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

Power & Water Meters

Communications Network

Utility Data Management Systems
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)
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.
• 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

- **System Integration & Testing**
  - Q3 2019
  - Q4 2019

- **Initial Meter Deployment Area & Testing**
  - Q3 2020
  - Q4 2020

- **Mass Meter Deployment**
  - Q3 2020
  - Q4 2020

- **Communications & Training**
  - Q3 2022

- **Communication Network Deployment**
  - Q3 2019
  - Q4 2019
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

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
• 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.
Short-term: Communications Paperless Campaign

Enjoy the benefits of paperless billing

Sometimes, less is more. Less mail, more convenience.
Stay organized, reduce clutter, and gain access to your bill any time and from anywhere.

MORE ORGANIZED
Paperless Billing

MORE ANSWERS
Paperless Billing

MORE CONVENIENT
Paperless Billing
Short-term: Communications 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:

• Newsline
• UNet
• Consider running employee contest
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.
• 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

<table>
<thead>
<tr>
<th>Category</th>
<th>Current Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Meter Deployment</td>
<td>$26,059,039</td>
</tr>
<tr>
<td>Water Meter Deployment</td>
<td>$21,363,073</td>
</tr>
<tr>
<td>Communications Network Deployment</td>
<td>$3,280,816</td>
</tr>
<tr>
<td>System Integration</td>
<td>$8,891,422</td>
</tr>
<tr>
<td>Capital Internal Labor</td>
<td>$2,043,167</td>
</tr>
<tr>
<td>Professional Services</td>
<td>$3,788,946</td>
</tr>
<tr>
<td>Operations &amp; Maintenance (O&amp;M) Costs</td>
<td>$9,491,736</td>
</tr>
<tr>
<td>Customer Engagement Portal</td>
<td>$250,000</td>
</tr>
</tbody>
</table>

**Projected Total** $75,168,200

**Remaining Contingency** $6,597,243

**Total With Contingency** $81,765,443

### Internal Support Costs

**$11,965,413**

2. Does not incrementally impact rates.
3. Complimentary budget for replacing water meters deemed at end of life is budgeted within the Water Division.
## AMI Deployment Budget: February 2020

- 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

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**Projected Total $75,168,200**  
**Remaining Contingency $6,597,243**  
**Total With Contingency $81,765,443**  

### Internal Support Costs

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2. Does not incrementally impact rates.  
3. Complimentary budget for replacing water meters deemed at end of life is budgeted within the Water Division.
AMI Deployment Budget: February 2020

- **Total With Contingency**: $81.77 M
- **Forecast Through 2022**: $75.17 M
- **Original Forecast**: $70.36 M
- **Spent Through November 2019**: $5.13 M
- **Anticipated Spend Through 2020**: $30.62 M

### Contingency

<table>
<thead>
<tr>
<th></th>
<th>Amount*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Contingency*</td>
<td>$11.41 M</td>
</tr>
<tr>
<td>Allocated Contingency</td>
<td>$4.81 M</td>
</tr>
<tr>
<td>Remaining Contingency</td>
<td>$6.60 M</td>
</tr>
</tbody>
</table>

### AMI Program Workstream

<table>
<thead>
<tr>
<th>Workstream</th>
<th>Percent Complete*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendor Procurement</td>
<td>90%</td>
</tr>
<tr>
<td>System Integration</td>
<td>40%</td>
</tr>
<tr>
<td>Communication Network Deployment</td>
<td>5%</td>
</tr>
<tr>
<td>Electric Meter Deployment</td>
<td>0%</td>
</tr>
<tr>
<td>Water Meter Deployment</td>
<td>0%</td>
</tr>
<tr>
<td>Communications</td>
<td>10%</td>
</tr>
<tr>
<td>Overall</td>
<td>20%</td>
</tr>
</tbody>
</table>

*Updated February 2020, actuals through November 2019.

