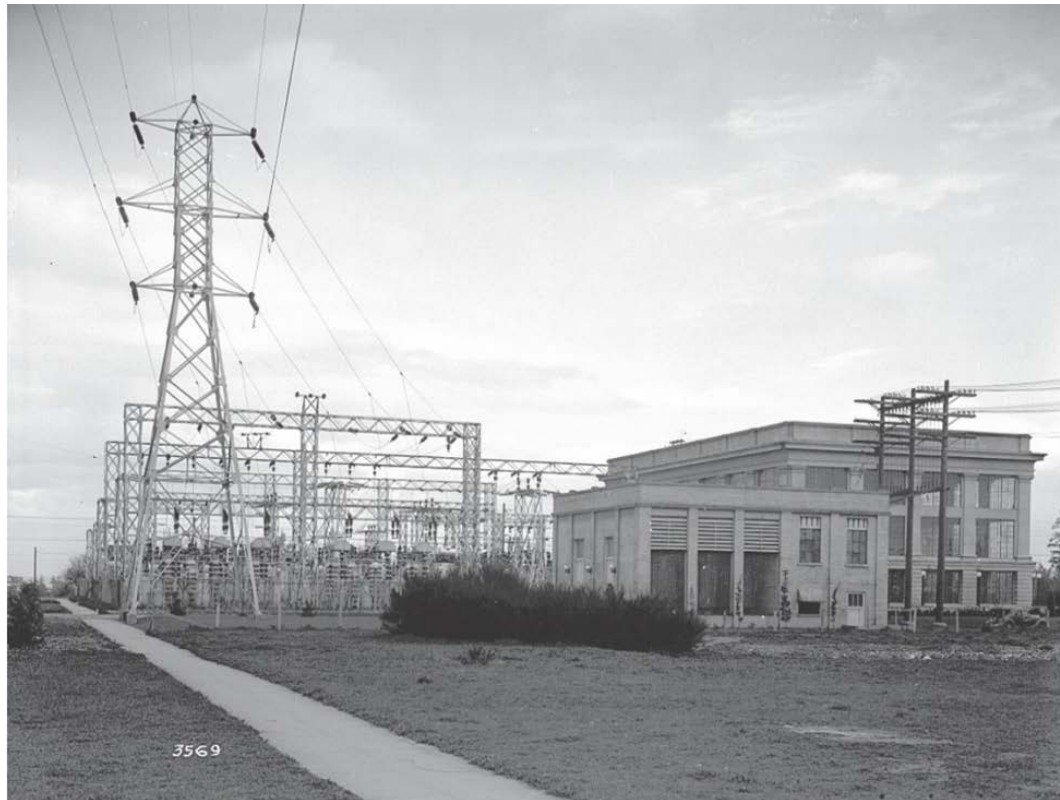


Cushman & Adams Substations MOU

July 11, 2018



Cushman & Adams Substations – April, 1937

Overview of Properties



What's happened?

- **March 28, 2018 Public Utility Board Study Session**
 - Edits made to Draft MOU incorporating PUB feedback
- **May 30, 2018 Tacoma City Council Infrastructure, Planning and Sustainability Committee presentation**
 - Edits made to Draft MOU incorporating Tacoma City Council feedback
 - NENC Vice Chair testifies, thanks TPU/GG for outreach, supports draft MOU, advocates for “master planning” to determine the future of the properties
- **Consistent with Draft MOU, Phase 2 of environmental characterization work continues**
- **Consistent with Draft MOU, review of options to replace storage and crane capabilities in progress**
- **Ongoing engagement with community stakeholders**
- **Work on North 21st Street transmission line project continues**

What changed in Draft MOU?

- **Section 6, pages 3-4**
 - Master planning identified/community outreach goals refined
 - Community outreach/initial master planning begins in 2018
 - *The community outreach process will serve as an initial phase of a master planning process and should ensure broad community involvement and identify community goals for redevelopment of the Properties, which will be reconciled with costs and market constraints that could include public amenities and private development.* In order to generate data necessary to allow Tacoma Power to appropriately scope the level and extent of any necessary environmental cleanup of the properties, Tacoma Power will fund up to \$50,000.00 of outside consultant work for the public outreach, and general government will include necessary environmental cleanup levels as a deliverable within the scope of such consulting services. Community outreach may occur with or without a transfer of the properties from Tacoma Power to the City's general government as the Parties deem most efficacious. *The community outreach/initial master planning phase should begin in calendar year 2018.*

Joint Staff Task Force

- Terry Coggins, Tacoma Power
- Ward Groves, Legal
- Jennifer Hines, Real Property Services
- Peter Huffman, Planning & Development Services
- Clark Mather, TPU
- Tom Morrill, Legal
- Terry Ryan, Tacoma Power
- Steve Victor, Legal
- Joe Wilson, Tacoma Power

Proposed next steps

- **Interim Director & City Manager sign MOU**
- **Joint Staff Task Force to identify scoping of outreach/initial master planning, continues community engagement on scoping**
- **General Government identifies consultant and initiates outreach/initial master planning process in calendar year 2018**

Community & Government Relations Update July 11, 2018

- Clark Mather, Community and Government Relations Manager
- Marian Dacca, State Relations Manager

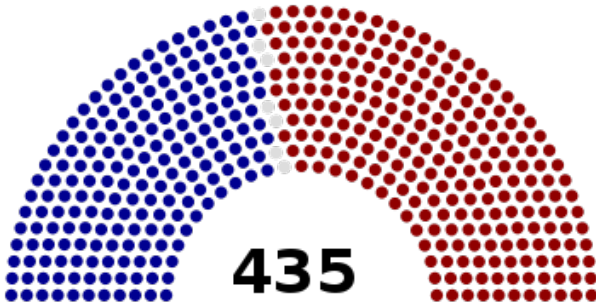


Overview

- **What's new?**
 - » Federal
 - » State
- **2019 legislative priorities development**
 - » Ongoing coordination with General Government
 - » Suggested new processes

Federal Elections in 2018

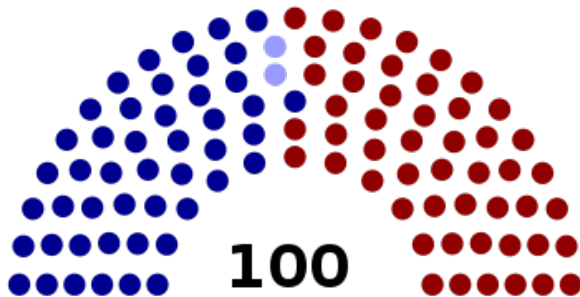
House of Representatives – Republican Majority



