WAPA Annual Customer Meeting

Dec. 11, 2017
Agenda

• Opening Remarks
• WAPA 10-Year Capital Plan
• Financial Strategy Update
• Market Strategies Update
• Organizational Approach to Markets
• Transformer Risk Strategy
  – Grid Assurance Presentation
  – Transformer Risk Strategy Discussion (WAPA and customers)
Opening Remarks

Mark A. Gabriel
Administrator and CEO
Welcome back
Are we bringing the right rocks?
Roadmap 2024

MISSION
Market and deliver clean, renewable, reliable, cost-based federal electric hydropower and related services
FY 2017 Accomplishments

- Safely worked 2.7M hours
- Completed 100% of aerial patrols
- Closed 355/370 security remediations
- Returned $378 M to Treasury
- TWE Environmental Record of Decision
- Implemented new PRS
- SPIED savings = $1.7M
- Resolved 99.61% of cyber issues
- $220M contracts awarded
- FEVS scores increase
- TIP provides support for 3 new projects
- Dropped UGP adder
- CRSP rates flat for 9yrs
- More market exploration
- New BCP contracts effective
- CPI $50M milestone
Asset management
Organizational realignment

- Exploring COO structure
- CAO to oversee administrative functions residing in COO
- SES and staff neutral
- COO and CAO evaluating reporting assignments
- Each organization will be more effective and focused
Next 5-10 years

- Reinvestment in system
- Investment in critical tools
- Lifecycle management
- Use Asset Management to drive decision making
## Audit plan for FY 2018

<table>
<thead>
<tr>
<th>Audit/review category</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Carryover from FY 2017</strong></td>
<td>Government Purchase Card follow-on</td>
</tr>
<tr>
<td></td>
<td>Stores inventory (RM, SN, DSW, UGP)</td>
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<tr>
<td><strong>New for FY 2018</strong></td>
<td>Project Management</td>
</tr>
<tr>
<td></td>
<td>Permanent Change of Station</td>
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<tr>
<td><strong>Follow-up on prior DOE-OIG audits</strong></td>
<td>Vegetation Management</td>
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<tr>
<td></td>
<td>Critical Asset Protection</td>
</tr>
<tr>
<td><strong>Required reviews</strong></td>
<td>OMB A-123 (Financial Controls)</td>
</tr>
<tr>
<td></td>
<td>WAPA Entity Assessment (non-financial controls)</td>
</tr>
<tr>
<td></td>
<td>Improper payments</td>
</tr>
<tr>
<td></td>
<td>California Independent System Operator (meter data)</td>
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<tr>
<td><strong>Continuous monitoring</strong></td>
<td>GPC, fleet and travel cards</td>
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</tbody>
</table>
Contact/follow me

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Mark Gabriel

WesternAreaPower1
WAPA 10-year Capital Plan

Dennis Sullivan
Senior VP and Chief Financial Officer
WAPA-wide Capital Plan overview
Fiscal Years 18-27

• Invests $1.6B in transmission system
  – Up $36M or 2%; Avg. $160M/year
  – HQ plan: WAPA-wide vs. Regional allocations
  – Drivers

• Significant reimbursable work for others
• State of capital appropriations
WAPA-wide 10-year Capital Investment Plan (by category)

Key investment drivers

- T-Lines = 37%
- Subs = 38%
- Comm = 7%
- IT = 7%
- Mobile / Heavy Equip = 6%
WAPA-wide 10-year Capital Investment Plan (by region)

Change by region

- CRSP + 16% (+$17.9M)
- DSW - 2% (-$8.5M)
- RM - 1% (-$1.8M)
- SN - 8% (-$18.5M)
- UGP + 6% (+$31M)
- HQ (WAPA-wide) + 18% (+$16M)
Summary of changes

• CRSP up $18M (or 16%)
  – Primarily substation activity
• UGP up $31M (or 6%)
  – Primarily substation and T-line activity
• HQ-managed plan down $11M (or 7%)
  – WAPA-wide portion up $16M (or 18%)
  – Regionally allocated portion down $27M (or 40%)
  – Improved planning, Enterprise apps, O&M tech
What drives the plan?