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Draft 2020 Business Case NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Expenses</td>
<td>$(60.58 M)</td>
</tr>
<tr>
<td>O&amp;M Expenses</td>
<td>$(25.18 M)</td>
</tr>
<tr>
<td>Electric Benefits</td>
<td>$69.61 M</td>
</tr>
<tr>
<td>Water Benefits</td>
<td>$30.60 M</td>
</tr>
<tr>
<td><strong>NPV w/o Contingency</strong></td>
<td><strong>$14.45 M</strong></td>
</tr>
<tr>
<td><strong>Remaining Contingency</strong></td>
<td><strong>$(6.04 M)</strong></td>
</tr>
<tr>
<td><strong>NPV w/ Contingency</strong></td>
<td><strong>$8.41 M</strong></td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Program</th>
<th>Metric</th>
<th>Expected</th>
<th>Actual</th>
<th>Expected Date</th>
<th>Trend</th>
<th>Delta</th>
<th>Health</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. TPU Readiness</strong></td>
<td><strong>Training Classes</strong></td>
<td>15</td>
<td>0</td>
<td>8/1/20</td>
<td>✈️</td>
<td>15</td>
<td>☢️</td>
</tr>
<tr>
<td></td>
<td><strong>Business Process Training</strong></td>
<td>5</td>
<td>0</td>
<td>8/1/20</td>
<td>✈️</td>
<td>5</td>
<td>☢️</td>
</tr>
<tr>
<td></td>
<td><strong>NOC/SOC Operational</strong></td>
<td>1</td>
<td>0</td>
<td>11/1/20</td>
<td>✈️</td>
<td>1</td>
<td>☢️</td>
</tr>
</tbody>
</table>

**1.1 System Training**

- **Training Classes**
  - Expected: 15
  - Actual: 0
  - Expected Date: 8/1/20
  - Trend: ✈️
  - Delta: 15
  - Health: ☢️

**1.2 Business Process Training**

- **Training Classes**
  - Expected: 5
  - Actual: 0
  - Expected Date: 8/1/20
  - Trend: ✈️
  - Delta: 5
  - Health: ☢️

**1.3 NOC/SOC Operational**

- **Confirmed**
  - Expected: 1
  - Actual: 0
  - Expected Date: 11/1/20
  - Trend: ✈️
  - Delta: 1
  - Health: ☢️

**2. Program Readiness**

**2.1 MIV vendor ready**

- **MIV Checklist 100%**
  - Expected: 1
  - Actual: 0
  - Expected Date: 11/1/20
  - Trend: ✈️
  - Delta: 1
  - Health: ☢️

**2.2 All vendors ready for support through program/maintenance operations**

- **Vendor PM Confirmation**
  - Expected: 4
  - Actual: 0
  - Expected Date: 11/1/20
  - Trend: ✈️
  - Delta: 4
  - Health: ☢️

**2.3 Green light from all workflow managers**

- **TPU PM Confirmation**
  - Expected: 3
  - Actual: 0
  - Expected Date: 11/1/20
  - Trend: ✈️
  - Delta: 3
  - Health: ☢️

**2.4 Worst case mitigation options identified**

- **Plan Approved**
  - Expected: 1
  - Actual: 0
  - Expected Date: 11/1/20
  - Trend: ✈️
  - Delta: 1
  - Health: ☢️

**2.5 BAC/ESC endorsement**

- **Endorsed**
  - Expected: 1
  - Actual: 0
  - Expected Date: 11/1/20
  - Trend: ✈️
  - Delta: 1
  - Health: ☢️

**3. Technical Readiness**

**3.1 Residential Meters in Stock**

- **Quantity of Meters**
  - Expected: 5,000
  - Actual: 0
  - Expected Date: 11/1/20
  - Trend: ✈️
  - Delta: 5,000
  - Health: ☢️

**3.2 Water Modules in Stock**

- **Quantity of Modules**
  - Expected: 5,000
  - Actual: 0
  - Expected Date: 11/1/20
  - Trend: ✈️
  - Delta: 5,000
  - Health: ☢️

