

CRSP Management Center

Annual 10-Year Transmission Planning Meeting

November 9, 2015
12:30 p.m. MST

Meeting Coordinator:

Amy Cutler, CRSP Asset Management Specialist

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WebEx Information:

[Join WebEx meeting](#)

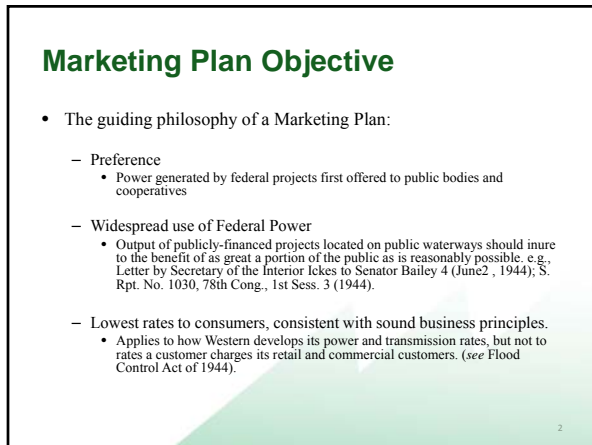
1-650-479-3208 Call-in number

Access code: 807 440 062

Agenda

12:30 – 12:40	Welcome / Introductions / Logistics	Lynn Jeka
12:40 - 12:50	Audience Preliminary Questions/Concerns/Etc.	All
12:50 –1:00	Update on the Post 2024 Marketing Plan	Rodney Bailey
1:00 – 1:20	Asset Management Program Updates	Amy Cutler
1:20 – 2:50	CRSP 10-Year Plan Review <ul style="list-style-type: none">▪ CRSP RMR Maintenance Office▪ CRSP DSW Maintenance Office	Susan Franklin Gary Lachvayder
2:50 - 3:00	Review Action Items	Amy Cutler/All
3:00	Meeting Adjourn	All







History of CRSP/SLCAIP Marketing Criteria/Plan

- 1962 - First CRSP Marketing Criteria.
- 1978 – Refined Marketing area and delivery points.
- 1989 – Revised Marketing area, created new pool, Integrated projects.
- 2004 – Extended 93 percent of customer’s pro rata share of SLCA/IP for 20 years, 7% pool for Tribal Allocations.
 - Expires September 30, 2024

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Marketing Plan Process

- Pre-Notice customer engagement
-----[↑Informal]----[Formal↓] -----

1. Notice of Proposed Action
2. Revised Proposal (*if necessary*)
3. Final NEPA, Final Marketing Plan
4. Draft Contracts
5. Sign Contracts

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Post - 2024 Marketing Criteria/Plan

- Began process in Fall of 2014
- Identified several items that required customer feedback
- Summer of 2015 – held customer meetings in Phoenix, Lakewood, Albuquerque, and Salt Lake City
 - Feedback received from customers, in general, was to keep the marketing criteria/plan the same

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Post - 2024 Marketing Criteria/Plan

- Currently in the process of drafting the Proposed Post-2024 Marketing Criteria FRN –
– estimated publication in early December
- Public Information Forum: January 14, 2016
- Public Comment Forum: February 17, 2016
- Comment period Closes: March 30, 2016

Preliminary Timeline	Year
<input type="checkbox"/> FRN: Proposed Power Marketing Criteria (Dec 01, 2015 - est.) ▪ Review and comment period - 120 days from publication of FRN	2015
<input type="checkbox"/> Public Information Forum (Jan 14, 2016)	2016
<input type="checkbox"/> Public Comment Forum (Feb 17, 2016)	
<input type="checkbox"/> Public Comment Period Closes (Mar 30, 2016 - est.)	
<input type="checkbox"/> FRN: Final Power Marketing Criteria (May, 2016 - est.)	
<input type="checkbox"/> LTEMP EIS Record of Decision (Sep, 2016 - est.)	
<input type="checkbox"/> Determination of Marketable Resource (Oct, 2016 - est.)	
<hr/>	
<input type="checkbox"/> Initial allocations based on existing resource, sets percentage of resource for each customer (Jul, 2017 - est.)	2017
<input type="checkbox"/> FRN: Proposed Allocations (Oct, 2017 - est.) ▪ Review and Comment period - 120 days	
<input type="checkbox"/> Information Forum (Nov, 2017 - est.)	2018
<input type="checkbox"/> Comment Forum (Dec, 2017 - est.)	
<input type="checkbox"/> Public Comment Period Closes (Jan 29, 2018 - est.)	
<input type="checkbox"/> FRN: Final Allocations (Mar, 2018 - est.)	
<input type="checkbox"/> Draft Firm Electric Service Contract to customers (Jun, 2018 - est.) ▪ 12-month review, comment and negotiating period	
<input type="checkbox"/> Firm Electric Service Contracts offered to customers (Jun, 2019 - est.)	2019

Questions?









