

Meeting:	CRSP TYP meeting
Date/Time:	Thursday, December 6, 2018 10:30AM – 1:30 PM
Subject:	Ten Year Planning Projects
Location:	CRSP MC SLC Conference Room Conferencing Line/WebEx

Agenda


No.	Item Description		Duration
	Ten Year Planning Meeting	Thursday 10:30AM	
1.	Welcome notes	Steve	5 min
2.	Introductions / Logistics	Amy	5 min
3.	Audience Comments	All	10 min
4.	CRSP 10-Year Plan Review - RMR Maintenance Office	Jason G.	70 min
5.	Break		15 min
6.	CRSP 10-Year Plan Review - DSW Maintenance Office	Tony/Mike/Jennifer	70 min
7.	Power Marketing Updates	Brent	10 min
8.	Transformer Reserve Program Update	Chris L.	10 min
9.	Review Action Items	Amy/All	10 min
	Adjourn TYP Meeting		

Decisions

No.	Decisions	Outcome


Prior Open Action Items:

No.	Assigned To	Task Description	Completion Date




CRSP 10-Year Capital Improvement Plan
Rocky Mountain Region

December 6, 2018
Salt Lake City, UT




Rocky Mountain Region Ten Year Plan Version Control

- **R0**-version of Ten Year Plan submitted to customers and to headquarters for consolidation of WAPA-wide budget; late October-November
- **R1**-version of Ten Year Plan with any corrections or changes after customers and senior management review; mid-January
- **RFINAL**-final version submitted to headquarters for consolidation of WAPA-wide budget submission to the Dept. of Energy; April




FY 19-28 Rocky Mountain Region Ten Year Plan

- FY18 Completed Projects and Equipment Purchase
- Physical Security Projects
- Project Changes
- New Projects & Equipment Purchases




**Completed Projects and
Equipment Purchases**

- 5 projects completed totaling \$7.4M
- 5 pieces of heavy equipment purchased for \$1.7M

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FY 2018 Rocky Mountain Region Completed Projects

- **Pleasant View – Ruin Canyon 24.9-kV UG T-line upgrade**
 - In-service Date: Q2 FY18
 - Actual Cost: \$597k
 - Budget: \$670k
- **Archer KV2A 230/115-kV Transformer Replacement**
 - In-service Date: Q2 FY18
 - Actual Cost: \$3.545M
 - Budget: \$3.369M

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FY 2018 Rocky Mountain Region Completed Projects

- **Rifle 230-kV CB 582 replacement**
 - In-service Date: Q1 FY18
 - Actual Cost: \$513k
 - Budget: \$564k
- **Weld 115-kV and 230-kV breaker replacements**
 - In-service Date: Q1 FY18
 - Actual Cost: \$1.83M
 - Budget: \$1.61M

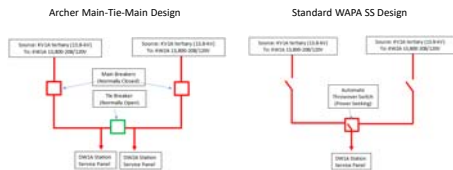
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FY 2018 Rocky Mountain Region Completed Projects

- **Archer Station Service**

- In-service date: Q4 FY18
- Actual Cost: \$952k
- Budget: \$673k
- \$100k modification to scope to incorporate main-tie-main design
- Additional cost increase due to underestimation of labor costs for construction inspection and commissioning.


Archer Station Service



FY 2018 Rocky Mountain Region Equipment Purchases

Item	Budget	Actual
Craig Digger Derrick Replacement	\$350k	\$485k
Craig Med. Duty Utility Truck	\$40k	\$40k
MOC Tracked Excavator (found used on GSAtess)	\$250k	\$112k
MOC 95' Bucket Truck	\$650k	\$485k
Shiprock 95' Aerial Manlift - Elbow Bucket Truck	\$475k	\$975k
TOTAL:	\$1.765M	\$1.697M

1994 95' Bucket Truck at Montrose



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2009 John Deere 2000 excavator – purchased on GSA/keys for less than half the cost of a new excavator (routinely spent \$40k/yr to rent)



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Physical Security Projects

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FY 19-28 Rocky Mountain Region Physical Security Projects Update

- **Montrose Operations Center** - \$265k
 - Completed and in service FY17
- **Midway Substation** - \$283k through October
 - Completed in FY18 and undergoing Factory Acceptance testing Q1 FY19.
- **Ault Substation** – \$351k budget, split with LAP and customers
 - Project awarded and completion anticipated in FY19
- **Three more CIP sites** - \$450k each
 - One project each planned for FY20-22