**3.3 C&I Meters in Stock**

- **Quantity of Meters**
  - Expected: 5,000
  - Actual: 0
  - Expected Date: 11/1/20
  - Trend: ✈️
  - Delta: 5,000
  - Health: ☢️

**3.4 Network deployment completed minimum 60 days ahead**

- **Days ahead**
  - Expected: 60
  - Actual: 30
  - Expected Date: 11/1/20
  - Trend: ✈️
  - Delta: 30
  - Health: ☢️

**3.5 Technical Go-Live Achieved**

- **Sign off**
  - Expected: 2
  - Actual: 0
  - Expected Date: 8/1/20
  - Trend: ✈️
  - Delta: 2
  - Health: ☢️

**3.6 IDA Test - No Priority 1 or 2 issues open**

- **Issues Open**
  - Expected: 0
  - Actual: 0
  - Expected Date: 11/1/20
  - Trend: ✈️
  - Delta: 0
  - Health: ☢️

**3.7 IDA Test - Resolution plan in place for Priority 3 and below issues**

- **Plan Approved**
  - Expected: 1
  - Actual: 0
  - Expected Date: 11/1/20
  - Trend: ✈️
  - Delta: 1
  - Health: ☢️

**4. Communications Readiness**

**4.1 Customers on starting meter routes notified, per plan**

- **Confirmed**
  - Expected: 1
  - Actual: 0
  - Expected Date: 11/1/20
  - Trend: ✈️
  - Delta: 1
  - Health: ☢️

**4.2 Internal TPU communications completed, per plan**

- **Confirmed**
  - Expected: 1
  - Actual: 0
  - Expected Date: 11/1/20
  - Trend: ✈️
  - Delta: 1
  - Health: ☢️

**4.3 Customer support ready**

- **Training Sessions**
  - Expected: 8
  - Actual: 0
  - Expected Date: 11/1/20
  - Trend: ✈️
  - Delta: 8
  - Health: ☢️

**4.4 Door hangers and MIV communications collateral is printed**

- **Confirmed**
  - Expected: 1
  - Actual: 0
  - Expected Date: 11/1/20
  - Trend: ✈️
  - Delta: 1
  - Health: ☢️

### Key for Delta %:

- <= 0%
- 0 - 10%
- <10%
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
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
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
• 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

before, during, and after meter installation.
# Deployment Customer Communications Plan - DRAFT

<table>
<thead>
<tr>
<th>General Awareness</th>
<th>Initial Deployment Area</th>
<th>Residential Deployment</th>
<th>Commercial Deployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Content - Constant</td>
<td>Open House Invite - Letter</td>
<td>45, 30, 14 Days - Install Letter</td>
<td>90 Days - Meeting with Account Executive</td>
</tr>
<tr>
<td>Web Banner Ads</td>
<td>45, 30, 14 Days - Install Letter</td>
<td>7 Days - Install Reminder Postcard</td>
<td>60 Days - Install Letter</td>
</tr>
<tr>
<td>U* Article, Jan 2020</td>
<td>7 Days - Install Reminder Postcard</td>
<td>2 Days - Auto Dial Call (from MIV)</td>
<td>35 Days - Install Letter Reminder</td>
</tr>
<tr>
<td>Tacoma T-Town Expo</td>
<td>2 Days - Auto Dial Call (TBD)</td>
<td>Completed Door Hanger</td>
<td>14 Days - Reminder From Account Executive</td>
</tr>
<tr>
<td>E-newsletter</td>
<td>Completed Door Hanger</td>
<td></td>
<td>2 Days - Reminder From Account Executive</td>
</tr>
<tr>
<td>U* Articles, July &amp; Sept 2020 Issues</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bill Insert July/Aug 2020</td>
<td></td>
<td></td>
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<tr>
<td>Bill Insert Sept/Oct 2020</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Community Outreach</td>
<td></td>
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<tr>
<td>Social Media</td>
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5 specific customer communications **before** meter installation.
Employee Communications

Advanced Meter Milestone: Water Meter Survey

MyTPU.org/AdvancedMeters

DECEMBER 12

Join us at the
Advanced Meter Open House

Wishing you had advanced meters, learn if our utility modernization strategy has brought you to the “right side of the “Why”? We’re interested in that question!

