



Western  
Area Power  
Administration

# Ten Year Capital Plan

## Annual Customer Meeting

2018-2027

August 22, 2017

Desert Southwest Region  
Phoenix, AZ



# AGENDA

1. Welcome
2. Action Items Updates
3. 10-Year Plan (TYP) Program Updates
4. FY17 Completed Projects
5. Active Projects
6. Seed Funding Pilot Program
7. FY18 Proposed Projects
8. FY18 Pre-payment Funding Plan
9. 10-Year Plan Review
10. FY17 Budget vs. Executions
11. Southline Project Update
12. TYP Next Steps / Action Item Recap



# ACTION ITEMS CAPTURED IN JUNE 7<sup>TH</sup>, DRAFT 10-YEAR PLAN PRESENTATION



# Action Items

- Action item responses from the June 7<sup>th</sup> Customer 10-Year Plan Preview meeting have been posted to the WAPA.gov website
- Hard copies are also being made available in today's meeting



# 10-YEAR PLAN PROGRAM UPDATES



# What's New?

## **New Budget/Finance Meetings**

- A new series of annual meetings on concert with 10-Year Plan Schedule
- Additional opportunity for customers participation and feedback
- New information regarding the Administrator's budget guidance
- Insight into budget formulation
- Opportunity for detailed Q&A with DSW & HQ staff



# What's New?

## **New Budget/Finance Meetings**

- Hosted by DSW, the first meeting is scheduled for September 21<sup>st</sup>, 2017.
- Beginning in 2018 these meetings are tentatively scheduled for April and December.



# What's New?

## **AOA Study Summaries**

- Each proposed project has an AOA Study performed
- Summaries include the AOA scorecard
- Incorporates AOA Evaluation Methodology
- Provides additional insight into AOA process and decision criteria
- Opportunity for customer input and engagement on upcoming AOA studies.



# What's New?

## Asset Management Reports

- Wood pole health reports reported in CartoPac during patrol (aerial and ground)
- Utilizes GIS database and combines in-depth visual inspection with testing procedures to determine the health grade for wood pole components.
- Provides comprehensive assessment of incoming maintenance, maintenance completed, and any backlog work



# On The Horizon

## Capital Planning and AOA Study Customer Participation

- DSW is working to integrate customers into the development side of the 10-Year Plan Program
- The goal is customer participation and contribution early and often to capital planning
- DSW seeks customer input on construction budget formulation, construction prioritization, AOA approach, and results.



# On The Horizon

## 10-Year Plan Budget Flow Chart

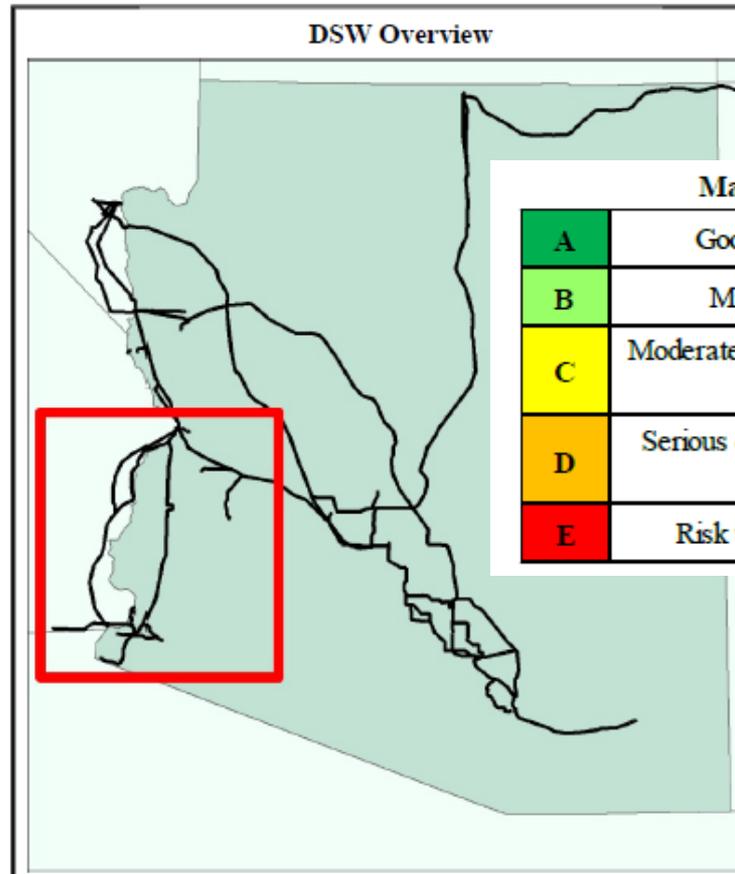
- Improved 10-Year Plan Budget Flow Chart expected by end of calendar year
- Identifies ALL customer meetings (DSW & HQ)
- Highlights windows of opportunity for customer participation and impact into:
  - Budget Formulation
  - Construction Prioritization
  - AOA Study results
- Outlines key congressional budget milestones
- Outlines key WAPA/DSW budget milestones



