



Advanced Meters Communications and Outreach

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Rebekah Anderson, Communications Manager
January 23, 2019

Background

- Recalibration of business case is complete
- Recommendations from outside AMI experts have been reviewed
- Clarity on customer benefits and project timing achieved
- Need to proactively provide accurate information to customers
- Proven model for public education from Director Search and Budget and Rates Outreach will be deployed

Communications and Outreach Strategies

- Provide ongoing messaging updates to leadership, employees, and customer-facing materials
- Highlight customer benefits and value
- Coordinate messaging timelines with project phases
- Use all available marketing channels as well as community and stakeholder relationships for outreach, similar to our **budget and rates process**
- Respond to emerging market issues

The image shows three overlapping cards representing Tacoma Public Utilities branding and messaging. The top card is a dark teal header with the Tacoma Public Utilities logo (a stylized 'T' with three horizontal bars) in the top right corner. Below the logo, the text reads "Tacoma Public Utilities" and "Providing services that are vital to our quality of life". The middle card is white with a teal border and contains the mission statement: "Mission: Tacoma Public Utilities provides services that are vital to our quality of life." To the right of the mission statement, it states: "Public, cost-of-service organization; we don't pay investors", "Part of the community since 1893", and "Led by a 5-member Public Utility Board appointed by the mayor and confirmed by the Tacoma City Council". The bottom card is white with a teal border and contains the text: "Our long-term perspective benefits future generations". To the right of this text, it states: "More than 90% of our power comes from clean, renewable hydroelectricity.", "We manage our water and power supplies so we can meet customers' needs for decades to come.", "Our water system relies on gravity, minimizing the electricity needed.", and "We are stewards of our environment by protecting lands, fish and wildlife."

Near Term Plan

- Complementary to Phase 2 Deployment recommendation from consultant
- PUB and City Council
 - Briefings and materials for responding to questions
- TPU and General Gov. employees
 - Educate staff so they can address customer questions confidently
- Stakeholder and public outreach
 - Briefings and materials to PUB and City Council
 - Meet with community groups and business leaders
 - Make sure the public has access to accurate information about our specific project
 - Educate the public on the long-term benefits
 - Enlist advocates who understand the benefits

Previous Outreach

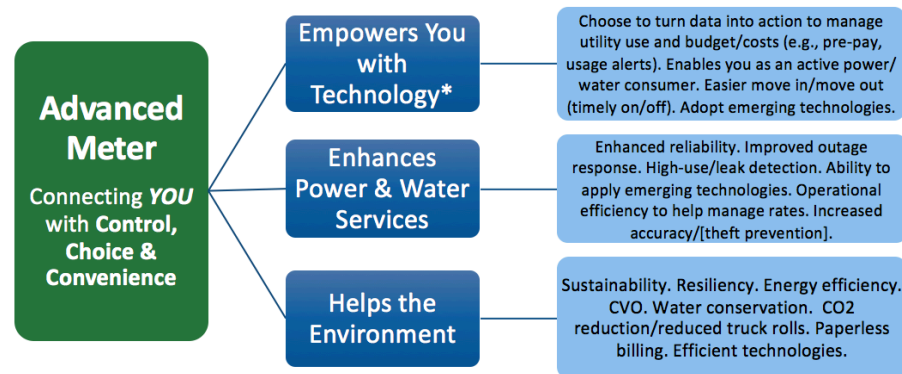
- Briefings to new Tacoma City Council Members and Mayor Woodards
- Briefings for City Managers and Mayors in franchise cities
- Lakewood City Council Study Session presentation
- AMI project mentioned during budget and rates outreach to franchise cities, neighborhood and community groups, and Metro Parks Commission
- First Creek Block Group Presentation - Nov. 7, 2018

Planned Outreach

- Tacoma's Neighborhood Councils
- Black Collective
- Korean Women's Association Group
- Neighborhood Block Groups
- Community Organizations (Rotaries, Kiwanis, etc.)
- Centro Latino
- City of Federal Way
- City of Fife
- City of Fircrest
- City of Lakewood
- City of University Place
- Pierce County government
- Metro Parks
- Joint Municipal Action Committee (City, Metro Parks, Pierce Co., Port of Tac., Tac. Public Schools)

Previous Communications

- Developed message map and confirmed customer benefits to highlight
- Updated web content and FAQs
- Provided talking points to leadership and outreach staff
- Responded to customer and community group questions (incl. online contact form)



Since Last Study Session

- Developed near term, campaign approach Communications Plan to complement the consultant's recommendations for deployment communications
 - Two phase approach
 - Public Information
 - 4,3,2,1
- Updated summary of the project and talking points
- Updating web content and FAQs, incl. graphics
- Developing project fact sheet for the public

Planned Communications

- Educate staff
 - Newsletter updates
 - Intranet resources
 - Educational presentation in the auditorium
 - Post updates around campus and provide updates to managers to share with employees
 - Include General Gov. employees

Planned Communications

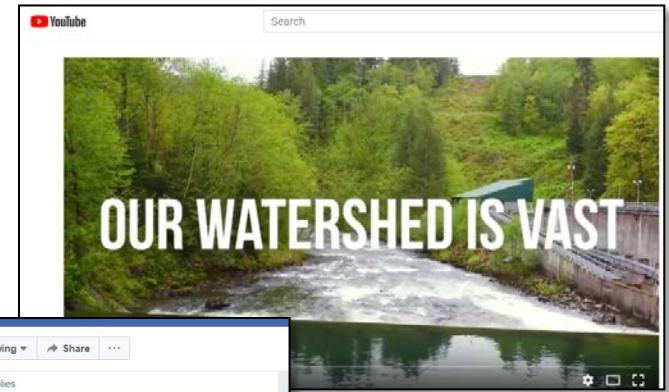
- Stakeholder and public outreach
 - Follow proven process used for Director Search, Budget and Rates Outreach
 - Provide resources to outreach staff
 - Update web content as program details develop -- fact sheets, videos
 - Publish testimonials from AMI and prepay advocates
 - Media outreach: TNT, Q13, TV Tacoma
 - General updates to customers referring them to web
 - Possibility for translated materials
 - Email marketing program

Customer Narrative

- What problem we're solving- customer benefits provided by Advanced Meters
- What would happen if we didn't invest in AMI
- Benefits to customers by group (tech enthusiasts, low and fixed income, seniors, general population)
- How customers can stay informed
- Provide accurate info specific to our project

Customer Resources

- Video series addressing the main topics related to AMI
 - Health and safety
 - Economic impacts
 - Data privacy



Outreach Timeline

- Targeted presentation schedule for February—
April to include:
 - Neighborhood Councils
 - Safe Streets Neighborhood Block Groups
 - Other Community Organizations
 - Black Collective, Centro Latino
 - Franchise cities and governmental entities

Communications Timeline

- Phase 1: Feb - Dec
 - Employee education
 - Testimonials from advocates
 - Public Information Campaign
- Phase 2: Four months prior to deployment (dependent on contract timelines)
 - 4,3,2,1 model from consultant
 - Encourage paperless
 - Installation notifications

4: By at least 4 months prior to meter installation: Finalize overall install comms strategy and schedule; develop/approve materials. Add to website and other background resources. Introduce/socialize broadly.

3: At 3 months prior: Educate employees on installation specifics and inform community leaders; ramp up community awareness building.

2: At 2 months prior: Engage the target community broadly via general education and awareness. Finalize escalation procedures.

1: At 1 month prior: Notify individual customers and impacted parties, as applicable. Knock; provide post-install notification (e.g., door hanger); follow-up research.