FY15 Highlights


- Made adjustment to scoring factor for POF
- Scoring Changes – Consequence
 - By Adding Asset Conceptual Cost
 - Marketing factors in the Customer Services
- WARE tool

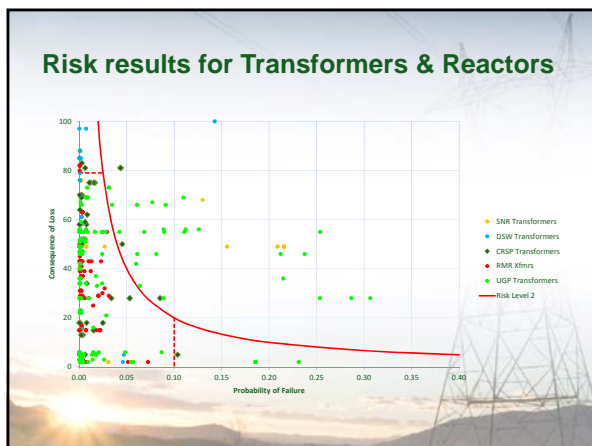


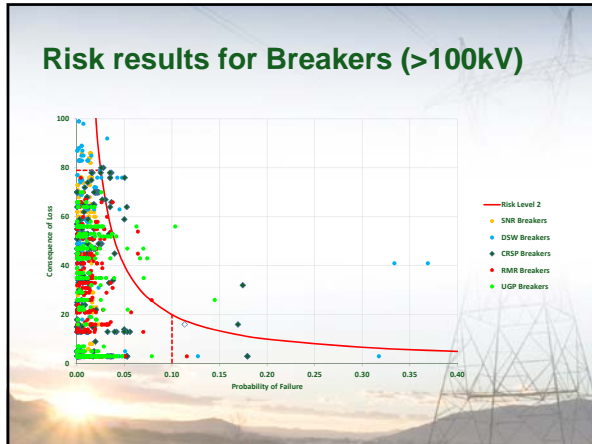
Risk Thresholds

- 2014 – Risk level set to 2.0
- 2015 – Rethink Threshold levels

Category	Threshold
Risk Score	Greater than or equal to 2.0
Probability of Failure	Greater than or equal to .10
Consequence Score	Greater than 79







CRSP 2015 Asset Evaluation

10 Year forecasted based on WARE Tool

Transformers/ Reactor	Breakers
AULT: 3-1phase transformers*, 1 reactor*	AULT: 19 (9*)
CURECANTI: 1*	COLBRAN: 1*
	FLAGSTAFF: 1
	GLEN CANYON: 7
	HAYDEN: 1*
	PONCHA: 2
	PINNACLE PEAK: 7
	RAFFEL: 1
	SHIPROCK: 11 (3*)
	WELD: 6 (5*)

* Indicates equipment which are already in the TYP

How are assets managed?

- If the asset evaluation criteria exceeds the threshold the asset owner (Maintenance Offices for the initial three asset classes) must evaluate and determine what action to take. Typical actions are:
 - Replacement of the asset
 - Perform extraordinary maintenance (e.g., rehabilitation)
 - Reduce the consequence of failure (e.g., add redundancy)
 - Determine the risk is acceptable (do nothing)

WESTERN AREA POWER ADMINISTRATION

CRSP 10-Plan Presentations

November 9, 2015



Rocky Mountain Region Ten Year Plan Version Control

- **R0**-version of Ten Year Plan submitted to customers and to headquarters for consolidation of Western-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 Western-wide budget submission to the Dept. of Energy; April

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FY 15 Rocky Mountain Region Maintenance Projects

- New System Operation Methodology
- Completed Projects
- New Projects
- Changed Projects
- Ongoing Projects

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Transmission Operator Methodology Changes

- September 2011 Western grid outage
- Revised System Operating Limit (SOL) Methodology-August 2013
 - If the next single contingency will result in a voltage or thermal overload, PEAKRC requires pre-mitigation:
 - Load shedding
 - Generation curtailment (or increase); reactive device changes including generation redispatch
 - Reduction of scheduled power, may require purchase of power at spot market prices

