

Serving our customers

AMI Program Update

Sally Mohr, Program Delivery Manager

Corey Bedient, AMI/Utility Mod Lead

October 11, 2023

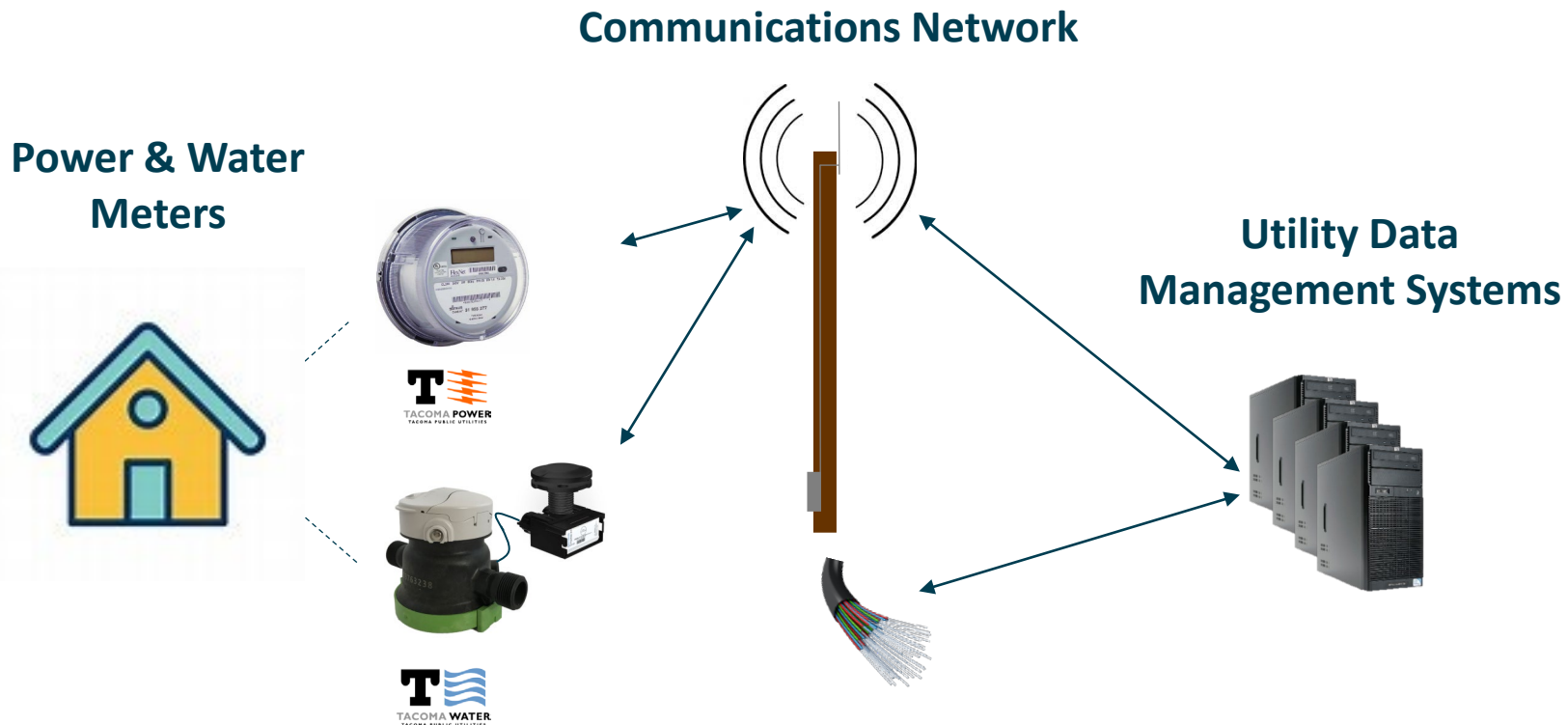


Agenda

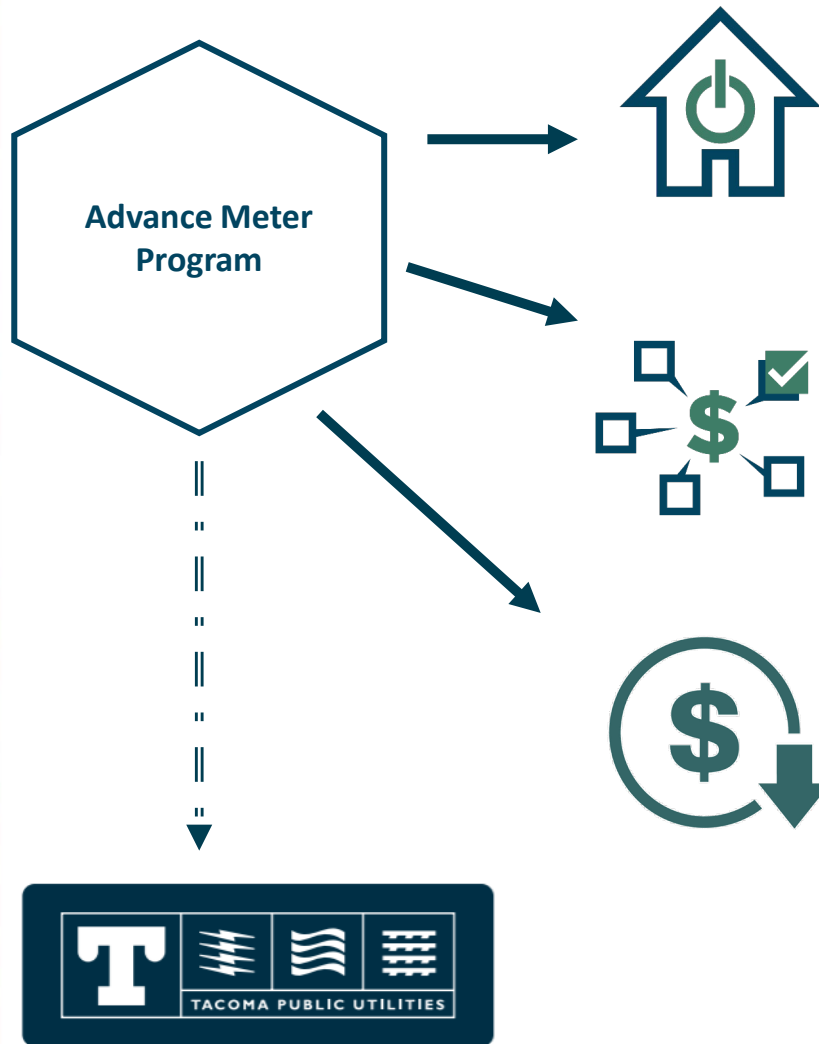
- Program Overview
- Meter Supply
- Deployment Progress



What is AMI?



Advanced Metering: A Strategic Initiative



Grid Modernization Efforts
Smart Water Efforts

Foundational for Utility Modernization

- An **essential building block** of TPU
- A strategic focus for the **past few years**
- Will **modernize TPU services**

Delivers and Enables Benefits

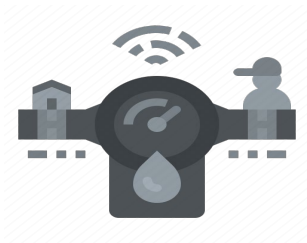
- Monthly billing
- Automated meter reading
- Customer and TPU access to usage data
- Quicker outage and leak detection
- Data collection and input enabler
- PrePay - residential electric customers

Low Customer Cost

The cost to individual customers remains relatively low and is **spread over ten years**. Costs are **factored into the current rates**.