- Republicans hold the majority in the House (235 Republicans, 193 Democrats, & 7 vacant seats)
- Two-Year Terms
- All 435 Representatives are up for election in 2018
- 218 needed for control

235 – 193

Senate – Republican Majority



- Republicans hold the majority in the Senate (51 Republicans, 47 Democrats + 2 Independents who caucus with the Democrats)
- Six-Year Terms
- 33 Senators are up for election in 2018

51 – 49

President – Republican

- President Donald Trump
- Term expires January 20, 2021

Federal Update

Power

- Murky prospects for TPU-endorsed energy legislation
- Spending bill includes \$\$\$ that Cushman hydro project is eligible for
- Ongoing battle on DOE reporting structure, affects BPA
- Troubling pole attachment legislation resurfaces – working with General Government on advocacy strategy

Water

- Water resources legislation
 - » Howard Hanson Language included, Senate supports WIFIA
- Senate spending legislation mentions Howard Hanson

Rail

- Seeking reauthorization of 45G tax credit

Click!

- Senate passes resolution that would nullify FCC net neutrality rollback

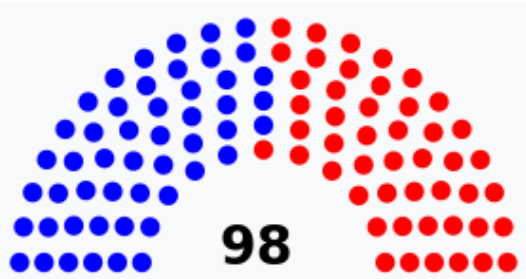
State Update

2018 Elections

- **Washington Primary Election**
» Tuesday, August 7, 2018
- **Washington General Election**
» Tuesday, November 6, 2018

State Elections in 2018

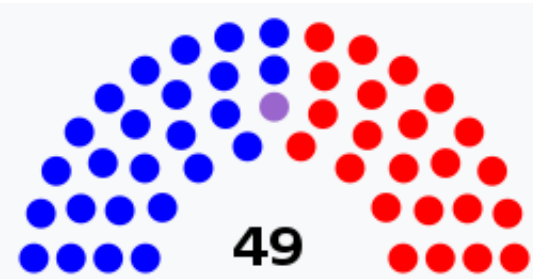
House of Representatives – Democratic Majority



- Democrats hold the majority in the House (50 Democrats – 48 Republicans)
- All 98 Representatives are up for election in 2018

50 – 48

Senate – Democratic Majority



- Democrats hold the majority in the Senate (25 Democrats – 23 Republicans + 1 Ind. Democrat who caucuses with the Republicans)
- 24 Senators are up for election in 2018

25 – 24

Governor – Democrat

- Governor Jay Inslee – Democrat
- Term expires 2020



State Update

Carbon Fee Initiative

- “Initiative Measure No. 1631” was filed on March 2, 2018
 - » *“AN ACT Relating to reducing pollution by investing in clean air, clean energy, clean water, healthy forests, and healthy communities and imposing a fee on large emitters based on their pollution.”*
 - » Signors of the original press release: Washington State Labor Council, The Nature Conservancy, Front and Centered, Washington Conservation Voters, Washington Environmental Council, Puget Sound Sage, Climate Solutions, Got Green, One America
- On July 2, supporters of I-1631 turned in more than 370,000 signatures to qualify the measure for the November ballot. 259,622 valid signatures were needed.
- Upcoming Tacoma Power Presentation on I-1631 and analysis of Clean Energy policy proposals.
 - » Scheduled for July 25, 2018 Study Session

State Update

Pole Attachments, Small Cell Technology & Broadband Deployment

- On January 10, 2018 the PUB adopted new contract templates and fees for:
 - » Wireline Attachments - Washington State methodology RCW 54.04.045 for calculating the General Pole Attachment fee. Resulting in an increase from \$17.29 to \$26.49.
 - » Small Cell Wireless Attachments - \$1200.
- TPU Wireline pole attachment fees had not been updated since 2011, and new small cell technology had yet to be installed in Tacoma.
- Staff from TPU and General Government worked together to draft a city-wide ordinance regarding the deployment of new small cell technology. Collaboration included stakeholder meetings with the telecommunication industry for feedback.

State Update

Pole Attachments, Small Cell Technology & Broadband Deployment

- Disagreements have yet to be fully resolved regarding attachment costs and contract terms for certain carriers in Tacoma and around the state.
- 2017 Legislative Session: Industry legislation to preempt local governments and limit cost recovery failed to be enacted.
- 2018 Legislative Session: House and Senate worked on compromise legislation – no legislation was enacted.
- It is unclear what legislative proposals will emerge in 2019, however we expect to see proposals emerge on this issue.

State Update

Proactive Strategy Development Continues

- **Electrification of Transportation, Clear Authority for Public Utilities**
 - » TPU continues to partner with a coalition of consumer-owned utilities to seek clear legislative authority to offer incentive programs and services in electrification of transportation for our customers.
- **Solar Incentives for Low-Income Customers**
 - » TPU continues to advocate for legislation to increase state support for community solar and low-income access to solar generation.
- **Report back in Q4**

State Update

SB 6091, “Ensuring that water is available to support development,” was enacted during the 2018 Legislative Session to address the *Hirst* and *Foster* Supreme Court Decisions.

- » Created a joint legislative task force on the *Foster* Decision with a report back date of Nov. 15, 2019.
- » The first meeting of the task force was held on June 22.
 - Introduction of Task Force Members.
 - Briefing on the *Foster v. Department of Ecology* supreme court decision.
 - Briefing on five pilot projects.
 - Discussion of Task Force mission, possible operating procedures, and future meeting schedules.
- » We will continue monitoring this process and keep the PUB updated.

TPU/GG

Government Relations Coordination

- **Current Coordination includes**
 - » Regular meetings between TPU/GG advocacy staff, particularly during Washington State Legislative sessions
 - » Periodic written activity reports shared across General Government and Tacoma Public Utilities
 - » Ad-Hoc interactions between GG/TPU legislative advocacy staff on issues at the State and Federal levels

TPU/GG

Government Relations Coordination

- **New coordination ideas for review**
 - 3rd Quarter Annually
 - » General Government and TPU staff will present proposed legislative policies for the City of Tacoma to a joint PUB/City Council study session
 - » Presentation would include a review of present and proposed changes to legislative policies for the City of Tacoma, including policies with a nexus to TPU
 - » GG/TPU staff would work collaboratively to recommend policy positions on issues that impact TPU and its operations or customers

TPU/GG

Government Relations Coordination

- **New coordination ideas for review**
 - 4th Quarter Annually
 - » General Government and TPU staff will present the General Government's and TPU's legislative agendas for the upcoming congressional and legislative session to a joint PUB/City Council study session

TPU/GG

Government Relations Coordination

- **New coordination ideas for review**
 - Regularly
 - » City Council and Public Utility Board schedule permitting, General Government and TPU staff will present updates on congressional and legislative sessions to joint study sessions of the PUB and Tacoma City Council
 - Special Meetings:
 - » On policy items of particular interest to the General Government and TPU, staff will recommend to the City Council and Public Utility Board on the necessity for other joint briefings on policy issues



What's Ahead...



