



Advanced Metering Infrastructure (AMI) Program Update

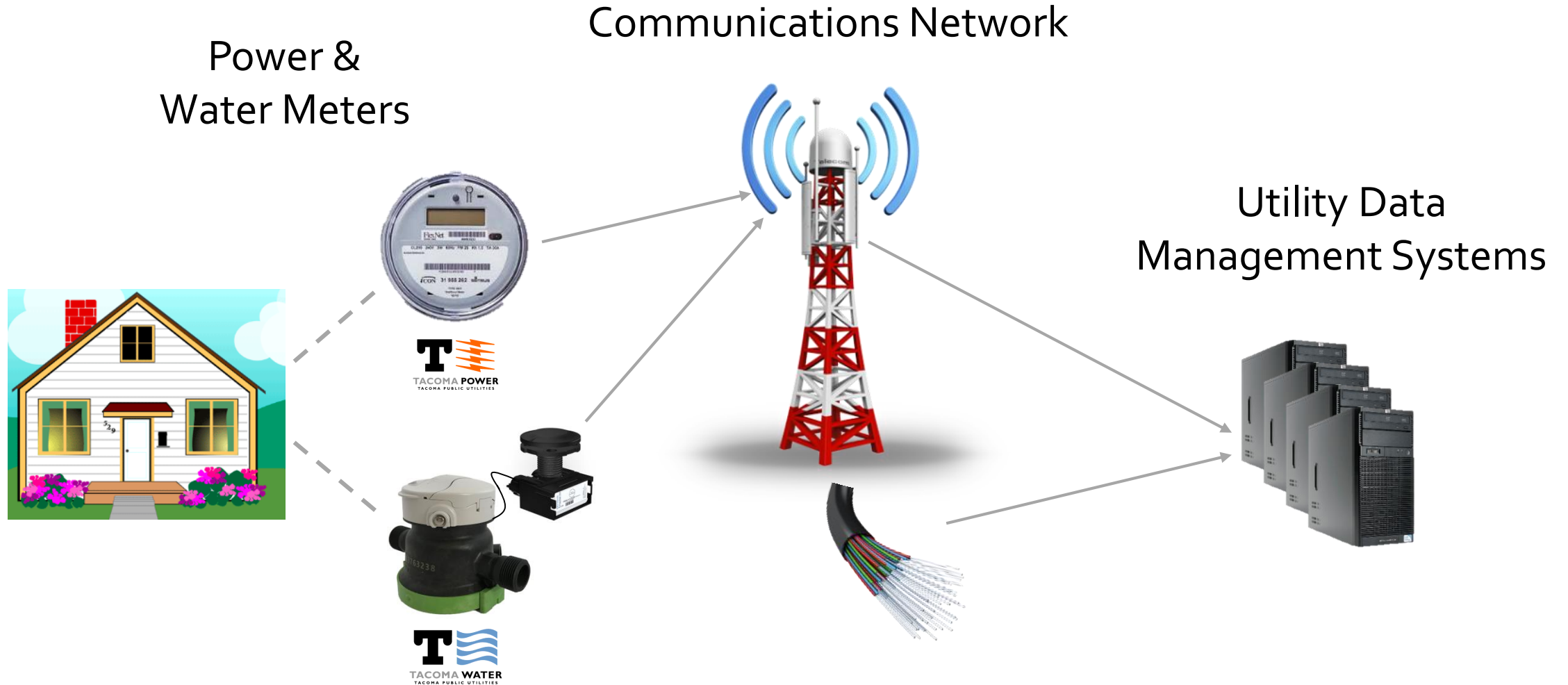
Public Utility Board
Study Session
February 26th, 2020



● ● ● Agenda

1. Program Update
 - Scope
 - Milestones
 - Schedule
 - Budget & 2020 Business Case Recalibration
2. Customer Benefits
 - Customer Benefits Timeline
 - Paperless Billing
3. Meter Deployment Readiness
 - Network and Meter Deployment
 - Communications
 - Policies

Advanced Meter Infrastructure



Program Scope

Infrastructure

- Installation of approximately:
 - 180,000 electric meters
 - 107,000 water meters & modules
- Installation of the Advanced Meter Communication Network, approximately:
 - 65 base stations (radio communication units)

Power & Water Meters



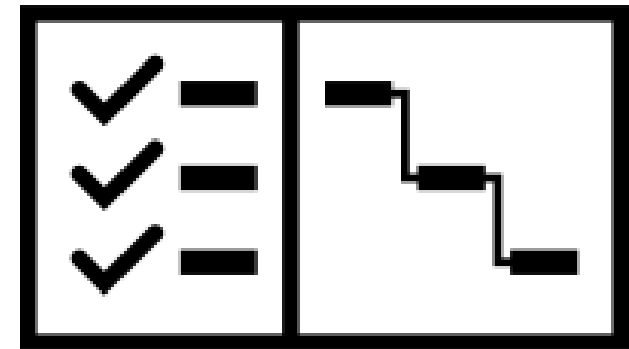
Base Stations



Program Scope

Software

- Utility Data Systems:
 - Advanced Meter System to SAP integration
 - Meter Data Management System (MDMS)
- Transition to monthly billing
- Deployment of a customer usage portal
- All applications and functionality associated with Phase 1 of the AMI roadmap



Major Milestones Accomplished

- ✓ Executed 4 Major Vendor Contracts (Approx. \$50M)
- ✓ Completed AMI Sandbox Implementation
- ✓ Developed 11 Business Process Documents (BPD)
- ✓ Built Out AMI Program Team
- System Integration and Network Deployment
- Customer, Staff, and Stakeholder Communications

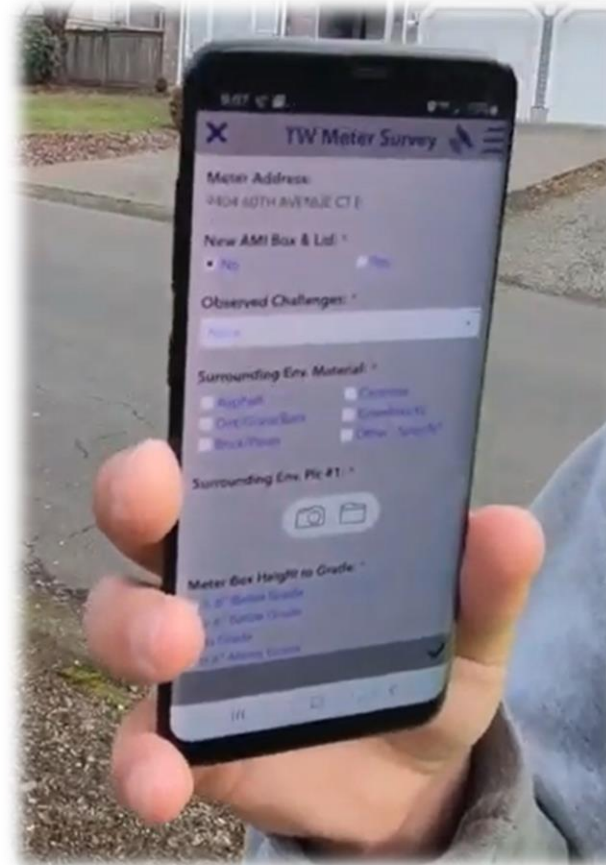
Electric Meter Farm

- Electric Meter Farm constructed by TPU staff:
 - Allows simultaneous testing of 21 meter types/forms in the AMI Sandbox.
- AMI “Sandbox”:
 - Simulates real world scenarios with meters, communications equipment, and software.