# Wood Pole Maintenance

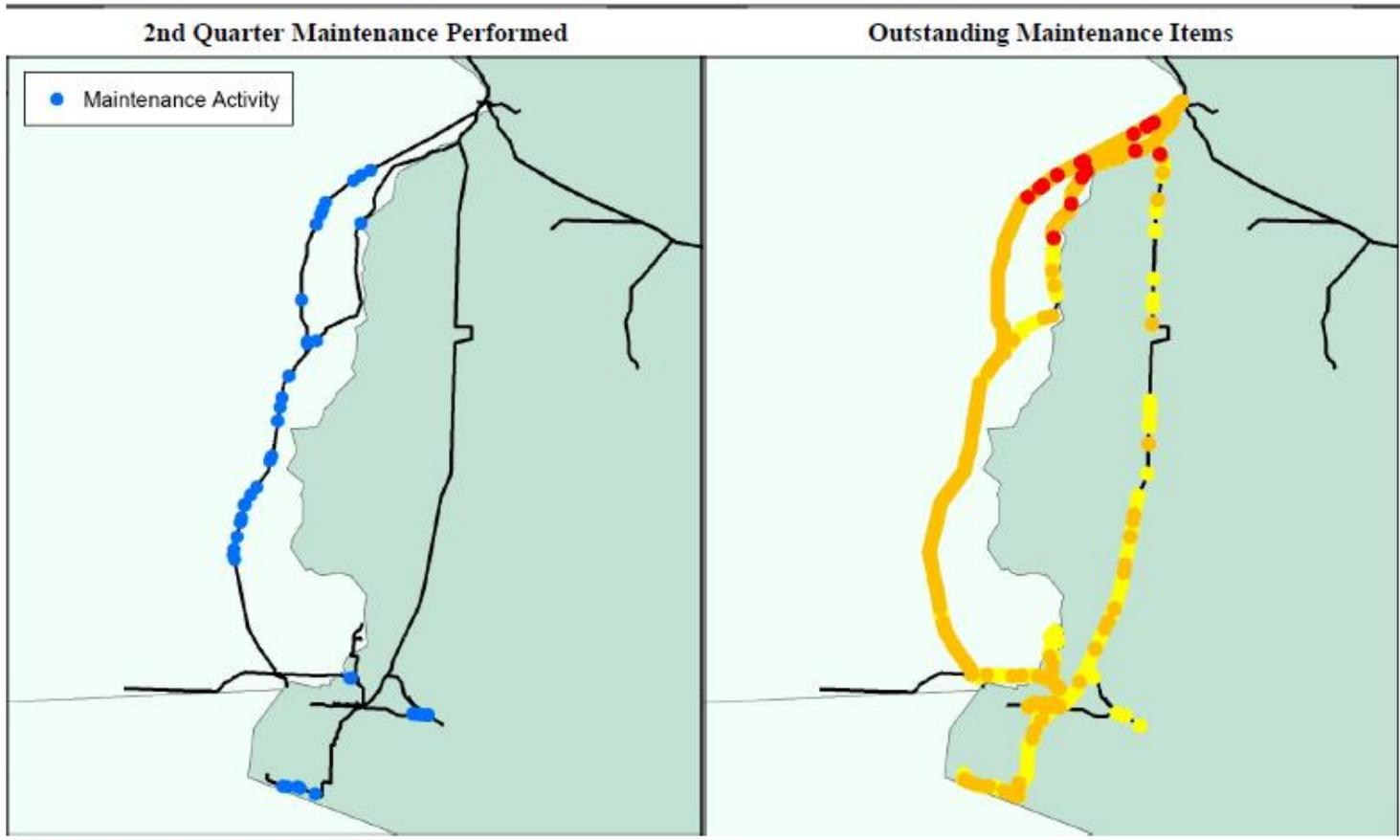
## South of Parker Outstanding Maintenance

	C	D	E	Totals
Anchor	60	2	1	63
Arm/Bridge				0
Body Extension				0
Brace	655	22	2	679
Crossarm	592	62		654
Distribution Apparatus	16	1		17
Foundation	1			1
Guy	151	7		158
Insulator	399	34		433
K Member/Window				0
Leg Member				0
OPGW				0
Phase/Conductor	19	1	1	21
Pole	1352	672	10	2034
Pole Hardware	136	7		143
Signs	34	3		37
Static Wire	86	10	2	98
Vibration Damper	9			9
Totals	3510	821	16	4347