• Reliability through asset management
• Statutory and regulatory compliance
• Safety and security
• IT lifecycle management and business needs
• Markets (near-term)
Significant reimbursable work-for-others begins in FY18

In addition to WAPA investment of $1.6B, another $855M in reimbursable Work-for-Others (WFO) is planned

Key Projects

- **San Luis (SN)**
  - $399M total project cost
  - FY18 $183M, FY19 $55M, FY20 $108M

- **Colusa-Sutter (SN)**
  - $271M total project cost
  - FY20 $66M, FY21 $38.5M

- **Southline (DSW) – NEW to TYP**
  - $102M total project cost
  - FY20 $50M
Status of appropriations

- Pressure on appropriation levels continues
- FY18: Under CR through Dec. 22; C&R request $12M
- FY19: Request submitted through DOE to OMB; Work plan assumed $9M for C&R
- FY20: Currently formulating budget request; C&R estimate is ~$14M
- C&R 5-year average ~ $12M/yr

Capital Appropriations FY 2016 - FY 2020

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<td>5</td>
<td>18</td>
<td>12</td>
<td>9</td>
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<tr>
<td>PD</td>
<td>47</td>
<td>35</td>
<td>42</td>
<td>41</td>
<td>43</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>41</td>
<td>42</td>
<td>39</td>
<td>43</td>
<td>36</td>
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<tr>
<td>Total</td>
<td>93</td>
<td>95</td>
<td>93</td>
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</table>
10-year Capital Investment Plan and FY 2020 Budget Formulation

- Capital **O&M** at $36M in FY20 is down $7M from $43M in FY19
- Capital **PD** at $43M in FY20 is up $2M from $41M in FY19
- **C&R** NonPD increases to $53M in FY20 from an unusually low amount of $33M in FY19. Avg over the 10 years is $57M
- If WAPA approps remain flat at $93M, WAPA will be able to fully cover O&M and PD totaling $80M
- Approx **$13M-$14M** approps may be available for allocation to **C&R**, funding about 25% of the program
CRSP MC 10-year Capital Investment Plan

- **Invests $129M** in transmission system, FY18-FY27
  - Increase of **$17.9M** from FY17-26 (DEC16) plan

**Key investment drivers**
- Subs – 57%
- Comm – 16%

**Key Projects**
- Glen Canyon
  - Warehouse/workspace – $3.6M
  - Communication tower and associated system – $1.2M
  - To Shiprock reactors – $8.2M
- Heavy mobile equipment
  - $2.1M increase to plan
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DSW 10-year Capital Investment Plan

- Invests $334M in transmission system, FY18-FY27
  - Decrease of $8.5M from FY17-26 (DEC16) plan

Key investment drivers
- T-Lines – 72%
- Subs – 17%

Key Projects
- Kofa-Dome Tap 161kV Rebuild
  - FY18-20 $5.4M
- Dome Tap-Gila 161kV Rebuild
  - FY18-20 $7.1M
- Gila Substation Rebuild
  - FY18-20 $14.1M
RM 10-year Capital Investment Plan

• Invests $267M in transmission system, FY18-FY27
  - Decrease of $1.8M from FY17-26 (DEC16) plan

Key investment drivers
• T-Lines – 45%
• Subs – 30%
• Comm – 11%

Key Projects
• Estes-Flatiron 115-kV Rebuild – FY18-20 $16.8M
• Lovell-Yellowtail #1 & #2 T-Line Rebuild Phase III – FY19-21 $10.1M
• Big George-North Cody 115-kV Conversion – FY18-19 $7.1M
• Kimball Substation Sectionalizing – FY21-23 $6M
SN 10-year Capital Investment Plan

- Invests $217M in transmission system, FY18-FY27
  - Decrease of $18.5M from FY17-26 (DEC16) plan

Key investment drivers
- Subs – 49%
- T-Lines – 39%

Key Projects
- Cottonwood-Olinda Rating Upgrade – decrease $3.9M
- 230kV Shunt Reactor – decrease $3.9M
- Transmission Lines Projects
  - Hurley-Tracy Reconductoring project – FY22-26 $77.8M
UGP 10-year Capital Investment Plan

- Invests $586M in transmission system, FY18-FY27
  - Increase of $31.2M from FY17-26 (DEC16) plan

Key investment drivers
- Subs – 51%
- T-Lines – 26%

Key Projects
- Roberts County Substation
  - NEW to TYP in FY18-19 $7.6M
- Garrison-Watford City 230-kV line rebuild (99 miles)
  - $20.4M across plan years
- Includes 19 transformer replacements across plan years
HQ-managed (WAPA-wide portion) 10-year Capital Investment Plan

• Invests $101M in transmission system, FY18-FY27
  - Increase of $15.8M from FY17-26 (DEC16) plan
  - Overall HQ-managed plan reduced by $11M

Key investment drivers
• IT – 82%
• Aviation – 18%

Key Projects
• Multiple Enterprise Applications upgrades - $7.2M
• Power Billing Software replacement - $13.6M
• Power Marketing/Settlements tools replacement - $6.8M
• Helicopter replacements (3) and new (1) - $13.2M
Financial Strategy Update