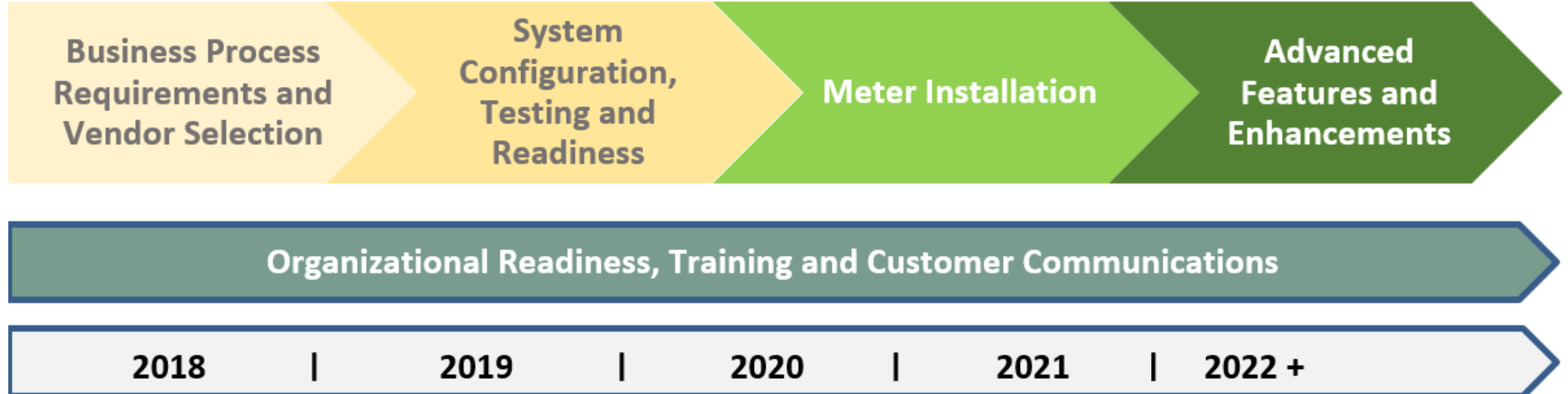


Water Meter Box Survey

- Field survey of all water meters
 - ArcGIS Survey123 built by TPU staff
- Expected Value:
 - Meter box replacement savings/efficiencies
 - Reduced deployment risk
 - Long term system knowledge
- Collected
 - Photos
 - Box information
 - Height information
 - Lid information
 - Vicinity details



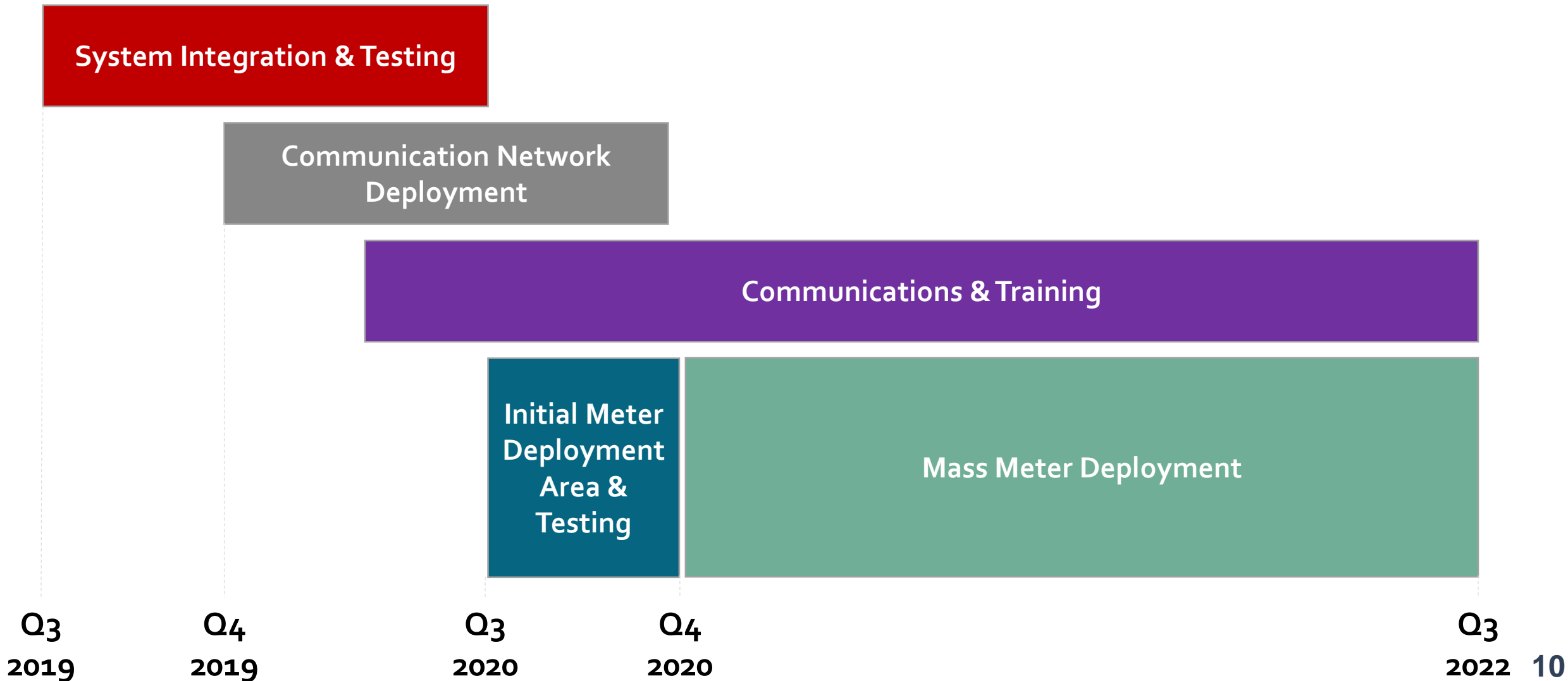
Program Timeline



Current Priorities:

- System Integration
- Network Deployment
- Meter Deployment Planning & Communications
- Policy Updates

Current Schedule



12 Month Look Ahead

Winter 2019-2020

- System Integration
- Utility Process and Policy Updates
- Network Deployment Begins
- Meter Deployment Planning

Spring 2020

- Technical System Testing
- Deployment Readiness and Communications

Summer 2020

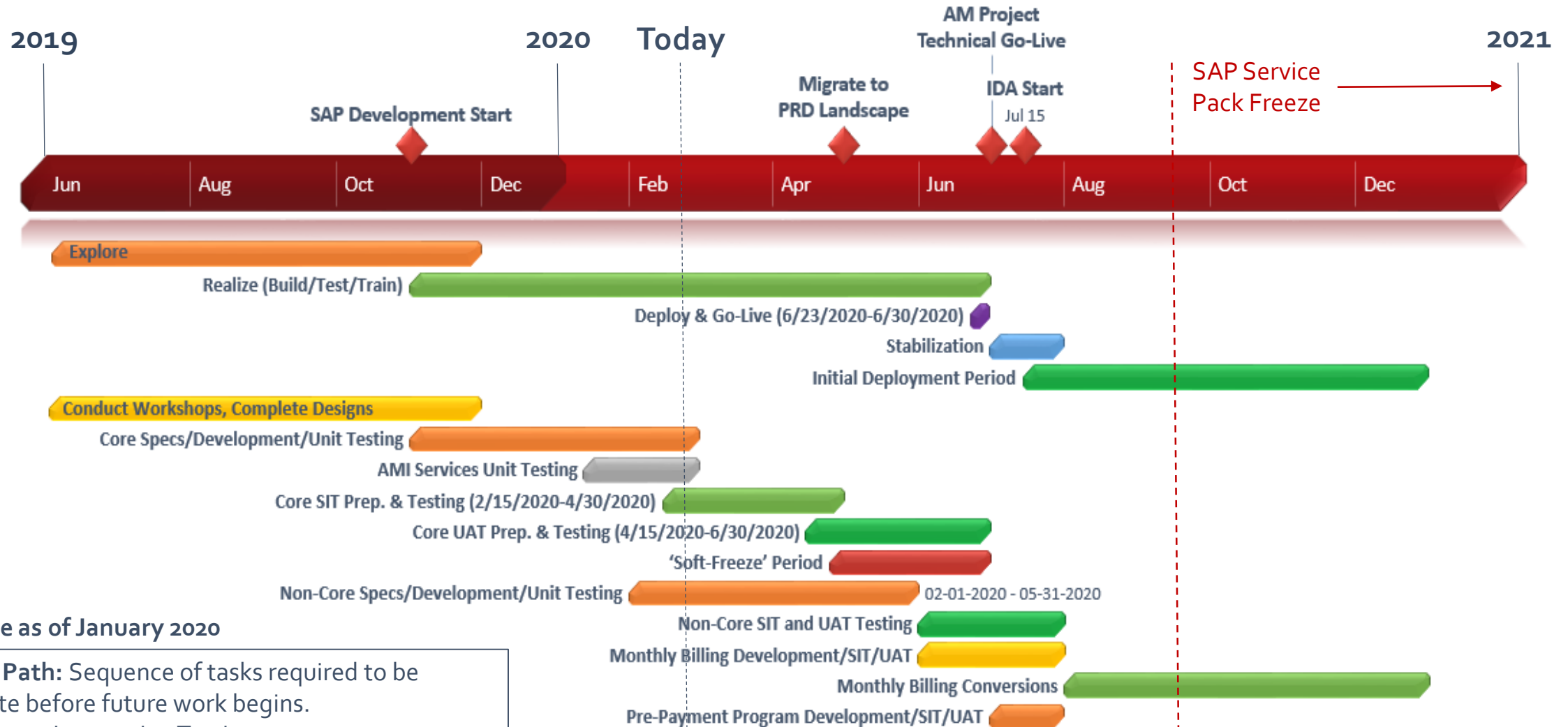
- Technical System Readiness and Training
- Mobilize Meter Installation Vendor