Beginning in 2019, the additional cost increase each year for the next ten years is about \$2.28/year for the average City of Tacoma residential power and water customer.

Milestones and Highlights



62%

All Meter Installations
≈183K of 293K Installed
(+26% since last update)



35

Remote Disconnects
for Fire Events
(+169.2% since last update)



84,573

Customers Converted to
Monthly Billing
(+56.7% since last update)



18,675

Remote Power Reconnects
(+44.76% since last update)



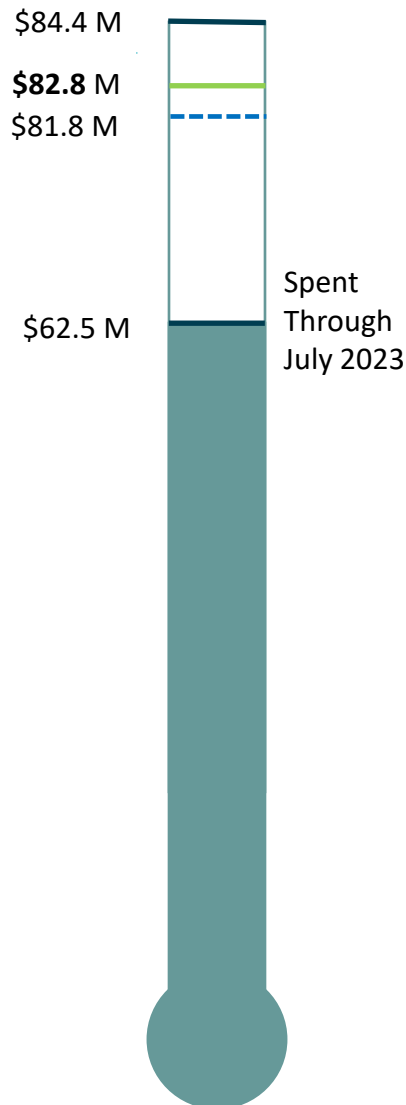
17,594

Continuous usage notifications
sent to customers
(+139% since last update)

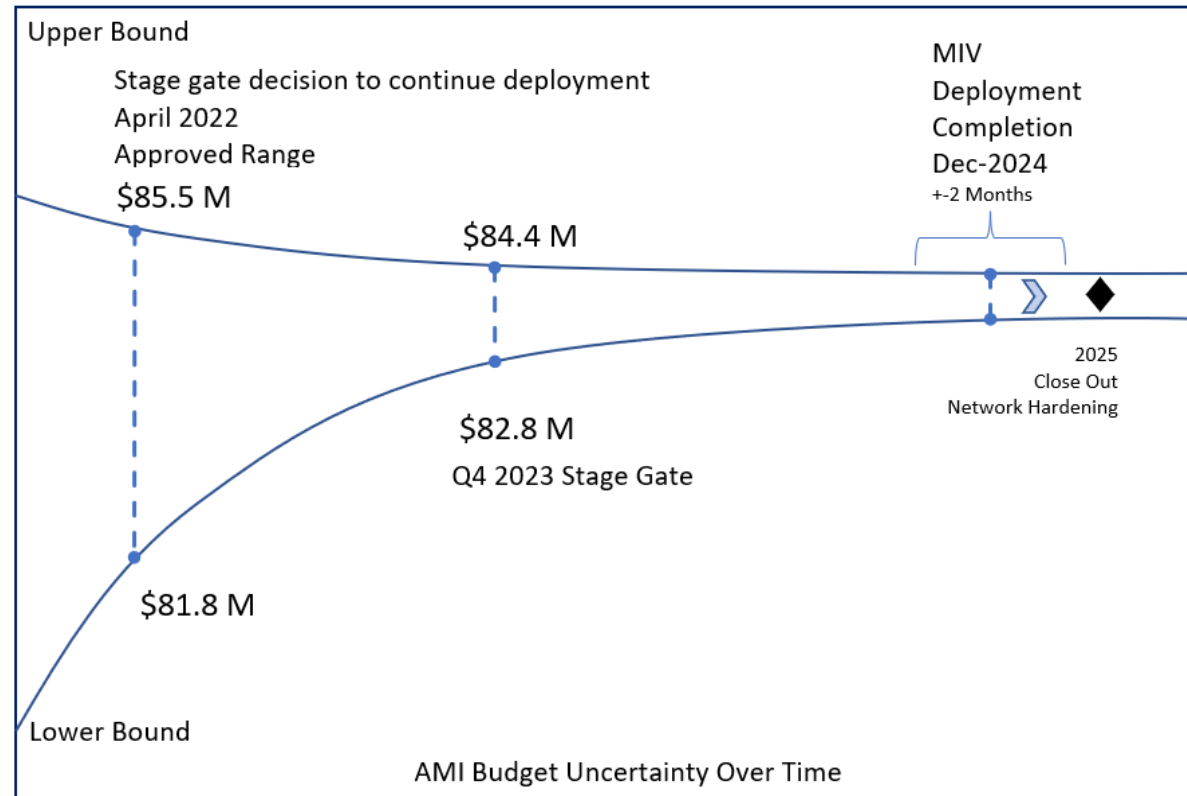
Program and Deployment Update



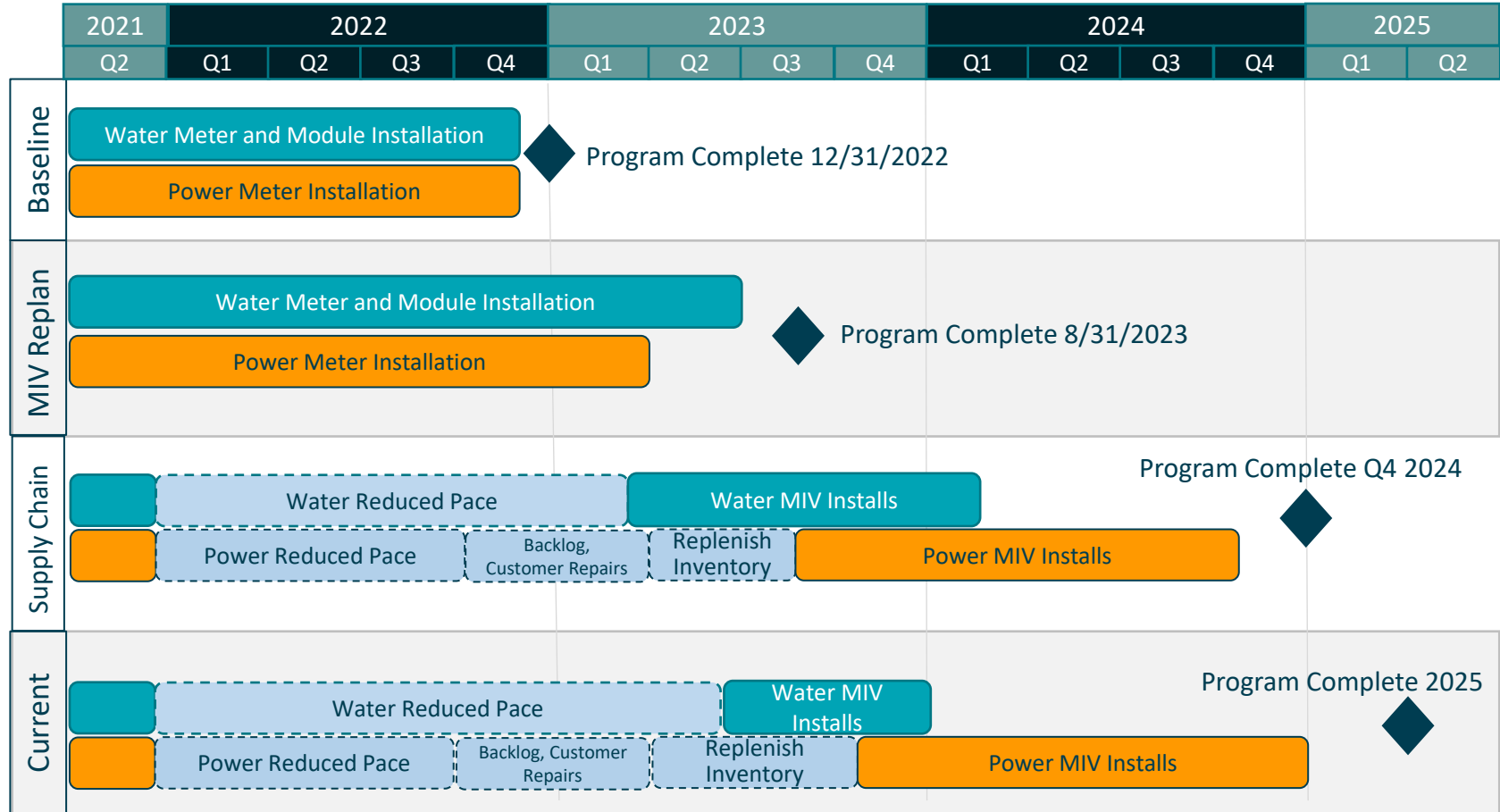
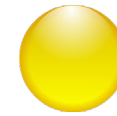
AMI Program Budget Overview