Dennis Sullivan
Senior VP and Chief Financial Officer
Financial strategies

• Reserve balances strategy progress
• Proposed Transparency Act implementation
• Fiscal Year 2020 strategic budget guidance
# Reserve balances strategy

## Sustainable funding tool in support of WAPA’s mission

<table>
<thead>
<tr>
<th></th>
<th>Annual O&amp;M</th>
<th>Capital funding</th>
<th>Purchase power &amp; wheeling</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Example</strong></td>
<td>Salaries, supplies and equipment</td>
<td>Building new transmission lines and related structures</td>
<td>Buying power on behalf of customers when water conditions require it</td>
</tr>
<tr>
<td><strong>Purpose</strong></td>
<td>Allows WAPA to sustain operations during emergencies, continuing resolutions or lapses in appropriations</td>
<td>Provides funding in advance of starting capital construction projects and flexibility with schedule / priority changes in collaboration with customers</td>
<td>Improves both WAPA and customer cash management, allowing for continued funding of critical capital construction and maintenance projects</td>
</tr>
<tr>
<td><strong>Strategy</strong></td>
<td>Retain 31% of annual funding need</td>
<td>Retain sufficient funding to cover up to 3 years of capital investments</td>
<td>Retain 3 years estimated funding during drought</td>
</tr>
</tbody>
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## Carrying reserve balances does not impact power rates
Fiscal Year-End 2017 reserve balances
Summary of all accounts

• Strategy progress: 2016-17
  – Total: Reduced ~ $85M
  – Annual: Reduced ~ $22M
  – Capital: Reduced ~ $182M
  – PPW: Increased ~ $97M

• Returns to U.S. Treasury
  – 2017: $378M
  – 5-year total: $1.6B
Planned FYE 18 targets/actions
CROM account strategies**

<table>
<thead>
<tr>
<th>Program</th>
<th>FYE 17 Balance</th>
<th>Strategy Target</th>
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<tbody>
<tr>
<td><strong>Annual O&amp;M</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• FY18 budget request included $34.7M use of balance</td>
<td>$114.8M</td>
<td>$65.6M</td>
</tr>
<tr>
<td>• Coordinating through DOE to use additional $9M in FY18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Re-evaluate current strategy</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Capital</strong></td>
<td>$140.2M</td>
<td>$160.8M</td>
</tr>
<tr>
<td>• Regions collaborate with customers on amount to retain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Returns to treasury as needed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Re-evaluate current strategy</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Purchase Power &amp; Wheeling</strong></td>
<td>$245.6M</td>
<td>$393.0M</td>
</tr>
<tr>
<td>• Incremental increase, up to $50M, planned</td>
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<td></td>
</tr>
<tr>
<td>• Reach target by FYE 2020</td>
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<tr>
<td>• Requires solution to CBO budget authority “scoring” issue</td>
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</tr>
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</table>

** Does not include: CROM “Other”; CRBPMF; TIP; Falcon & Amistad; Emergency Fund
Proposed Transparency Act implementation

- Part-time, 23-person project team actively working requirements
  - Power and transmission rates
  - Capacity and energy sold
  - Expenditure detail
  - Unobligated balances
  - Annual summary report

- Challenges
  - Budget Activity reconciliation
  - “Digestible” report format
  - Contractor versus FTE reporting

- Target to deploy (some or all) “Phase 1” requirements by month-end Feb. 2018
FY20 strategic budget guidance

• Investment drivers
• Assumptions / constraints
• Cost savings / avoidance

Read more:

The Source - Budget Allocation
Investment drivers

- Engineering salary increases ~ $1.2M
- Leadership development
- Cyber risk
- Market start-up costs
Assumptions / constraints

- Investment drivers must be offset
- FTE neutral
- Inflation at 2% for labor / non-labor
- Revalidate Trust & Reimbursable assumptions
- Increases over FY19 work plan require approval
Cost savings / avoidance

- Organizational Approach to Markets (OAM)
- Program assessments
- Reduction in facility footprint / cost
- Strategic sourcing
Market Strategies Update

Rodney Bailey
Power Marketing Advisor
Current status

- UGP – Joined SPP October 1, 2015
- DSW – Southwest Market Alternatives Group (SMAG)
- SN – Evaluated EIM and CAISO
- RM & CRSP – Participants of MWTG
Benefits of being proactive

- Leverage current negotiating strength
- Protect reliability
- Increase efficiency of operations and planning
- Entities define their own destiny
Risks of inaction

• Reduced bilateral trading partners
• Increased supply costs
• Transmission sales affected by changes in power flows
• Balancing authorities required to accommodate changes

“If you don’t like change, you’re going to like irrelevance even less.”
General Eric Shinseki, Former Secretary of Veterans Affairs
Public process

- Began Customer and public outreach in 2015
- FRN published Oct. 12
- Three public forums
- 45-day comment period closed Nov. 27
- Recommendation to pursue final negotiations with SPP
- Decision will be made in January 2018
Mountain West information

THE SOURCE
Find recent operational data and financial information in one convenient location.