Advanced Metering Infrastructure (AMI) Program Update

'The Digital Foundation to Enhance the Customer Experience'

Public Utility Board
Study Session
January 23, 2019



●●● Agenda

1. Introduction
2. AMI Contract Framework
 1. Master Supplier Business and Services Agreement (MSA)
 2. Statements of Work (SOW)
3. AMI Contract Update
4. Meter Safety Review
5. Wrap Up



**UTILITY TECHNOLOGY SERVICES
MASTER SUPPLIER BUSINESS AND SERVICES AGREEMENT**



About the Master Supplier Agreement



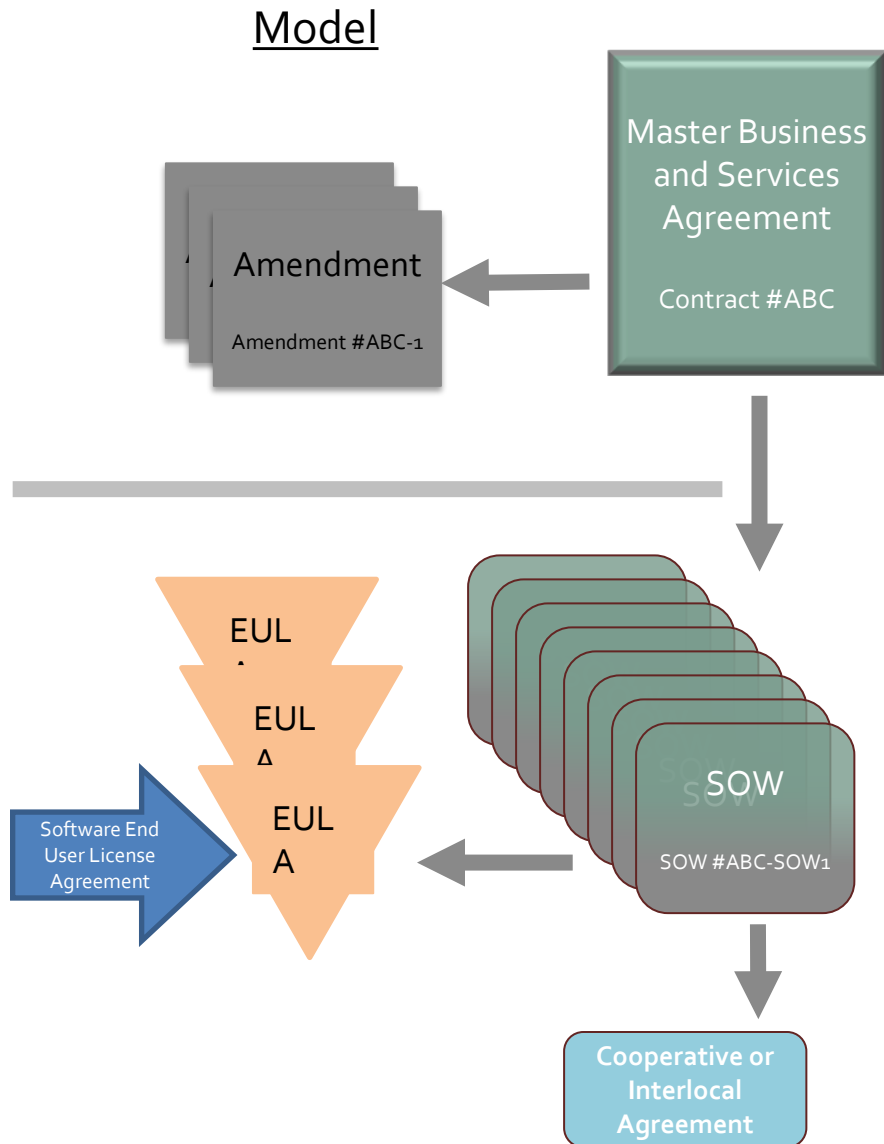
What it is

- A relationship and compliance agreement
- A risk mitigation instrument
- Supports technology requirements
- Streamline negotiations
- Consistent terms across Suppliers

What it is Not

- A spending/purchasing agreement
- An open-ended alternative to solicitation and Purchasing Policy requirements
- A cooperative or interlocal agreement
- A construction or public works contract

Master Supplier Agreement Model



Attributes

Master Agreement

- Perpetual/evergreen
- 3/5 year review
- One per supplier
- Highest level terms
- No budget
- No pricing

Statement of Work (SOW)

- Contains project Scope
- Contains budget
- Contains pricing, payment, schedule & terms
- Limited in time
- Under RFP/Quote/memo requirements
- Under Procurement & Signature policy
- Cooperative/Interlocal applied



Benefits

- **Master terms are in place prior to any proposed work**
- **Strong language protections that do not change**
 - Indemnity
 - Limitation of Liability
 - Insurance
 - Cloud Services
- **Critical compliance language included upfront**
 - CIP - Data Protection - Cybersecurity
 - Personally Identifiable Information (PII)
- **Standardization of Supplier terms and conditions across City**
- **Relieve Project Lead responsibilities for Legal contract negotiations (Project Lead focus on SOW/Project deliverable terms only)**
- **Effectively addresses contract risk**
- **Ease legal and project lead's burden for contract development**
- **Save resource time and costs (legal, business, supplier)**



Benefits

Reduce the time to negotiate supplier contracts

- Reduce Legal review time
- Reduce Project Lead contract negotiations to SOWs only

Effectively address contract risk

- Establish supplier accountabilities for their work/product
- Fair/consistent indemnity, protections, guarantees, security, controls, and compliance

Effectively address compliance

- Supplier conduct
- CIP, City Policies, Laws, etc.
- Data protection and cybersecurity requirements



Solution Providers



AMI meter & network vendor



Power & Water Meters



AMI Base Station(s)



AMI head-end system

- Power & Water Meter Supplier
- Meter Communication Network Infrastructure
- Head-end System (HES) data collector
- Sandbox Deployment



Customer Information System



A Siemens Company

Meter Data Mgmt. System

Sensus contract

| Contract Component | Description | Price |
|--|---|---------------------|
| Master Service Agreement (MSA) | General Terms and Conditions | NA |
| Sandbox Statement of Work | Implementation of a test/non production environment | \$185,000 |
| Hardware Statement of Work | Meter and network infrastructure | \$33,000,000 |
| Implementation Statement of Work | Professional services for implementing the AMI system | \$642,500 |
| Software as a Service (Saas) Statement of Work | Network and system management | \$1,326,000 |
| Spectrum SOW | Network licensing agreement | NA |
| Total Contract Value | | \$35,153,500 |

Sensus contract: Hardware SOW



➤ Power Hardware

- Approximately 180,000 electric meters

➤ Water Hardware

- Approximately 110,000 water meters

➤ Networking Devices

- Approximately 120 network devices

Sensus contract: Implementation SOW



➤ Implementation Statement of Work

- Project Management
- Business and Technical Requirements Documentation
- Field Network Design
- Field Network Deployment Support
- First Article Testing
- Endpoint Installation
- Network Planning
- Security Planning
- Design/Setup of Data Center
- Remote Network Infrastructure (RNI) Deployment
- Network Coverage Guarantees (100% coverage)
- System Acceptance Testing
- RNI Integration and Configuration Assistance
- Acceptance Testing
- Operations System Familiarization

Sensus contract:



Software as a Service (SaaS) SOW

➤ Software as a Service (SaaS) SOW - \$1,326,000

➤ Description of services

- Regional Network Interface software
- Automation Control

➤ Use of SaaS

➤ Supplier provided

- Required hardware
- Production and disaster recovery environments
- Patches, updates, and upgrades
- Configuration and management of equipment (server hardware, routers, switches, firewalls in data centers)
- **Capacity and performance management**
- Database management
- Incident and problem management
- **Security Management (24x7x365) – NIST Security Standards**



Meter Data Management System



Power &
Water Meters



AMI Base Station(s)



AMI head-end system



Customer Information System



Meter Data
Management System

- *System of record for meter data*
- *Collects and converts raw meter data into meaningful information of other systems*
- *Collects, processes, sends billing determinants*
- *Collects and analyzes meter events and alarms.*
- *Synchronizes with SAP and maintains synchronization of AMI*

Omnetric contract

| Contract Component | Description | Price |
|----------------------------------|---|--------------------|
| Professional Service Agreement | General Terms and Conditions | NA |
| Sandbox Statement of Work | Implementation of test/non-production environment | \$90,482 |
| Implementation Statement of Work | Implementation and integration of the MDMS | \$1,168,452 |
| Software License | MDMS Licenses | \$50,000 |
| Total Contract Value | | \$1,308,934 |

Omnetric review

➤ Implementation SOW

- Delivery and tested EnergyIP
- AMI Data Storage
- Meter Usage Data Repository
- Real-time data processing
- Data synchronization engine
- Service Requests
- Real-time validation, estimation and editing (VEE)
- System Administration console
- Operational dashboard
- BIRT Reporting Framework
- Device Tracking
- AMI System Monitoring
- AMI Exception Handling
- Event Notification Services
- Sensus RNI AMI Integration Adapter
- Register Billing Application
- Interval Billing Application
- On Demand Read
- Remote Connect/Disconnect Application

