The current ordinance was established in **1984**

The revised ordinance will:
- Address changes that have been made in the TPU organizational structure
- Provide flexibility in each division’s funding model
- Transfer Fleet assets to the divisions

Current Structure:
Divisions pay Fleet Services using their operating budget.
Fleet Services capitalizes equipment making it an asset of the Fleet Services fund.
Restricts divisions from using other funding methods.

Future Structure:
Divisions pay for equipment directly using capital funds, operating funds, or grants (Customer Service & Public Affairs are exceptions). Equipment is an asset of the divisions.
Fleet is still responsible for determining equipment life cycle, determining the best equipment for our operations in collaboration with their customers, and purchasing and maintaining all equipment.
Allows divisions to spread the cost of purchasing equipment over several years or use other funding models that support our goal of affordability.
UTS Project Portfolio
Augmented Staffing Contracts
Tacoma Public Utilities Study Session
February 26, 2020

Public Utility Board Information Packet
• Installed a chief technology officer in 2014

• Developed/matured our capabilities within UTS to support TPU’s technology needs

<table>
<thead>
<tr>
<th>Network and Communications Systems</th>
<th>Asset Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational Information Systems</td>
<td>Contract Management</td>
</tr>
<tr>
<td>Cybersecurity</td>
<td>Business Value Optimization</td>
</tr>
<tr>
<td>Service Desk and Desktop Support</td>
<td>Data Engineering and Analytics</td>
</tr>
<tr>
<td>Application Development and Support</td>
<td>Project Management Office</td>
</tr>
</tbody>
</table>

• Began earnest pursuit of TPU’s Grid/Utility Modernization Strategy in 2015
  • Innovated our base technology platforms
  • Began building upon the strong foundation.
  • Robust portfolio of technology projects for the next few years
• FTEs
  • Utilization of in-house resources on technology projects
  • Majority of work accomplished by in-house resources

• Project FTEs, via Special Projects of Limited Duration
  • Addition of resources to backfill while subject matter experts are assigned to projects
  • Addition of resources to bridge skillset gap and documentation post operationalization of a project

• Augmented Staffing via bench contracts
  • Project management and coordination talent
  • Sourcing of specialized skillsets
PORTFOLIO RESOURCE DEMAND

FTE Conversion Challenges & Assumptions

- Matrixed organization, resource participation (% time utilized) across all resource types vary. Conversion limited to 2019-2020
- 404k hours includes all resource types (FTE, Project FTE, Augmented Staff)
- Should not be used for planning purposes (rough order of magnitude)

2019-2020: ~404k hours of demand

Staff Equivalency Conversion
- See table for conversions

Detailed Analysis: "June 2020"

FTE conversion table

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>Q1_19</th>
<th>Q2_19</th>
<th>Q3_19</th>
<th>Q4_19</th>
<th>Q1_20</th>
<th>Q2_20</th>
<th>Q3_20</th>
<th>Q4_20</th>
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</thead>
<tbody>
<tr>
<td>Staff Augmentation</td>
<td>11</td>
<td>11</td>
<td>13</td>
<td>18</td>
<td>24</td>
<td>26</td>
<td>27</td>
<td>25</td>
</tr>
<tr>
<td>Equivalent FTE/Project FTE</td>
<td>51</td>
<td>71</td>
<td>86</td>
<td>90</td>
<td>106</td>
<td>152</td>
<td>150</td>
<td>103</td>
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<tr>
<td>Total Demand Hours</td>
<td>25499</td>
<td>33099</td>
<td>40558</td>
<td>44268</td>
<td>56220</td>
<td>74971</td>
<td>74334</td>
<td>55085</td>
</tr>
</tbody>
</table>

Portfolio Resource Demand Hours by Quarter

290 FTE Resources, converts to 187 “FTE Equivalents”
+ 26 FTE Staff Aug =

Overall Resource Demand, June
RESOURCE BENCHMARKS

Benchmark Comparison, FTE/Augmented Staff Ratio

<table>
<thead>
<tr>
<th>Year</th>
<th>Gartner FTE</th>
<th>Gartner Augmented Staff</th>
<th>TPU UTS FTE</th>
<th>TPU UTS Augmented Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>91%</td>
<td>74%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>88%</td>
<td>73%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>85%</td>
<td>72%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>26%</td>
<td>27%</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9%</td>
<td>12%</td>
<td>15%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Gartner IT Key Metrics Data (Dec. 2019)
**CONTRACT AUTHORIZATION**