AMI Program Budget History	Milestones	Forecast	Total Budget	Delta% to \$81.8M
Q4 Stage Gate - Current	Q4-2023	\$82.8	\$84.4	3.0%
Supply Chain Stage Gate	Q2-2022	\$85.2	\$85.5	4.5%
Start of Mass Deployment	Q2-2021	\$80.8	\$81.8	0.0%
Baseline Business Case	Q1-2020	\$75.0	\$81.8	



MIV Deployment Schedule History

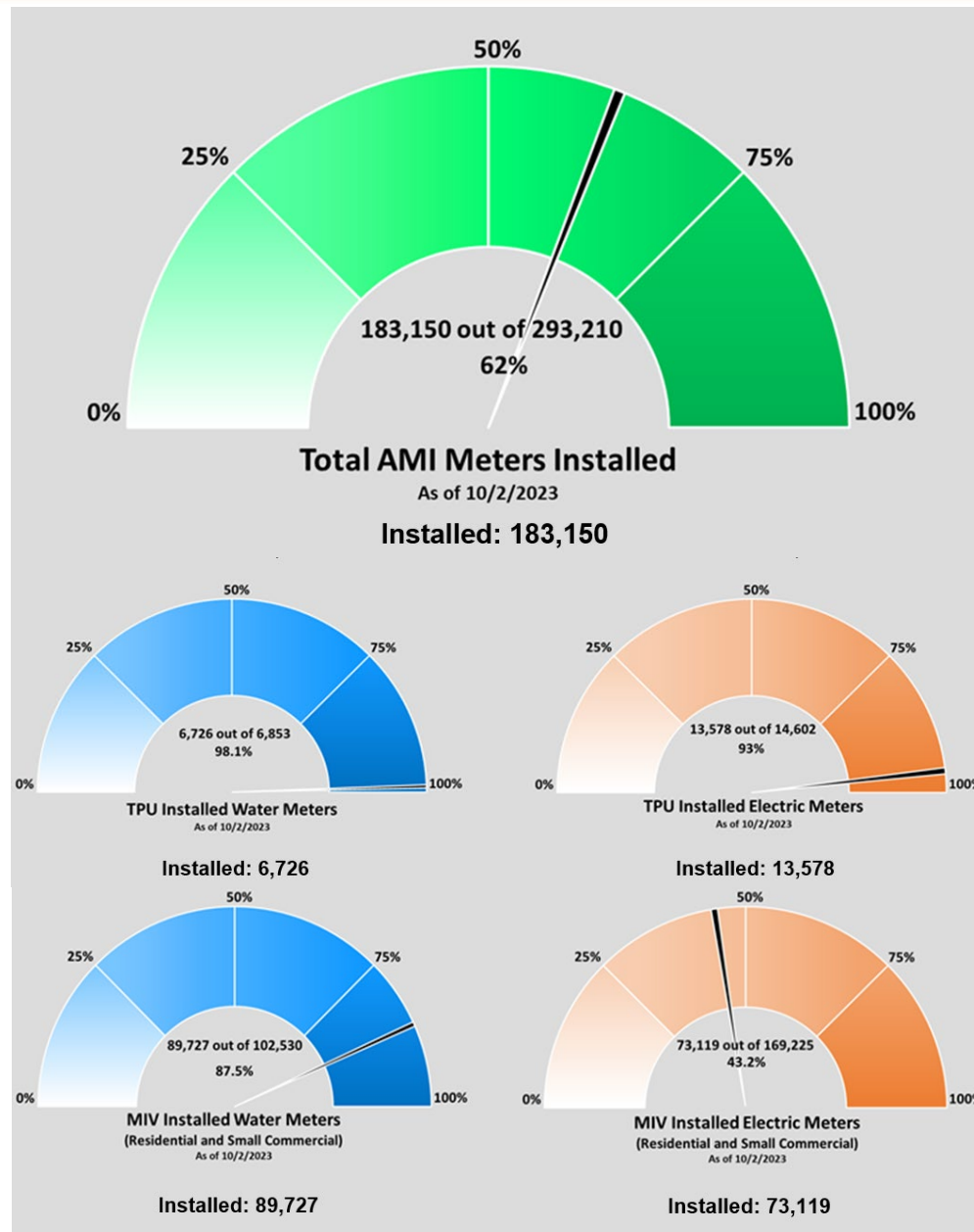


Current schedule based on available supply chain information Sept 2023

Major Schedule Updates:

- Water shipments improved Q4, enabling early MIV completion
- Power MIV Deployment shifted 1Q to end of 2024, due to manufacturing challenges ramping up production.
- Power meter manufacturing capacity reported as stable; component deliveries are no longer a bottleneck.
- Supply chain uncertainty will continue into 2024
- Program completion in early 2025