Tacoma Power PUB Presentation on I-1631 and Analysis on Clean Energy

- Wednesday, July 25, 2018

Joint PUB/City Council Study Session on City of Tacoma Legislative Policies

- Tuesday, August 21, 2018

2018 Elections

- Washington Primary Election – Tuesday, August 7, 2018
- Washington General Election – Tuesday, November 6, 2018

2019 Legislative Session

- Legislative Agenda Study Session: Q4 2018
- 2019 Legislative Session: Monday, January 14, 2019
 - » *Long Session*, lasting for 105 calendar days

116th Congress

- Convenes Thursday, January 3, 2019

Residential Solar in Tacoma

Update on the plan to increase residential solar and address equity concerns

Public Utility Board Study Session

Clay Norris

July 11, 2018

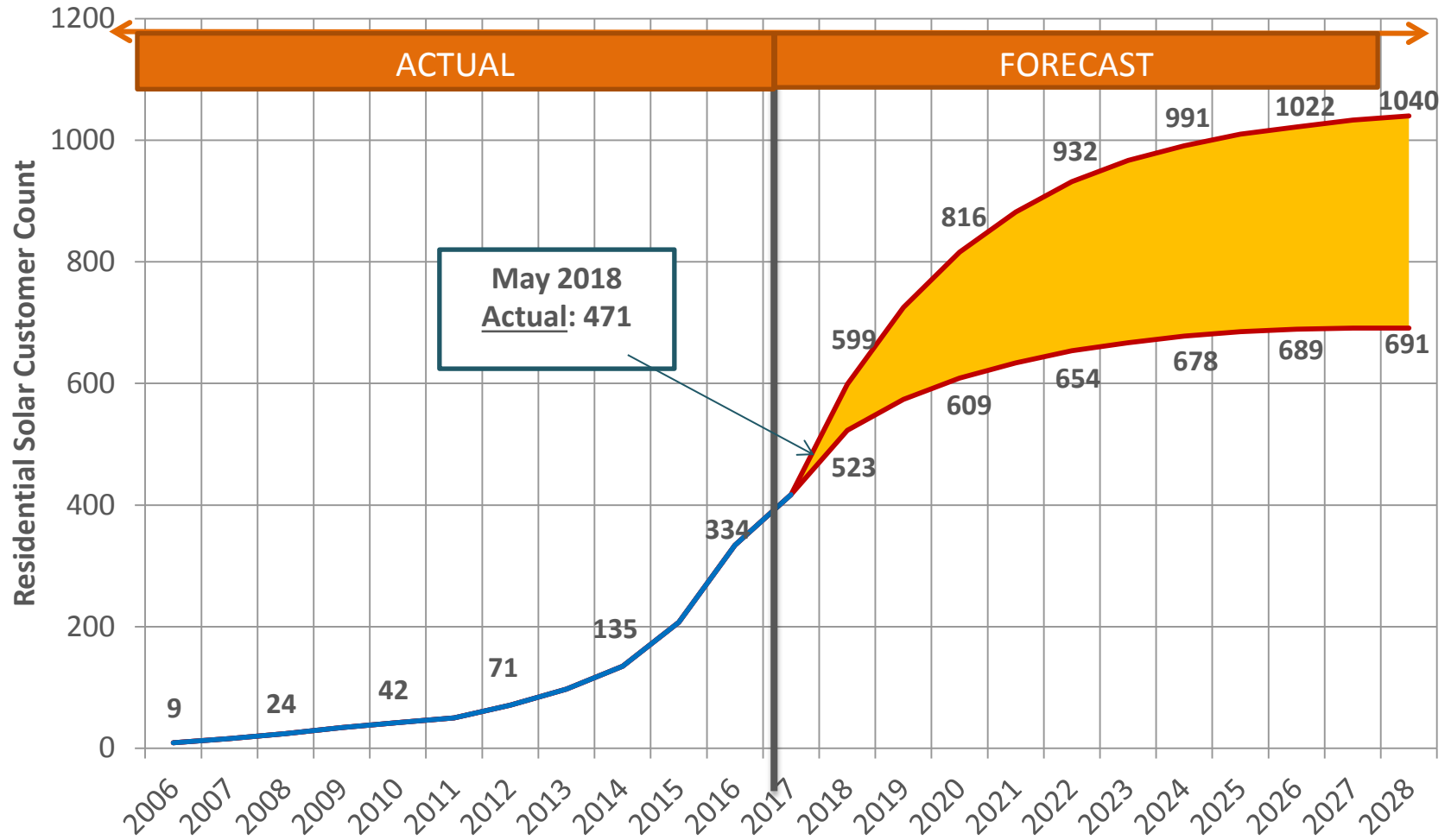
Presentation Purpose

- Review solar plan
- Update on solar adoption in Tacoma
- Provide updates on progress
 - Discuss challenges with low-income loan
 - Share preliminary research on community solar and multifamily pilot
- Recommended next steps

Residential Solar Plan

| Plan Element | Timeline | Status |
|---|-----------------|--|
| Joined Washington State New Voluntary Solar Incentive Program | 2017 | Complete |
| Expand Marketing, Customer Outreach and Education | Fall 2017-18 | On Track |
| Modify SAP Process to Accommodate Solar | Q2 2018 | Q3 2018 |
| Work with Strategic Partners to Find Solutions for Low-Income Solar Access | Spring 2018 | Still work to do |
| Incentives for residential low-income customers <ul style="list-style-type: none"> • Waive inspection fees • Prepay renewable energy credit value • Develop zero-interest loan program | Q2 2018 | Ready but concerned about customer impacts |
| Advocate for State Legislation Changes to Increase State Support for Low-Income & Community Solar | 2018+ | Still work to do |
| Pursue Multi-Family Pilot | 2018 | On Track |
| Revamped Evergreen Options | 2017 | Complete |
| Evaluate New Community Solar Project | 2018 | On Track |