System Integration



Power &
Water Meters



AMI Base Station(s)



AMI head-end system



Customer Information System



Meter Data
Management System

Integration contract

| Contract Component | Description | Price |
|----------------------------------|------------------------------|--------------------|
| Master Service Agreement | General Terms and Conditions | NA |
| Implementation Statement of Work | Integration services | \$3,885,804 |
| Total Contract Value | | \$3,885,804 |

Integration review

➤ Implementation SOW

- System configuration
 - Sandbox
 - Blueprinting
 - AMI System
- Integration services
 - Project Management
 - Subject Matter experts for:
 - Architecture
 - Configuration
 - Functionality
 - Application Programming Interface (API)
- Testing services
 - Correct all defects and deficiencies



Meter Safety

➤ RF Emissions

- The output of a Sensus water SmartPoint is about 660 times lower than the average use of a cell phone and the output of a Sensus electric SmartPoint is about 220 times lower than the average use of a cell phone.
- The output of a Sensus electric meter is about twelve times lower than a mesh electric meter.
- The SmartPoint is typically mounted away from human contact such as near the meter in a basement, outside on the wall of the house or in a pit outside the house. The field strength only 10 feet away from the SmartPoint will be reduced by a factor of 1000 or more.
- We can conclude then that the total energy presented to humans by this system is at least 50,000 times less than today's cell phone.
- The Sensus Water and Electric meters produce approximately 12 times less than the Mesh Electric Meter.

Meter Safety

➤ Hot socket & Overvoltage Protection

- The Sensus electric meter has two temperature sensors within the meter module that provide alarms when an overheat situation is occurring.
 - Sensus is the only meter manufacturer that provides two temperature sensors.
 - The high temperature alarms are configurable which will allow Tacoma Public Utilities to set custom alarm points.
- The Sensus meter includes an automatic disconnect within the meter which disconnects the meter in emergency high temperature events
 - Sensus is the only meter manufacturer that provides this additional safety feature
- Sensus performs rigorous testing procedures to simulate lightning strikes, surges, and overvoltage scenarios to ensure a safe meter failure process

Questions



Tacoma Power

Energy Risk Management Overview and Policy Change Recommendations

Ying Hall, Energy Risk Manager

January 23, 2019



Energy Risk Management Overview and Policy Change Recommendations

Agenda

1

Introduction

4

Technical Policy Change
Recommendations

2

Energy Risk Management
Program Overview

3

Resolution and Policy
Change
Recommendations

Introduction

Section 1

Introduction

Risk and Energy Risk Management

What is Risk?

Chance occurrence of unexpected negative outcome leading to a loss

What is Risk Management?

A disciplined approach of identifying, assessing, communicating, and responding to risk

What is Energy Risk Management?

Process for measuring, hedging, and communicating the risks from transacting in commodity markets

What is Energy Risk Management at Tacoma Power?

Process for managing the risks to the power supply portfolio and wholesale revenues

Introduction

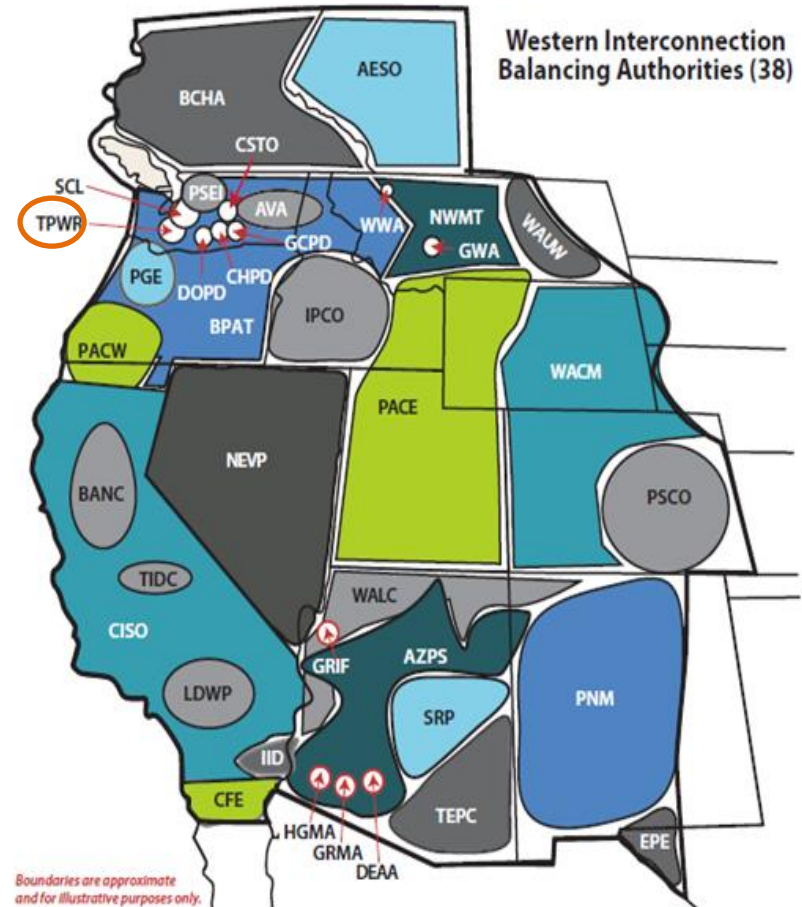
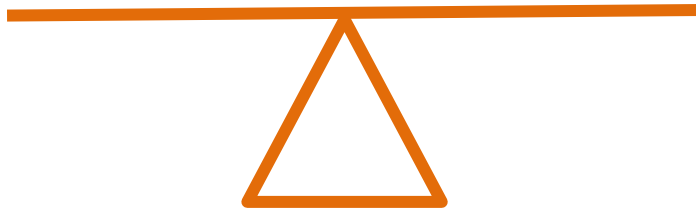
Why Do We Participate in the Market?



Load



Generation



Source: Western Electricity Coordinating Council

Introduction

Energy Market Risks

There are inherent risks by participating in a bilateral energy market.



Wholesale Price Volatility

Once generated, electricity cannot be stored. This lack of storage and other complex factors leads to very high volatility of the power spot price market.



Counterparty Credit Risk

Industry practice for providing credit to trading partners (counterparties) is based on measures of financial stability and health.



Market Liquidity

There are risks due to a lack of sufficient competitive market participants or a lack of robust trading for certain products at a time when Tacoma Power would like to transact.