# Wood Pole Maintenance

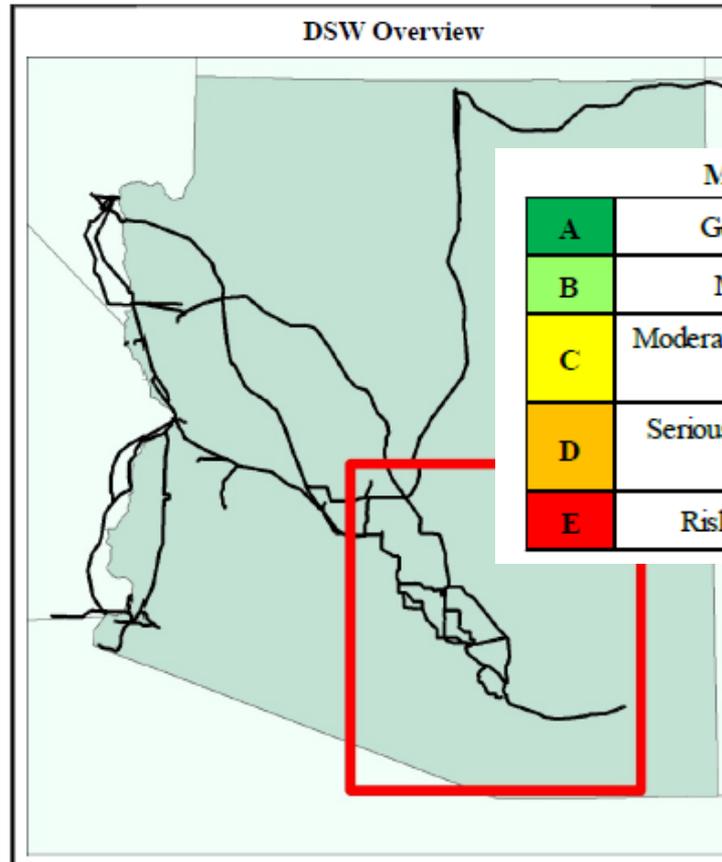
## South of Parker Outstanding Maintenance



# Wood Pole Maintenance

## South of Phoenix Outstanding Maintenance

	C	D	E	Totals
Anchor	13			13
Arm/Bridge	8			8
Brace	409	14		423
Crossarm	263	22		285
Foundation	5			5
Guy	15			15
Insulator	158	5		163
OPGW	3			3
Phase/Conductor	7	17		24
Pole	451	34		485
Pole Hardware	10			10
Signs	7			7
Static Wire	8	8	1	17
Vibration Damper	2			2
<b>Totals</b>	<b>1359</b>	<b>100</b>	<b>1</b>	<b>1460</b>