Fall 2020

- Advanced Meter Technical Go-Live
- Meter Deployment Begins



Schedule Critical Path



Schedule as of January 2020

Critical Path: Sequence of tasks required to be complete before future work begins.

SIT: System Integration Testing

UAT: User Acceptance Testing

Utility Modernization Strategy

Integrate technology & foster innovation to deliver affordable, flexible, secure, resilient, and sustainable power & water services for our customers

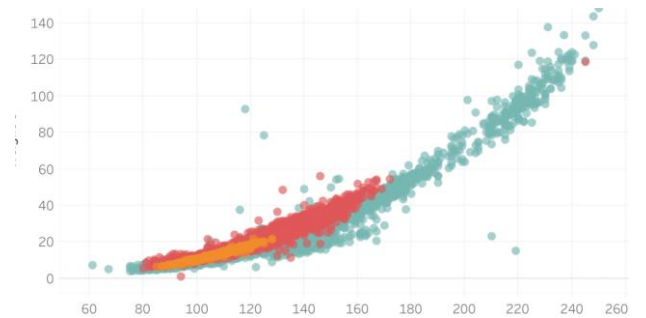
Advanced metering deployment



Customer digital engagement



Advanced data analytics



Mobile workforce mgmt.



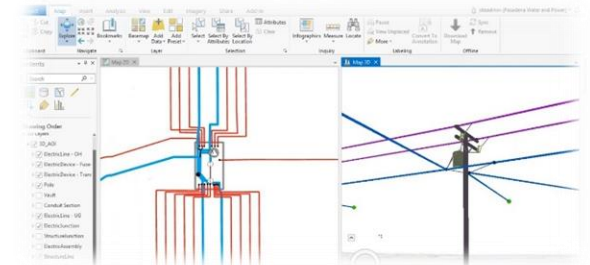
Cybersecurity maturity



Energy imbalance market



Geospatial systems



Customer Benefits Over Time:



Your Control, Choice, and Convenience

Access more usage data anytime to manage your use and costs.



Automated Meter Reading

More accurate, timely bills based on real-time data.



Monthly Billing

Advanced meters will allow a switch to monthly utility bills, which most people prefer.



Enhanced Personal Privacy

No need for regular physical access to read your meter.



Easier Move In, Out, and Reconnection

Remote turn on and off of electric service saves you time.



Expanded Ways to Save

Providing data about your use increases your ability to save money, water, and energy.



Faster Outage and Leak Detection

Locating and fixing issues helps us restore service to you sooner.



Flexible Payment Options

More options over time include prepay for electric service and custom due dates.



Improved Operational Efficiency

Better information about our systems helps us manage costs.



Reduced Environmental Impact

Fewer vehicle miles traveled for meter reading, basic field services, and outage detection lowers our carbon footprint.

Customer Benefits Timeline

2020



- Automated Meter Reading
- Enhanced Personal Privacy



- Easier Move In & Move Out
- Remote Reconnect/Disconnect for Electric



- Abnormal Consumption Notifications
- Emergency Water Leak Notifications

2021



- Monthly Billing



- Basic Prepay for Electric

2022



- Enhanced Customer Web Portal
- Expanded Ways to Save: AMI Data Available on Web Portal



- Enhanced Prepay Via Web Portal for Electric
- Choose Your Own Bill Date



- Enhanced Customer Outage Notifications

Advanced Meter Customer Benefits



Benefits Available As
Customers Receive
New Meters Over Time:
2020-2022

DRAFT: Revised 2/21/2020



Paperless Billing

Objectives, Opportunities, and Strategies



Paperless:

State of the Industry & TPU



- The average utility industry paperless billing adoption rate is 26% (2018).
- In the industry, 69% of customers pay their bill online (2018).
- 62% of TPU customers are registered for MyAccount (2020).
- 48.5% of TPU customers have made an online payment (2020).
- 16.9% of TPU customers are enrolled in auto-pay/ACH (2020).
- 14.7% of TPU customers are enrolled in paperless billing (2020).

Three Phased Plan

1. **Short-term:** Communications plan to all customers
 - Active and ongoing
 - General awareness, targeted MyAccount users, TPU employees
2. **Mid-term:** Customer Service direct-to-customer sign-up
 - Technical solution, cross-promote, ACH
3. **Long-term:** Advanced Meter/Customer Engagement Portal benefits implementation
 - Coincides with customer portal deployment

Short-term: Communications

Paperless Campaign



Conduct a general education & awareness campaign targeted at all customers.

Active and ongoing

DIGITAL

- MyTPU.org
- Email newsletter
- MyAccount
- Social media
- Digital lobby signage

PRINT

- Bill envelope
- Bill insert
- Bill message center
- U*

INCENTIVE

- Consider developing campaign with promotional giveaways throughout the year.



Less mail, more convenience

Sometimes less is more. When you enroll in paperless billing, we're talking about less mail and more convenience! Paperless billing is a great way to stay organized, reduce clutter around your home and gain access to your bill at any time and from anywhere. Ditching your paper bill doesn't mean you have to pay online, you can continue to use the payment method convenient to your life. Explore the benefits of paperless billing at [MyTPU.org/EBill](https://www.mytpu.org/EBill).

Short-term: Communications

Paperless Campaign



Enjoy the benefits of paperless billing



Paperless billing is a great way to stay organized, reduce clutter and gain access to your bill at any time and from anywhere.

24/7 convenience

Log into [MyAccount](#) on your smart phone, tablet, or computer to view your bill at any time, from anywhere.

Never miss your bill

Sign up to receive bill notifications via email. Email notifications includes your account number, the amount you owe, and the due date.

Secure your sensitive information

Keep your bill and payment information safely out of your mailbox. Our secure online platform, [MyAccount](#), protects your details.

The screenshot shows the Tacoma Public Utilities website with a dark blue header. The header contains the TPU logo, navigation links (About TPU, MyAccount, Contact, Careers), a search icon, and a language dropdown (ENGLISH). Below the header is a secondary navigation bar with links: PAYMENT & BILLING, OUTAGES & SAFETY, WAYS TO SAVE, COMMUNITY & ENVIRONMENT, and CUSTOMER SERVICE. The main content area features a large image of a woman smiling while holding a smartphone. Overlaid on this image is a white box with a green vertical bar on the left containing a large 'T' logo. The text inside the box reads: 'Sometimes, less is more. Less mail, more convenience.' followed by 'Stay organized, reduce clutter, and gain access to your bill any time and from anywhere.' and a button labeled 'EXPLORE THE BENEFITS OF PAPERLESS BILLING'.