Residential Solar Adoption in Tacoma



Low-Income zero interest loan

- Tacoma Power has developed a zero-interest loan package for low-income customers that includes
 - upfront purchase of the renewable energy credit value
 - waived inspection fees
- Staff is concerned about marketing a poor financial investment for low-income customers

Low-income zero interest loan

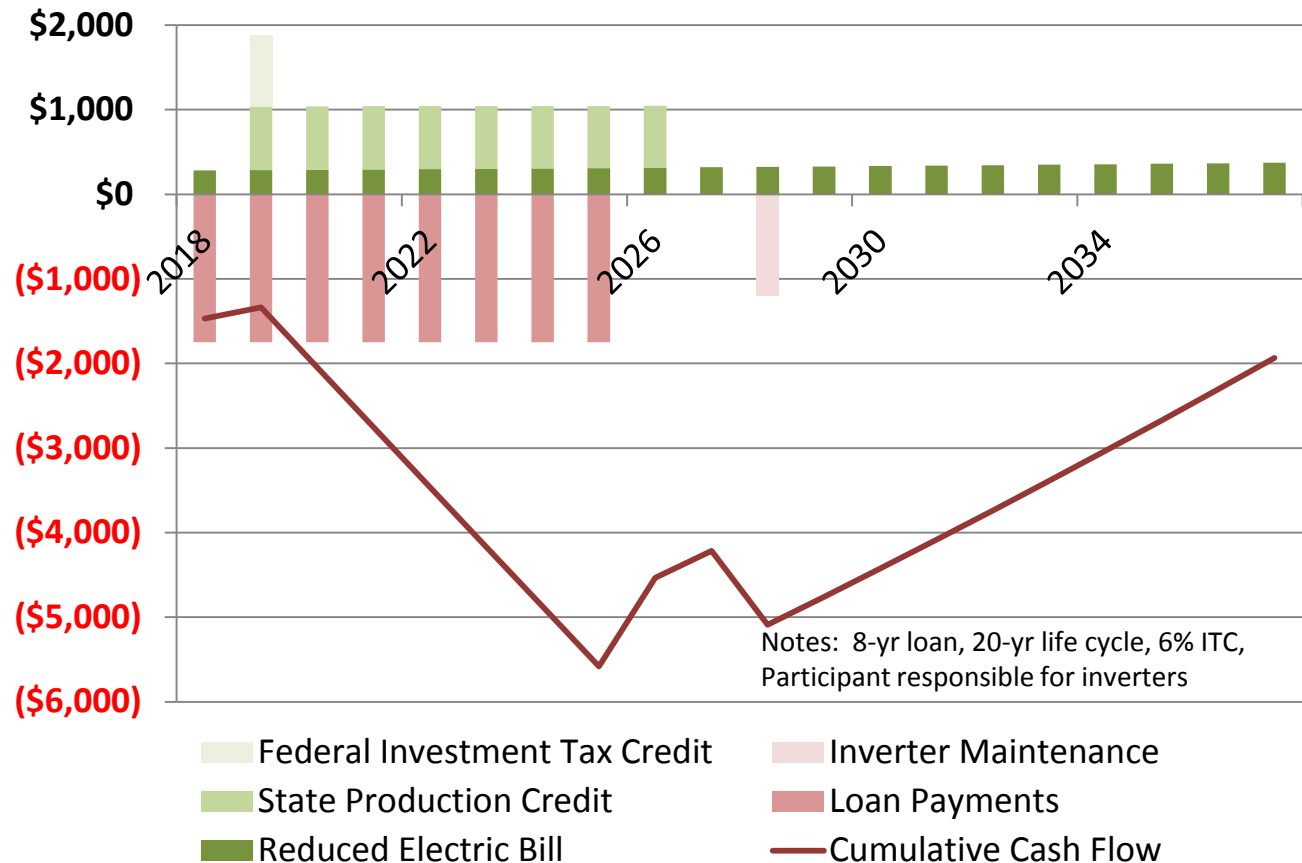
CHART KEY

Typical participant group
annualized cash flows

- **Production Credits:** Washington State incentive for solar production
- **Federal Investment Tax Credit:** Up to 30% of solar project cost can be deducted from federal income tax
- **Bill Reduction:** Solar net billing methodology reduces utility electric bills
- **Inverter Maintenance:** Inverters last approximately 10 years - inverters change PV system DC power to AC power for home use
- **Loan Payment:** Monthly loan payments to the utility for up to 8 year term
- **Cumulative Cash Flow:** Participant net annualized projected financial impact

Typical Participant Group: Annualized Cash Flow

8-Year Loan
20-Year Life



Partnership Flip Finance Model

Non-profit and utility cannot monetize tax benefit, therefore, a private investor with tax liability is needed who can

Typically involves 3 partners:

- Private investor
- Lender (utility)
- Project developer (utility or non-profit)

Community Solar

- Using the same structure as existing project is not cost effective
 - Lower state production incentives
 - Access to location for siting
- Pursuing new opportunity that includes “partnership flip” finance model
 - Successful in other regions
 - Spark Northwest
 - Bonneville Environmental Foundation
 - Locate in eastern WA

Multifamily Solar

- Working with partners to evaluate options for solar access
 - Bonneville Environmental Foundation
 - Washington State Housing Finance Commission
 - Washington State Department of Commerce
- Pursuing new opportunity in partnership with Tacoma Housing Authority that includes
 - “partnership flip” finance model
 - Grant funding

Recommended Next Steps

- Hold low-income loan until economics are favorable for low-income customer
- Continue pursuing legislative changes to help increase solar adoption
- Evaluate option that includes public/private partnership to obtain a new community solar project
- Evaluate option that includes grants and a public/private partnership, including a non-profit, for multifamily project
- Promote solar through TPU website and WattPlan solar calculator