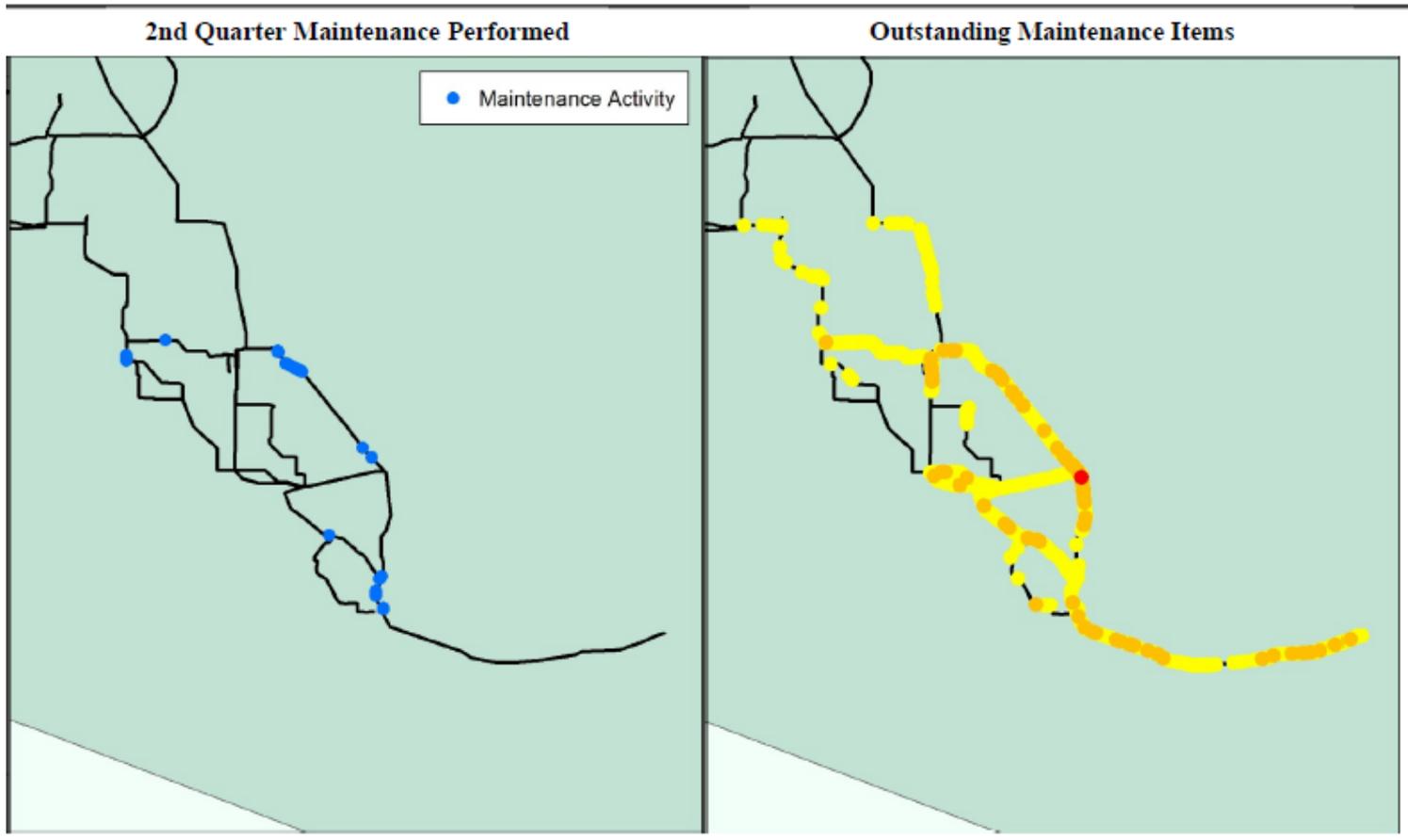
**Maintenance Priority Codes**

<b>A</b>	Good or like new. No action required.
<b>B</b>	Minor defect. Monitor degradation.
<b>C</b>	Moderate defect. Rehabilitation recommended as scheduled maintenance.
<b>D</b>	Serious defect. Repair, reinforce, or replace as soon as possible.
<b>E</b>	Risk to public safety or system reliability.



# Wood Pole Maintenance

## South of Phoenix Outstanding Maintenance



# FY17 COMPLETED CONSTRUCTION PROJECTS



# Facility Ratings Mitigation Year 2

- Completed March 17, 2017
- Approved for pre-payments in FY14



# Facility Ratings Mitigation Year 2

## Facility Ratings Mitigation Year 2

*Reference page 18 in 10-Year Plan Handout Book*

- Mitigated 79 deficiencies across four different line segments
  - Gavilan Peak – Prescott
  - Prescott – Round Valley
  - Round Valley – Peacock
  - Black Mesa – Topock (CAP)
- Work included re-conductoring approximately (32.6 miles) of 230-kV transmission line, installed (91) floating dead-ends, set (1) steel H-frame structure, (3) dead-end steel poles, and modified (11) steel lattice structures.



# Facility Ratings Mitigation Year 2

FUND TYPE	ORIGINAL BUDGET	FUNDING ADJUSTMENTS	CURRENT PROJECT BUDGET	EXECUTIONS TO DATE	REMAINING FUNDS
Pre-payment (PCN)	\$3,225,000	\$5,300,000	\$8,525,000	\$7,830,592	\$694,408
Appropriations	\$0	\$384,603	\$384,603	\$384,603	\$0
Trust Funds*	<u>\$0</u>	<u>\$336,281</u>	<u>\$336,281</u>	<u>\$336,281</u>	\$0
<b>TOTAL</b>	<b>\$3,225,000</b>	<b>\$6,020,884</b>	<b>\$9,245,884</b>	<b>\$8,551,476</b>	<b>\$694,408</b>

*Executions to date include expenses, obligations, and commitments through 7/31/17*

\*Trust Funds provided by CAP via Revolving Maintenance Fund (RMF) account



# FY17 ACTIVE CONSTRUCTION PROJECTS



# Parker 161-kV Switch Replacement

- *Reference page 20 in 10-Year Plan Handout Book.*
- Project has been canceled and is currently in closeout.
- No Pre-payment funds have been executed .
- In an effort to incorporate the transmission needs of our customers in the Parker area, WAPA created a South of Parker Planning Charter group.