Security Camera View at Midway



Changes in Substation Projects

FY 19-28 Rocky Mountain Region Changes in Substation Projects

- **Ault Stage 08**
 - KU1A Transformer (345/230kV), 2-25MVAR reactors and 6 230-kV breakers
 - In-service Date: Delayed from FY19 to FY20 due to protest of award
- **Dolores Transformer**
 - ISD delayed from FY19 to FY20
 - Design details completed too late for construction to occur in Oct 2018 water outage
- **Flaming Gorge 25-kV circuit breakers**
 - ISD moved from FY20 to FY19
 - Breakers purchased in FY18
 - Anticipated budget reduced from \$239k to \$215k

FY 19-28 Rocky Mountain Region Changes in Substation Projects

- **Midway KV1A 230/115-kV Transformer and Breakers**
 - Budget increased from \$2.25M to \$2.76M to reflect updated transformer pricing data
- **MOC Warehouse Transformer**
 - In-service Date: Delayed from FY18 to Q1 FY20 due to late contract award and availability of commissioning resources
 - Budget increase from \$355k to \$407k

Changes in Communication Projects

FY 19-28 Rocky Mountain Region Changes in Communication Projects

- **Magnetic-Fontenelle radio replacements**
 - Completion of project delayed from FY19 to FY20
 - Delay due to allocation of WAPA labor to complete CO Fiber Ring as well as inability to access the sites six month of the year
- **Island Lakes Comm Building**
 - In-service Date: Delayed from FY18 to FY19 due to late award and inability to work in the winter
 - Budget reduced on TYP in FY18 due to low contract award – modifications and under-budgeted construction inspection time have pushed the project estimate back to FY17 figures of approx. \$932k

Photos of the new Island Lakes Comm building from October 2018



New Transmission Line Projects

FY 19-28 Rocky Mountain Region New Transmission Line Projects

- **Crystal Dam Underground line rebuild**
 - Replace a 2 mile long underground 12.5-kV line from the Crystal Dam
 - Serves National Park Service housing, Uncompahgre Valley Water Users Association (UVWUA) housing and UVWUA fish deterrent system
 - \$640k in FY21 using WAPA labor forces
 - Several alternatives evaluated with lower reliability and higher maintenance costs being key factors in the decision not to further explore those options

New Substation Projects

FY 19-28 Rocky Mountain Region New Substation Projects

- **Fiber between Upper and Lower Molina**
 - \$250k in FY20
 - Eliminates the need for Upper Molina microwave building which was estimated to cost \$450k to replace as well as ongoing building maintenance
- **Flaming Gorge KY1A 138/69-kV Transformer replacement**
 - \$550k in FY21 and FY22
 - \$490k CRSP and \$60k Bridger Valley Electric
- **Montrose Auxiliary Storage Building**
 - 125' x 60' building – acquired from BOR in FY18 at no cost
 - Building will shelter equipment and materials from the elements
 - \$332k in FY20 for foundation and electric

FY 19-28 Rocky Mountain Region New Substation Projects

- **Weld KV1A 230/115-kV Transformer and Station Service replacement**
 - \$3.625M in FY21 and FY22
 - Replace aging and failing transformer as well as outdated SS equipment
 - Moves backup SS feed from PSCO transformer to WAPA KV2A


New Mobile and Heavy Equipment

FY 19-28 Rocky Mountain Region New Mobile and Heavy Equipment


	FY21	FY22
Craig Knuckleboom Crane Truck (2000)	\$200K	
Montrose Road Grader (1995)	\$300K	



Questions?



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CRSP 10-Year Planning Meeting
FY2019-2028

Dec 06, 2018
Desert Southwest Region
CRSP Management Center




Desert Southwest Region Outline

1. Communication Projects
 - Completed, Active, & New
2. Protection & Control Projects
 - Completed, Active, & New
3. Maintenance & Construction Projects
 - Completed, Active, & New
4. Work Plan Update
 - FY18 Execution, FY19 Plan



Desert Southwest Region Communication Projects




Active Communication Projects


CIP5 Engineering Remote Access

- Location(s): Long House Valley
- Driven by compliance requirements
 - Provided secure remote access to interrogate devices at the medium and low Impact sites to meet CIPv5 requirements
- Total budget: \$20,000
- Actual cost to date: \$5,077
- ISD: January 31, 2019

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Active Communication Projects



APS Tower at Jack's Peak

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Active Communication Projects