AMI Meters Deployed



AMI Development Progress Map

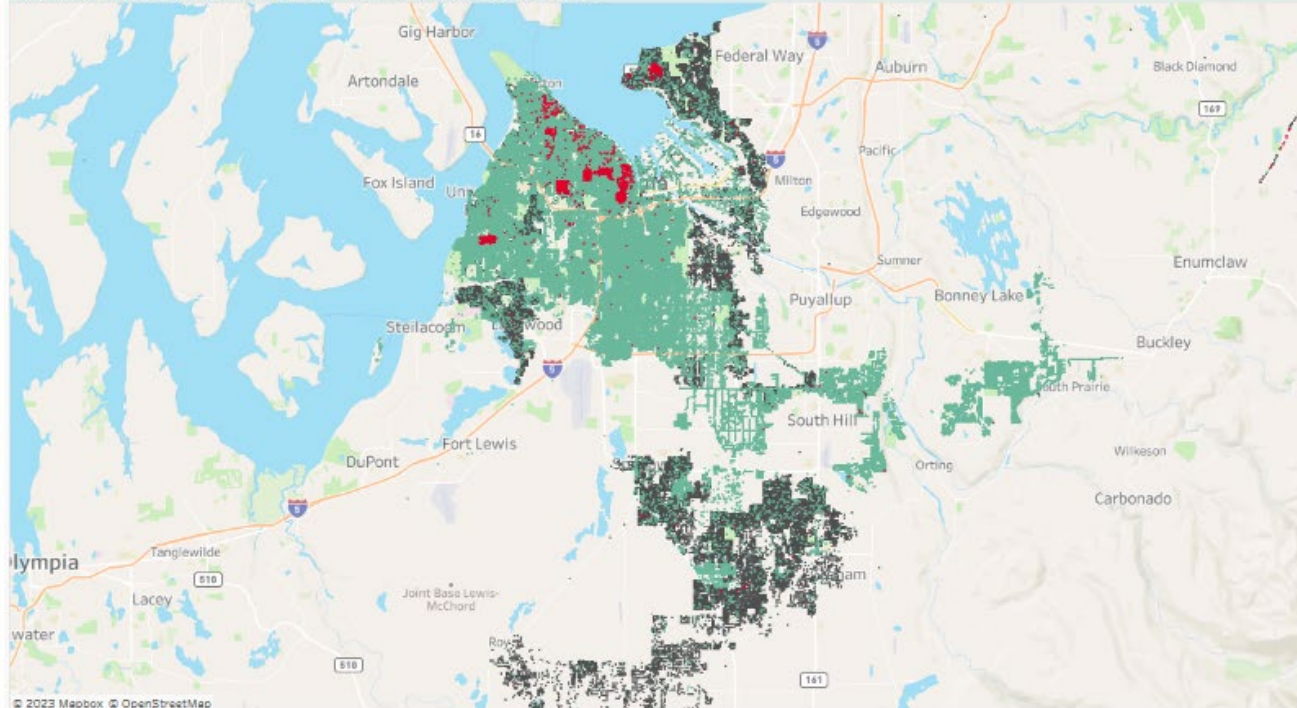


Map: TPU AMI Deployment | Map: Power AMI Deployment | Map: Water AMI Deployment



AMI Saturation

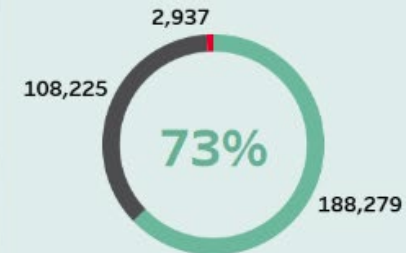
Please Note: The opening zoom on this map is set to give a full picture of the TPU service territory. Because of this, the teal 'Complete' points on the map, which occupy the top-most layer on the map, appear to overwhelm the map and imply an inaccurate level of completion. Please zoom in on portions of the map (for instance, the city proper, or Parkland/Spanaway/Graham/Roy, or Spanaway/South Hill/Bonney Lake) for a more accurate view.



Status

(Click to highlight. Click again to deselect.)

- Recent Comp. (last 14 days)
- Complete
- Incomplete



Categories

(Click to filter. Click again to deselect.)

- Commercial (31,843)
- Residential (274,118)

© 2023 Mapbox | OpenStreetMap



Data last updated: Unknown Update Time. Data Source: CCS_EQUIPMENT+, comprised of fields from TPU.CUSTOMER.CCS_EQUIPMENT, TPU.METER.BIP_X_SAP_RECONCILE, and COT.SAP_DS_CCS_INSTALLATION_FACTS_01 joined with a data export of GIS data and a list of solar meters. Data is delayed 2 days.

AMI Deployment Saturation

Power AMI Deployment Progress Map

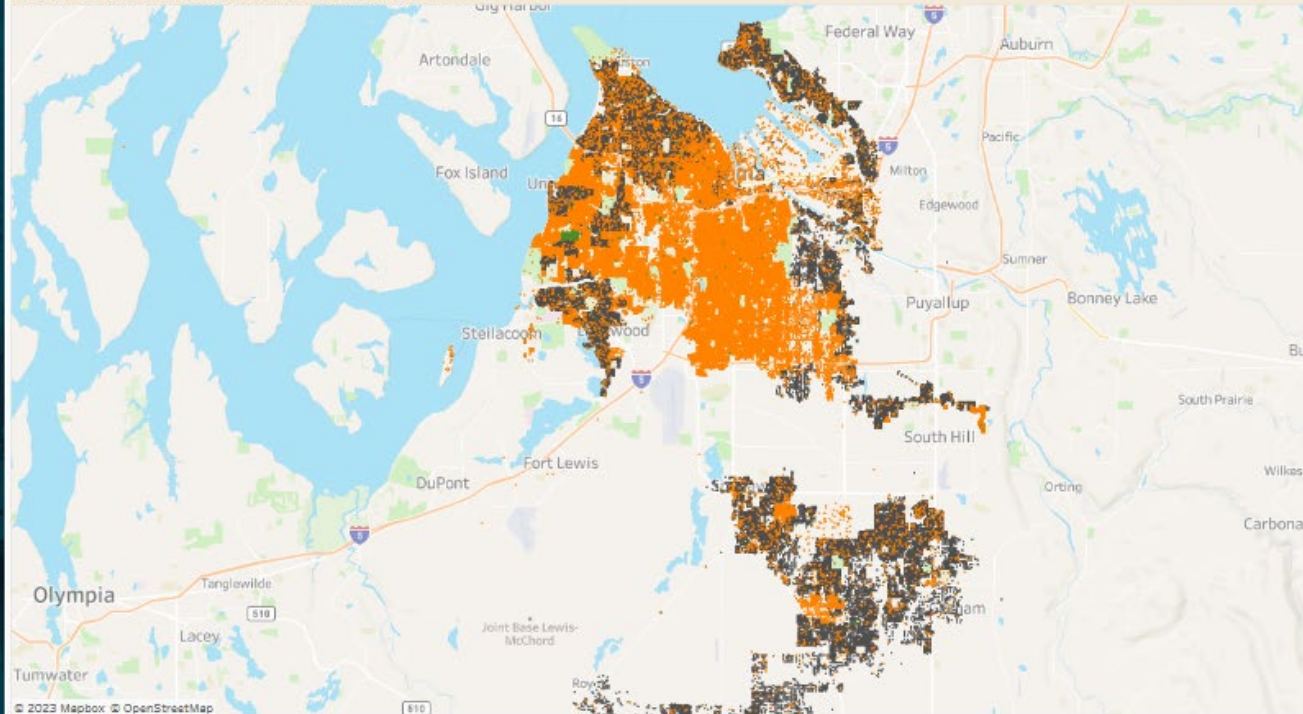


Map: TPU AMI Deployment | Map: Power AMI Deployment | Map: Water AMI Deployment



AMI Saturation

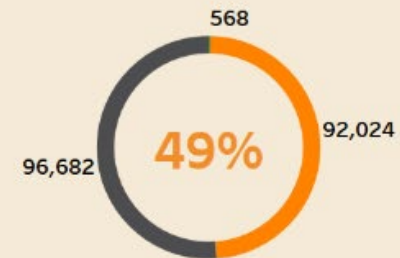
Please Note: The opening zoom on this map is set to give a full picture of the Tacoma Power service territory. Because of this, the orange 'Complete' points on the map, which occupy the top-most layer on the map, appear to overwhelm the map and imply an inaccurate level of completion. Please zoom in on portions of the map (for instance, the city proper, or Parkland/Spanaway/Graham/Roy, or Eatonville and Alder Lake) for a more accurate view.