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Transmission Operator Methodology Changes

- Western plans and designs its system to operate through a single contingency without loss of load (TPL standards).
- Western Operations studies and controls the system to perform through multiple contingencies. (TOP standards)
- Potential projects to address operational compliance standards
 - Curecanti 2nd 230/115 kV transformer
 - Midway 230 kV bus configuration

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FY 15 Rocky Mountain Region Maintenance-Completed Projects

- Flaming Gorge 69 kV Switch Replacements
 - Replaced 7 switches, 1963 vintage
 - In-Service Date: Q2 2015
 - Total Cost: \$195k, excludes IDC
 - Budget: \$243k
- Gore Pass-Hayden 230 kV Uprate Term Eqmnt
 - Replaced 2 switches, 2 CTs to 2000 A rating
 - In-Service Date: Q4 2015
 - Total Cost: \$58k JJCR, \$257k JJCR/Trust, excludes IDC
 - Budget: \$69k JJCR, \$291k JJCR/Trust

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FY 15 Rocky Mountain Region Maintenance-Completed Projects

- Hayden KZ2A 230/138 kV, 250 MVA Transformer
 - Replaced 150 MVA to match KZ1A at 250 MVA
 - In-Service Date: Q4 2015
 - Total Cost: \$7,374k, excludes IDC
 - Budget: \$6,909k
- Montrose Digger Derrick
 - Replaced 1981 digger truck, 26k miles, worn/dysfunctional outriggers, hazardous use
 - Budget/total cost: \$610k

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FY 15 Rocky Mountain Region Maintenance-Completed Projects

- Buffalo Pass Communications Building Replacement
 - Replaced aging end of life building
 - In-Service Date: Q4 2015
 - Total Cost: \$1,010k, excludes IDC
 - Budget: \$350k

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New JJCR Projects in the FY16-25 TYP

- Archer Station Service Replacement
 - Replace 1964 vintage switchgear and controls; auto-throw over switch non-functional
 - Est. Cost: \$585k
 - Est. In-Service Date: Q2 2018
- Ault Station Service Replacement
 - Replace 1980 vintage station switchgear, controls, and transformers which has a history of failures and nonfunctional equipment
 - Est. Cost: \$940k (JJCR \$183k)
 - Est. In-Service Date: Q4 2016

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New JJCR Projects in the FY16-25 TYP

- Ault KW1F/KW1G, 2-25 MVAR Reactor Replacement
 - Replace failed KW1F and twin KW1G prior to KU1A replacement (AM supported)
 - Est. Cost: \$711k (JJCR cost \$455k)
 - Mitigation: Replacement
 - Est. In-Service Date: Q4 2017
- Ault 345 kV Surge Arrestors (AU-CRG 345 kV line)
 - Needed for minimum approach distances(new OSHA) and aids in fault location determination
 - Est. Cost: \$50k (JJCR cost \$18k)
 - Mitigation: Replacement
 - Est. In-Service Date: Q4 2016

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New JJCR Projects in the FY16-25 TYP

- Shiprock Substation-new Control Building
 - Existing building has full cable trays, is at maximum capacity, and has asbestos; includes 345 kV yard and transformer; batteries, air control, communication
 - Est. Cost: \$2,581k potential trust of \$500k
 - Mitigation: Replacement, with/without Trust support
 - Est. In-Service Date: Q4 2019

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New JJCR Projects in the FY16-25 TYP

- Shiprock Substation-Move 230 kV Eqmnt & Controls
 - Purchase panels and controls, install in new building
 - Est. Cost: \$1,861
 - Mitigation: Replacement
 - Est. In-Service Date: Q4 2020
- Shiprock Substation-Move 115 kV Eqmnt & Controls
 - Purchase panels and controls, install in new building
 - Est. Cost: \$1,158
 - Mitigation: Replacement
 - Est. In-Service Date: Q4 2021

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New JJCR Projects in the FY16-25 TYP

- Weld Substation 230 kV Breaker & Half
 - Modify the four terminal main/transfer configuration to breaker and half to increase system reliability for the N-1 that overloads 2-115 kV lines.
 - Est. Cost: \$2,580k
 - Est. In-Service Date: Q4 2023
- UHF Radio Replacements
 - Replace existing polling radios at the end of their useful life.
 - Est. Cost: \$850k, JJCR \$35k
 - Mitigation: Replacement
 - Est. In-Service Date: Q4 2021