**TIMELINE**

### 2017
- **Jan-Jun 2017:** Contract award for $1.1M following award of competitive RFP bid

### 2018
- **August 2018:**
  - Amendment to increase contract authority to $2.9M
  - Aggregate total of $4.9M

### 2019-2020
- **February 2020:**
  - Amendment to increase contract authority to $2.4M
  - Aggregate total of $5.3M

---

**Combined contract value increase of $7.6M**

---

**Morris Willner Partners, Inc.**

**KRE Consulting, LLC**

---

**Consideration to rebid contracts**
### AUGMENTED RESOURCE DRIVERS

<table>
<thead>
<tr>
<th>Description</th>
<th>Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Meter Infrastructure</td>
<td>$127,000</td>
</tr>
<tr>
<td>Work Force Connect</td>
<td>$2,083,412</td>
</tr>
<tr>
<td>Technology Portfolio Projects</td>
<td>$1,252,840</td>
</tr>
<tr>
<td>Energy Imbalance Market</td>
<td>$852,680</td>
</tr>
<tr>
<td>Operational Staffing Needs</td>
<td>$3,336,504</td>
</tr>
<tr>
<td><strong>Total Projected Expenditures</strong></td>
<td><strong>$7,652,436</strong></td>
</tr>
</tbody>
</table>
Key benefits:

• Greater customer control over services
• Engaging, responsive services
• Improved insights to support better decisions
• Improved security from increasing threats
• Recover & restore services during emergencies

What will be different tomorrow?

• Expand electrification across a modern grid
• More easily integrate renewables
• Attract diverse and local talent
• Effectively steward infrastructure and assets

Investing to modernize positions TPU to evolve beyond basic utility services; to become trusted advisors for our customers as we innovate with new products and services.
• Applying appropriate mix of FTE, Project FTE and Augmented Staff resources

• Increasing contract value only

• 2019-2020 project carryovers and new projects in 2021-2022 biennium is expected to generate additional demand for resources

• Further increases to the existing augmented staffing contracts (or new resource contracts) is expected

• **Recommend approval** of proposed contract increases to carryout Projects and Programs through 2020
Advanced Metering Infrastructure (AMI) Program Update

Public Utility Board Study Session
February 26th, 2020
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
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)
**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 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

System Integration & Testing

Communication Network Deployment

Communications & Training

Initial Meter Deployment Area & Testing

Mass Meter Deployment

Q3 2019

Q4 2019

Q3 2020

Q4 2020

Q3 2022
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

Schedule as of January 2020

- **SAP Development Start:** Jun 2019
- **Realize (Build/Test/Train):** Aug 2019
- **Conduct Workshops, Complete Designs:** Oct 2019
- **Core Spec/Development/Unit Testing:** Feb 2020
- **AMI Services Unit Testing:** Apr 2020
- **SAP Service Pack Freeze:** Nov 2020
- **IDC Start:** Jul 15, 2021
- **Deploy & Go-Live:** Jun 2020
- **Migrate to PRD Landscape:** Today
- **Stabilization:** Initial Deployment Period
- **Non-Core Spec/Development/Unit Testing:** 02-01-2020 - 05-31-2020
- **Non-Core SIT and UAT Testing:**
- **Monthly Billing Development/SIT/UAT:**
- **Monthly Billing Conversions:**
- **Pre-Payment Program Development/SIT/UAT:**
- **AM Project Technical Go-Live:**

**Schedule as of January 2020**
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.

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

**Easier Move In, Out, and Reconnection**
Remote turn on and off of electric service saves you time.

**Faster Outage and Leak Detection**
Locating and fixing issues helps us restore service to you sooner.

**Automated Meter Reading**
More accurate, timely bills based on real-time data.

**Enhanced Personal Privacy**
No need for regular physical access to read your meter.

**Expanded Ways to Save**
Providing data about your use increases your ability to save money, water, and energy.

**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
- 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

2022

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
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.
Enjoy the benefits of paperless billing

Paperless billing is a great way to stay organized, reduce clutter and gain access to your bill at anytime 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 include 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.