Appendix

Tacoma City Council Resolution No. 39699

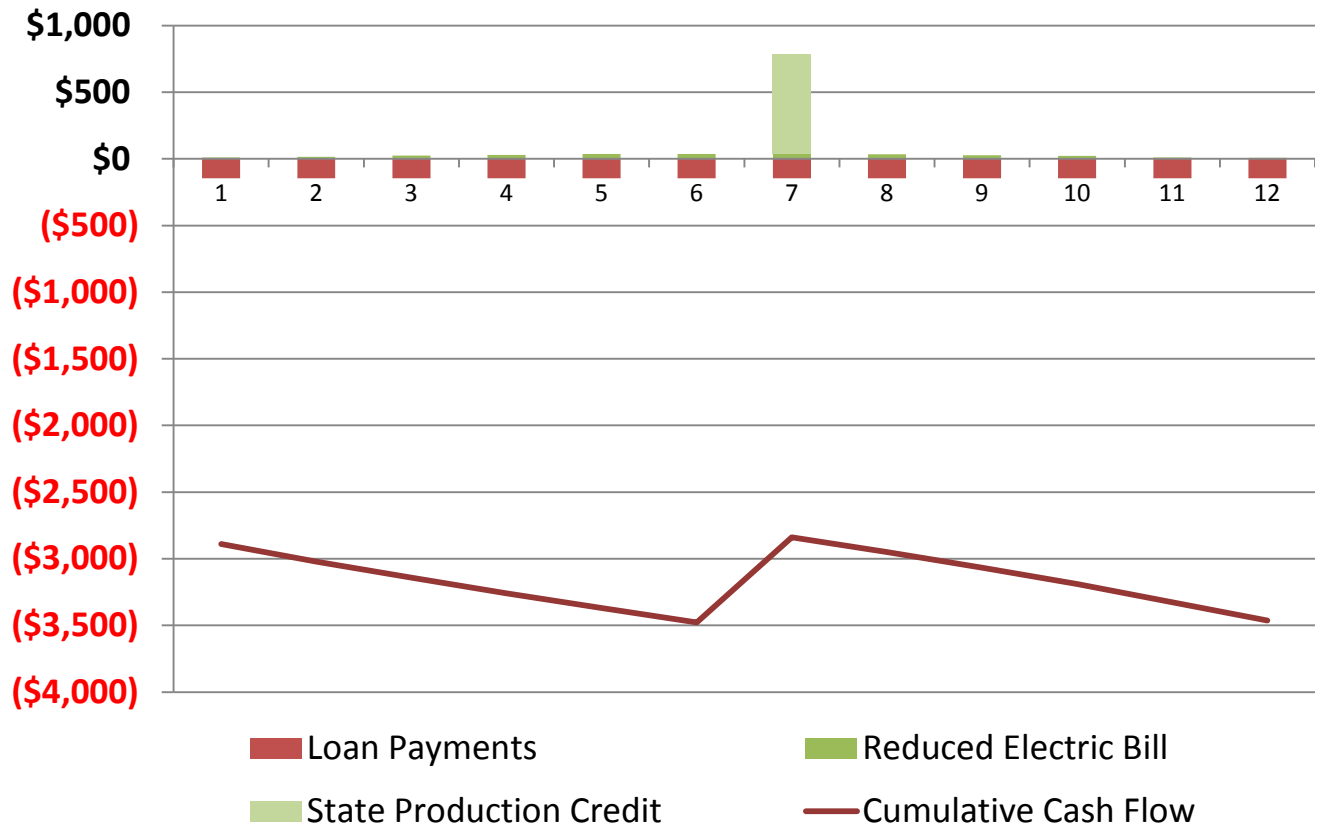
BE IT RESOLVED BY THE COUNCIL OF
THE CITY OF TACOMA:

Section 1. That the City Council hereby requests the Tacoma Public Utility Board (“Board”) to develop a plan to increase the use of residential solar in the City of Tacoma, which plan will address economic inequality and ensure an equitable increase in the number of residential solar users from all income levels.

Section 2. That the Board shall present its plan to the City Council no later than October 1, 2017.