Microwave System Upgrades

- Locations: Jack's Peak (APS) to Glen Canyon and to Preston Mesa
- Project establishes a new communication path and increases reliability
- Work Plan/Out Years – this relates to the Glen Canyon Tower Project
- Government furnished equipment purchased: Q2 FY18
- Total Budget: \$314,881
- FY19 Budget: \$60,000
- Actual cost to date: \$254,881
- Anticipated ISD: Q2 FY19


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Active Communication Projects

Microwave System Upgrades


- Paths pending the completion of Glen Canyon Communication Tower Project:
 - Zilner Mesa – Glen Canyon
 - Zilner Mesa – Lolami Mesa
 - Jack's Peak – Glen Canyon
 - Jack's Peak – Preston Mesa
- Upgrades increases bandwidth and reliability
- Bandwidth requirements in accordance with NERC
- Total Budget: \$425,698.46
- FY19 Budget: \$70,000
- Actual cost to date: \$355,698
- Anticipated ISD: Q2 FY19




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Active Communication Projects

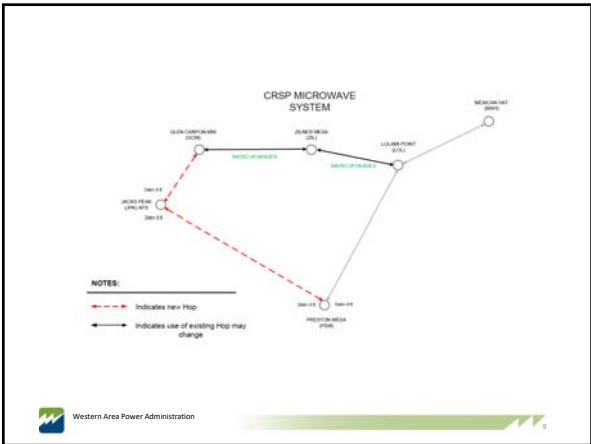
Lolami Microwave Tower



Glen Canyon Microwave Tower



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FY19 Communication Projects

Remote Terminal Replacement (RTU)

- Location(s): Flagstaff
- Existing RTU has reached its capacity for equipment connectivity and processor speed limited
- Installation of bigger RTU equipment with additional ports and increased processor for proper monitoring, remote control, and increased visibility to SCADA
- Total budget: \$175,000
- Anticipated ISD: Q4, FY19

FY19 Communication Projects

Mingus Mountain Communication Building Replacement

- Building was analyzed by engineering and deemed structurally unsound
- Project moved to FY20 based upon reprioritization of the Glen Canyon Comm Tower replacement
- DSW is repurposing the existing ED5 10'x24' building for relocation to Mingus Mountain, savings will be realized in the repurposing
- Requesting Project Manager & Construction group support, need estimate for FY20
- FY19 Budget: \$70,000 (Design)
- Actual cost to date: \$23,785
- Anticipated ISD: Q4 FY20

New Communication Projects

"Towers" Mountain Communication Building Replacement

- FY20 \$200,000 (Design)
- FY21 \$800,000 (Construction)

Communication Battery/Charger System Replacements

- \$50,000 per FY in FY20-FY27

Remote Terminal Unit (RTU) Replacements

- \$85,000 per FY in FY20-FY27

FY19 Warehouse Project

Glen Canyon Warehouse

- Refurbish old Bureau Warehouse with Reclamation instead of building new building will save both agency \$5M+
- Completed design with Reclamation
- Construction to be started in January 2019
- Completion of project by September 2019
- Great team work from DSW staff, CRSP staff, HQ staff, GC Reclamation, TSC Reclamation, and CRSP power office!

CRSP Portion:

- FY19 Budget: \$175,000
- FY20 Budget: \$15,000
- Actual cost to date: \$439,444.58
- Anticipated ISD: Q4 FY20



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FY19 Communication Project

Glen Canyon Warehouse Communications

- The Glen Canyon Warehouse building is being re-designed to accommodate office space, storage room and training room
- Jointly occupied by BOR and WAPA
- Project to provide the Communications for WAPA Personnel (VOIP, wireless, networking)
- Total FY19 Budget: \$117,700
- Anticipated ISD: Q4, FY19



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Desert Southwest Region Protection & Control Projects



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Protection & Control Projects

Pinnacle Peak Transformer Relay Replacements


- FY17: Design and Procurement
- FY18: Completed Installation & Commissioning
- FY19 Budget: \$15,000 for CAD Completion / Project Close-out Phase
- Total budget: \$345,71
- Costs to date: \$336,233
- ISD: Q4 FY18
- Cost drivers: Increased cost due to FY18 labor rate increase & installation and commissioning constraint discovered during design phase.

Pinnacle Peak Relay Replacements

Transfer Breaker & Bus Differential

Scope: Upgrade transfer line protection along with breaker failure protection. Replace north & south 230 kV bus old electromechanical relay differential protection.