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

EXPLORE THE BENEFITS OF PAPERLESS BILLING

MORE ORGANIZED
Paperless Billing

MORE ANSWERS
Paperless Billing

MORE CONVENIENT
Paperless Billing
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.
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

<table>
<thead>
<tr>
<th>Category</th>
<th>Current Forecast¹</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Meter Deployment</td>
<td>$26,059,039</td>
<td></td>
</tr>
<tr>
<td>Water Meter Deployment³</td>
<td>$21,363,073</td>
<td></td>
</tr>
<tr>
<td>Communications Network Deployment</td>
<td>$3,280,816</td>
<td></td>
</tr>
<tr>
<td>System Integration</td>
<td>$8,891,422</td>
<td></td>
</tr>
<tr>
<td>Capital Internal Labor</td>
<td>$2,043,167</td>
<td></td>
</tr>
<tr>
<td>Professional Services</td>
<td>$3,788,946</td>
<td></td>
</tr>
<tr>
<td>Operations &amp; Maintenance (O&amp;M) Costs</td>
<td>$9,491,736</td>
<td></td>
</tr>
<tr>
<td>Customer Engagement Portal</td>
<td>$250,000</td>
<td></td>
</tr>
<tr>
<td><strong>Projected Total</strong></td>
<td><strong>$75,168,200</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Remaining Contingency</strong></td>
<td><strong>$6,597,243</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total With Contingency</strong></td>
<td><strong>$81,765,443</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Current Forecast¹</th>
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</thead>
<tbody>
<tr>
<td>Internal Support Costs²</td>
<td>$11,965,413</td>
<td></td>
</tr>
</tbody>
</table>

---

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.
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)

<table>
<thead>
<tr>
<th>Category</th>
<th>Current Forecast</th>
<th>Forecast1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Meter Deployment</td>
<td>$26,059,039</td>
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<tr>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>Projected Total $ 75,168,200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remaining Contingency</td>
<td>$6,597,243</td>
</tr>
<tr>
<td>Total With Contingency</td>
<td>$81,765,443</td>
</tr>
</tbody>
</table>

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.
AMI Deployment Budget:
February 2020

Total With Contingency+: $81.77 M
Current Forecast: $75.17 M
Original Forecast+: $70.36 M

Spent to Date*: $5.13 M

Contingency

<table>
<thead>
<tr>
<th>Amount*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Contingency+</td>
</tr>
<tr>
<td>Allocated Contingency</td>
</tr>
<tr>
<td>Remaining Contingency</td>
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</table>

AMI Program Workstream

<table>
<thead>
<tr>
<th>Percent Complete*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendor Procurement</td>
</tr>
<tr>
<td>System Integration</td>
</tr>
<tr>
<td>Communication Network Deployment</td>
</tr>
<tr>
<td>Electric Meter Deployment</td>
</tr>
<tr>
<td>Water Meter Deployment</td>
</tr>
<tr>
<td>Communications</td>
</tr>
<tr>
<td>Overall</td>
</tr>
</tbody>
</table>