Typical Participant Group: Monthly Cash Flow, year 5

8-Year Loan
20-Year Life

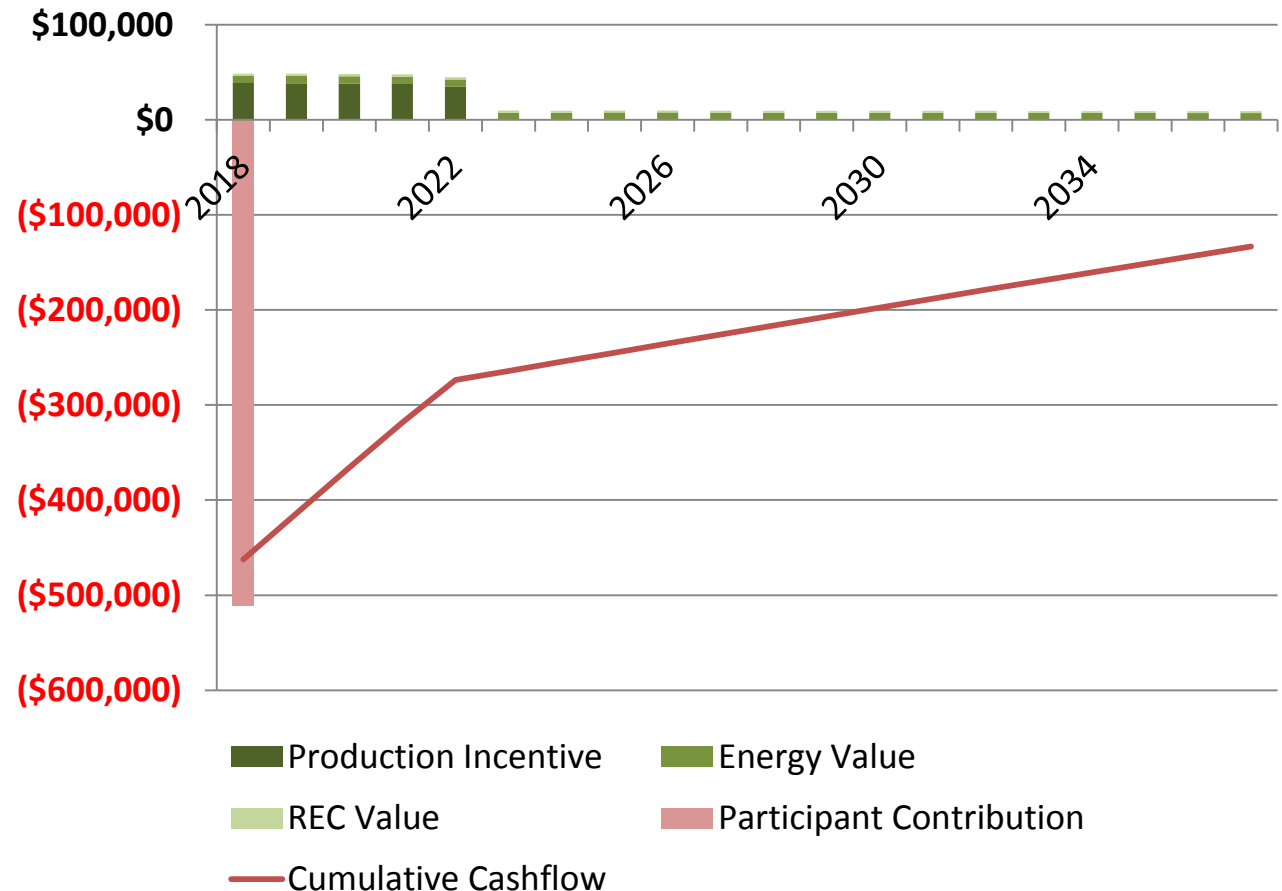


Community Solar: Participant Annualized Cash Flow

199 kW

\$1.89/Watt

12.3%
capacity
factor



UTILITY TECHNOLOGY STRATEGIC PLAN

2018 – 2022

PUBLIC UTILITY BOARD
STUDY SESSION

JULY 11, 2018

JOE TELLEZ, CHIEF TECHNOLOGY OFFICER
ANDREW BRAEGER, ENTERPRISE ARCHITECT



PRESENTATION OBJECTIVE

Share the Updated Utility Technology Strategic Plan for TPU

1) Where we've been & what we've accomplished

2014 – 2018 Strategic Plan Review

Key Accomplishments

2) Where the industry is heading

Emerging
Industry
Trends

TPU
Business
Drivers

3) How we're responding & where we're going

Updated
Strategic
Objectives

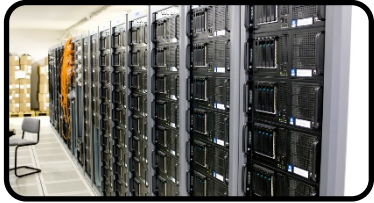
Key Projects
& Initiatives

WHERE WE'VE BEEN & WHAT WE'VE ACCOMPLISHED...