- FY18: 50% Design and Procurement
- FY19: \$210,000 Design, Installation and Commissioning
- Total budget:\$297,051
- Cost to Date: \$74,018
- ISD: Q4 FY2019



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Protection & Control Projects

Glen Canyon Substation Relay Replacements


- 69/24 kV Protection panel upgrade
- Replace electromechanical relays - line, breaker, and bus protection on the 69-kV and 24-kV elements.
- FY18: 30% Design and Procurement
- FY19: \$300,000 Design, Installation and Commissioning
- Total Budget: \$410,000
- Actual Cost to date: \$105,221.64
- Anticipated ISD: Q4 FY19

Kayenta Line Relay Replacements

- FY20: \$320,000

Pinnacle Peak Transformer Relay Replacements – Tertiary Shunt Reactors

- FY20: \$200,000
- FY21: \$200,000




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Protection & Control Projects

Glen Canyon, Flagstaff, & Pinnacle Peak Remedial Action Scheme (RAS)

- Completion of the RAS scheme for Path A/B being contingent upon integration of Bureau of Reclamation portion of the scheme.
- FY14 Design and Communications
- FY15 WECC Approved Design
- FY16 Procurement
- FY18 Completed 80% Equipment installation
- FY19 \$150,000 Complete Installation
- Total budget: \$341,907
- Actual cost to date: \$101,774
- Anticipated ISD: Q3 FY2019



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Protection & Control Projects

Pinnacle Peak Disturbance Monitoring Equipment (DME) Upgrades

- Driven by compliance requirements (NERC Reliability Standard PRC-002-2); both 230-kV & 345-kV to be monitored.
- FY18: Design and Procurement
- FY19 Budget : \$90,000 Design, Installation and Commissioning
- Actual cost to date: \$181,547.32
- Total Budget: \$281,246
- Anticipated ISO: Q3 FY19

Glen Canyon Digital Monitoring Equipment (DME) Upgrade

- Existing equipment is over 20 years old and nonfunctional
- Equipment is non-supported and discontinued
- The equipment upgrade could be required in the near future due to compliance requirements (NERC Reliability Standard PRC-002-2).
- FY20: \$200,000
- FY21: \$200,000




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Protection & Control Projects


Meter Replacement - Revenue & Panel

- FY20: \$50,000 - Glen Canyon Substation
- FY21: \$225,000 - Pinnacle Peak
 - Replacement of numerous analog transducers, analog panel indication meters, and revenue meters that are at their end-of-life.
- FY22: \$50,000 - Kayenta



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Desert Southwest Region Construction Projects



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Completed Construction Projects

- **Pinnacle Peak Breaker 2982 -Emergency Replacement**
 - In-service Date: Q2 FY18
 - Actual cost: \$265,109
 - Budget: \$350,000




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Active Construction Projects

Glen Canyon Erosion and Waterline Project – Phase II

- Scope:
 - Drainage capacity study completion
 - Additional Channel and Drainage improvements required
 - Remaining waterline replacement
 - Driveway Resurfacing
- Total Budget: \$1,304,000
 - FY19 Budget: \$1,280,000
- Actual cost to date: \$72,303
- Anticipated ISD: Q4 FY19



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Active Construction Projects

Glen Canyon Erosion & Waterline Project Phase II

- Phase I – Emergency repairs, completed Q1 FY17



Phase I Channel Stabilization



Phase I Drainage Repair



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Active Construction Projects

Glen Canyon Erosion & Waterline Project Phase II



Channel Stabilization Channel Stabilization

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Active Construction Projects



Glen Canyon Erosion Aerial

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Active Construction Projects

Shiprock – Glen Canyon Reactor Project

- System voltage study showed voltage disturbances resulting in operational issues and station equipment risks
- Scope:
 - Addition of 60 MVAR of shunt reactance installed to reduce post disturbance voltages
- Total Budget: \$7,496,051
 - FY19 Budget: \$3,100,000
 - FY20 Budget: \$1,183,000
- Actual cost to date: \$3,199,003
- Anticipated In-Service Date: Q3 FY2020

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Active Construction Projects

Shiprock – Glen Canyon Reactor Project



Active Construction Projects

Shiprock – Glen Canyon Reactor Project

Scope includes installing one 30MVar Variable Shunt Reactor (VSR) at Kayenta and one 30MVar VSR at Long House.



