

Meter Replacement Project - Advanced Metering Infrastructure (AMI)

Current State of Metering

Total Service Connections - ~32,000

Meter Accuracy Problem

95% of meters under-registering:
~ 3.0 % less - Residential meters
~ 18.83 % less - Large meters

Non-revenue Water Loss Problem

13%
466 Million gallons per year

Source: AWWA Water Audit Report evaluated in 2019

Current Meter Reading Capabilities:

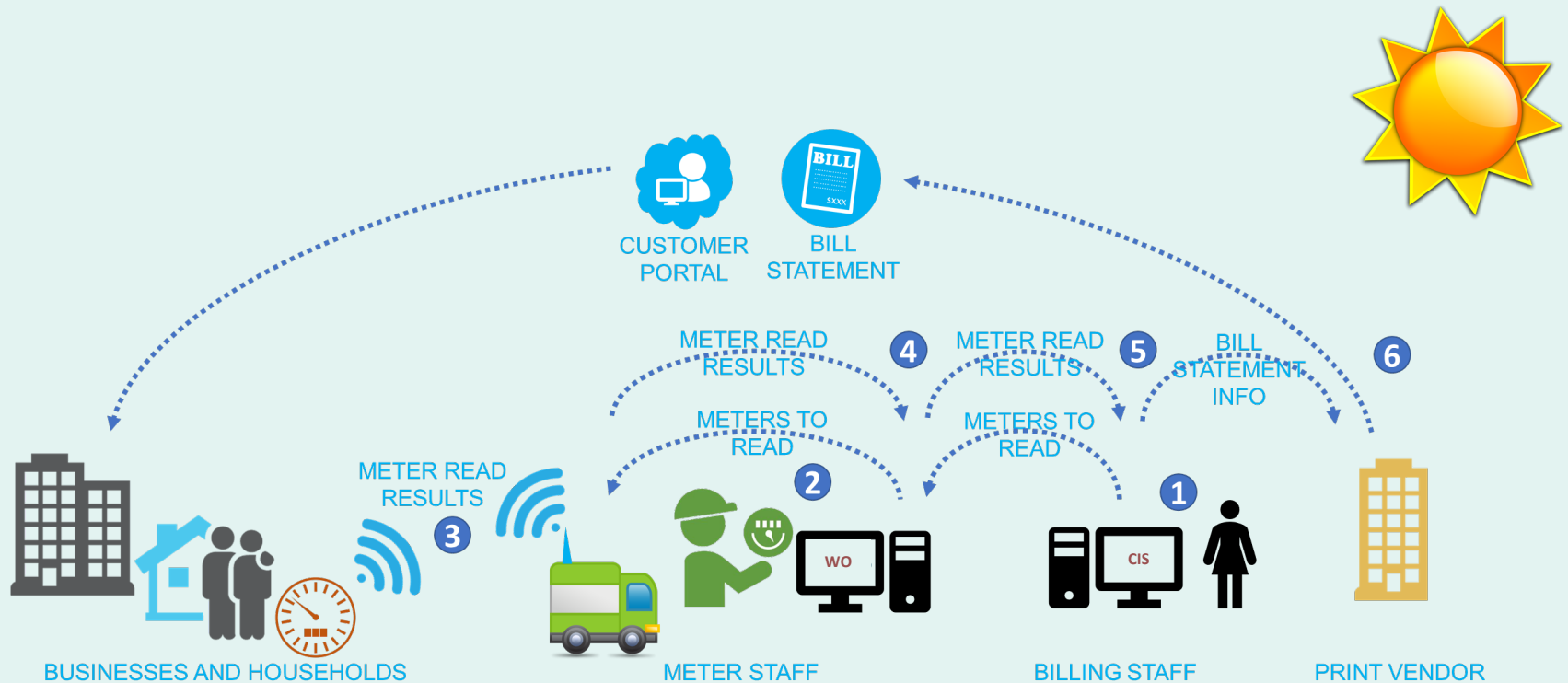
- Drive-by and manual (250) upload of meter read files to the billing system

Current Meter Age:

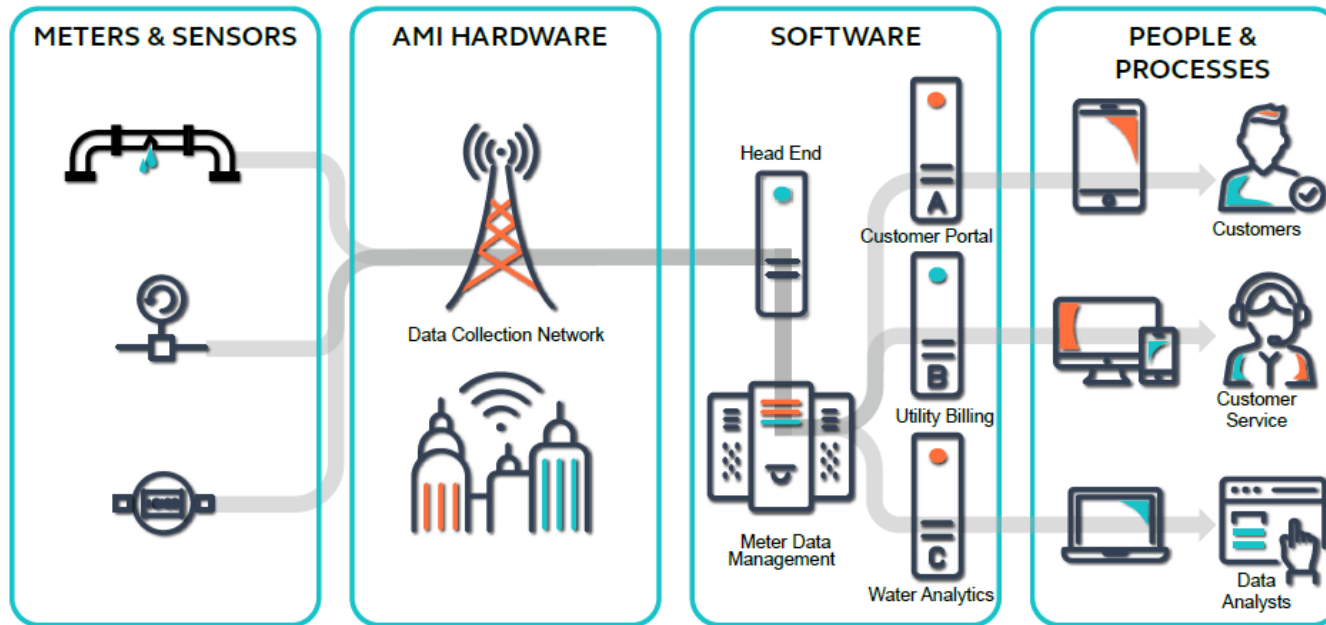
232 Large meters – 20+ yrs old

25,103 residential meters - 17+ yrs old

Current Meter-to-Cash Process



Advanced Metering Infrastructure Overview



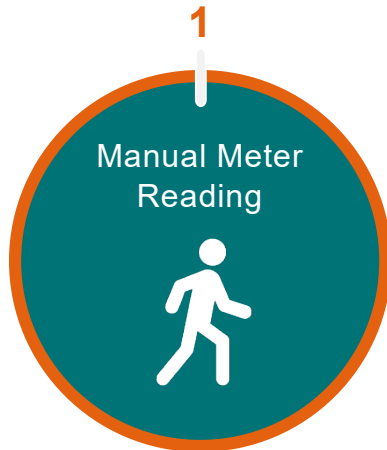
“Advanced metering infrastructure (AMI) is an integrated system of smart meters, communications networks, and data management systems that remote collection of meter data for billing and maintenance purposes allowing for immediate profitability and reliability.”

What Makes AMI Valuable?

Data!

AMI provides **hourly, near real-time data** that can be turned into information that empowers employees and customers.

Reads per Account per Month

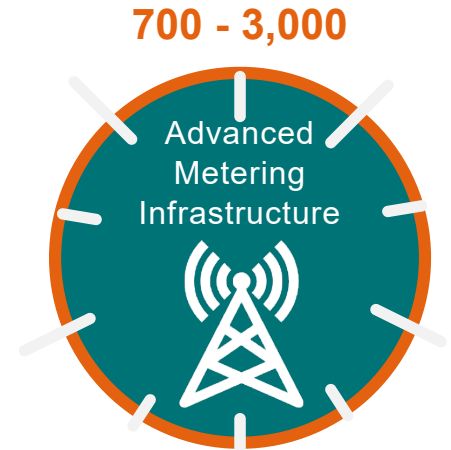


vs



(AMR, one-way meter reading systems, drive by or touch read)