MORE ORGANIZED

Paperless Billing



MORE ANSWERS

Paperless Billing



MORE CONVENIENT

Paperless Billing

● ● ● Paperless Campaign

Reach customers who are registered for MyAccount and pay their bill online but continue to receive a paper bill.

- Series of targeted emails and direct mail beginning in Q2 2020 that will last through the year and drive customers to complete a simple call to action.
- Targeted social media campaign

TPU employee customer campaign:

- Newslane
- UNet
- Consider running employee contest

● ● ● Paperless Campaign

Customer Service Representatives (CSRs) cross-sell verbally on phone with move-in and transfer customers.

- CSRs to promote and provide customers with step-by-step instructions.
- Also promote ACH payment.

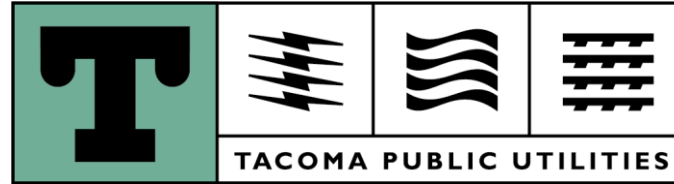
Customer Services pursuing technical solution in order to fix break between SAP and MyAccount.

- Fix allows CSRs to make change on behalf of customer.

Long-term: Advance Meter / Customer Engagement Portal



- User interface improvements overall in forthcoming Customer Engagement Portal will make it easier for customers to enroll.
- Future Customer Engagement Portal will be configured for “opt out” vs. “opt in” paperless billing settings.
- Future “Choose Your Own Bill Date” program could require signing up for paperless billing.



Budget & 2020 Business Case Recalibration



AMI Deployment Budget:

February 2020



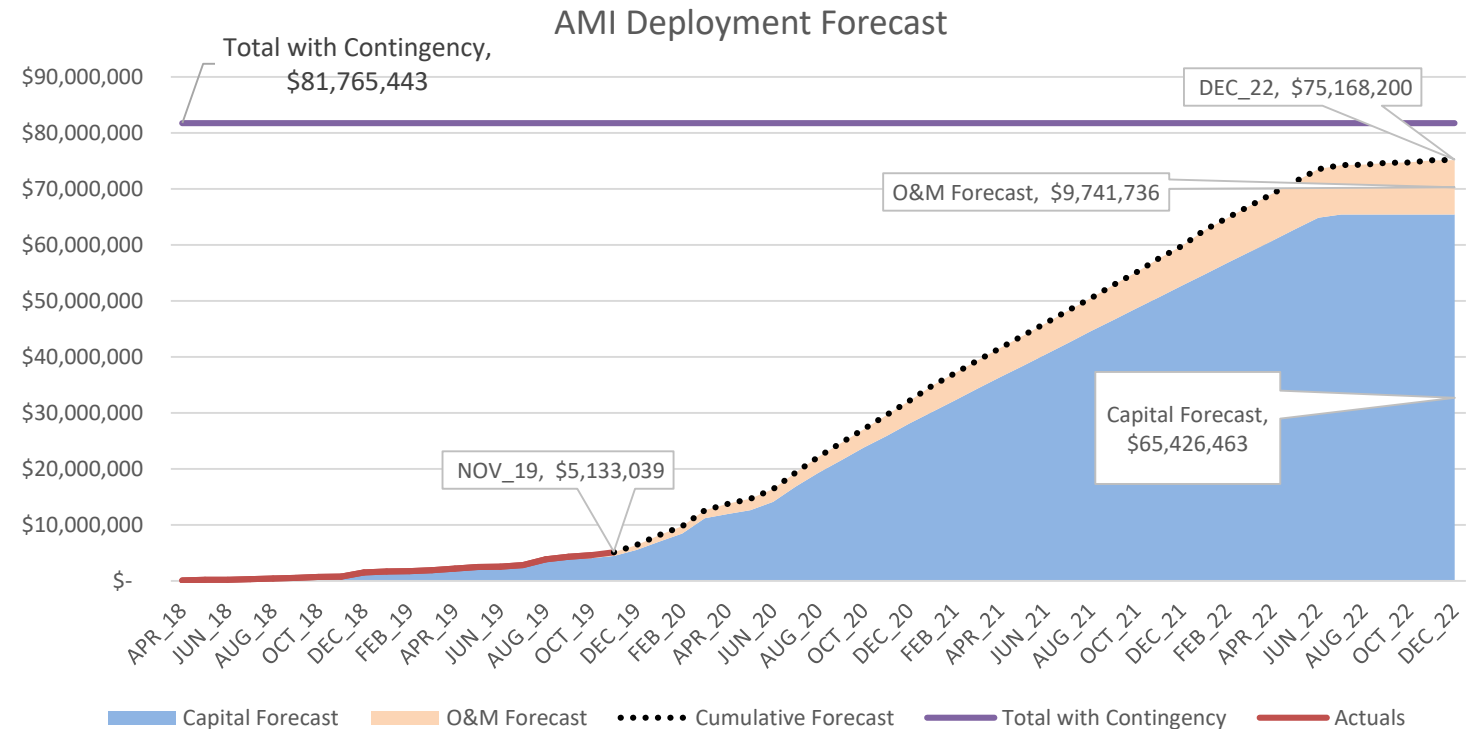
Category	Current Forecast ¹
Electric Meter Deployment	\$ 26,059,039
Water Meter Deployment ³	\$ 21,363,073
Communications Network Deployment	\$ 3,280,816
System Integration	\$ 8,891,422
Capital Internal Labor	\$ 2,043,167
Professional Services	\$ 3,788,946
Operations & Maintenance (O&M) Costs	\$ 9,491,736
Customer Engagement Portal	\$ 250,000
Projected Total	\$ 75,168,200
<i>Remaining Contingency</i>	<i>\$ 6,597,243</i>
Total With Contingency	\$ 81,765,443

Internal Support Costs² **\$ 11,965,413**

¹Actual costs through November 2019.

²Does not incrementally impact rates.

³Complimentary budget for replacing water meters deemed at end of life is budgeted within the Water Division.



Internal Support Costs not included in graph.

AMI Deployment Budget:

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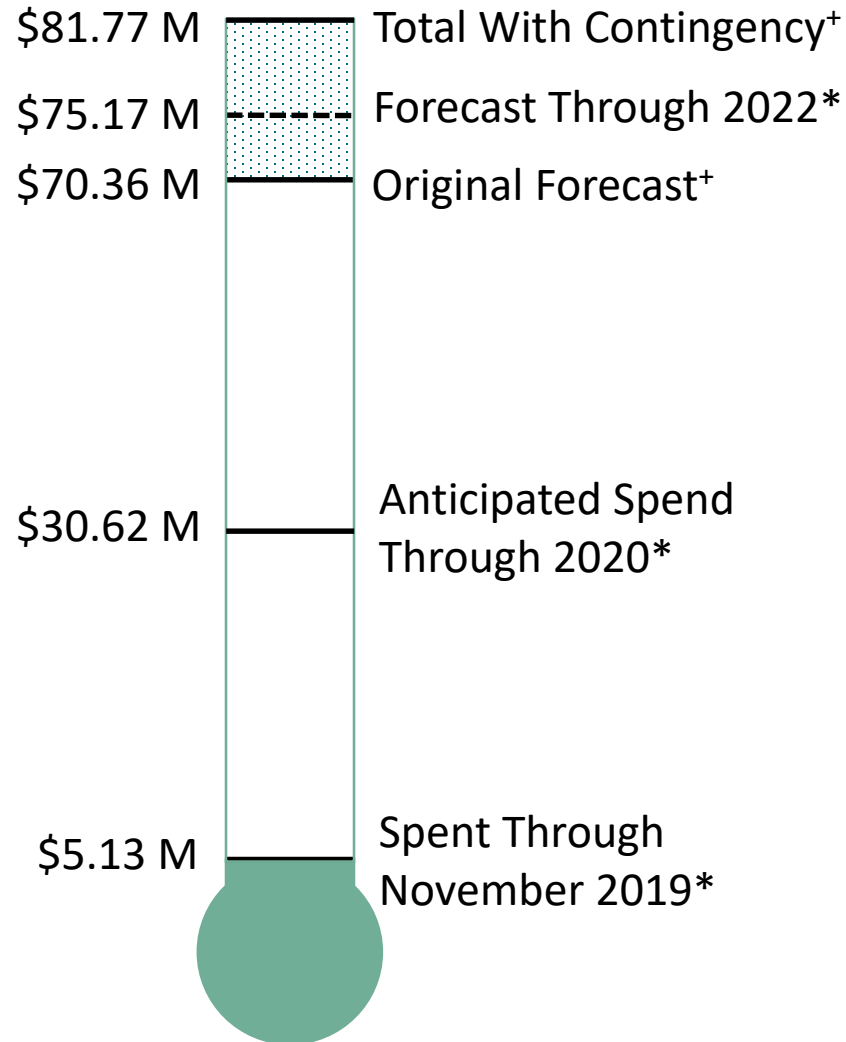
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- Total with contingency is the cost forecasted in the February 2019 Business Case for the AMI Deployment period, 2018-2022.
- Budget tracking ties directly to the February 2019 Business Case forecast for the 2018-2022 AMI Deployment period.
- The AMI business case financial analysis only considers incremental costs to TPU:
 - Costs that incrementally impact customer rates
 - Consistent with industry practice for AMI business cases
- Internal Support Costs do not incrementally impact customer rates due to AMI, and include:
 - Capitalized administrative and general (A&G) overhead costs
 - Existing utility staff working on the AMI program (existing costs to TPU)

AMI Deployment Budget:

February 2020



Contingency	Amount*
Original Contingency ⁺	\$11.41 M
Allocated Contingency	\$4.81 M
Remaining Contingency	\$6.60 M

AMI Program Workstream	Percent Complete*
Vendor Procurement	90%
System Integration	40%
Communication Network Deployment	5%
Electric Meter Deployment	0%
Water Meter Deployment	0%
Communications	10%
Overall	20%

*Updated February 2020, actuals through November 2019.

⁺February 2019 AMI Business Case Values for the period 2018-2022.

Draft Summary:



2020 Business Case Recalibration

- Updated AMI Return on Investment (NPV) Costs are based on the following:
 - Incremental costs to TPU
 - Contracted vendor pricing
 - Detailed, projected program costs
 - Transition to monthly billing
 - Recalibrated business case benefits
 - Carbon as a soft benefit

Description	Draft 2020 Business Case NPV
Capital Expenses	\$(60.58 M)
O&M Expenses	\$(25.18 M)
Electric Benefits	\$69.61 M
Water Benefits	\$30.60 M
NPV w/o Contingency	\$14.45 M
Remaining Contingency	\$(6.04 M)
NPV w/ Contingency	\$8.41 M



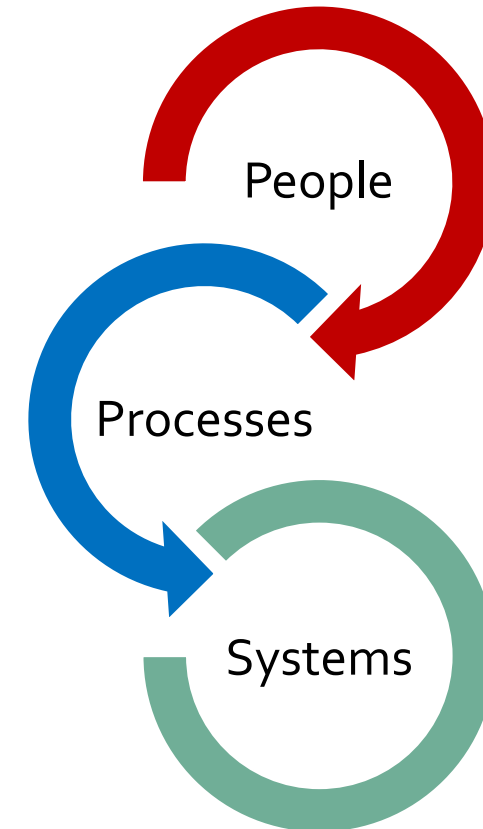
Meter Deployment Readiness

Network & Meter Deployment,
Communications, and Policies



Meter Deployment Readiness

- Learn from industry and neighboring utility experiences
- Understand areas of strength and risk before beginning deployment
- Readiness Scorecard
 - TPU Readiness
 - Program Readiness
 - Technical Readiness
 - Communications Readiness

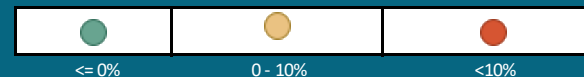


Advanced Meter Program

DRAFT Deployment Readiness Scorecard

Overall Forecast								Notes
	Metric	Expected	Actual	Expected Date	Trend	Delta	Health	
Program					↔		●	
1. TPU Readiness								
1.1 System Training	Training Classes	15	0	8/1/20	↔	15	●	Technical training on new and changed systems
1.2 Business Process Training	Training Classes	5	0	8/1/20	↔	5	●	End-to-end training on new processes
1.3 NOC/SOC Operational	Confirmed	1	0	11/1/20	↔	1	●	End-to-end training on new processes
2. Program Readiness								
2.1 MIV vendor ready	MIV Checklist 100%	1	0	11/1/20	↔	1	●	Summary of separate MIV Readiness Scorecard
2.2 All vendors ready for support through program/maintenance operations	Vendor PM Confirmation	4	0	11/1/20	↔	4	●	Contracts in place and personnel ready
2.3 Green light from all workstream managers	TPU PM Confirmation	3	0	11/1/20	↔	3	●	BTC, SI, Ops
2.4 Worst case mitigation options identified	Plan Approved	1	0	11/1/20	↔	1	●	Mass Deployment Contingency Plan Approved
2.5 BAC/ESC endorsement	Endorsed	1	0	11/1/20	↔	1	●	BAC/ESC briefed and received endorsement to start
3. Technical Readiness								
3.1 Residential Meters in Stock	Quantity of Meters	5,000	0	11/1/20	↔	5,000	●	Adequate stock on hand per meter shop
3.2 Water Modules in Stock	Quantity of Modules	5,000	0	11/1/20	↔	5,000	●	Adequate stock on hand per meter shop
3.3 C&I Meters in Stock	Quantity of Meters	5,000	0	11/1/20	↔	5,000	●	Adequate stock on hand per meter shop
3.4 Network deployment completed minimum 60 days ahead	Days ahead	60	30	11/1/20	↔	30	●	Network deployed ahead of planned routes
3.5 Technical Go-Live Achieved	Sign off	2	0	8/1/20	↔	2	●	SIT and UAT completed
3.6 IDA Test - No Priority 1 or 2 issues open	Issues Open	0	0	11/1/20	↔	0	●	No billing or operations issues; high performance
3.7 IDA Test - Resolution plan in place for Priority 3 and below issues	Plan Approved	1	0	11/1/20	↔	1	●	No issues that affect customer perception
4. Communications Readiness								
4.1 Customers on starting meter routes notified, per plan	Confirmed	1	0	11/1/20	↔	1	●	Customer communications on track
4.2 Internal TPU communications completed, per plan	Confirmed	1	0	11/1/20	↔	1	●	Internal TPU team briefed and aware
4.3 Customer support ready	Training Sessions	8	0	11/1/20	↔	8	●	CSR's trained and ready for AM related issues
4.4 Door hangers and MIV communications collateral is printed	Confirmed	1	0	11/1/20	↔	1	●	MIV Customer Phone Center ready (multi-lingual).