Introduction

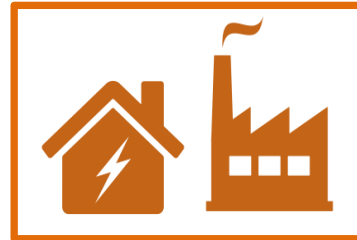
Tacoma Power's Wholesale Revenue Risks

Volumetric
Uncertainty



Hydro Generation

Load
Uncertainty



Demand

Price
Uncertainty



Wholesale Prices

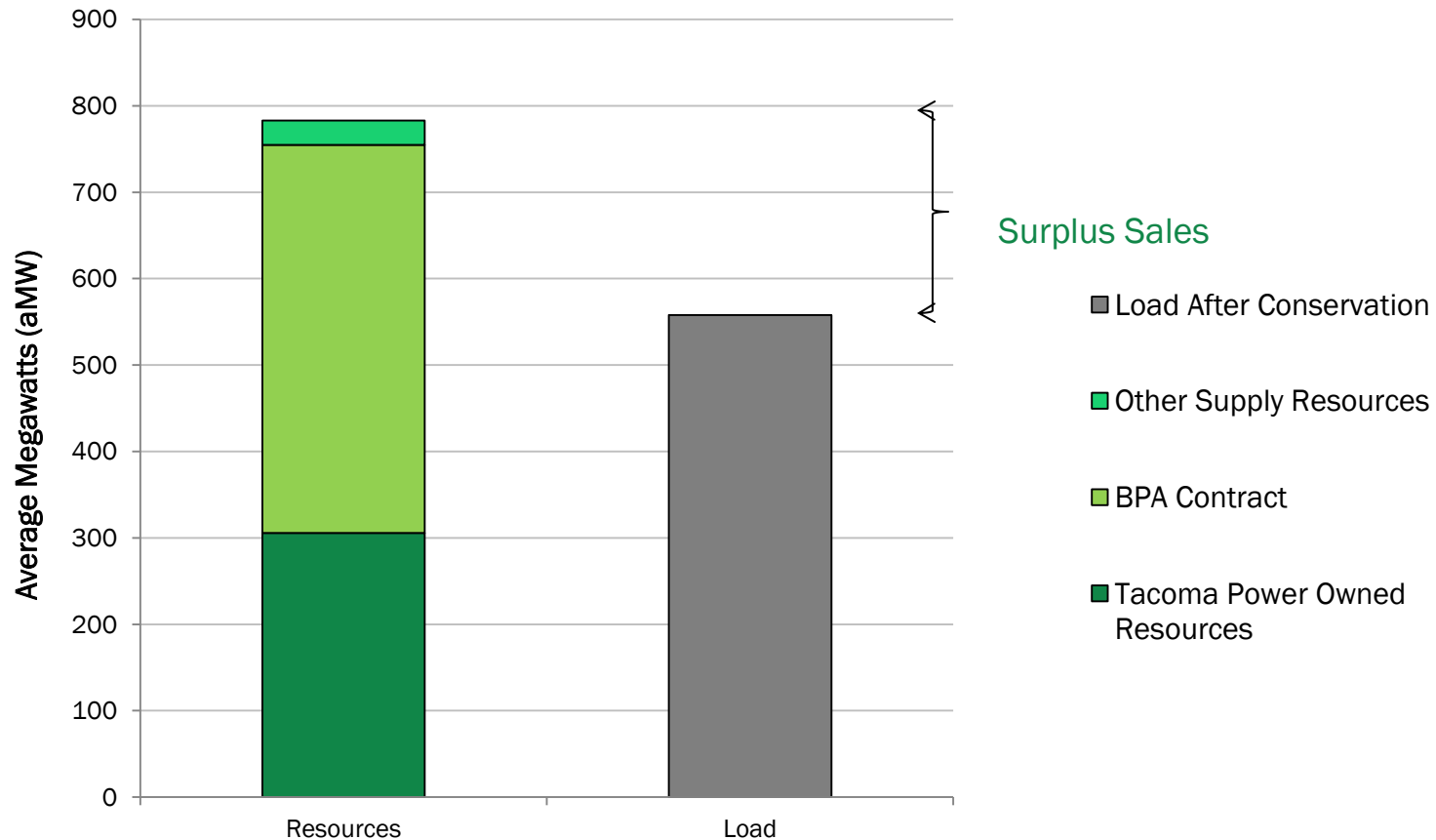


**Wholesale Net
Revenues**

Introduction

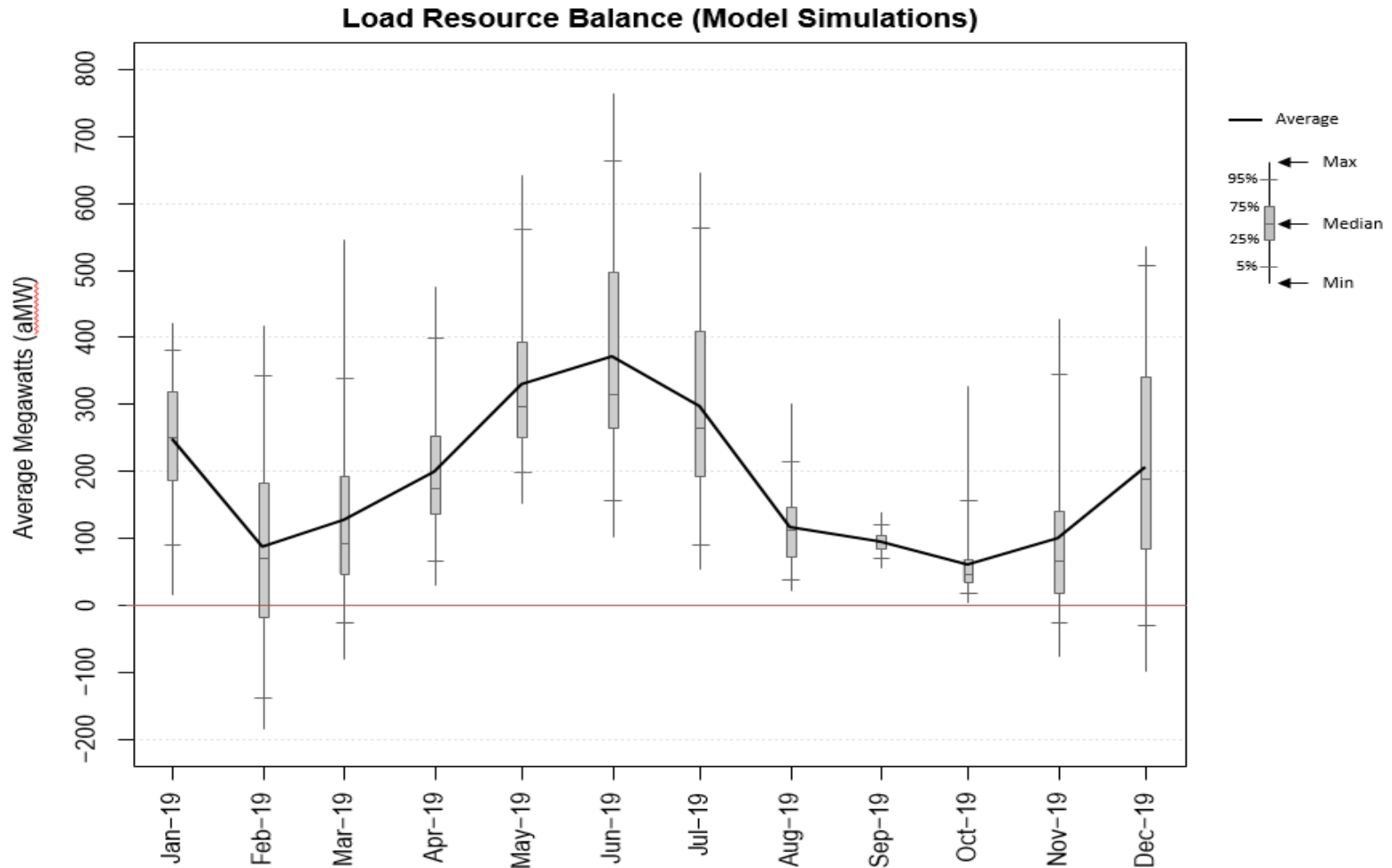
Tacoma Power Typically Has Surplus Hydro to Sell

