drive-by. An endpoint connected to the meter captures the data, which is collected by utility personnel by walking or driving by with a data receiver in close proximity to the device. Regardless of how the meter is read, the communication is one-way. The meter communicates with the meter-reading device, but the device cannot send a command back to the meter. After collection, the data is transferred to a database where utilities can monitor and analyze usage, troubleshoot issues and bill customers based on actual consumption, rather than estimates as is often the case with manual read systems.

Proactive : online hourly reading

Advanced Metering Infrastructure (AMI)
Refers to an integrated system comprised of meters, communication network and data management system that enables two-way communication between meter endpoints and utilities. The system automatically transmits the data to the utility via a fixed network either on request or at short fixed intervals. The utility can use the near real-time data to monitor water usage, detect system malfunctions or irregularities and improve overall operational efficiency. Unlike AMR, AMI does not require utility staff to collect the data and more importantly, it enables two-way communication between the meter and the utility, allowing commands to be sent to the meter for different purposes, including remote service disconnects.

Sources:

1. American Water Works Association - AWWA Standard - ANSI/AWWA C700-15
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4. Satisfied Customers: The Key to Water Infrastructure Investment article in WaterWorld (2017)
5. Ofwat SIM Survey (2015/16)
6. Renewing the Water Workforce report from Brookings Metropolitan Policy Program (2018)
7. Drinking Water Infrastructure Needs Survey and Assessment: Sixth Report to Congress from EPA (2018)
8. 2019 SOTWI: AWWA State of the Water Industry
9. Revenue of water utilities - United States 2000-2018, Statista
10. What Is Non-Revenue Water?, Fluencecorp

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USG METERING ASSET MANAGEMENT PROGRAM

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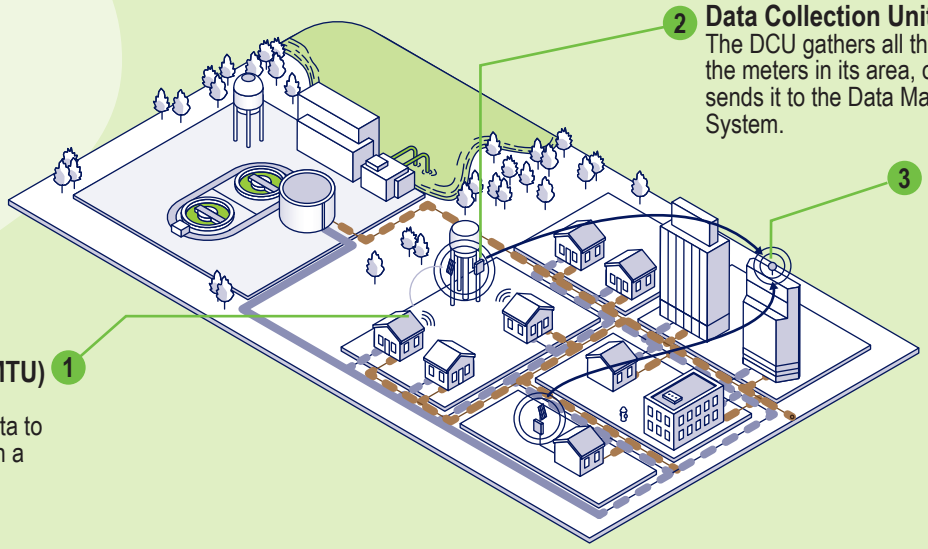
HOW DOES AN ADVANCED METERING INFRASTRUCTURE SYSTEM WORK?



1 Meter Transmitting Unit (MTU)
The water meter reads the consumption and sends the data to the AMI Data Collection Unit on a regular basis.

2 Data Collection Unit (DCU)
The DCU gathers all the data sent by the meters in its area, organizes it and sends it to the Data Management System.

3 AMI City Headend
All the data is received and organized in a secured network control computer connected to the City systems for:

- Water Monitoring
- Billing
- Customer service

USG METERING ASSET MANAGEMENT PROGRAM

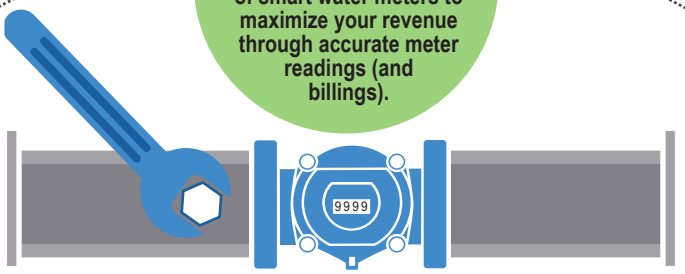
What is Included?

1 Installation
We design AMI systems with the turnkey installation of smart water meters to maximize your revenue through accurate meter readings (and billings).

2 Integration
We integrate the Host AMI software with your billing systems and supply and install a cloud-based meter data management system for storage and analysis of data.

3 System Management
Over the life of your system we analyze metering data daily to guarantee system performance while providing a full range of long-term maintenance, support and communications services.

4 Long-term Maintenance
We can provide a 15 year warranty and maintenance of the entire system. We proactively perform on-going preventative and corrective maintenance of the AMI network and equipment (software and hardware). We supply all these services for a set annual cost, easy to budget.



What are the Benefits?

- Revenue enhancement
- Reduction of water loss
- Improved customer service
- Operational peace-of-mind
- Single point of responsibility
- Long-term transfer of risk
- Spread of initial deployment cost
- Predictable budget

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