*Updated February 2020
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

### Draft Summary: 2020 Business Case Recalibration

<table>
<thead>
<tr>
<th>Description</th>
<th>Draft 2020 Business Case NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Expenses</td>
<td>$(60.58 M)</td>
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<tr>
<td>O&amp;M Expenses</td>
<td>$(25.18 M)</td>
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<tr>
<td>Electric Benefits</td>
<td>$69.61 M</td>
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<tr>
<td>Water Benefits</td>
<td>$30.60 M</td>
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<tr>
<td>NPV w/o Contingency</td>
<td>$14.45 M</td>
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<tr>
<td>Remaining Contingency</td>
<td>$(6.04 M)</td>
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<tr>
<td>NPV w/ Contingency</td>
<td>$8.41 M</td>
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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>Metric</th>
<th>Expected</th>
<th>Actual</th>
<th>Expected Date</th>
<th>Trend</th>
<th>Delta</th>
<th>Health</th>
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<tbody>
<tr>
<td><strong>Program</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. TPU Readiness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 System Training</td>
<td>Training Classes</td>
<td>15</td>
<td>0</td>
<td>8/1/20</td>
<td>&lt;=</td>
<td>15</td>
</tr>
<tr>
<td>1.2 Business Process Training</td>
<td>Training Classes</td>
<td>5</td>
<td>0</td>
<td>8/1/20</td>
<td>&lt;=</td>
<td>5</td>
</tr>
<tr>
<td>1.3 NOC/SOC Operational</td>
<td>Confirmed</td>
<td>1</td>
<td>0</td>
<td>11/1/20</td>
<td>&lt;=</td>
<td>1</td>
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<tr>
<td><strong>2. Program Readiness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1 MIV vendor ready</td>
<td>MIV Checklist 100%</td>
<td>1</td>
<td>0</td>
<td>11/1/20</td>
<td>&lt;=</td>
<td>1</td>
</tr>
<tr>
<td>2.2 All vendors ready for support through program/maintenance operations</td>
<td>Vendor PM Confirmation</td>
<td>4</td>
<td>0</td>
<td>11/1/20</td>
<td>&lt;=</td>
<td>4</td>
</tr>
<tr>
<td>2.3 Green light from all workstream managers</td>
<td>TPU PM Confirmation</td>
<td>3</td>
<td>0</td>
<td>11/1/20</td>
<td>&lt;=</td>
<td>3</td>
</tr>
<tr>
<td>2.4 Worst case mitigation options identified</td>
<td>Plan Approved</td>
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<td>0</td>
<td>11/1/20</td>
<td>&lt;=</td>
<td>1</td>
</tr>
<tr>
<td>2.5 BAC/ESC endorsement</td>
<td>Endorsed</td>
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<td>0</td>
<td>11/1/20</td>
<td>&lt;=</td>
<td>1</td>
</tr>
<tr>
<td><strong>3. Technical Readiness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1 Residential Meters in Stock</td>
<td>Quantity of Meters</td>
<td>5,000</td>
<td>0</td>
<td>11/1/20</td>
<td>&lt;=</td>
<td>5,000</td>
</tr>
<tr>
<td>3.2 Water Modules in Stock</td>
<td>Quantity of Modules</td>
<td>5,000</td>
<td>0</td>
<td>11/1/20</td>
<td>&lt;=</td>
<td>5,000</td>
</tr>
<tr>
<td>3.3 C&amp;I Meters in Stock</td>
<td>Quantity of Meters</td>
<td>5,000</td>
<td>0</td>
<td>11/1/20</td>
<td>&lt;=</td>
<td>5,000</td>
</tr>
<tr>
<td>3.4 Network deployment completed minimum 60 days ahead</td>
<td>Days ahead</td>
<td>60</td>
<td>30</td>
<td>11/1/20</td>
<td>&lt;=</td>
<td>30</td>
</tr>
<tr>
<td>3.5 Technical Go-Live Achieved</td>
<td>Sign off</td>
<td>2</td>
<td>0</td>
<td>8/1/20</td>
<td>&lt;=</td>
<td>2</td>
</tr>
<tr>
<td>3.6 IDA Test - No Priority 1 or 2 issues open</td>
<td>Issues Open</td>
<td>0</td>
<td>0</td>
<td>11/1/20</td>
<td>&lt;=</td>
<td>0</td>
</tr>
<tr>
<td>3.7 IDA Test - Resolution plan in place for Priority 3 and below issues</td>
<td>Plan Approved</td>
<td>1</td>
<td>0</td>
<td>11/1/20</td>
<td>&lt;=</td>
<td>1</td>
</tr>
<tr>
<td><strong>4. Communications Readiness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1 Customers on starting meter routes notified, per plan</td>
<td>Confirmed</td>
<td>1</td>
<td>0</td>
<td>11/1/20</td>
<td>&lt;=</td>
<td>1</td>
</tr>
<tr>
<td>4.2 Internal TPU communications completed, per plan</td>
<td>Confirmed</td>
<td>1</td>
<td>0</td>
<td>11/1/20</td>
<td>&lt;=</td>
<td>1</td>
</tr>
<tr>
<td>4.3 Customer support ready</td>
<td>Training Sessions</td>
<td>8</td>
<td>0</td>
<td>11/1/20</td>
<td>&lt;=</td>
<td>8</td>
</tr>
<tr>
<td>4.4 Door hangers and MIV communications collateral is printed</td>
<td>Confirmed</td>
<td>1</td>
<td>0</td>
<td>11/1/20</td>
<td>&lt;=</td>
<td>1</td>
</tr>
</tbody>
</table>

### Key for Delta %:
- <= 0%: Green
- 0 - 10%: Yellow
- <10%: Red

**DRAFT: 2/21/2020**
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
**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
• 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 issue</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>
<td></td>
</tr>
<tr>
<td>Bill Insert Sept/Oct 2020</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Outreach</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Media</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5 specific customer communications **before** meter installation.
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.
- 10:15 a.m. to noon
- 1 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 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.

MyTPU.org/AdvancedMeters
Training

• 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

Prepare Employees to Succeed!
• 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)
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>Category</th>
<th>Forecast: February 2019 Business Case</th>
<th>Current Forecast: February 2020¹</th>
<th>Change</th>
<th>Note</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 Deployment²</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>-</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

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)

**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

**Customer Benefits Key**
- Reliability & Resiliency
- Billing & Payment
- Convenience

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2020
2021
2022
2023
2024 and beyond...