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New JJCR Projects in the FY16-25 TYP

- MOC Pressure Digger Truck Replacement
 - Replace 1994 pressure digger truck, 15k miles and low usage as incorrect truck for high voltage t-lines; will trade in
 - Est. Cost: \$325k
 - Mitigation: Replacement
 - Est. In-Service Date: Q4 2018
- SHR 72 ft Manlift Aerial Elbow Bucket Truck(Repl. 40 ft)
 - Replace 1979 elbow bucket truck, worn/sloppy hydraulics, 21k miles, at end of life
 - Est. Cost: \$125k
 - Mitigation: Replacement
 - Est. In-Service Date: Q4 2018

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Changed JJCR Projects in the FY16-25 TYP

Project	Total Cost <small>x1000</small>	JJCR <small>Shared Cost x1000</small>	Change
Dolores Transformer Project (TRUST)	\$1350	\$0	Slid a year to FY 16-17
Shiprock 230 & 345 kV POD (TRUST TSGT Interconnection and 3 Rivers)	\$3,781	\$0*	Slid a year to FY 20; *land use
Ault 230 kV CB 1482 & 1586	\$564	\$285	Project slid to FY18 to align replacement with Ault KU1A (high/low side CBs)
Shiprock (3262, 3362, 3462) PCB 115-kV Replacement	\$577	\$577	Breakers purchased in FY15, ISD FY16
Ault-Weld West OPGW	\$566	\$566	\$38k increase with updated estimate

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Changed JJCR Projects in the FY16-25 TYP

Project	Total Cost x1000	JJCR Shared Cost x1000	Change
Island Lake Comm Building	\$750	\$750	\$250k increase of estimate based on recent bid openings
IT General Support Systems	\$622	\$622	\$155k increase in JJCR costs spread over FY14-23
Mobile Radio Infrastructure Replacements	\$1,300	\$650	Slid to FY17 to accommodate shifting COMM projects

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Changed and Ongoing JJCR Projects in the FY16-25 TYP

Project	Total Cost x1000	JJCR Shared Cost x1000	Change
Ault 345 kV CB 692, 696, 1096 <ul style="list-style-type: none"> • In design, CB ordered • ISD Q4 FY16 	\$1,802	\$270	Customer funding slid schedule and in-service date, shifted ISD to 2017
Shiprock Stage 07 230 kV Main and Transfer Bus Uprate <ul style="list-style-type: none"> • In construction • ISD Q3 FY16 	\$1,208	\$1,208	\$720k decrease with bid; \$400k shifted to FY16 for project completion
Waterflow PST KU1A-KU1B and CB replacement <ul style="list-style-type: none"> • In construction • Delay of PST delivery to 1/16 • ISD Q2 FY16 	\$15,058	\$15,058	\$450k shifted to FY16 for project completion and closeout.

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Changed and Ongoing JJCR Projects in the FY18-25 TYP

Project	Total Cost x1000	JJCR Shared Cost x1000	Change
Weld 362,1262 (115-kV) CB, 182, 286, 482 (230kV) Replacement <ul style="list-style-type: none"> • In design • ISD 	\$1,669	\$1,669	\$954k increase added construction contract for installation in FY16 due to maintenance resource limitations
Archer KV2A 230/115 kV, 200 MVA Xfmr <ul style="list-style-type: none"> • 90% spec review • Delay-xfmr procurement • ISD Q1 FY17 	\$3,200	\$3,200	\$282k increase to include high/low side CB 482 & 1762; 1980 vintage, high PCB bushings
Curecanti KZ1A 230/115 kV 150 MVA Replacement <ul style="list-style-type: none"> • In construction • ISD Q4 FY16 	\$2,287	\$2,287	\$471k decrease, utilizing a used xfmr from Hayden.

Changed and Ongoing JJCR Projects in the FY18-25 TYP

Project	Total Cost x1000	JJCR Shared Cost x1000	Change
Montrose-Mexican Hat MW Rep. • Resource limited • ISD Q4 FY16	\$1,601	\$1,601	\$132k increase, funds shifted for FY16 completion and closeout
Poncha-Midway OPGW • Raptor nesting delayed construction • ISD Q2 FY16	\$3,156	\$1,598	\$566k increase due to assembly issue in design and raptor delays; shift in ISD and funds to FY16 for completion/closeout
Blue Mesa-Montrose OPGW • Restriction in construction due to sage grouse/bird nesting • ISD Q1 FY16	\$1,883	\$758	Shifted \$25k to FY16 for project completion and closeout.