2014 – 2018 Strategic Plan Review

Key Accomplishments

UTILITY TECHNOLOGY STRATEGIC PLAN REVIEW: 2014 – 2018



Modernize & optimize infrastructure technology



Enable smart utility integration

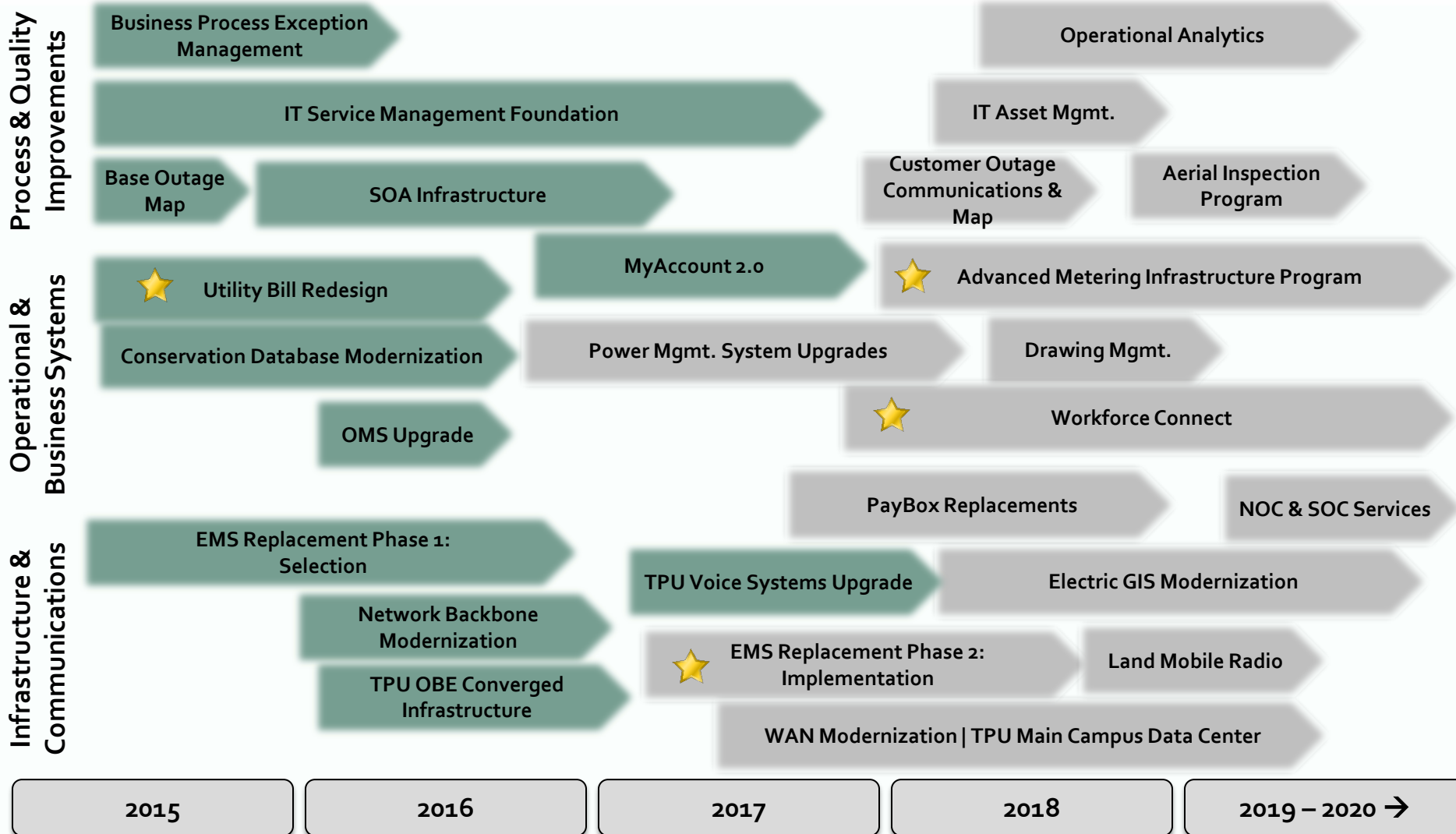


IT/OT convergence & enhance cybersecurity posture



Excellence in service delivery

TECHNOLOGY STRATEGIC ROADMAP: 2014 – 2018



7/11/2018



KEY TECHNOLOGY PROJECTS & TRANSFORMATIONAL INITIATIVES



Energy Management System



Advanced Metering Infrastructure

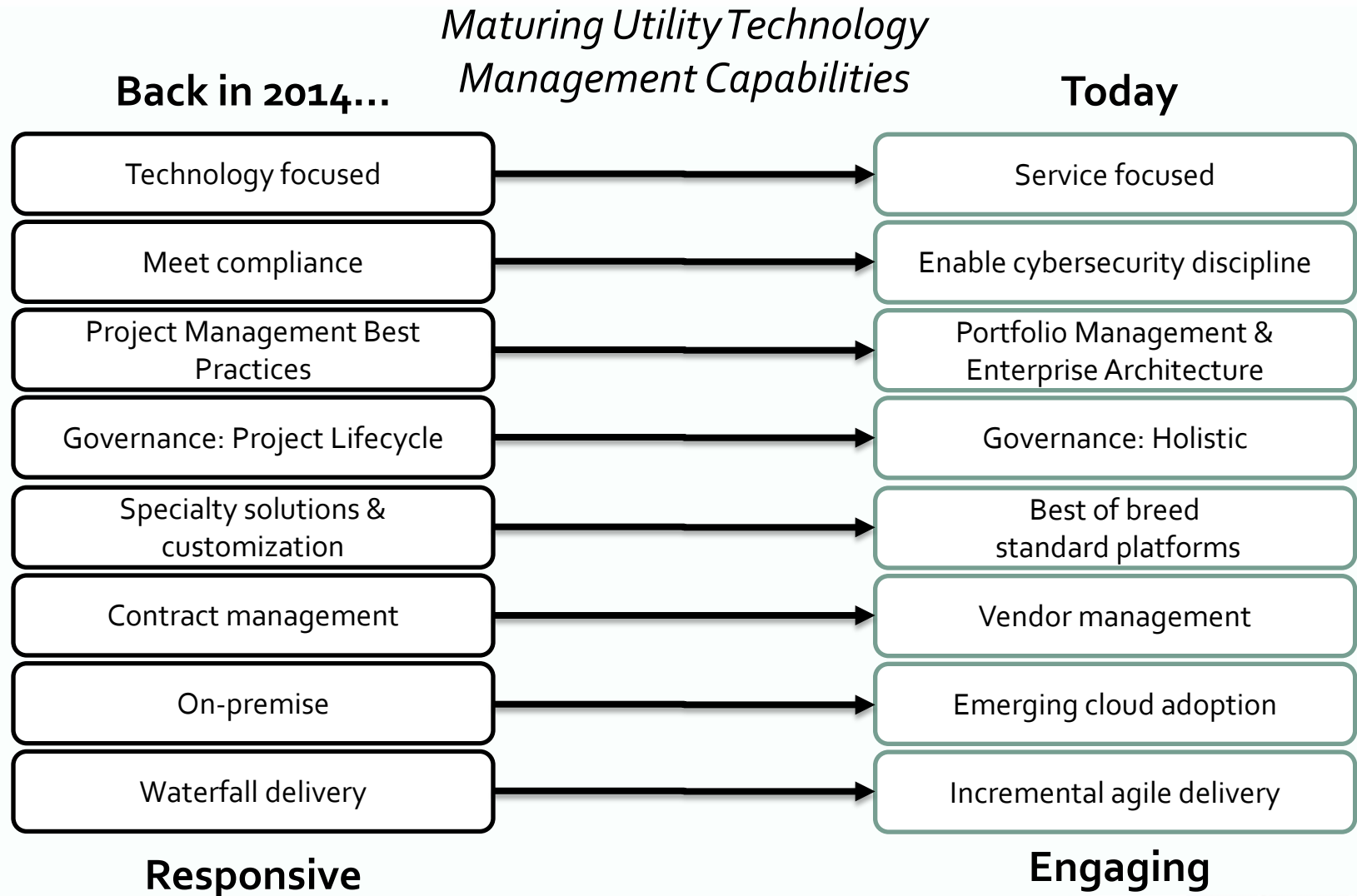
| | | | |
|---|--|--|--|
| Summary of charges from Tacoma Public Utilities | | Summary of charges from Environmental Services (Tacoma residents) | |
| EDGAR ALLAN DOE For service address: 123 Arley Ave., Tacoma, WA 98409 | | 9/12/16 | |
| Billing period - Jun. 24 to Aug. 23 (60 days) | | Previous Amount Due \$494.96 | |
| Electricity \$161.13 Average cost per day \$2.68 | | Balance \$0.00 | |
| Drinking water \$79.24 Average cost per day \$1.32 | | Current Charges Due 9/12/16 \$443.93 | |
| Environmental Services | | Amount Due \$443.93 | |
| Wastewater \$93.48 Average cost per day \$1.56 | | What do you think of the new design? Whether you love it or hate it, we want to know what you think about your redesigned utility bill. Please visit MyTPU.org/BISurvey to share your thoughts. | |
| Solid waste & recycling \$61.14 Average cost per day \$1.02 | | Take action Log on to: MyTPU.org/MyAccount to update your phone number. Current information will help us provide better service during power outages and other events. | |
| Surface water \$48.94 Average cost per day \$0.82 | | Account updates and important notifications | |
| Total Current Charges \$443.93 | | Detachable stub for you to easily mail your payment | |
| Pay online at MyTPU.org/MyAccount or make checks payable to City of Tacoma and mail to | | Account # 123456789 | |

Utility Bill Redesign



Workforce Connect

UTILITY TECHNOLOGY SERVICES...



WHERE THE INDUSTRY IS HEADING...

Emerging
Industry
Trends

TPU
Business
Drivers

UTILITY INDUSTRY TECHNOLOGY TRENDS

Digital Transformation



Digital customer engagement provides new service opportunities
Digital worker enablement transforms utility field operations
AMI is a key enabler of utility digital transformation



Operational Analytics & Situational Awareness

Data driven operations
Asset performance management
Internet of things and the sensor revolution



Technology Delivery & Management

Standards based vs. customization
Cloud gaining traction
Transforming while performing

TPU'S BUSINESS DRIVERS



Legacy utility operations



Ever-increasing customer expectations



An evolving workforce

HOW WE'RE RESPONDING & WHERE WE'RE GOING...

Updated
Strategic
Objectives

Key Projects
& Initiatives

UTILITY TECHNOLOGY STRATEGIC OBJECTIVES: 2018 – 2022

Integrating technology to **deliver customer value & realize operational excellence**

AMI Readiness & Deployment



Customer Engagement & Digital Services



Operational Analytics



Cybersecurity Program Maturity



AMI READINESS & DEPLOYMENT

Enabling greater customer choice and optimizing utility operations

Provide new customer products/services that yield two-way engagement

Enhance outage detection

Provide asset management capability

Collect and analyze data to improve operations



CUSTOMER ENGAGEMENT & DIGITAL SERVICES

Meeting evolving customer needs

Value my time



Value my money



Value me



TPU Customers

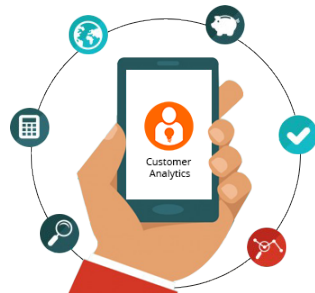
Value my preferences



OPERATIONAL ANALYTICS

Enabling a data-driven utility

Customer Analytics



Provide personalized customer communications

Asset Analytics



Perform condition-based maintenance

Operational Analytics



*Proactive fault monitoring
Leak detection*

Workforce Analytics



Optimize employee engagement & retention

CYBERSECURITY PROGRAM MATURITY

Maturing TPU's cybersecurity program to prevent, detect, respond to, and resolve cyber threats