Attend one of our three presentations to:
- Visit the new site.
- Learn about advanced meters benefit both customers and TPU.
- Ask questions.
- Enjoy light refreshments.

PRESENTATION TIMES:
- 7 a.m. to 8 a.m.
- 10:30 a.m. to noon
- 2 p.m. to 4:30 p.m.

PLACE: Auditorium
Open to all employees (please confirm attendance with your supervisor beforehand). If you can’t attend, we will live stream the presentation on TPU’s Facebook.

OPEN HOUSE:
- 11 a.m. to 2 p.m.
- 2 p.m. to 4 p.m.

PRESENTATION TIMES:
- 7 a.m. to 8 a.m.
- 10:30 a.m. to noon
- 2 p.m. to 4:30 p.m.

PLACE: Auditorium
Open to all employees (please confirm attendance with your supervisor beforehand). If you can’t attend, we will live stream the presentation on TPU’s Facebook.

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

The team will also be at open house that day in ABM-01 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.
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
• 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)
• 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

AMI Program Implementation (KPIs)

Utility Operations (KPIs)

Business Case Benefits (KPIs & Use Cases)
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

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Meter Deployment</td>
<td>$28,819,794</td>
<td>$26,059,039</td>
<td>$2,760,755</td>
<td></td>
</tr>
<tr>
<td>Water Meter Deployment</td>
<td>$21,570,693</td>
<td>$21,363,073</td>
<td>$207,620</td>
<td></td>
</tr>
<tr>
<td>Communications Network Deployment</td>
<td>$1,688,525</td>
<td>$3,280,816</td>
<td>$(1,592,291)</td>
<td></td>
</tr>
<tr>
<td>Purchasing</td>
<td>$240,000</td>
<td>-</td>
<td>$240,000</td>
<td>Category no longer tracked</td>
</tr>
<tr>
<td>System Integration</td>
<td>$7,694,758</td>
<td>$8,891,422</td>
<td>$(1,196,664)</td>
<td></td>
</tr>
<tr>
<td>Capital Internal Labor</td>
<td>$5,430,652</td>
<td>$2,043,167</td>
<td>$3,387,485</td>
<td>Category previously labeled as Planning, and included Professional Services</td>
</tr>
<tr>
<td>Professional Services</td>
<td>-</td>
<td>$3,788,946</td>
<td>$(3,788,946)</td>
<td>New Category, costs previously tracked within Planning category</td>
</tr>
<tr>
<td>Operations &amp; Maintenance (O&amp;M) Costs</td>
<td>$4,910,416</td>
<td>$9,491,736</td>
<td>$(4,581,320)</td>
<td>Category includes deployment and operations costs</td>
</tr>
<tr>
<td>Customer Engagement Portal</td>
<td>-</td>
<td>$250,000</td>
<td>$(250,000)</td>
<td>New category for AMI specific portal requirements</td>
</tr>
<tr>
<td><strong>Projected Total</strong></td>
<td><strong>$70,354,838</strong></td>
<td><strong>$75,168,200</strong></td>
<td><strong>$(4,813,362)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Remaining Contingency</strong></td>
<td><strong>$11,410,605</strong></td>
<td><strong>$6,597,243</strong></td>
<td><strong>$(4,813,362)</strong></td>
<td>Allocated contingency</td>
</tr>
<tr>
<td><strong>Total With Contingency</strong></td>
<td><strong>$81,765,443</strong></td>
<td><strong>$81,765,443</strong></td>
<td><strong>$0</strong></td>
<td></td>
</tr>
</tbody>
</table>

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

**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

**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)

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

**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)

**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