Status

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Categories

(Click to filter. Click again to deselect.)

Commercial	(18,074)
Residential	(170,796)
Opt Outs	(157)
Solar	(4,460)

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Data last updated: Unknown Update Time. Data Source: CCS_EQUIPMENT+, comprised of fields from TPU_CUSTOMER, CCS_EQUIPMENT, TPU_METER, EIP_X_SAP_RECONCILE, and COT_SAP_DS_CCS_INSTALLATION_FACTS_01 joined with a data export of GIS data and a list of solar meters. Data is delayed 2 days.

AMI Deployment Saturation

Water AMI Deployment Progress Map

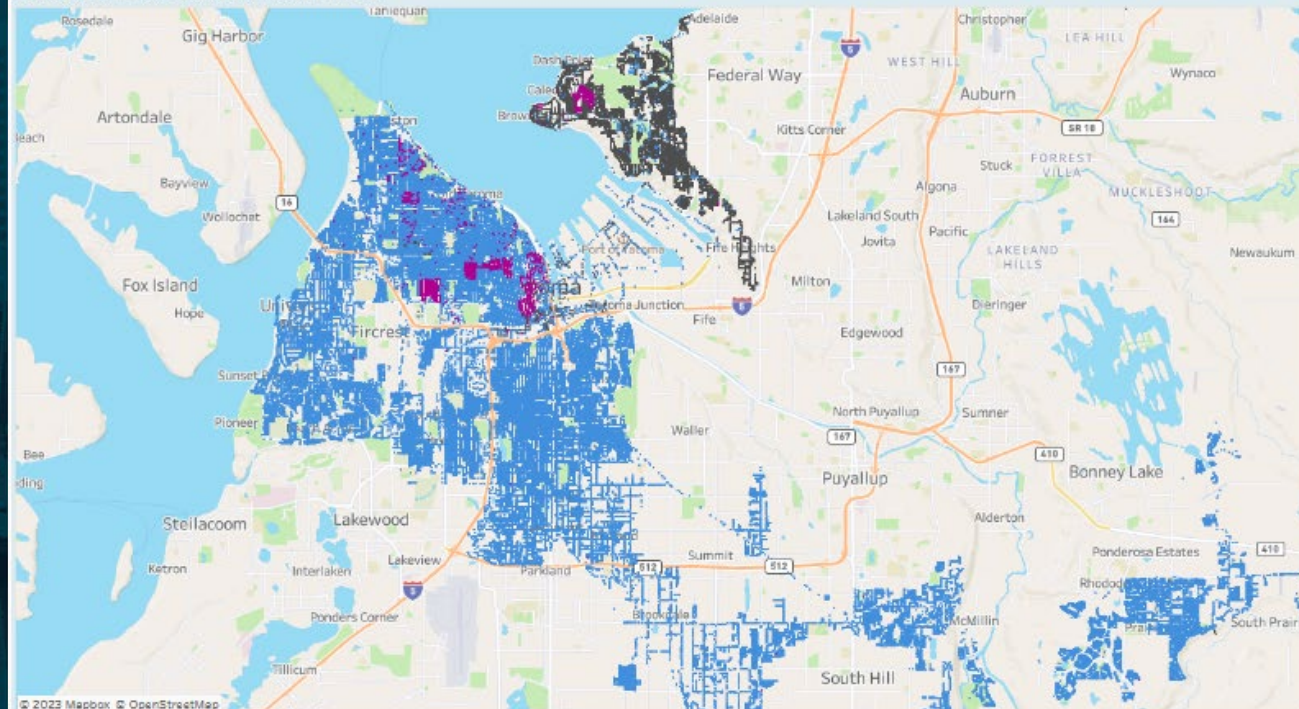


Map: TPU AMI Deployment | Map: Power AMI Deployment | Map: Water AMI Deployment



AMI Saturation

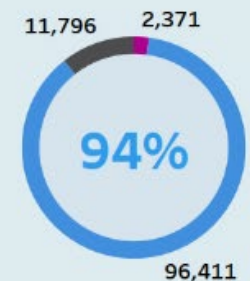
Please Note: The opening zoom on this map is set to give a full picture of the Tacoma Water service territory. Because of this, the blue 'Complete' points on the map, which occupy the top-most layer on the map, appear to overwhelm the map and imply an inaccurate level of completion. Please zoom in on portions of the map (for instance, the city proper, or Spanaway/South Hill/Bonney Lake) for a more accurate view.



Status - Water

(Click to highlight. Click again to deselect.)

- Recent Comp. (last 14 days)
- Complete
- Incomplete



Categories

(Click to filter. Click again to deselect.)

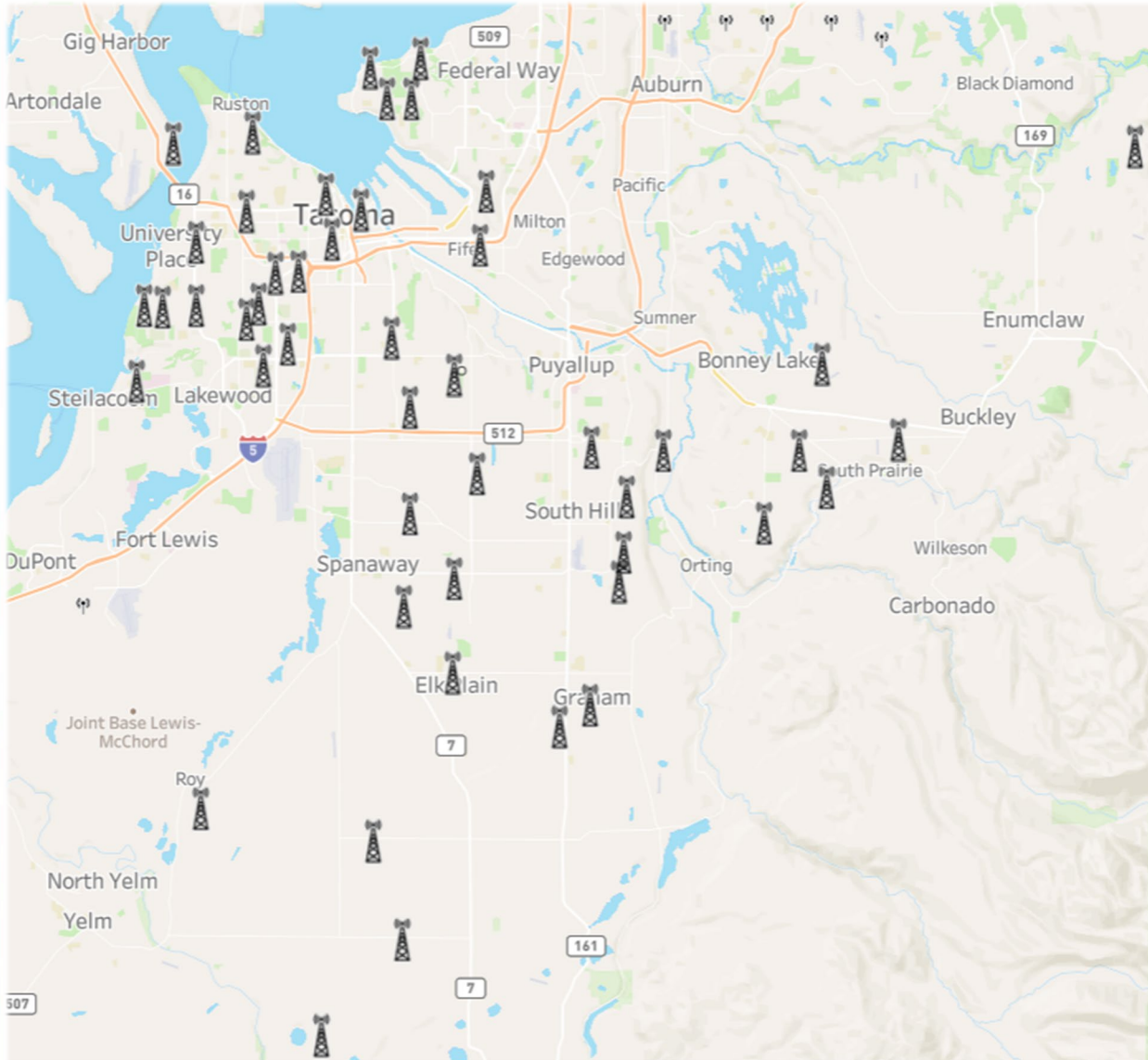
Commercial	(7,241)
Residential	(103,329)
Ally	(142)