2018 Load Resource Balance
(Average Water Year)



Introduction

Seasonal Variability in Surplus Power



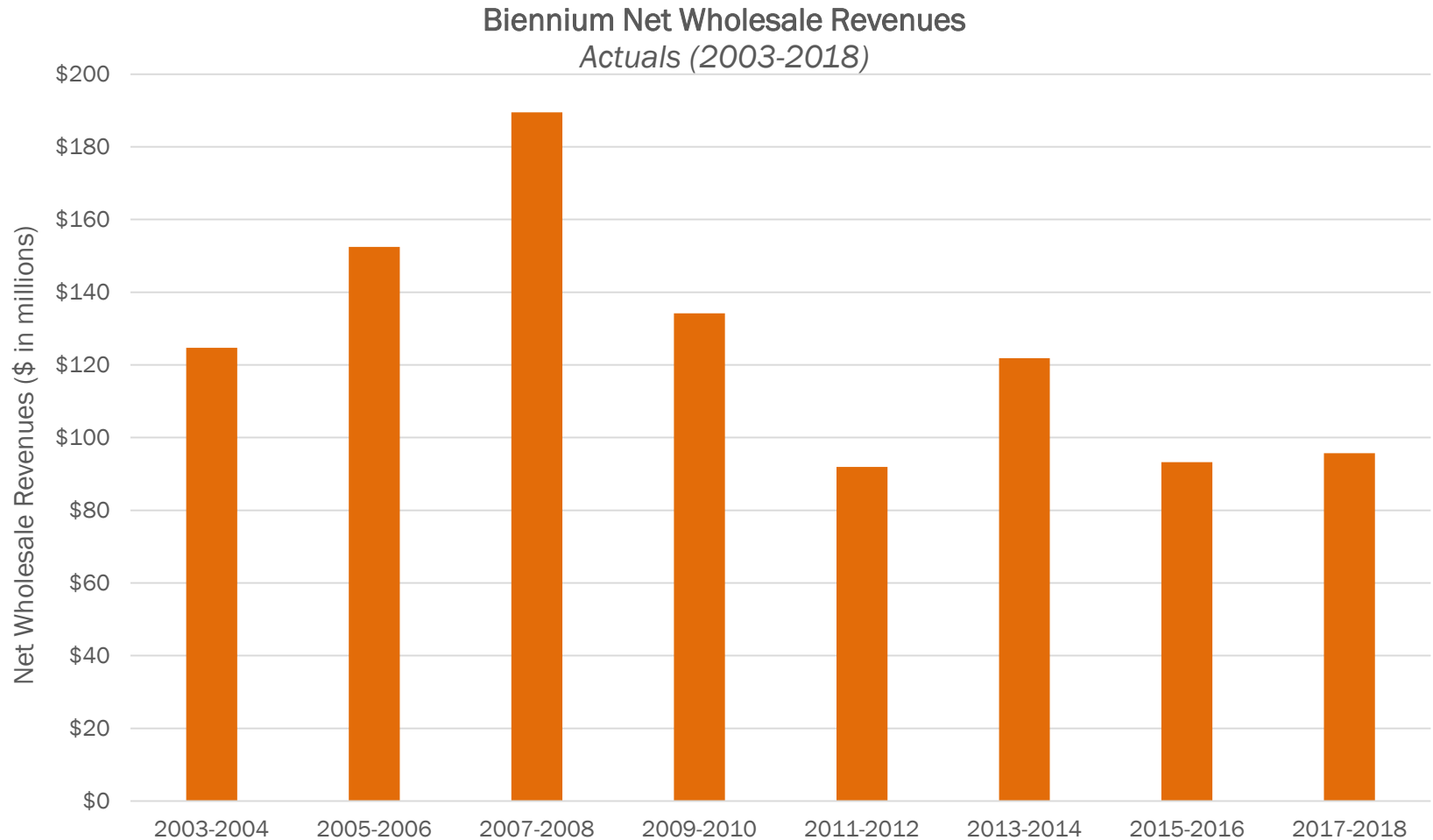
Introduction

Volatility in Spot Power Prices



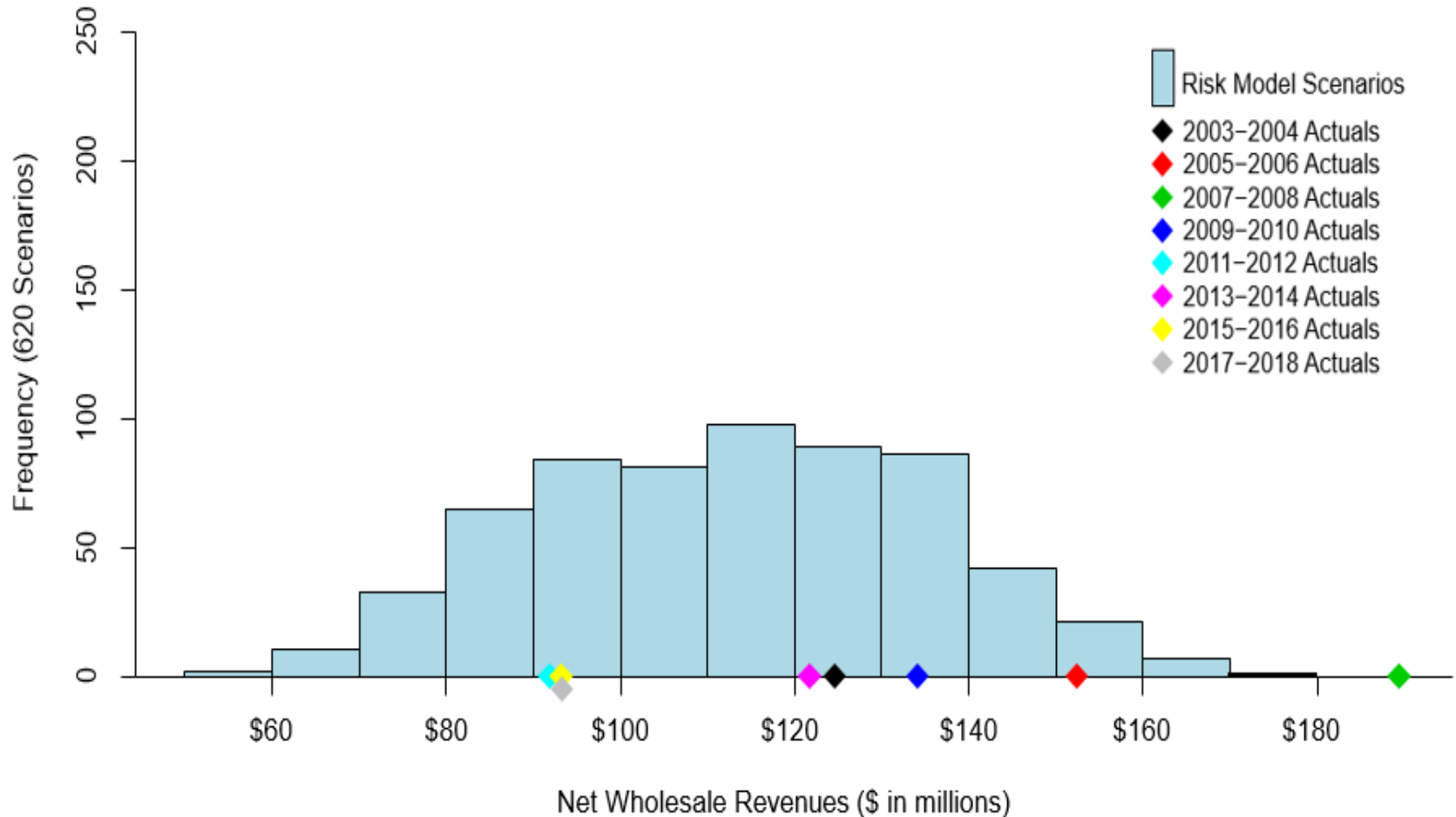
Introduction

Actual Net Wholesale Revenues



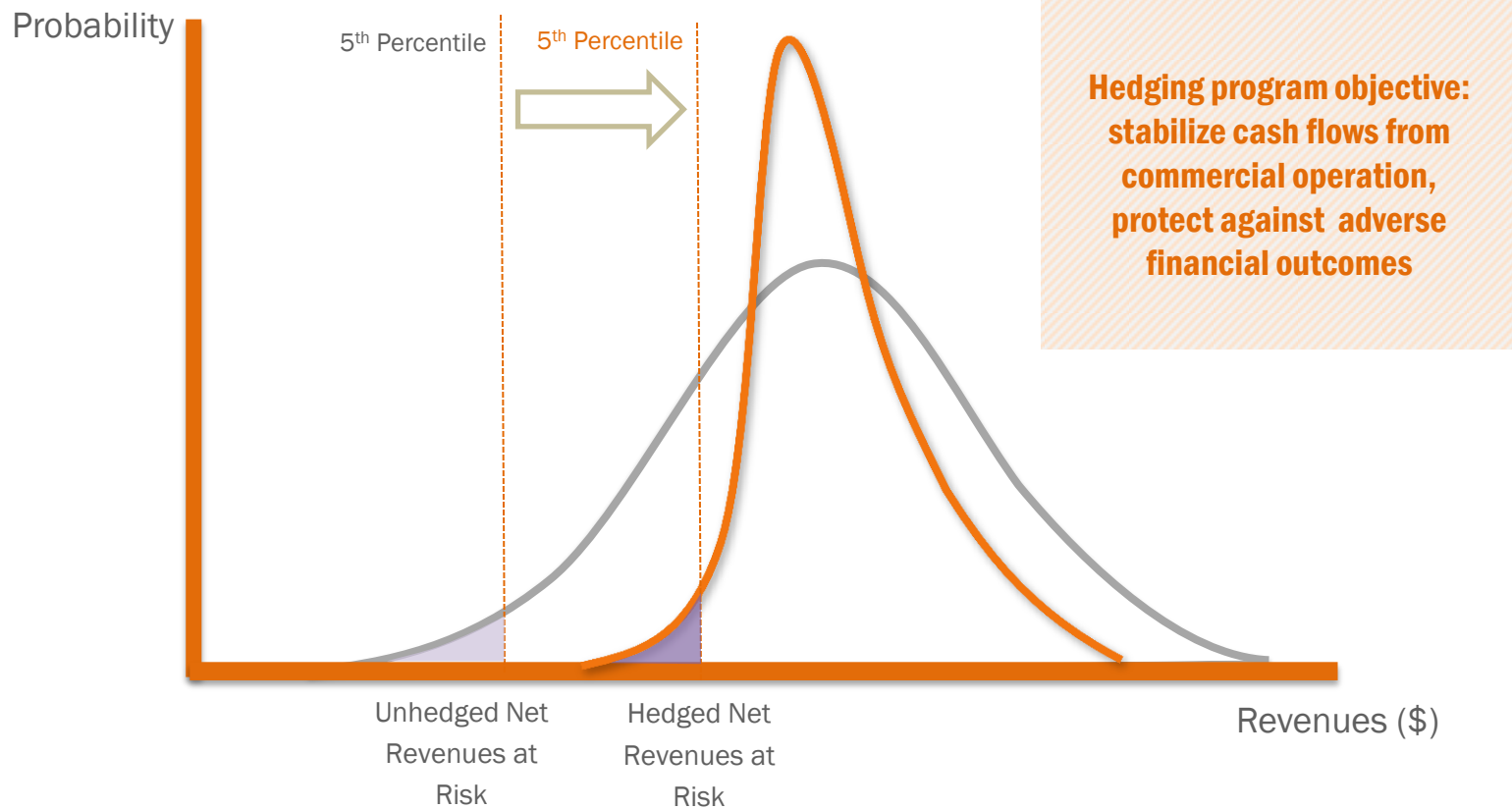
Introduction

Wholesale Revenue Variability



Introduction

Risk Management Program Objective



Introduction

Risks and Responses

Risks:

- Volumetric risk
- Load uncertainty
- Price risk
- Counterparty credit risk
- Liquidity

Response:

- • • Net-Revenue-at-Risk Model
- • • Risk policy and procedures
- • • Risk metrics and reports
- • Hedging program
- • Trading/operating strategy
- • Credit scoring model
- • Credit exposure reports
- • New markets and products
- • Financially-settled transactions*