# Parker 161-kV Switch Replacement



FUND TYPE	ORIGINAL BUDGET	FUNDING ADJUSTMENTS	CURRENT PROJECT BUDGET	EXECUTIONS TO DATE	REMAINING FUNDS
Pre-payment (PCN)	\$1,250,000	(\$1,250,000)	\$0	\$0	\$0
Appropriations	<u>\$0</u>	<u>\$25,685</u>	<u>\$25,685</u>	<u>\$25,685</u>	<u>\$0</u>
<b>TOTAL</b>	<b>\$1,250,000</b>	<b>(\$1,224,315)</b>	<b>\$25,685</b>	<b>\$25,685</b>	<b>\$0</b>

*Executions to date include expenses, obligations, and commitments through 7/31/17*



# Parker-Headgate Rock & Parker-Bouse

*Reference page 21 in 10-Year Plan Handout Book*

- In April 2016 CRIT requested that the river crossing on their land be relocated further upstream.
- On July 18<sup>th</sup> and 19<sup>th</sup>, 2017 WAPA held public scoping meetings in Parker.
- WAPA is investigating all alignment options to reduce cost and project scope.



# Parker-Headgate Rock & Parker-Bouse



FUND TYPE	ORIGINAL BUDGET	SUPPLEMENTAL FUNDING	CURRENT PROJECT BUDGET	EXECUTIONS TO DATE	REMAINING FUNDS
Pre-payment (PCN)	\$17,954,000	(\$334,176)	\$17,619,824	\$567,263	\$17,052,561
Appropriations	\$0	\$792,099	\$792,099	\$792,099	\$0
<b>TOTAL</b>	<b>\$17,954,000</b>	<b>\$457,923</b>	<b>\$18,411,923</b>	<b>\$1,359,362</b>	<b>\$17,052,561</b>

*Executions to date include expenses, obligations, and commitments through 7/31/17*



# Crossman Peak Microwave Facility

*Reference page 22 in 10-Year Plan Handout Book*

- New WAPA microwave site approved for Pre-payments in FY16.
- Design work in progress for 12'x24' communication building.
- Right-of-way and lands work in progress.
- Environmental Assessment projected completion by October 2017.
- Projected completion December 2018.



# Crossman Peak Microwave Facility



FUND TYPE	ORIGINAL BUDGET	FUNDING ADJUSTMENTS	CURRENT PROJECT BUDGET	EXECUTIONS TO DATE	REMAINING FUNDS
Pre-payment (PCN)	\$4,525,000	\$0	\$4,525,000	\$835,712	\$3,689,288
Appropriations	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
<b>TOTAL</b>	<b>\$4,525,000</b>	<b>\$0</b>	<b>\$4,525,000</b>	<b>\$835,712</b>	<b>\$3,689,288</b>

*Executions to date include expenses, obligations, and commitments through 7/31/17*



# Liberty Series Capacitor Bank

*Reference page 24 in 10-Year Plan Handout Book*

- Approved for Pre-payments in FY16
- Projected to have 95% Construction drawings and specifications by June 2018
- \*\$3,701,565 in appropriations became available for DSW and is being used to purchase the Series Cap Bank Equipment
- ~1 year lead time on Series Cap Bank Equipment
- Projected completion of construction April 2019



# Liberty Series Capacitor Bank



FUND TYPE	ORIGINAL BUDGET	FUNDING ADJUSTMENTS	CURRENT PROJECT BUDGET	EXECUTIONS TO DATE	REMAINING FUNDS
Pre-payment (PCN)	\$10,372,000	\$0	\$10,372,000	\$325,280	\$5,970,905
Appropriations	\$0	*\$3,701,565	*\$3,701,565	*\$3,701,565	\$0
<b>TOTAL</b>	<b>\$10,372,000</b>	<b>\$3,701,565</b>	<b>\$10,372,000</b>	<b>\$4,026,845</b>	<b>\$5,970,905</b>

\*Executions to date include expenses, obligations, and commitments through 7/31/17



# Mesa Substation Remediation

*Reference page 25 in 10-Year Plan Handout Book*

- Approved for pre-payment funding in FY14 and FY16
- Environmental service contract awarded in 2016
- Contractor completed on-site remediation work on July 21, 2017
- Projected completion October 2017



# Mesa Substation Remediation



FUND TYPE	ORIGINAL BUDGET	FUNDING ADJUSTMENTS	CURRENT PROJECT BUDGET	EXECUTIONS TO DATE	REMAINING FUNDS
Pre-payment (PCN)	\$1,025,000	\$2,510,000	\$3,535,000	\$1,554,595	\$1,980,405
Appropriations	\$0	\$430,012	\$430,012	\$430,012	\$0
<b>TOTAL</b>	<b>\$1,025,000</b>	<b>\$2,940,012</b>	<b>\$3,965,012</b>	<b>\$1,984,607</b>	<b>\$1,980,405</b>