Cybersecurity
Governance



Vulnerability
Management



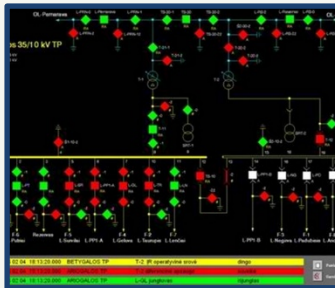
NERC CIP Compliance



Security Operations
Center



Managed Cybersecurity
Services



Control Systems
Security

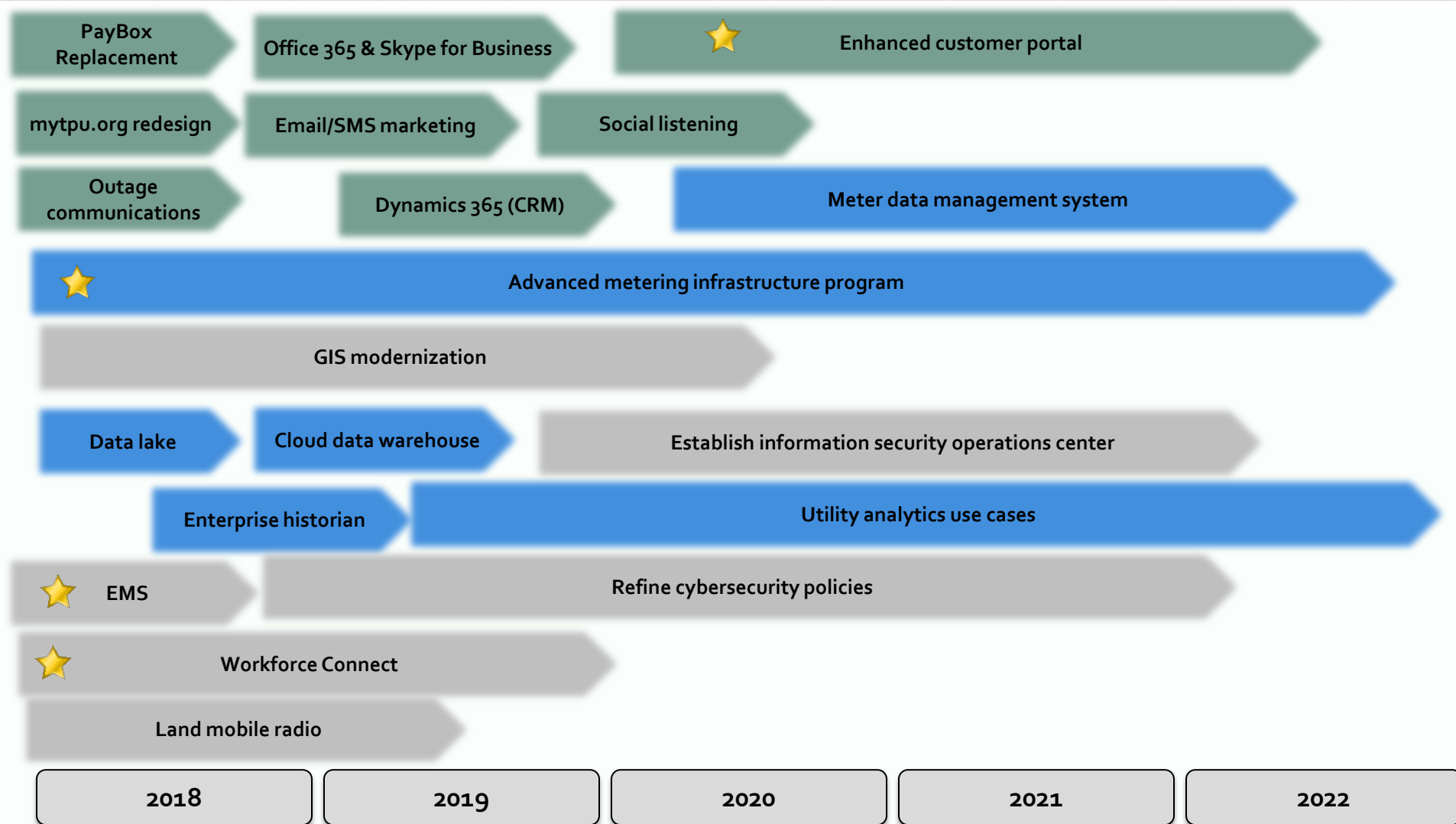


Data Protection



Identity and Access
Mgmt.

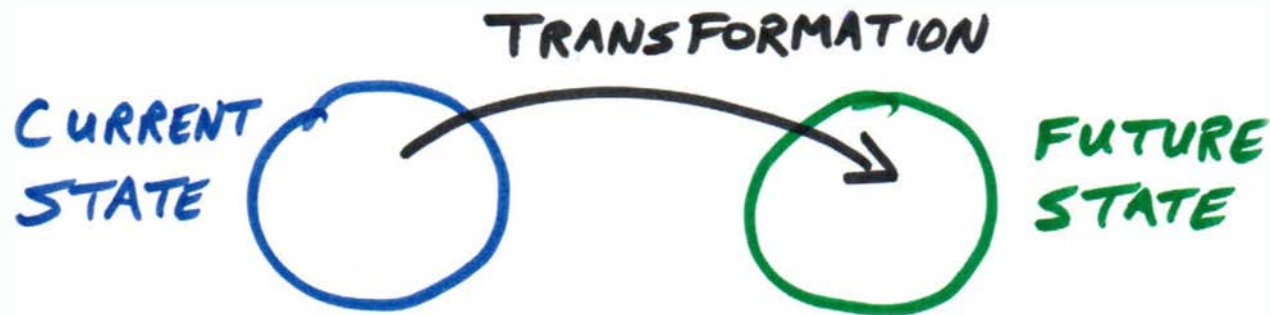
TECHNOLOGY STRATEGIC ROADMAP: 2018 - 2022



7/11/2018



SUMMARY & KEY TAKEAWAYS



TPU's utility technology management capabilities are **advancing**

Our technology portfolio is **modernizing** with the rest of our industry

Our industry is facing numerous opportunities for **digital transformation**

Recent technology investments have laid the **foundation** required for highly complex and **integrated transformational projects**

QUESTIONS