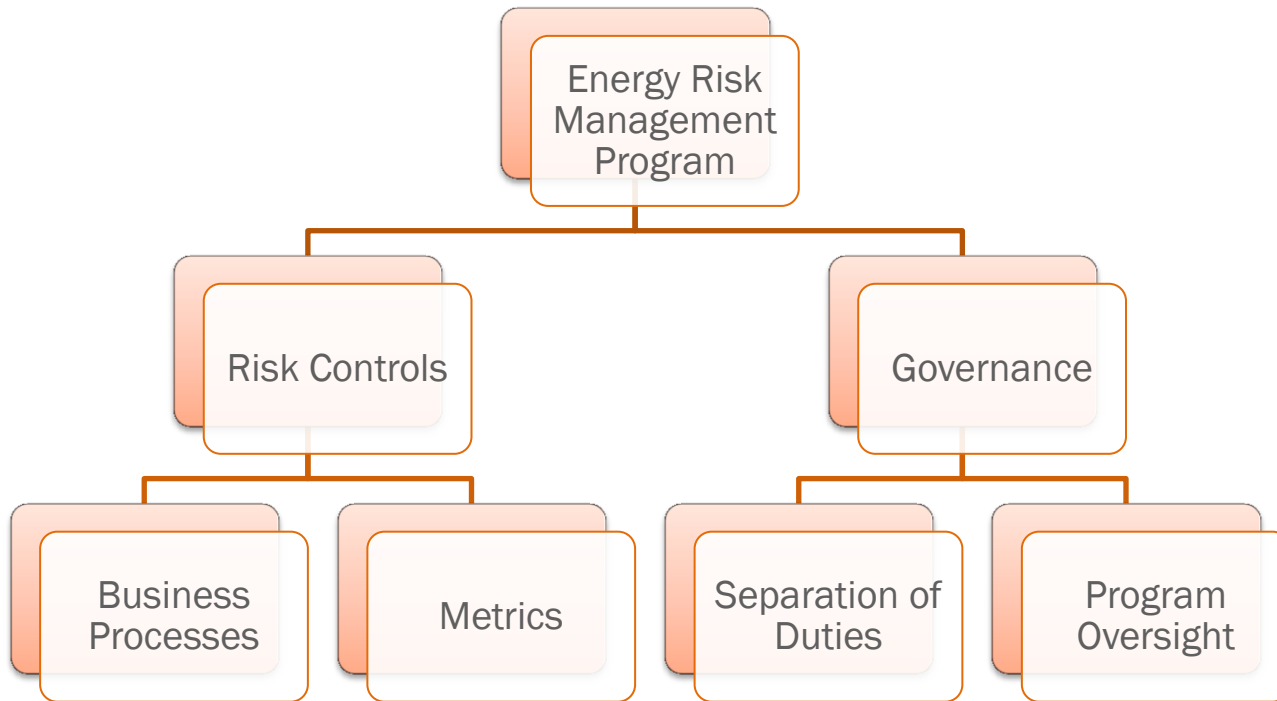
* Potential future transactions

Energy Risk Management Program Overview

Section 2

Energy Risk Management Program Overview

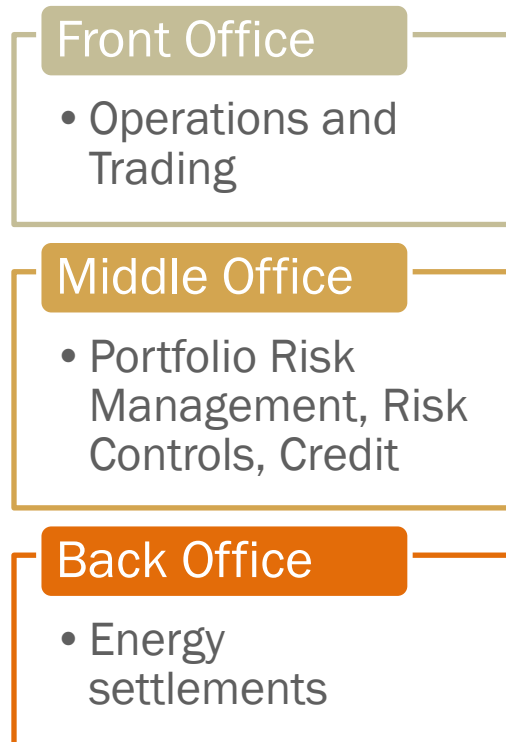
Program Structure



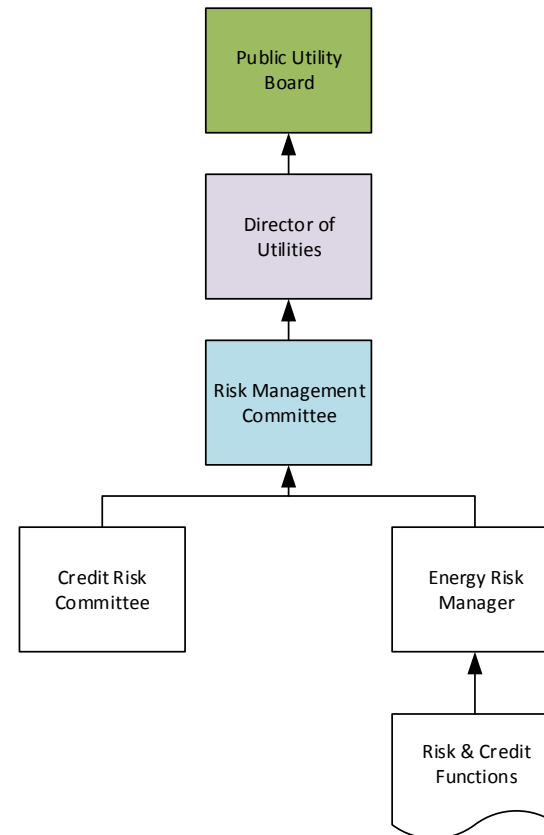
Energy Risk Management Program Overview

Governance

Separation of Duties

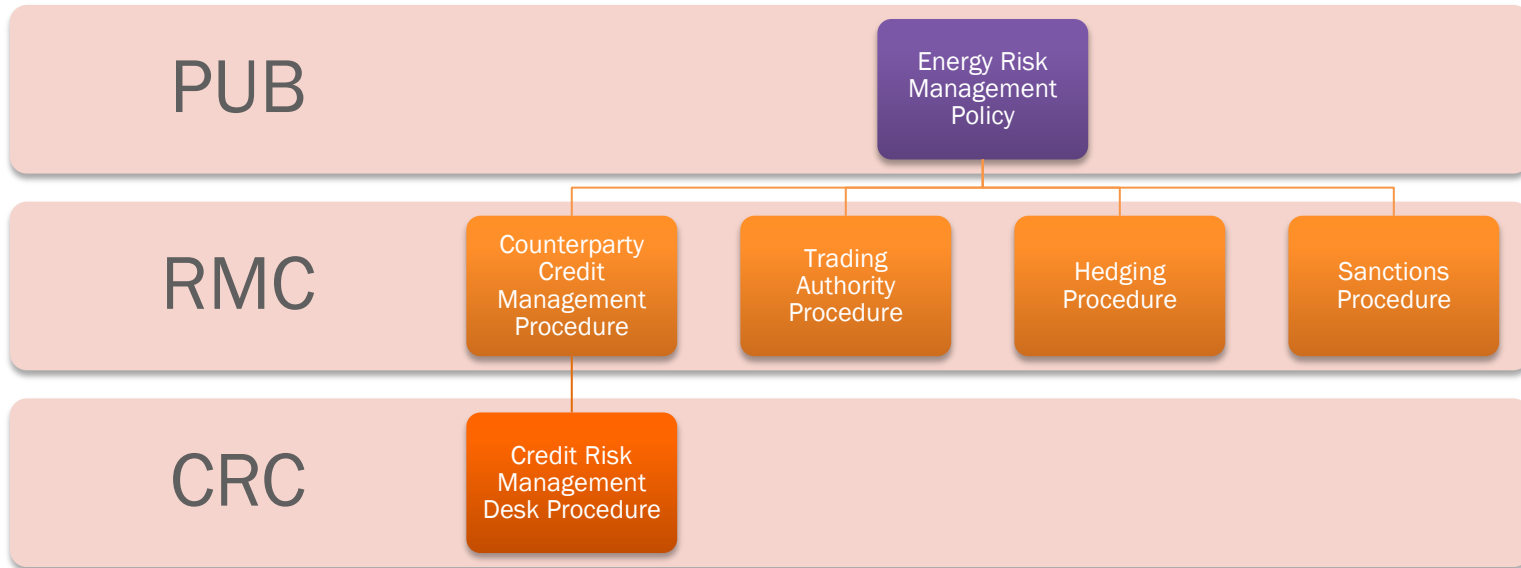


Program Oversight



Energy Risk Management Program Overview

Risk Controls: Policy and Procedures



Energy Risk Management Program Overview

Policy and Procedures

Energy Risk Management Policy:

Umbrella policy that identifies governance structure, delegates oversight authority of Procedure documents to the Risk Management Committee

Energy Risk Management Procedures:

Detailed business processes and protocols defining tools, techniques, and strategies for Energy Risk Management program

Counterparty Credit Management Procedures

- Describes process for credit risk management program

Trading Authority Procedures

- Establishes guidelines for levels of trading authority and identifies approved transactions and enabling agreements

Hedging Procedures

- Describes hedging strategy and decision-making process for managing estimated surplus/deficit wholesale energy

Sanctions Procedures

- Details business processes and consequences for lack of compliance with Policy and Procedures

Resolution and Policy Change Recommendations

Section 3

Resolution and Policy Change Recommendations – Background

Policy and Procedure Timeline

2009