Key for Delta %:



DRAFT: 2/21/2020

Deployment

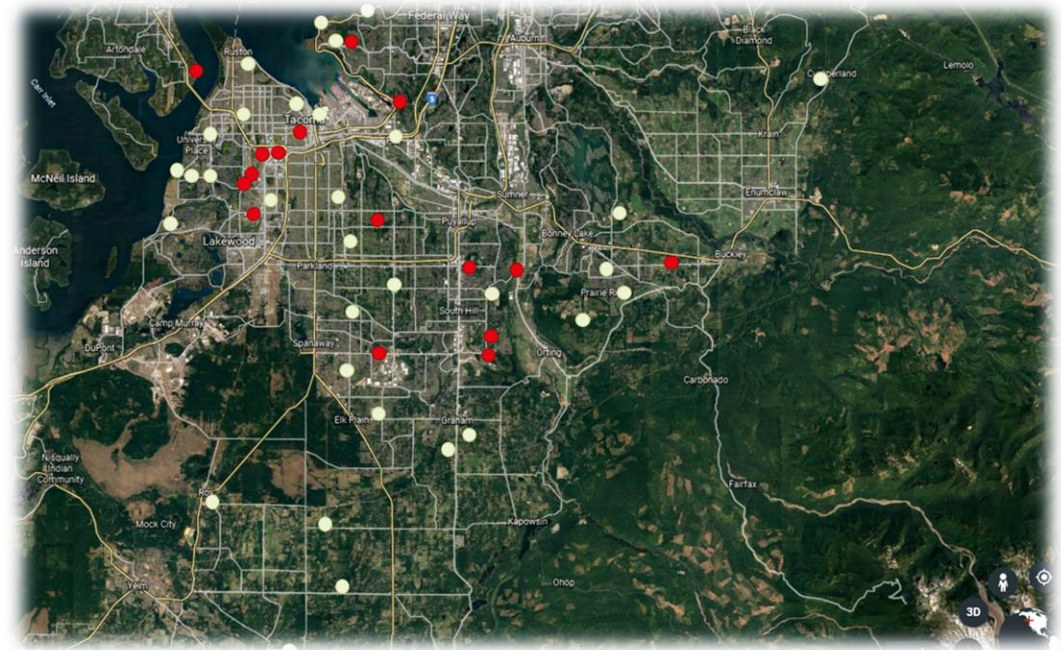
Deployment team will consist of:

- Internal TPU Staff from:
 - Power Transmission & Distribution
 - Power Meter Shop
 - Water Meter Shop
- Project of Limited Duration Staff
- Meter Installation Vendor (MIV): Tribus

At full speed, the team will install up to (approximately):

- 1,000 electric meters/day
- 300 water meters/day

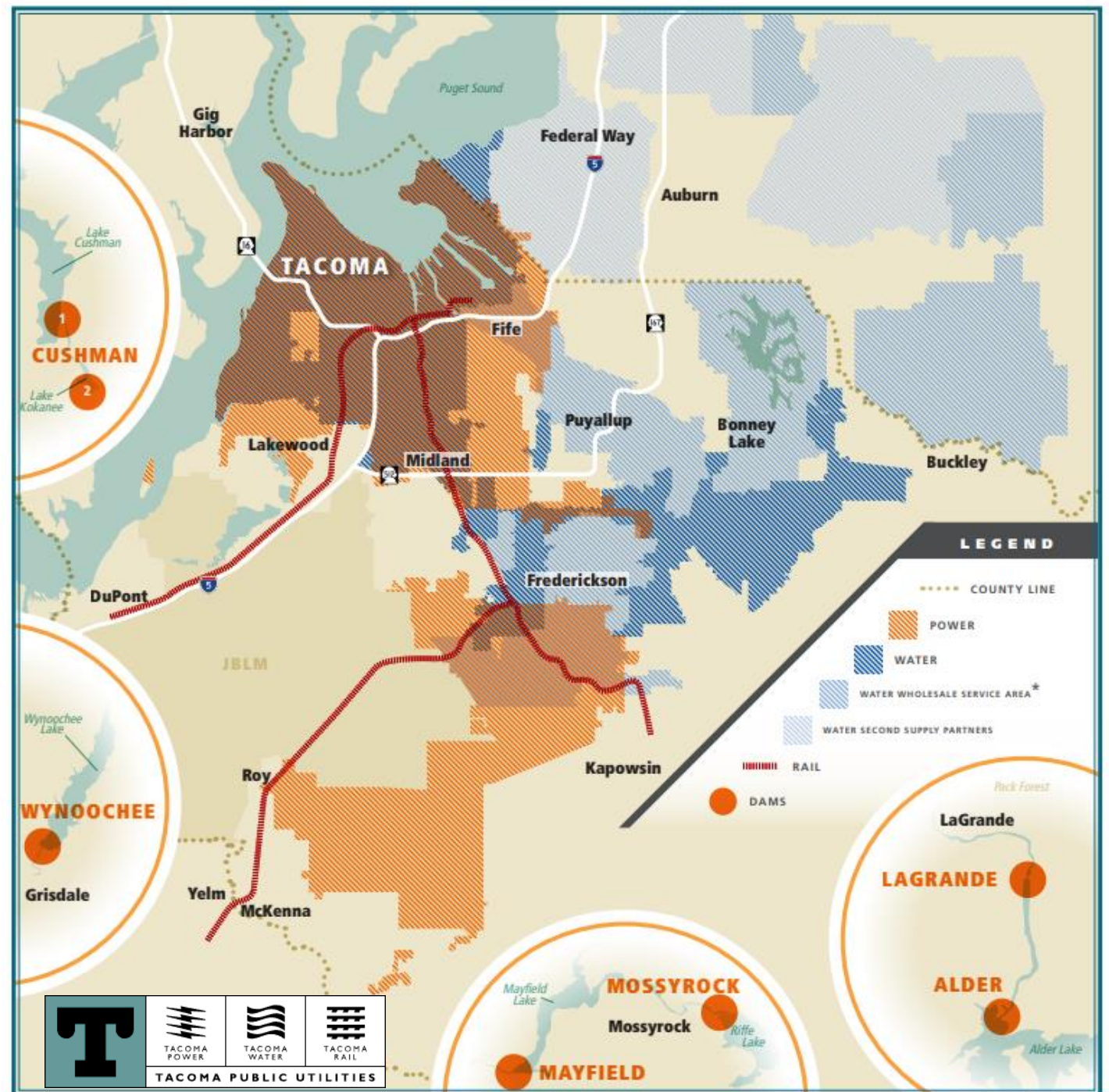
Draft Communication Network Locations



Red: Existing Pole/Structure
White: New Pole/Structure

Tacoma Public Utilities:

- Power
 - 180,000 meters
 - 170,000 residential
 - 10,000 commercial & industrial
 - 180 mi² of service area
- Water
 - 107,000 meters
 - 102,000 residential
 - 5,000 commercial & industrial
 - 117 mi² of service area
- Communication Network
 - Approx. 65 base stations



● ● ● Meter Deployment Approach

Residential Meters: Primarily Meter Installation Vendor (MIV)

Commercial & Industrial (C&I) Meters: Primarily TPU Meter Shop Staff

- Considerations:
 - Safety for C&I installations
 - System knowledge and potential service interruptions
 - Meter shop capacity
 - Utilizing TPU staff before MIV contractor
- Blended Approach for Risk Mitigation
 - Utilizing MIV resources as required and when needed, beyond TPU meter shop capacity
 - Reviewing and including union representatives in planning

Communications Network: Primarily Contractors

● ● ● Meter Installation Vendor (MIV)

- Selected Tribus Services through competitive RFP process
 - 5 firms submitted and 3 interviewed
 - Bid price: Approx. \$12.5 M
- Status: Contract awarded and in negotiations
- Scope Includes:
 - Residential electric meter installs
 - Residential water meter installs
 - Field data collection
 - Targeted customer communication
 - Meter reading services



Customer Communications

TACOMA PUBLIC UTILITIES Advanced Meter Project

The Tacoma Public Utilities (TPU) Advanced Meter Project will provide you with greater control, choice, and convenience. Starting in mid 2020, TPU will begin upgrades to its electric and water meters with modern digital technology that brings many new customer benefits over time, including monthly billing, remote electric service reconnection, more options to control your costs, improved reliability through faster outage and leak detection, and more flexible payment options in a safe and secure way.

