



STAFF REPORT

Meeting Type: Planning Committee/Board of Directors
Title: Water Efficiency Update – Advanced Metering Infrastructure (AMI)
From: Paul Sellier, Director of Water Resources
Through: Ben Horenstein, General Manager
Meeting Date: March 25, 2025

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TYPE OF ITEM: Approve X Review and Comment

RECOMMENDATION: Review and comment on Water Efficiency Update - Advanced Metering Infrastructure (AMI)

SUMMARY: Staff will review the role of Advanced Metering Infrastructure (AMI) in Water Efficiency, and provide an update on AMI pilots, project schedule and next steps.

DISCUSSION: AMI is anticipated to play a fundamental role in changing customers’ understanding of how they use water leading to improved water efficiency by enabling the District’s customers to directly monitor and manage water use. The cornerstone of any AMI system is the customer portal, the online user interface that allows customers to review and understand their patterns of water use. A 2022 American Water Works Association (AWWA) report found that signing up for an AMI portal led to an average decrease in daily water use ranging from 6-12%, with the range accounting for the different types of functionality (e.g. custom alerts and single sign-on) and deployment (automatic opt-in). The same AWWA report showed that sign-ups typically range between 30-45% and this aligns with the District’s experience with the 5,500-unit Badger AMI pilot that has seen a 46% customer adoption of the customer portal, “EyeOnWater”.

Water savings based on District data comparing selected accounts water usage before AMI and after AMI installation suggests that water use savings may vary across all District services. For example, when comparing the water use of all single-family services to a sub-group of 3,759 services that were upgraded to AMI during 2019-2022, the AMI services showed savings of 3.39%. However, a separate analysis compared two separate meter reading routes that border each other (453 total meters). One of the routes was upgraded to AMI in 2020 and the other was not. The AMI route experienced a 7.25% reduction in use, when evaluating 2017 use with 2023 use, compared to the route that was not upgraded. The data suggests that while water savings resulting from AMI will occur, it is difficult to quantify the savings.

One of the ways AMI can save water is through identification of leaks. Standard AMI such as the Badger pilot can send alerts for continuous meter movement to the customer and District indicating a potential leak on the customer side of the meter. Recent developments in AMI can also reduce water loss by monitoring for leaks on the District side of the meter through acoustic leak detection (ALD). ALD is typically provided as an add-on to the meter and because there are a large number of water meters, this provides a robust network of sensors that are able to identify distribution system leaks, as well as customer leaks, by detecting the sound that is made by a leak.

Pilots and equipment/portal testing:

As part of the AMI planning process and in conjunction with the recommendations from the Water Loss Report, staff are conducting small scale pilot studies deploying meter equipment and testing portals to learn as much as possible about AMI vendors and the features, beyond metering of water, that they provide. Ultimately, the information developed will be useful in developing and evaluating the request for proposals (RFP) for full-scale implementation of AMI. Staff will present information on the District AMI pilots summarized below.

Kamstrup Pilot: Kamstrup meters are provided with integrated leak detection and were installed in two different pilot areas to test the leak detection functionality. Since the pilot began, several leaks have been identified by the Kamstrup meters, two of which were leaks on the tap at the main and one that was a meter gasket leak on the District side of the meter.

Subeca Pilot: Another AMI pilot currently underway involves 100 Subeca registers that were fully funded by an Imagine H2O grant. Distinct from other vendors that use more traditional communication methods, Subeca uses Amazon Sidewalk to communicate hourly reads down to .01 cubic-feet. Amazon sidewalk uses devices such as Amazon Echo and Ring doorbells as a “bridge” to the cloud. Although Subeca is relatively new to the AMI space, the unique communication method could be leveraged in areas of the District where traditional methods like cellular or radio collectors are not reliable for AMI. Based on recent studies from several leading AMI vendors, approximately 2-5% of meter locations are not ideal for cellular or radio AMI, and Subeca could provide a solution. Since deployment of the Subeca registers, staff have seen 95% successful reads which is a relatively high considering that many of the registers are located in areas that would be very challenging for cellular or radio AMI functionality.

Badger Pilot: The largest AMI pilot underway uses Badger cellular endpoints. This pilot started in 2018 and leveraged grant funding from the Department of Water Resources (DWR) and Integrated Regional Water Management Plan (IRWMP) to install over 5,500 cellular endpoints on replaced or retrofitted meters, which has provided the District with years of experience in working with AMI and data on water savings through early leak detection. Since 2018, over 8,000 leak and high water use letters have been sent out, and over 1,300 leaks received additional follow-up efforts from District staff, such as an email, phone call or site visit. Estimated water savings from these various forms of leak notification is over 200 acre feet (AF) per year. All of our Badger pilot customers are eligible to sign up for a customer-facing portal (EyeOnWater) with automated leak alerts and 46% of them have created an account.

Project Status, Schedule & Next Steps:

The AMI project team is comprised of internal stakeholders with the experience and expertise to help integrate this project with the District’s ongoing operations. Staff is developing a RFP, targeted for

release in July of 2025, and full deployment of AMI potentially by end of 2030, with the first phase of AMI units scheduled for installation in late summer 2026.

ENVIRONMENTAL REVIEW: Not Applicable.

FISCAL IMPACT: None

ATTACHMENT(S): None