Active Construction Projects


Glen Canyon Communication Tower Replacement

- Scope:
 - Requirement for dual redundant routes to Glen Canyon
 - bigger antennas to increase capacity adds additional loading to the tower
- Total Estimated Budget: \$1,064,718
 - FY19 Budget: \$709,000
 - FY20 Budget: \$40,000
- Actual cost to date: \$91,655
- Anticipated In-Service Date: Q4 FY19

Active Construction Projects

Glen Canyon KV2D 24/4-kV Station Service Transformer Replacement

- Driven by age and condition. Oil is contaminated and showing signs of internal degradation
- Scope:
 - Replace KV2D 24/4-kV Station Service Transformer.
- Total Budget: \$ 454,000
 - FY19 Budget: \$290,000
 - FY20 Budget: \$129,000
- Actual cost to date: \$16,747.77
- Anticipated In-Service Date: Q2 FY20




Active Construction Projects

Physical Security – Flagstaff, Glen Canyon and Pinnacle Peak Substations

- Upgrade physical security to Federal Information Processing Standard (FIPS)-201 compliance
- Scope – Security Assessments, Install Cameras and Install Card Readers

	Total Budget	FY18 Budget	FY19 Budget	Cost to Date	Const. Complete	In Service Date
Flagstaff	\$520,000	\$495,000	\$25,000	\$387,702	Done	12/20/2018
Glen Canyon	\$520,000	\$395,000	\$125,000	\$436,248	1/15/2019	2/15/2019
Pinnacle Peak	\$520,000	\$395,000	\$125,000	\$364,811	3/15/2019	4/19/2019


Note: Kayenta and Long House Valley physical security will be assessed and planned in FY19




FY19 New Start Construction Projects

Pinnacle Peak Shunt Capacitor Banks

- Due to Cap Bank Failure in FY17, Breaker was lost to damage
- Existing Equipment in degraded condition due to age causing reliability limitations
- Scope:
 - Removal of the existing capacitor banks and installation of new replacement units.
- Total Budget: \$5,765,000
 - FY19 Budget: \$1,480,000
 - FY20 Budget: \$3,476,000
 - FY21 Budget: \$429,000
 - FY22 Budget: \$380,000
- Actual cost to date: \$77,000
- Anticipated In-Service Date: Q2 FY21



Work Plan Update



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FY18 Summary

- Work Plan \$2.405M
- Revalidated Plan \$9.405M
- Executed \$4.849M

FY19 Summary


- Work Plan \$6.62M
- Revalidated Plan \$10.0M




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Questions for Desert Southwest Region Office?



Thank you



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CRSP Power Marketing Updates

Dec 06, 2018
Brent Osiek
CRSP Management Center



CRSP Power Marketing Updates

SLCA/IP Firm Electric Service Contracts

- 135 Customers
- 57 Signed Contracts – 72% of SLCA/IP Resource Under Contract for 2025 Period

Numerous small customers still need to sign

- Special Effort for Tribal Customers
 - 53 tribal customers
 - 10 Tribes/Tribal Utilities have signed already
- Education and Outreach Efforts – WAPA's name becoming more familiar
- Benefit Crediting Contracts need to be renegotiated for 2025



CRSP Power Marketing Updates


SLCA/IP Firm Electric Service Rate – SLIP F10 Expires September 30, 2020


- In effect since October 1, 2015
- Official Rate Process begins October 2019 with announcements in Federal Register, Public Information and Comment Forums

Work this coming year:

- We will have some proposals at the May customer meeting
- Working hard this winter to resolve various issues, discussions with customers, information on website


Please be aware of SPAM/Phishing Attempts. All billing will come from:
RMRBilling@wapa.gov





Asset Management Program Update

Chris Lyles
Asset Management





Topics for Discussion Today

- ◆ T-Line Structures as Assets
- ◆ Transformer Acquisition Process
- ◆ Transformer Strategy for High-Impact Low Frequency (HILF) events



Transmission Line Assets

- Asset Management formally launched in 2015
- 581 transmission line segments considered assets
- Age was used for determining health
- 178,000 individual structures are now assets
- Individual structure condition determines health



Reformed Transformer Acquisition Process


- ◆ Goal: Reduce lead-time from 24 months to 9-12 months
- ◆ 9 months for 115-230kV. 12 months for 345kV and above
- ◆ Team interviewed 3 transformer vendors
- ◆ Long-term contract with standard specifications
- ◆ Improved process for typical capital replacements and emergency needs
- ◆ Timeframe for implementation



Transformer Strategy for HILF events


- ◆ Scope and methodology for strategy
- ◆ WAPA-wide mitigation vs. regional
- ◆ Anticipated path forward
- ◆ Anticipated outcome: Purchase and Store
Partner with other utilities
Rely on new acquisition strategy





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Feedback and Questions



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