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Data last updated: Unknown Update Time. Data Source: CCS_EQUIPMENT+, comprised of fields from TPU.CUSTOMER.CCS_EQUIPMENT, TPU.METER.BIP_X_SAP_RECONCILE, and TPU.METER.COT_SAP_DS_CCS_INSTALLATION_FACTS_01 joined with a data export of GIS data and a list of solar meters. Data is delayed 2 days.

AMI Deployment Saturation

Water AMI Deployment Progress

AMI Network Deployment



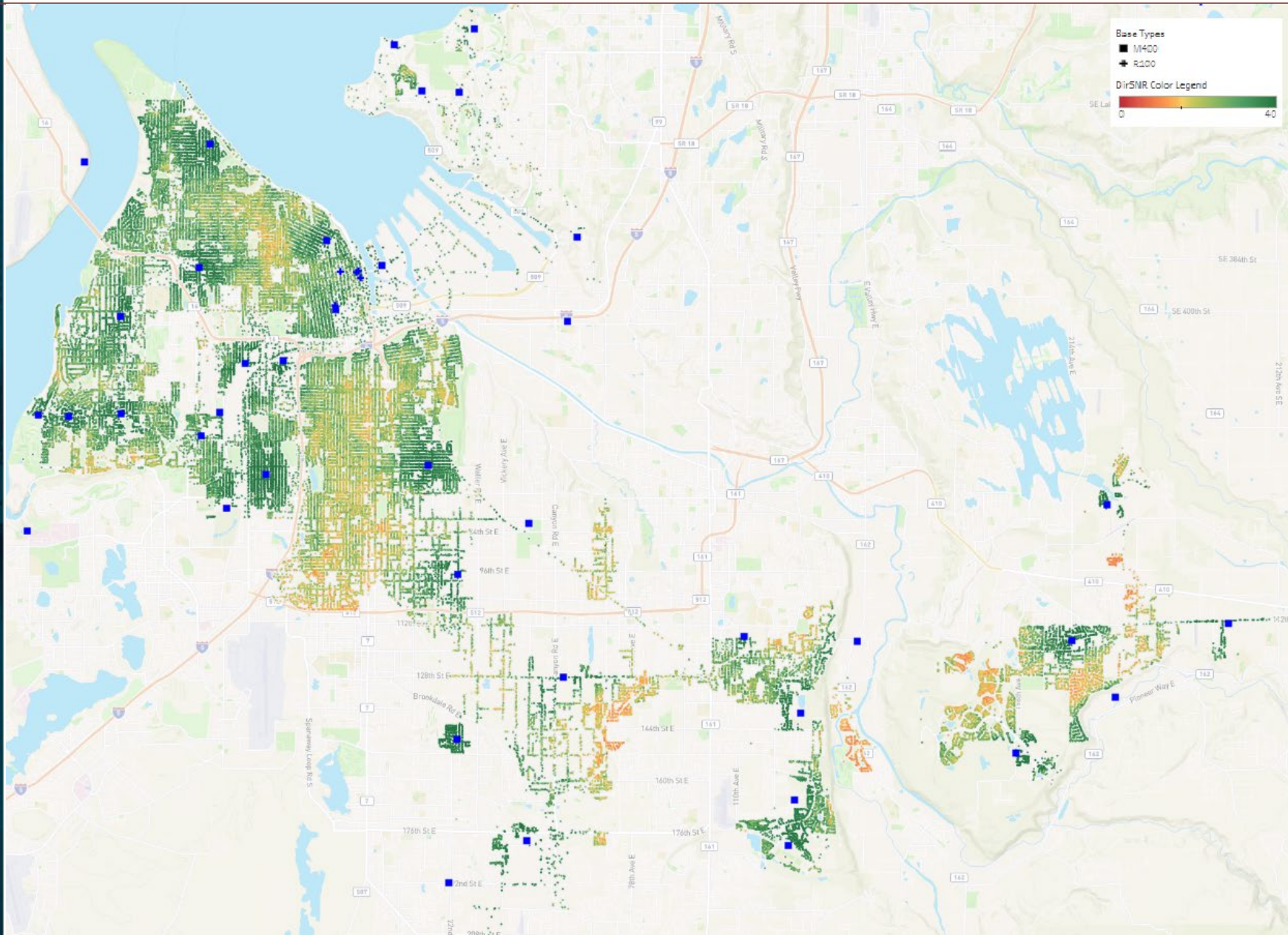
Network Deployment Phases

Phase 1: General Service Area coverage 2020-2022 (Complete)

Phase 2: Fill in to improve performance 2025-Completion

Phase 3: Water Pipeline 5 Q4-2022-Q1-2023 (Complete)

Communications Heat Map



2023 Accomplishments



Deployment

- Power Commercial & Industrial Deployment – substantially complete
- Total Water Meter Deployment – 80%
- MIV Updates
 - MIV Work Order Management System IFS upgrade
 - Change Order Number #6
 - Recognizes changes to OH
 - Formalized cost-plus methodology for the remainder of the scope
 - Reduced Overhead Costs (\$144K to \$122K/month)
 - Warehouse rent
 - Reduction of performance bonds
 - Vehicle expenses
 - # of licenses
- GPS Capture Devices Procured (Power)
 - To capture Power coordinates

Operations

- Regional Network Interface/Sensus Head-End Upgrade
- MDM Upgrade Plan and Kickoff