*Executions to date include expenses, obligations, and commitments through 7/31/17*



# Tucson Substation Rebuild

*Reference page 27 in 10-Year Plan Handout Book*

- Approved for Pre-payment funding in FY15
- All communication equipment installed by September 2017
- Full commissioning to be completed by October 2017
- Projected completion date January 2018



# Tucson Substation Rebuild



FUND TYPE	ORIGINAL BUDGET	FUNDING ADJUSTMENTS	CURRENT PROJECT BUDGET	EXECUTIONS TO DATE	REMAINING FUNDS
Pre-payment (PCN)	\$7,000,000	\$0	\$7,000,000	\$6,661,693	\$338,307
Appropriations	<u>\$0</u>	<u>\$1,903,963</u>	<u>\$1,903,963</u>	<u>\$1,903,963</u>	\$0
<b>TOTAL</b>	<b>\$7,000,000</b>	<b>\$1,903,963</b>	<b>\$8,903,963</b>	<b>\$8,565,656</b>	<b>\$338,307</b>

*Executions to date include expenses, obligations, and commitments through 7/31/17*



# Gila Substation 161-kV Rebuild

*Reference page 29 in 10-Year Plan Handout Book*

- Approved for pre-payment funding in FY14 and FY16
- Prepare Outage Sequencing September 2017
- Design package to Procurement March 2018
- Construction start October 2018
- Projected completion July 2020



# Gila Substation 161-kV Rebuild



FUND TYPE	ORIGINAL BUDGET	FUNDING ADJUSTMENTS	CURRENT PROJECT BUDGET	EXECUTIONS TO DATE	REMAINING FUNDS
Pre-payment (PCN)	\$12,000,000	\$5,223,587	\$17,223,587	\$3,203,622	\$14,019,966
Appropriations	\$0	\$1,948,999	\$1,948,999	\$1,948,999	\$0
<b>TOTAL</b>	<b>\$12,000,000</b>	<b>\$7,172,586</b>	<b>\$19,172,586</b>	<b>\$5,152,620</b>	<b>\$14,019,966</b>

*Executions to date include expenses, obligations, and commitments through 7/31/17*



# Gila-Knob 161-kV Rebuild

*Reference page 31 in 10-Year Plan Handout Book*

- Approved for pre-payment funding in FY14 and FY16
- Design Completed March 2017
- Construction outage to begin January 2018
- Completion outage date April 06, 2018
- Project closeout date project for May 2018
- All of the government furnished equipment, conductor and pole structures have been acquired.



# Gila-Knob 161-kV Rebuild



FUND TYPE	ORIGINAL BUDGET	FUNDING ADJUSTMENTS	CURRENT PROJECT BUDGET	EXECUTIONS TO DATE	REMAINING FUNDS
Pre-payment (PCN)	\$2,000,000	\$2,030,573	\$4,030,573	\$1,659,135	\$2,371,438
Appropriations	\$0	\$2,132,170	\$2,132,170	\$2,132,170	\$0
<b>TOTAL</b>	<b>\$2,000,000</b>	<b>\$4,162,743</b>	<b>\$6,162,743</b>	<b>\$3,791,305</b>	<b>\$2,371,438</b>

*Executions to date include expenses, obligations, and commitments through 7/31/17*