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Changed and Ongoing JJCR Projects in the FY18-25 TYP

Project	Total Cost x1000	JJCR Shared Cost x1000	Change
MOC Station Service Upgrade • In design • ISD Q1 FY17	\$909	\$909	\$469k increase for stage 3 & 4, construction contract, excavation of 1965 vintage conduit for replacement, transformer installation
Central PMOC Communications Loop • Resource limited delayed completion • ISD Q3 FY16	\$2,713	\$666	\$126k increase, funds shifted to FY16 for completion and closeout

WESTERN AREA POWER ADMINISTRATION


Changed and Ongoing JJCR Projects in the FY18-25 TYP

Project	Total Cost x1000	JJCR Shared Cost x1000	Change
Collbran 115 kV CB 362 Replacement • Delay from underground cable issue • Resource limited • ISD Q4 FY16	\$231	\$231	\$90k increase, underground conduits were asbestos, required new conduit/excavation installation; funds in FY16 for completion and closeout
Blue Mesa 115 kV CB 1066,1162 Replacement • ISD Q4 FY15	\$357	\$357	\$63k increase, difficulty with removal due to tight physical layout of substation; funds in FY16 for closeout

WESTERN AREA POWER ADMINISTRATION

Changed and Ongoing JJCR Projects in the FY18-25 TYP

Project	Total Cost x1000	JJCR Shared Cost x1000	Change
Archer KV1A 230/115 kV, 200 MVA Xfmr Replacement <ul style="list-style-type: none">Xfmr delays due to procurement, radiator damage and replacement time (x2)Resource limitedISD Q1 FY16	\$3,203	\$3,203	\$477k increase due to contract delays, correction of as-built conditions of control panels and building



Questions for RMR Maintenance Office



DSW Projects

Accomplishments in FY15

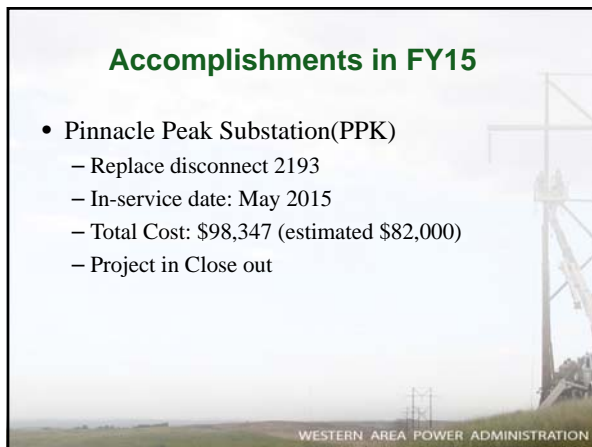
- Glen Canyon Stage 09
 - Install new 230/69KV 50 MVA transformer, two 230Kv breakers and one 69KV breaker and associated equipment.
 - Transformer Energized June, 2015
 - Cost to date: \$4,875,585 (estimated \$6.1 million)
 - Project in Close out



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Accomplishments in FY15

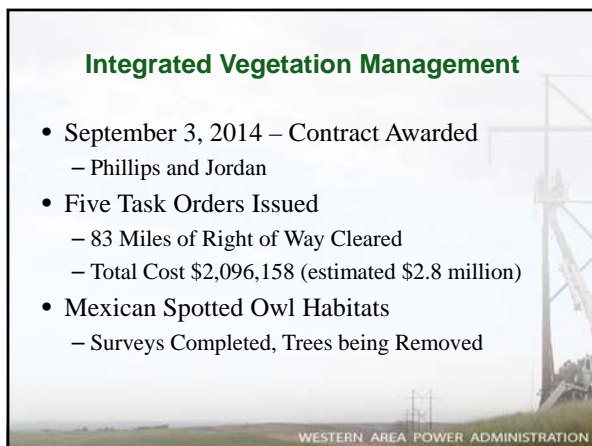
- Pinnacle Peak Substation(PPK)
 - Replace disconnect 2193
 - In-service date: May 2015
 - Total Cost: \$98,347 (estimated \$82,000)
 - Project in Close out