Communications

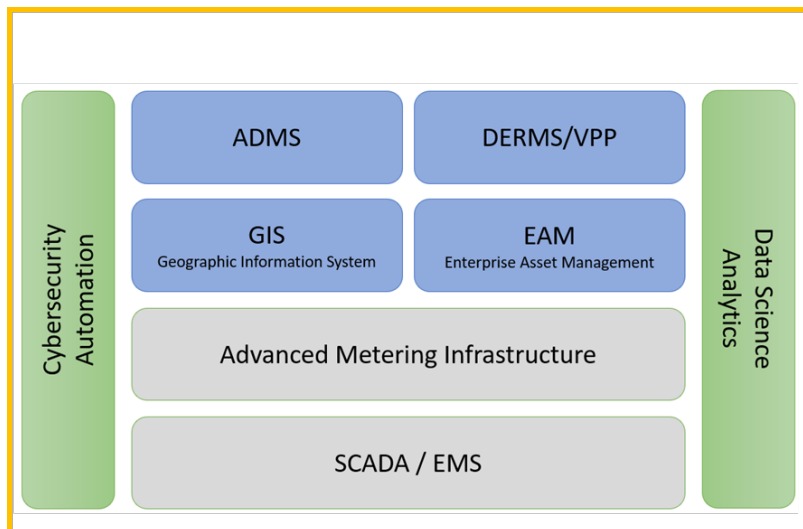
- Stakeholder engagement maintained
- Minimal customer escalation

Goals to Finishing Deployment Successfully

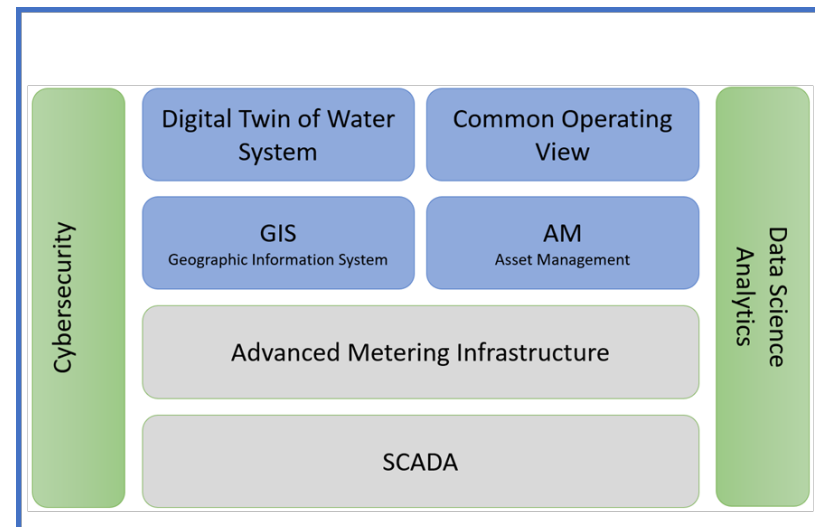
- Maintain focus on customer experience
- Ensure a smooth transition from water to power deployment
- Adapt and remain flexible to supply chain uncertainty/challenges
- Remain within target schedule and cost ranges

Looking Ahead: Operational Benefits

Grid Modernization Program

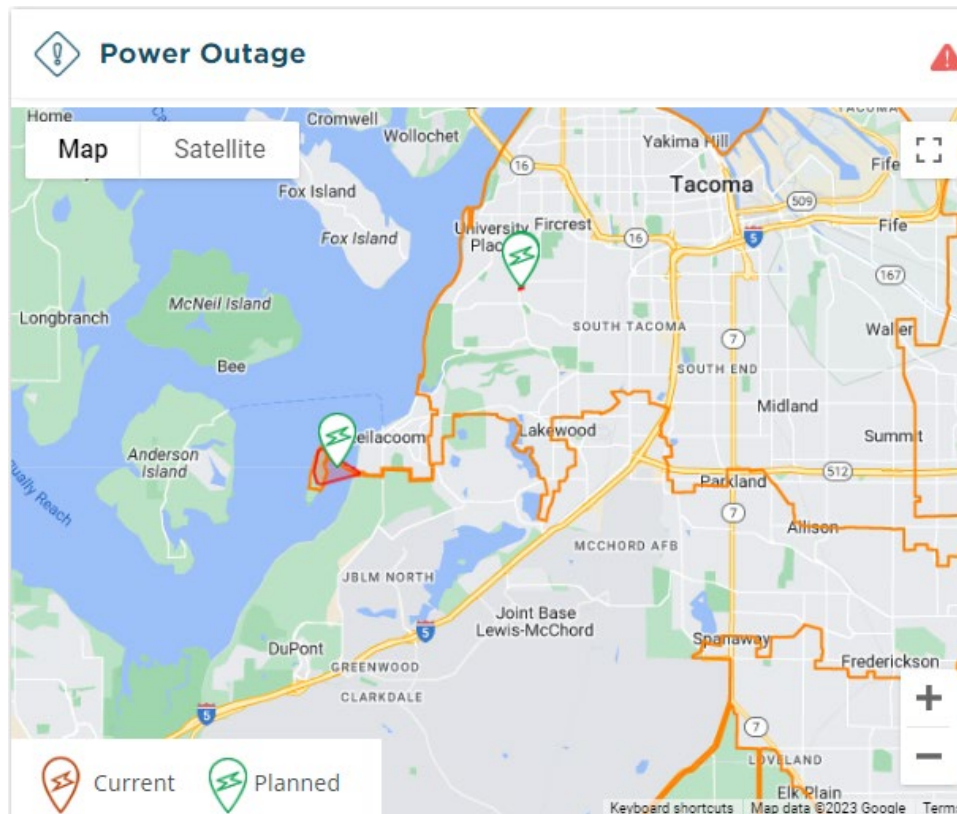


Smart Water Program



Utility Benefits of AMI Being Realized

AMI meters connected to Outage Management



Transformer Load Report

- AMI interval data to enable hourly analysis



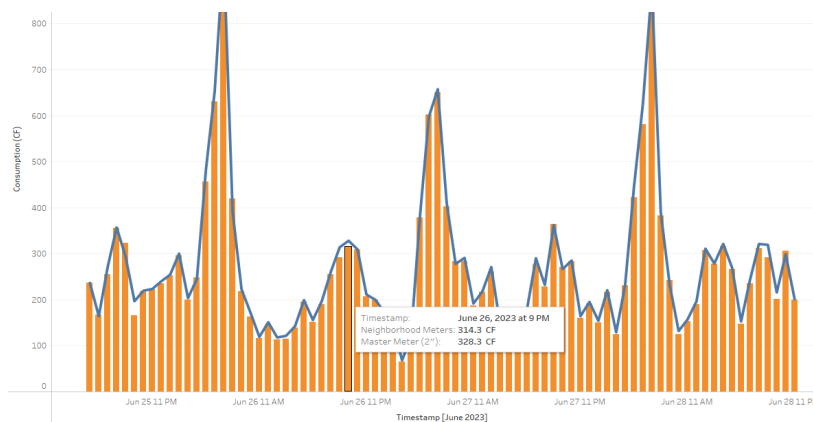
Utility Benefits of AMI Being Realized



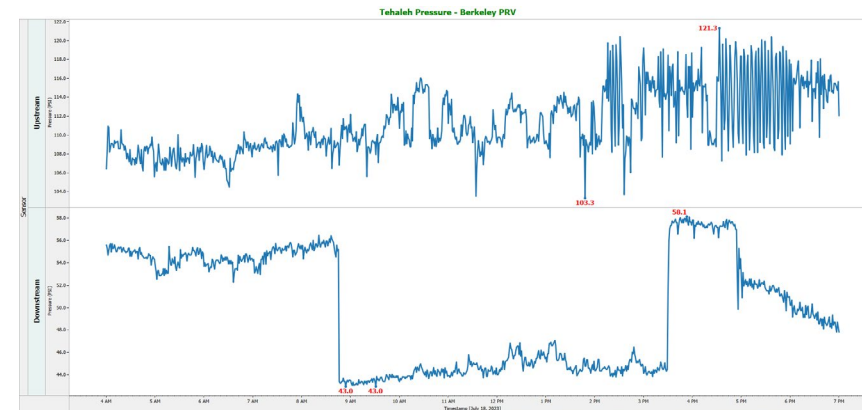
Preliminary near real-time AMI data dashboards are being utilized at Tacoma Water.