# SEED FUNDING PILOT PROGRAM



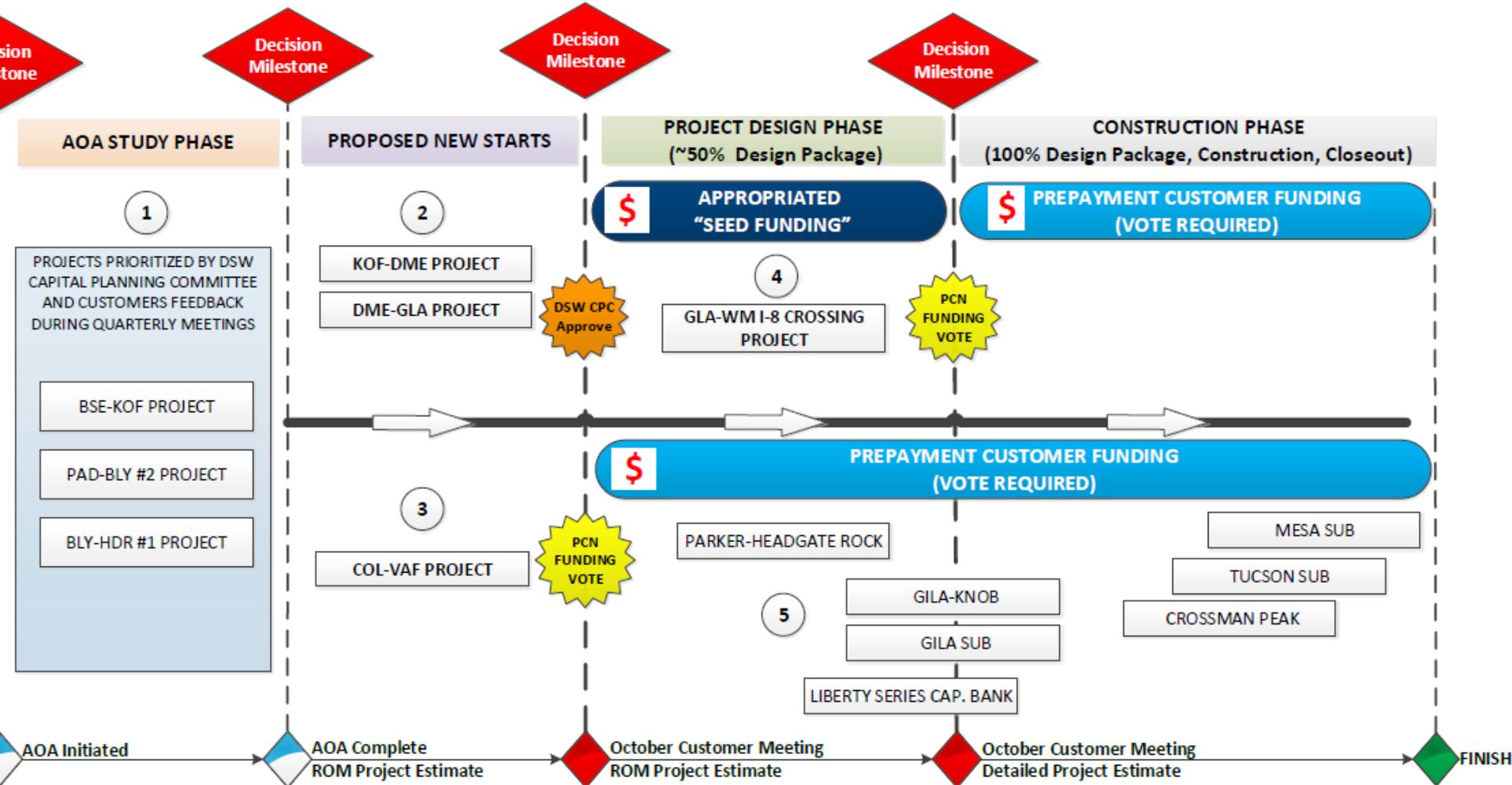
# Seed Funding Summary

*Reference page 33 in 10-Year Plan Handout Book*

- Pilot program established in FY16.
- Historically, proposed projects utilize a Rough Order Magnitude (ROM) estimate based on pre-design parameters.
- Seed funding partially funds the initial phase of the project to the ~50% design milestone
- At completion of ~50% design, a new project estimate is created which eliminates inherent variability in ROM estimates.