- PUB approved resolution delegating authority to Director of Utilities “or his/her designee to enter into and approve transactions for the purchase and sale of wholesale electric power and energy-related products and services”
- PUB approved Energy Risk Management policy and subsidiary procedures
- PUB approved creation of a Risk Management Committee to oversee risk management processes

2016

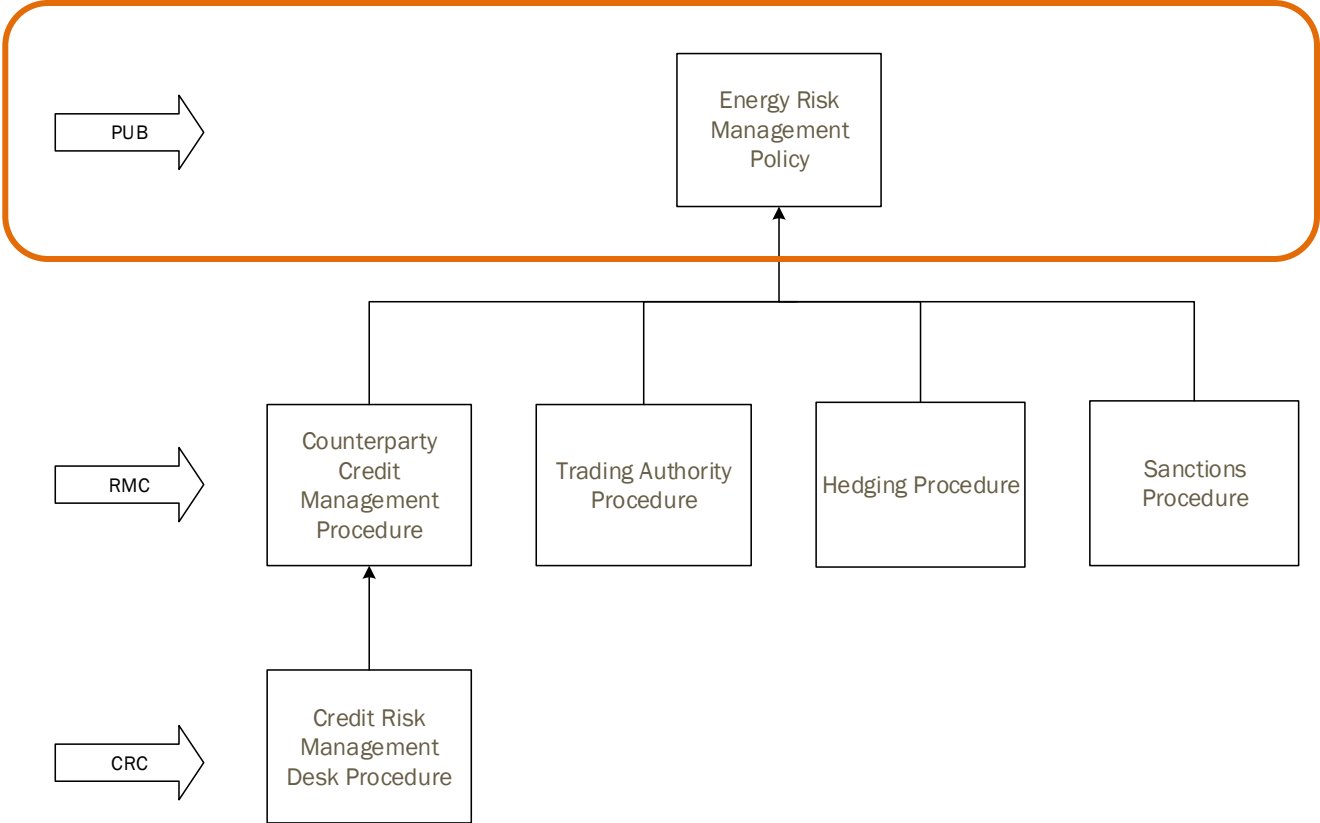
- Conducted Energy Risk Management program Gap Analysis
- Identified recommendations for strengthening risk controls, implementing additional risk management training, and updating policy and procedures
- Onboarded full-time credit risk management/risk control position

2017-2018

- Implemented new risk control and credit risk management business processes, provided additional risk management training, and supported business processes for new wholesale products
- Revised Credit Risk Management Desk Procedure, drafted procedure revisions

Resolution and Policy Change Recommendations – Background

Policy and Procedure Documents Hierarchy



Resolution Change Recommendations

Resolution Change Recommendations

- **Background:** Resolution passed by Board approving ERM Policy and delegating authority to Director for wholesale energy and energy-related transactions.
- **Recommendation:** Sec. 2 – Clarify applicability for guiding risk metric. Sec. 3 – Provide more flexible language that would enable RMC to consolidate 4 procedure documents into 1 and add additional procedures in the future, if necessary.