Water AMI & SmartWater

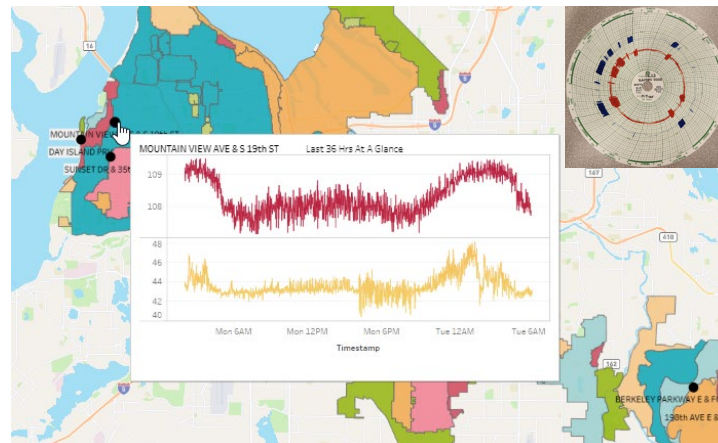
DMAs – Water Management by Area



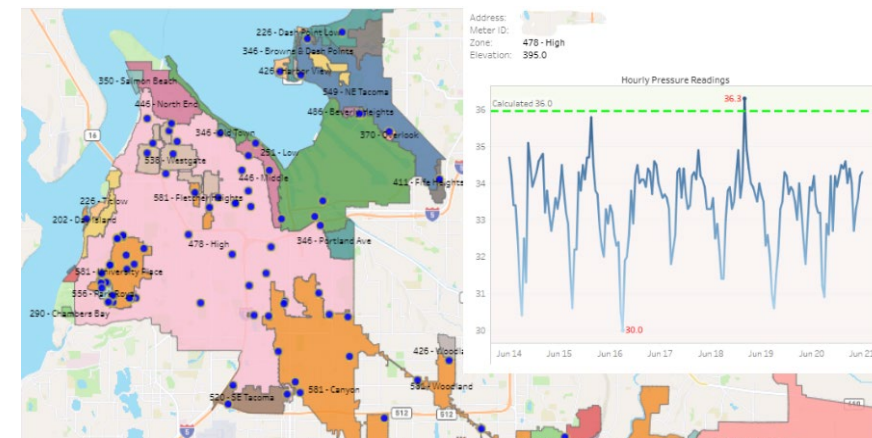
Operational Awareness – Field Staff



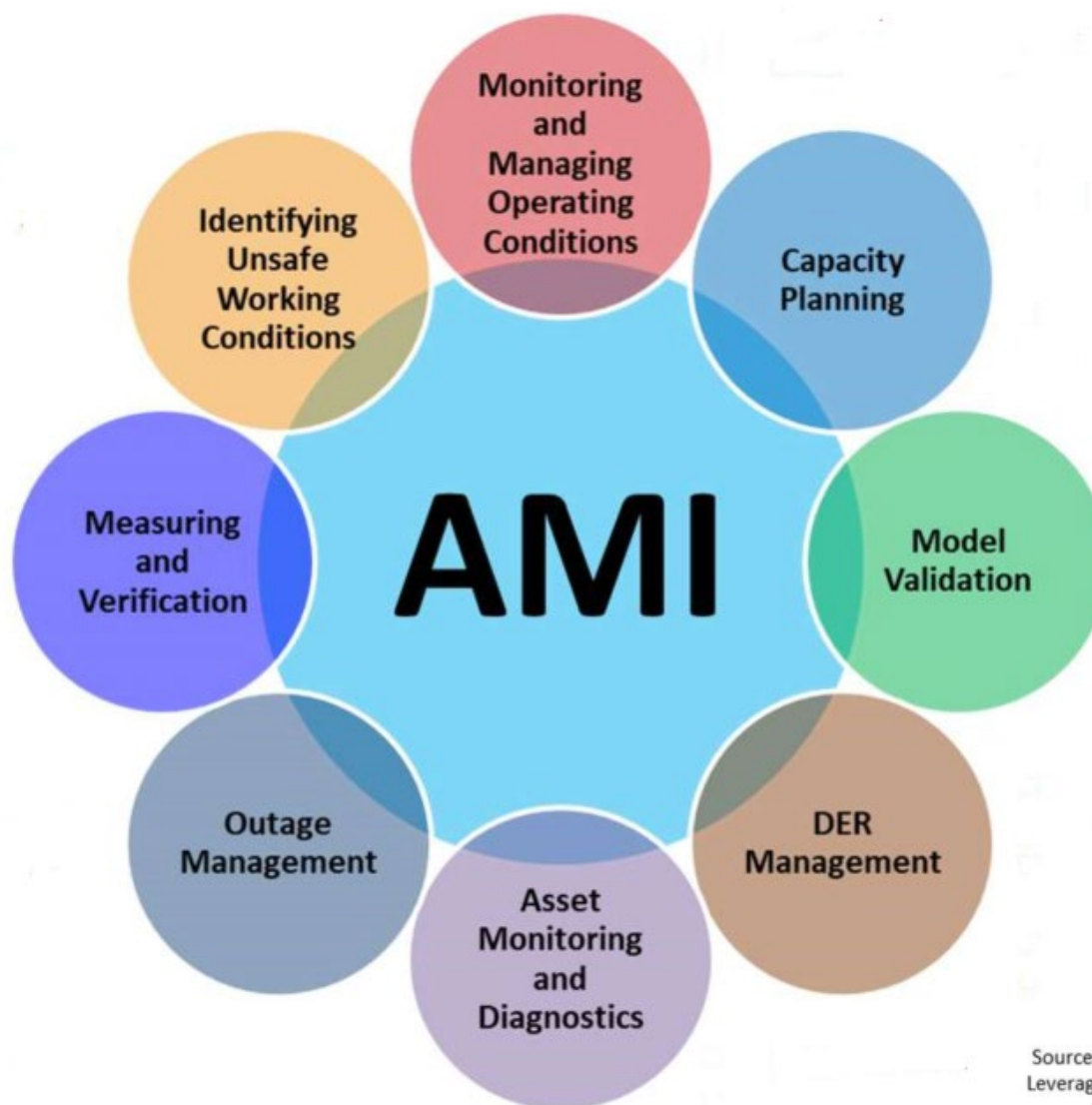
Asset Management (Pressure sensors)



System Planning & Modeling – Ally Meter



AMI in Relation to Grid Modernization



Source: Voices of Experience,
Leveraging AMI Networks and
Data, U.S. DOE

Additional Information

- MyTPU.org/AdvancedMeters
 - Installation Video
 - Deployment Map
 - Program Fact Sheets
 - Program Timeline
 - FAQs - Frequently Asked Questions
 - Public Process
 - Advanced Meter Policies