TPU has been a trusted service provider in the region for more than 125 years and will continue to provide you with the reliable, affordable, and environmentally-responsible service you expect by replacing and upgrading aging meters. With technology that is used in more than 75 million households nationwide, the advanced meter project enables a shift to a modern digital utility, making operations more efficient and helping the environment through reduced carbon emissions.

Your benefits over time

 Your Control, Choice, and Convenience Access more usage data anytime to manage your use and costs.	 Automated Meter Reading More accurate, timely bills based on real-time data.
 Monthly Billing Advanced meters will allow a switch to monthly utility bills, which most people prefer.	 Enhanced Personal Privacy No need for regular physical access to read your meter.
 Easier Move In, Out, and Reconnection Remote turn on and off of electric service saves you time.	 Expanded Ways to Save Providing data about your use increases your ability to save money, water, and energy.
 Faster Outage and Leak Detection Locating and fixing issues helps us restore service to you sooner.	 Flexible Payment Options More options over time include prepay for electric service and custom due dates.
 Improved Operational Efficiency Better information about our systems helps us manage costs.	 Reduced Environmental Impact Fewer vehicle miles traveled for meter reading, basic field services, and outage detection lowers our carbon footprint.

MyTPU.org/AdvancedMeters



TACOMA PUBLIC UTILITIES

Facts about Advanced Meters and Radio Frequency Emissions

Your concerns about radio frequency (RF) emissions are important. The intent of the information below is to help you better understand advanced meters and provide reassurance about the health and safety questions often associated with them.

How do advanced meters work?

Advanced meters measure your usage throughout the day, just like your current meter. The meters transmit data via RF to us up to twenty-four times per day. The meters emit RF only when they transmit data, which is typically less than one minute per day.

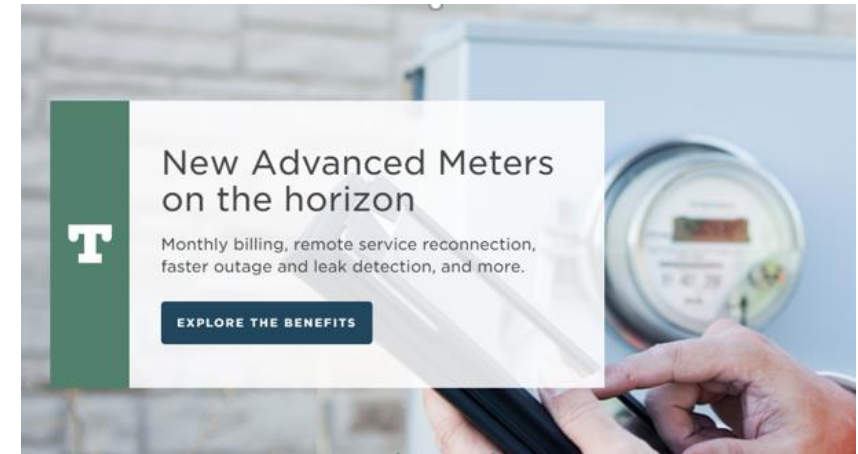


Scientific Research about Advanced Meters and Health

- A study by Washington State University determined the amount of energy absorbed from advanced meter radio frequency is substantially less than the Federal Communications Commission (FCC) safety guidelines, even when a person stands close to a meter.

continued on reverse >

MyTPU.org/AdvancedMeters



PAYMENT & BILLING OUTAGES & SAFETY WAYS TO SAVE COMMUNITY & ENVIRONMENT CUSTOMER SERVICE

Community & Environment > Projects > Advanced Meters > Public Process

Public Process

Advanced Meter Public Process

We host several outreach events to provide an opportunity for members of the community to learn more about the Advanced Meter project.

Public Utility Board Meetings

[View agendas and minutes from the Public Utility Board Meetings online.](#)

Neighborhood Council Meetings

- April 10, 5:30 p.m. - New Tacoma Neighborhood Council - Tacoma Municipal Building
- May 2, 7 p.m. - Central Neighborhood Council - Tacoma Nature Center
- June 3, 6 p.m. - North End Neighborhood Council
- June 17, 7 p.m. - South End Neighborhood Council
- June 19, 6:30 p.m. - South Tacoma Neighborhood Council
- June 20, 6 p.m. - Northeast Neighborhood Council

Customer communications
before, during, and after meter installation.

Deployment Customer

Communications Plan - *DRAFT*



General Awareness	Initial Deployment Area	Residential Deployment	Commercial Deployment
Web Content - Constant	Open House Invite - Letter	45, 30, 14 Days - Install Letter	90 Days - Meeting with Account Executive
Web Banner Ads	45, 30, 14 Days - Install Letter	7 Days - Install Reminder Postcard	60 Days - Install Letter
U* Article, Jan 2020 issue	7 Days - Install Reminder Postcard	2 Days - Auto Dial Call (from MIV)	35 Days - Install Letter Reminder
Tacoma T-Town Expo	2 Days - Auto Dial Call (TBD)	Completed Door Hanger	14 Days - Reminder From Account Executive
E-newsletter	Completed Door Hanger		2 Days - Reminder From Account Executive
U*Articles, July & Sept 2020 Issues			
Bill Insert July/Aug 2020			
Bill Insert Sept/Oct 2020			
Community Outreach			
Social Media			

5 specific customer communications **before** meter installation.

Employee Communications



Advanced Meter Milestone: Water Meter Survey

MyTPUtube



[« back to cover page](#)

Advanced Meter Open House, Dec. 12

Presentations will be held in the Auditorium at three separate times that day:

- 7 a.m. to 8 a.m.
- 10:30 a.m. to noon
- 3 p.m. to 4:30 p.m.

The team will provide a project update, talk about how advanced meters benefit both our customers and TPU, and answer questions from attendees.

There will also be an open house that day in ABN-G1 from 11 a.m. to 2 p.m. Electric and water meters will be available for you to view, and you'll be able to see highlights of our new meter data management system.

TACOMA PUBLIC UTILITIES

DEC. 12

Join us at the Advanced Meter Open House

Wondering about our advanced meters? Heard of our utility modernization strategy? Overheard people say "sandbox," and "base station" or the acronyms, "AMI," "MDM" or "MIV," but are unfamiliar with their meanings?

Attend one of our three presentations to:

- Get a project update.
- Learn how advanced meters benefit both our customers and TPU.
- Ask questions.
- Enjoy light refreshments.

PRESENTATION TIMES: 7a.m.-8a.m. | 10:30a.m.-noon | 3p.m.-4:30p.m.

PLACE: Auditorium

Open to all employees (please confirm attendance with your supervisor beforehand). In case you can't attend, we will film and post the presentation on [YouTube.com/MyTPUtube](https://www.youtube.com/MyTPUtube).

OPEN HOUSE: 11a.m.-2p.m.

PLACE: ABN-G1

Stop by to:

- View our electric and water meters from Sensus.
- Meet the staff and vendors helping us integrate our new advanced meters with SAP.
- See highlights of our new meter data management system.



[MyTPU.org/AdvancedMeters](https://www.mypu.org/AdvancedMeters)

rev. 3/27/19



Training



Prepare Employees to Succeed!