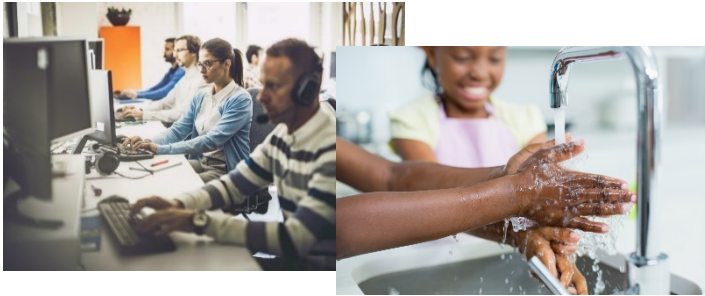
vs



(AMI, two-way communications Fixed Network)

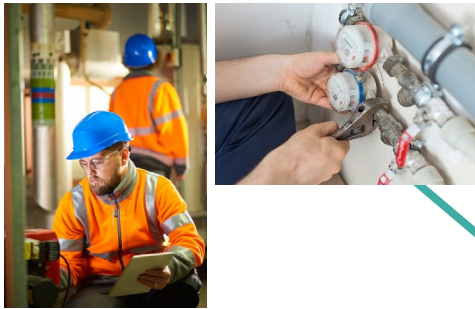
Meter Reading Approaches

What are the Benefits of AMI?



Customer Service

- Improves overall customer service and customer satisfaction
- Streamlined meter-to-cash process
- User Friendly Customer Portal with real time usage information
- Reduces high bill complaints
- Encourages water conservation programs



Utility Operations

- Reduces non-revenue water loss
- Reduces truck rolls and field visits
- Improves meter management
- Reduces inaccurate/slow meters and right-sized meters analysis
- Improves detection of water theft and tamper
- Enables distribution system leak detection capabilities
- Enhances sustainability by decreasing carbon footprint



Engineering & System Planning

- Improves system design and planning which allows for better capital improvement/expansion decisions

■ Key Fayette County AMI Goals

Project Financial - Detail

Advanced Metering Infrastructure (AMI) is an integrated (architectural) system of smart meters, communications networks, and data management systems that enables two-way communication between utilities (service provider) and (it's) customers (consumers).

The goal of an AMI is to provide reliable (real-time) data for billing and maintenance purposes, leading to immediate profitability.

Advanced Metering Infrastructure

Line Item Description	Budget
3/4" Cellular Endpoint	4,308,186
Standard Bare 3/4" Meter Base	1,301,130
Composite Meter Lid	289,140
E-Series® Ultrasonic Plus (Cellular read & Automatic Shut-Off)	22,500
1 " Meter base, Cellular Endpoint & lid	87,640
1 1/2" Meter base, Cellular Endpoint & lid	126,000
2" Meter base, Cellular Endpoint & lid	246,492
3" Compound Meter & Cellular Endpoint	6,710
4" Compound Meter & Cellular Endpoint	580,415
6" Compound Meter & Cellular Endpoint	204,000
8" Compound Meter & Cellular Endpoint	350,000
10" Compound Meter & Cellular Endpoint	20,000
DDC FIRELINE (Cellular endpoint only)	45,743
Installation Services	1,825,952
System Setup & Training Services	125,000
End-to-End PM, Testing, QA/QC, Community Outreach	527,161
Bonding & Insurance	207,408
Contingency (6%)	598,700
AMI Metering Services Fee	327,823
Total Advanced Metering Infrastructure	11,200,000

Project Financial - Summary

Revenue Loss due to Accuracy of Meters						
% Meters Under Registering	# of Customers	Loss Per Meter	Meter Type	Total Loss/Service	Estimated Total Loss/Month	Estimated Total Loss/Year
-18.83%	232	66,220	Large	\$ 213.89	\$49,622.58	\$ 595,471.02
-3.00%	25,103	230	Residential	\$ 0.74	\$18,655.87	\$ 223,870.46
						\$ 819,341.48

Project Costs (Equipment, Services, Program Management, and Contingency)	\$11.2 Million
Return on Investment	7.3 %
Payback	13.5 years

Conclusions

AMI transition is an important step for water utilities. Pairing aging meter replacement with an AMI transition is the most cost-effective approach.

The AMI program :

- Is a **cost-effective** approach to address the County's aging infrastructure
- Will **address significant meter population under-registering** due to meters reaching end of life
- Allows the Water Department to **manage high non-revenue water loss**, and
- Will **benefit many aspects of your organization**.

AMI advances Fayette County Water metering capabilities to industry standards.

The AMI Program supports Fayette County's Mission:

"Provide critical services to protect and enhance the health, safety and welfare of its citizens in a manner that is efficient, fiscally and environmentally responsible, and which perpetuates a quality lifestyle for future generations."