WESTERN AREA POWER ADMINISTRATION

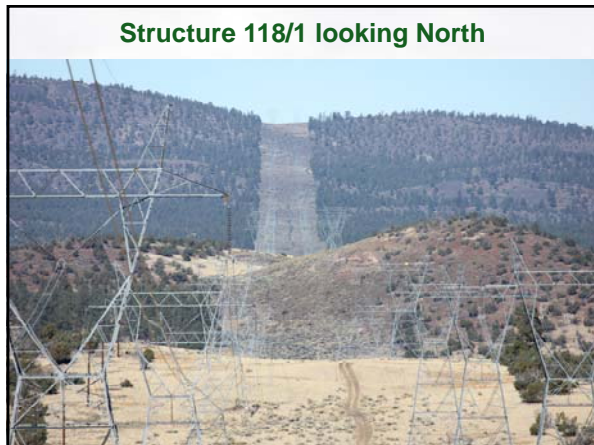
Integrated Vegetation Management

- September 3, 2014 – Contract Awarded
 - Phillips and Jordan
- Five Task Orders Issued
 - 83 Miles of Right of Way Cleared
 - Total Cost \$2,096,158 (estimated \$2.8 million)
- Mexican Spotted Owl Habitats
 - Surveys Completed, Trees being Removed



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Integrated Vegetation Management Next Steps

- Two Task Orders Issued, Tonto National Forest
- Corridor Management Plan
 - Estimated to begin on November, 2015
 - Last Forty Miles and \$1.5 million estimated
 - Harder Terrain (hand clearing)
- Contract for Substation is in procurement
- Agreement with APS
 - Estimated to begin January 2016 - Share 18 Substation (3 are with CRSP)
- Southwest Ground Control
 - Estimated completion November 2015
- Begin Maintenance Phase
 - Herbicide and Road Access

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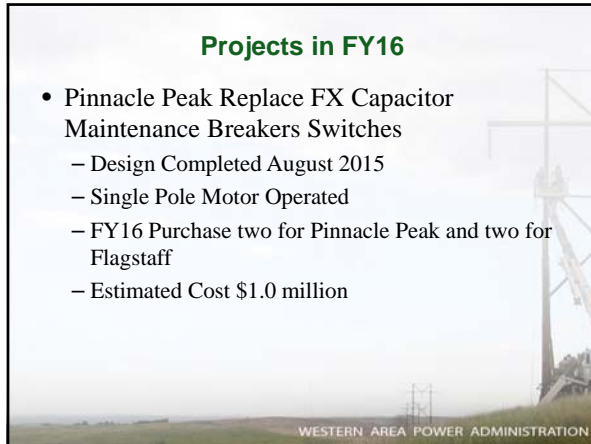
Projects in FY16

- Pinnacle Peak KU1A Gasket Replacement
 - Estimated Procurement contract award Dec. 2015
 - Estimated work completed March 2016
 - Minimal Reduction Flagstaff to Pinnacle Peak
 - Estimated Cost \$160,000
- Pinnacle Peak 230kV Disconnect Replacements Bays 23 & 33
 - Switches purchased FY14
 - FY16 Assemble switches
 - FY17 Install switches (Outage Coordination)
 - Estimated Cost \$460,000

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Projects in FY16

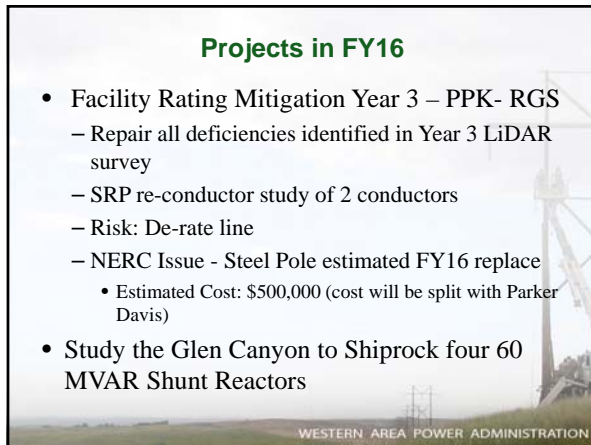
- Pinnacle Peak Replace FX Capacitor Maintenance Breakers Switches
 - Design Completed August 2015
 - Single Pole Motor Operated
 - FY16 Purchase two for Pinnacle Peak and two for Flagstaff
 - Estimated Cost \$1.0 million