Current Language:

- Sec. 2 “The Board establishes the guiding risk metric for Tacoma Power to be the downside tail risk demonstrated by the fifth percentile of net revenues.”
- Sec. 3 “The Board approves and adopts the Energy Risk Management Policy, which covers the following areas (1) policy purpose, (2) program objectives, (3) subsidiary procedure documents (Trading Authority Policy, Hedging Authority Policy, Counter-Party Credit Management Policy, Risk Management Sanctions Policy),...”

Proposed Language:

- Sec. 2 “The Board establishes the guiding risk metric for **Tacoma Power’s purchase and sale of wholesale electric power and energy-related products and services as** the downside tail risk demonstrated by the fifth percentile of net revenues.”
- Sec. 3 “The Board approves and adopts the Energy Risk Management Policy, which covers **at minimum** the following areas (1) policy purpose, (2) program objectives, (3) subsidiary **procedures** (Trading Authority, Hedging Authority, Counterparty Credit Management, Risk Management Sanctions),...”

Policy Change Recommendations

Policy Change Recommendations

- **Recommendation: 4. Applicability** – Clarify applicability of Policy to include any person or committee involved with the purchase or sale of wholesale energy and energy-related transactions

Current Language:

- *“This policy applies to Tacoma Power real-time energy traders, near-term traders, mid-term traders, Assistant Power Manager of Resource Operations and Trading, the Power Manager, the Energy Risk Manager, risk management staff, operations staff, and the Risk Management Committee.”*

Proposed Language:

- *“This policy applies to any person or committee that is directly involved with the purchase or sale of wholesale electric power and energy-related products and services.”*

Policy Change Recommendations

Policy Change Recommendations

- **Recommendation:** 7.2.3 Risk Management Committee – Membership, Responsibilities and Duties – Increase rotational term for fifth voting member from six months to up to two years.

Current Language:

- *“The Risk Management Committee is a five person committee of voting members that includes...5. One other Tacoma Power Section Manager on a six month rotational basis.”*

Proposed Language:

- *“The Risk Management Committee is a five-person committee of voting members that includes...5. One other Tacoma Power Section Manager on a **rotational basis of up to two years.**”*

Technical Policy Change Recommendations

Section 4

Technical Policy Change Recommendations

Technical Policy Changes

- **Recommendation: 6. Subsidiary Procedure Documents – Update to be consistent with Resolution.**

Current Language:

- *“The Energy Risk Management Policy is supported by four subsidiary Procedure Documents that provide additional details on how risk is managed and reported at Tacoma Power. The four subsidiary Procedure Documents are:*
 1. *Trading Authority Procedure*
 2. *Tacoma Power Hedging Procedures*
 3. *Counterparty Credit Management Procedure*
 4. *Risk Management Sanctions Procedure*

Subsidiary documents shall not contradict nor be inconsistent with the ERMP and are administered and authorized by the RMC.”

Proposed Language:

- *“The Energy Risk Management Policy is supported by **Procedures** that provide additional details on how risk is managed and reported at Tacoma Power. **At a minimum, the Procedures will cover the following areas:***
 1. ***Trading Authority***
 2. ***Tacoma Power Hedging***
 3. ***Counterparty Credit Management***
 4. ***Risk Management Sanctions***

***Procedures** shall not contradict nor be inconsistent with the ERMP and are administered and authorized by the RMC.”*

Technical Policy Change Recommendations

Technical Policy Changes

- **Recommendation:** 11.1 Policy Effective – Update to be consistent with 7.2.1 The Public Utility Board – Responsibilities and Duties.

Current Language:

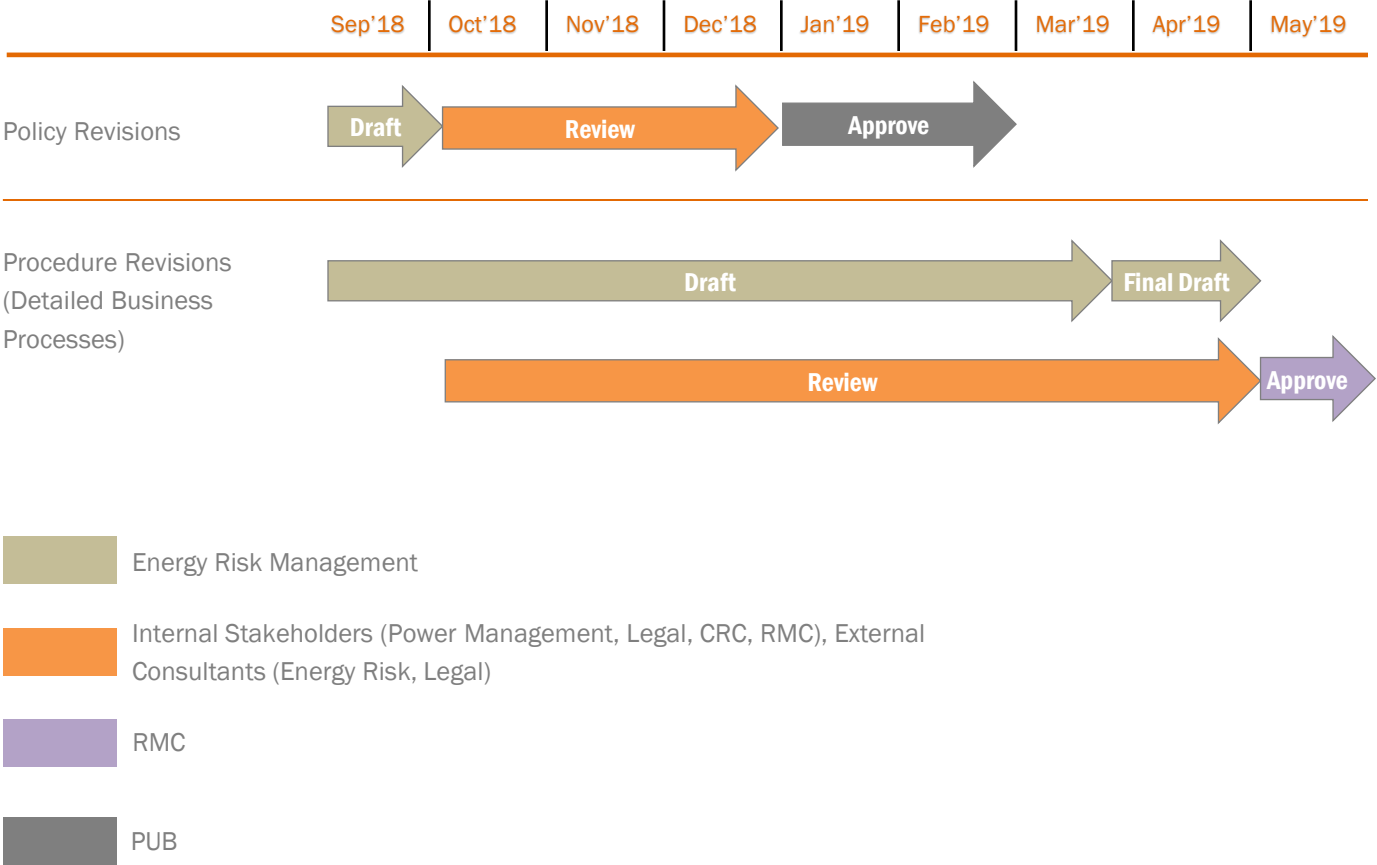
- *“The Energy Risk Management Policy Document is in effect upon approval by the Energy Risk Management Committee and shall remain in effect until a replacement policy has been approved by the Board superseding this Energy Risk Management Policy.”*

Proposed Language:

- *“The **Energy Risk Management Policy** is in effect upon approval by the **Public Utility Board** and shall remain in effect until a replacement policy has been approved by the Board superseding this Energy Risk Management Policy.”*

Policy and Procedure Revisions

Timeline for Revisions



Thanks!