KEY TOPICS
Access key topics affecting WAPA’s mission or service.

www.wapa.gov
Organizational Approach to Markets

Jody Sundsted
Acting Senior VP and UGP Regional Manager

Steve Johnson
Acting Senior VP and CRSP MC Manager
OAM project overview

- OAM is the Organizational Approach to Markets Project
- PMMC and PSOC identified the OAM project to evaluate WAPA’s readiness for potential market participation (i.e., RTOs) in three areas:
  - Operations
  - EMMO
  - Settlements
- The purpose is to offer recommendations for improvements and efficiencies in tools, processes and organizational structure.
OAM next steps

• PMMC and PSOC are formulating a 10-year timeline of actions to incorporate into the Roadmap 2018 Tactical Action Plan.

• The initial timeline and near-term and long-term actions will be presented to the senior executive team in Q1 of 2018.

• Interim project manager on board; will hire 2-3 year term position.
Transformer Risk Strategy

Chris Lyles
Asset Management Specialist
Topics

• Transformer spare need
• Objectives
• High Impact Low Frequency Events (HILF) and quantities
• Alternatives for evaluation
  – WAPA inventory
  – WAPA system robustness
  – Grid Assurance
• Customer feedback
Why are spare transformers needed?

• Reliability requirement to customers and the bulk electric system

• Unanticipated loss directly impacts the resiliency/reliability

• Acquisition lead time of 18-24 months
  • require custom build
  • 100 tons, contain 25,000 gallons of oil
  • Transport requires specialized vehicles, permits, and task-specific crews.
Typical WAPA large power transformer
Specialized transportation
Analysis objectives

- Alternatives for response to high-impact, low-frequency events resulting in loss of multiple transformers.
- Solicit feedback from WAPA subject matter experts (SMEs) and WAPA Customers.
- Develop final recommendation incorporating customer feedback and regional expertise.
- Analysis and subsequent report is a WAPA-wide strategy intended to produce a recommendation that most efficiently uses WAPA’s entire fleet of transformer options.
Event definition

- WAPA Analysis
  - Define three high impact low frequency event types.
  - Assume loss of all large power transformers within impacted site.
- Local Event
  - Event center at WAPA facility.
  - Impacted sites are within 5 mile radius of center.
  - All WAPA facilities could be center of event.
- Seismic Event
  - Event center at Tracy or Mead facility.
  - Impacted sites are within 80 mile radius of center.
- Targeted Event
  - Event center at major population centers and military installations – 9 sites identified.
  - Impacted sites are within 50 mile radius of center.
Spares needed

- Quantities

<table>
<thead>
<tr>
<th>Primary Voltage</th>
<th>Secondary Voltage</th>
<th>Type</th>
<th>Number of Spares</th>
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<tbody>
<tr>
<td>525kV</td>
<td>230kV</td>
<td>Single Phase</td>
<td>3</td>
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<tr>
<td>345kV</td>
<td>230kV</td>
<td>Three Phase</td>
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<tr>
<td>230kV</td>
<td>161kV</td>
<td>Three Phase</td>
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<td>230kV</td>
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<tr>
<td>230kV</td>
<td>115kV</td>
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<tr>
<td>230kV</td>
<td>69kV</td>
<td>Three Phase</td>
<td>3</td>
</tr>
</tbody>
</table>

- Why Now?
  - Threat of physical, calculated attacks
  - Potential vulnerabilities in the electrical utility industry
  - Power systems operating closer to operating limits
Alternatives currently under evaluation

- WAPA Warehoused Alternative
- WAPA System Enhancement Alternative
- Grid Assurance Alternative
- Hybrid Alternative
- No Action – Status Quo
Feedback

We want your feedback. We are in the beginning stages of assessing the various options and customer feedback is critical to our success.

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- John Quintana – 720-962-7296
  [Quintana@wapa.gov](mailto:Quintana@wapa.gov)
Grid Assurance Presentation

Mike Deggendorf
CEO, Grid Assurance