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Projects in FY16

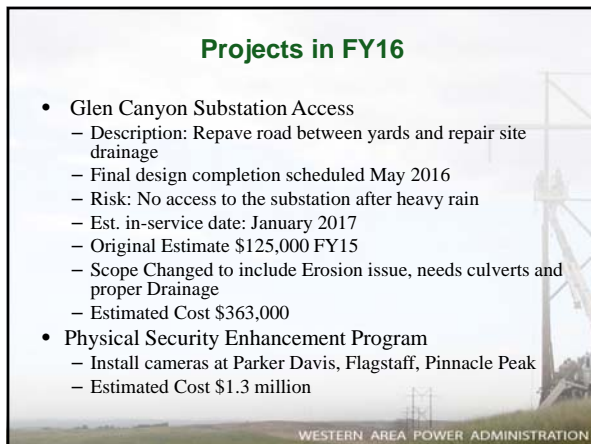
- Facility Rating Mitigation Year 3 – PPK- RGS
 - Repair all deficiencies identified in Year 3 LiDAR survey
 - SRP re-conductor study of 2 conductors
 - Risk: De-rate line
 - NERC Issue - Steel Pole estimated FY16 replace
 - Estimated Cost: \$500,000 (cost will be split with Parker Davis)
- Study the Glen Canyon to Shiprock four 60 MVAR Shunt Reactors



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Projects in FY16

- Glen Canyon Substation Access
 - Description: Repave road between yards and repair site drainage
 - Final design completion scheduled May 2016
 - Risk: No access to the substation after heavy rain
 - Est. in-service date: January 2017
 - Original Estimate \$125,000 FY15
 - Scope Changed to include Erosion issue, needs culverts and proper Drainage
 - Estimated Cost \$363,000
- Physical Security Enhancement Program
 - Install cameras at Parker Davis, Flagstaff, Pinnacle Peak
 - Estimated Cost \$1.3 million



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Projects in FY16

- Pinnacle Peak Relay Replacement
 - Scheduled to be completed in FY16
 - Estimated Cost \$322,700
- Glen Canyon Remedial Action Scheme
 - Design & Dual Comm. Path schemes completed
 - Western Study per NERC completed
 - Install and Commission Path A - Feb. 27, 2016
 - Install and Commission Path B – April 30, 2016
 - Estimated Cost \$400,000

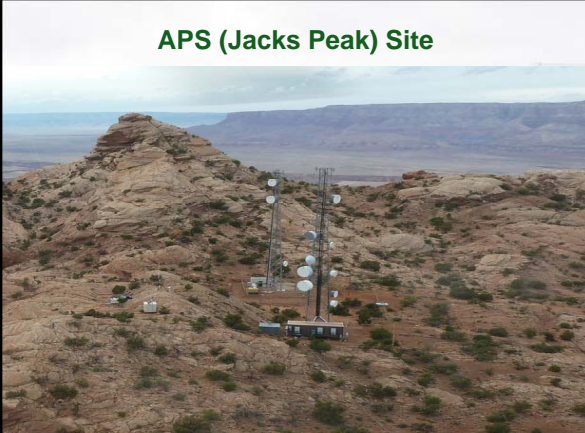
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Projects in FY16

- Communication Building Replacement
 - Mingus Mountain
 - Analyzing to repurpose existing ED5 shelter owned by DSW. Estimated cost savings of \$250,000
 - Specification into Procurement April 2016
 - Construction Completion December 2016
 - Estimated Cost \$400,000
- Microwave System Upgrade (Preston Mesa – Jacks Peak – Glen Canyon)
 - DSW negotiated use of tower space at Jack’s Peak
 - Very Large cost savings
 - Estimated Cost \$50,000

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APS (Jacks Peak) Site



Proposed Projects FY17

- Fiber Optic Installation Program (FY17–FY25)
 - (Full Path, 22 Miles) Pinnacle Peak to Prescott
 - Conceptual Estimate \$880,000 per FY
- Relay Replacement Program (FY17-FY25)
 - Glen Canyon
 - Conceptual Estimate \$300,000 per FY
- Communication Digital Monitoring Equipment Upgrades (FY17-FY25)
 - Glen Canyon / Pinnacle Peak
 - Conceptual Estimate \$200,000 per FY
- Meter Program (FY17-25)
 - Conceptual Estimate \$100,000 per FY
- RTU Replacement Program (FY17-FY25)
 - Pinnacle Peak
 - Conceptual Estimate \$85,000 per FY

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Questions for DSW Office

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