- Enhance speed of adoption
- Training delivered at the right time
- Leverage department experts
- Reinforced with self-help and self-paced/computer-based learning
- Evaluate readiness and close gaps
- Track Progress

●●● Policies

- Comprehensive TPU policy review, comparing AMI process changes with existing policies:
 - Power Customer Service Policy
 - Water Customer Service Policy
 - Customer Services Customer Service Policy
 - Tacoma Municipal Code (Ch. 12)
- Identifying policy changes, and preparing proposal packages:
 - Package 1: Spring 2020 (Prior to Initial Deployment Area)
 - Package 2: Fall 2020 (Prior to Mass Deployment)
 - Package 3: Fall 2022 (After Mass Deployment)



●●● Policies

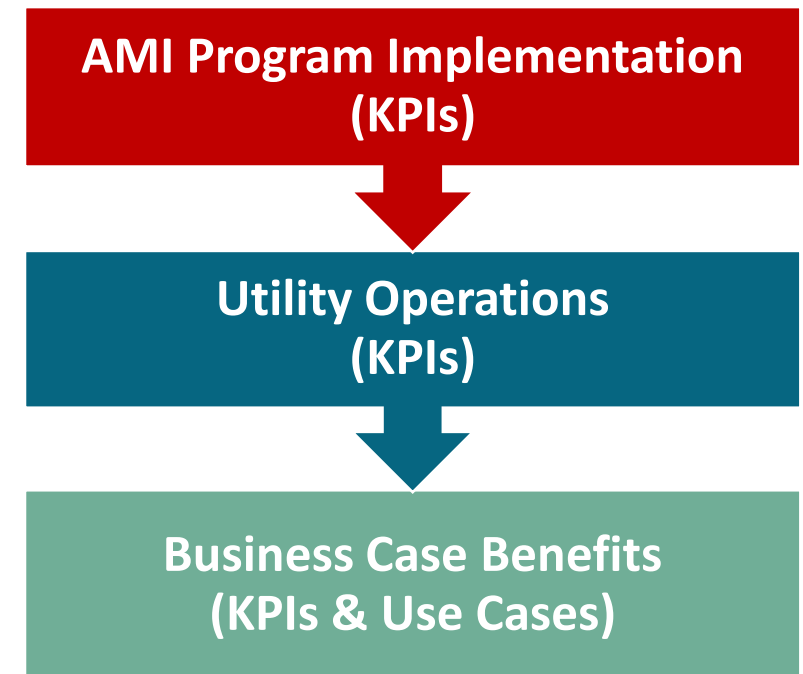
- Significant Policy Impact Areas (Draft):
 - Prepay
 - Monthly Billing
 - Opt-Out
 - Virtual Water Disconnects
 - Fees
 - Service Disconnect and Dunning (Credit) Reconnects
 - Leak Adjustments
 - Summer/Winter Water Proration
 - Mass Deployment Customer Side Repairs
 - Customer Privacy Policy



Benefits Realization

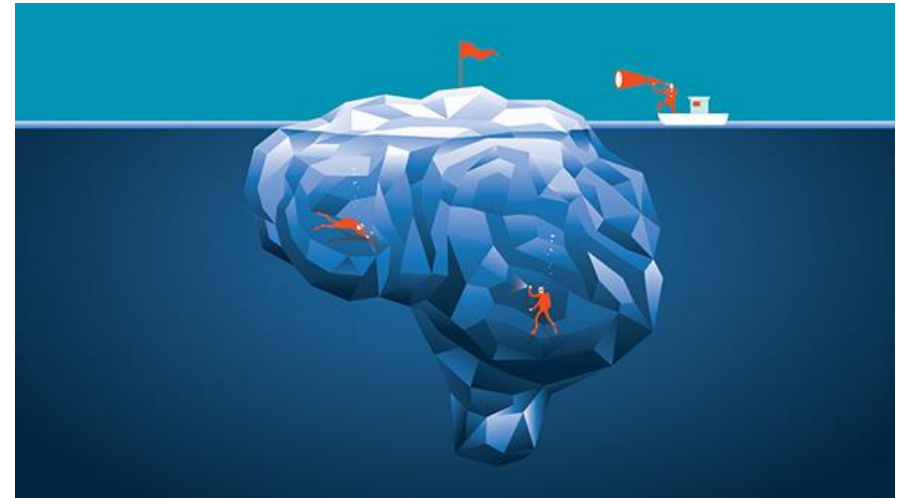
- Customer Focus
 - Increasing customer expectations
 - Overarching modernization strategy
- Strategic Benefits Realization Model
 - Deliver promised project benefits
 - Align to utility board directives
 - Measuring provides opportunity for growth
 - Key Performance Indicators (KPIs)

Benefits Realization Model



Future Deep Dive Topics

- Customer Experience
- Customer Communications
- Policies
- Opt-Out Review
- Initial Meter Deployment Area
- Mass Meter Deployment
- AMI Operations





Questions?

MyTPU.org/AdvancedMeters





Reference Slides



Comparison to Previous AMI Deployment Forecast



Category	Forecast: February 2019 Business Case	Current Forecast: February 2020 ¹	Change	Note
Electric Meter Deployment	\$ 28,819,794	\$ 26,059,039	\$ 2,760,755	
Water Meter Deployment ²	\$ 21,570,693	\$ 21,363,073	\$ 207,620	
Communications Network Deployment	\$ 1,688,525	\$ 3,280,816	\$ (1,592,291)	
Purchasing	\$ 240,000	\$ -	\$ 240,000	Category no longer tracked
System Integration	\$ 7,694,758	\$ 8,891,422	\$ (1,196,664)	
Capital Internal Labor	\$ 5,430,652	\$ 2,043,167	\$ 3,387,485	Category previously labeled as Planning, and included Professional Services
Professional Services	\$ -	\$ 3,788,946	\$ (3,788,946)	New Category, costs previously tracked within Planning category
Operations & Maintenance (O&M) Costs	\$ 4,910,416	\$ 9,491,736	\$ (4,581,320)	Category includes deployment and operations costs
Customer Engagement Portal	\$ -	\$ 250,000	\$ (250,000)	New category for AMI specific portal requirements
Projected Total	\$ 70,354,838	\$ 75,168,200	\$ (4,813,362)	
<i>Remaining Contingency</i>	<i>\$ 11,410,605</i>	<i>\$ 6,597,243</i>	<i>\$ (4,813,362)</i>	Allocated contingency
Total With Contingency	\$ 81,765,443	\$ 81,765,443	\$ -	

¹Actual costs through November 2019.

²Complimentary budget for replacing water meters deemed at end of life is budgeted within the Water Division.

Advanced Meters Customer Benefits Roadmap

Updated February 2020

Customer Benefits Key

Reliability & Resiliency

Billing & Payment

Convenience



Phase 1 Functionality

To be completed by mid 2022

- 1. Basic meter to bill
- 2. Basic meter data reporting
- 3. Monthly billing
- 4. Customer meter options policy
- 5. Support for basic manual prepay process

- 1. Enhanced customer portal
- 2. Consumption data available via new portal
- 3. Enhanced outage notifications
- 4. Abnormal consumption notifications
- 5. Emergency water leak notifications

- 1. Remote meter reading
- 2. Remote disconnect/reconnect for power
- 3. Automated service order creation

Phase 1 Dependencies

- 1. Deploy AMI Network & Meters
- 2. SAP Integration
- 3. MDMS Implementation
- 4. New Customer Portal Deployment & Integration
- 5. New SAP Functionality for Fees

Phase 2 Functionality

To be completed between 2021 and 2023

- 1. Enhanced prepay functionality (via portal)

- 1. Asset analytics use cases
- 2. Engineering analysis & systems planning
- 3. Enhanced voltage monitoring
- 4. Revenue protection

Phase 2 Dependencies

- 1. Data Lake Integration
- 2. webMethods ESB Integrations
- 3. AMI Stabilization Work

Enabled Functionality

*Features enabled by AMI but not in program scope
To be prioritized after 2023*

- 1. New real-time rate models
- 2. Support for multi-service prepay (water, sewer, trash)

- 1. Enhanced SAP contact center tools via CIC upgrade
- 2. Enhanced demand & load forecasting
- 3. Enhanced grid & outage mgmt. operations
- 4. Distribution automation
- 5. Smart water capability
- 6. Smart City integration

Future Dependencies

- 1. SAP Customer Interaction Center Replacement
- 2. OMS & ESRI GIS Integration
- 3. Energy Management System Integration
- 4. SAP Configuration for New Rates
- 5. Embedded Taxes in Rates Removed from SAP

2020

2021

2022

2023

2024 and beyond...