# Seed Funding



# Seed Funding

## DECISION MILESTONE PARTICIPANTS



**DSW Capital Planning  
Committee (CPC)**



**Parker-Davis, Intertie  
Customers**



**DSW CPC Technical  
Sub-team**



**DSW CPC Financial  
Sub-team**

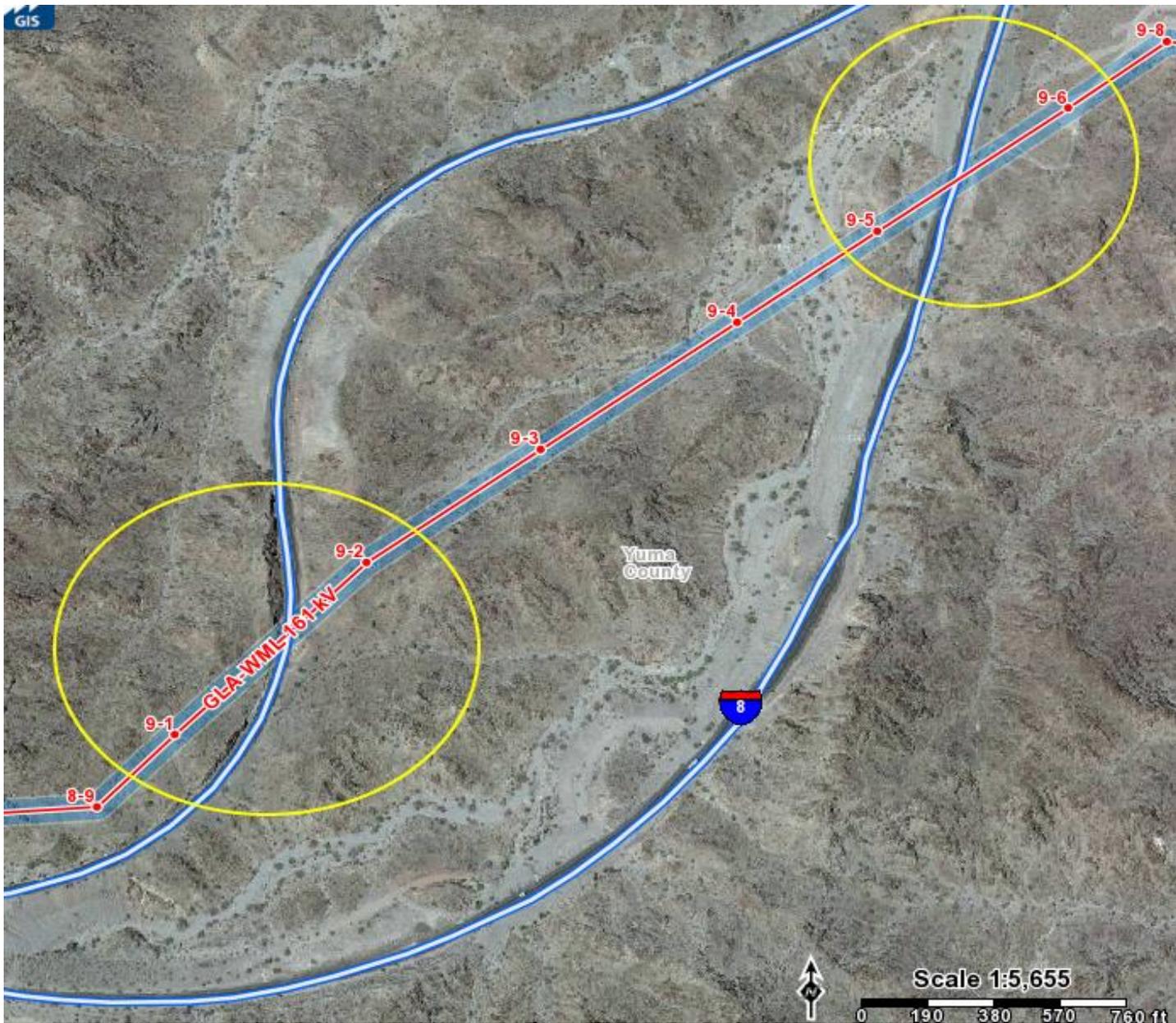


# Gila-Wellton Mohawk 161-kV I-8 Crossing

## Description

- *Reference page 34 in 10-Year Plan Handout Book*
- ~2.8 miles of single circuit transmission line  
Constructed in 1956
- Stretches through diverse, rugged mountainous terrain.
- Crosses Interstate-8 with isolated wood pole structures
- Majority of the Gila-Wellton Mohawk structures outside of this 2.8 mile stretch have already been replaced.





Locations where Gila-Wellton Mohawk Transmission line crosses I-8

# Gila-Wellton Mohawk 161-kV I-8 Crossing

- Appropriated Seed Funding approved in October 2016
  - Design started February 2017
  - Complete ~50% Design Package August 2017
  - Revalidated project estimate will be available September 2017
  - *\*100% Design January 2018*
  - *\*Construction Start October 2018*
  - *\*Construction Complete March 2019*
- \*Projected dates contingent on approval of Phase-II with approved Customer Pre-payments on October 5<sup>th</sup>, 2017*



# Gila-Wellton Mohawk 161-kV I-8 Crossing

PHASE I – ~50% DESIGN PACKAGE					
FUND TYPE	SEED FUNDING ALLOWANCE	SUPPLEMENTAL FUNDING	TOTAL	EXECUTIONS TO DATE	REMAINING FUNDS
Pre-payment (PCN)	\$0	\$ 0	\$0	\$0	\$0
Appropriations	\$500,000	\$ 0	\$500,000	\$220,143	\$0
<b>TOTAL</b>	<b>\$500,000</b>	<b>\$0</b>	<b>\$500,000</b>	<b>\$220,143</b>	<b>\$0</b>

*Executions to date include expenses, obligations, and commitments through 7/31/17*

CONCEPTUAL PROJECT FUNDING PLAN		
PHASE	COST ESTIMATE	FUND TYPE
1- Initiation, Planning, & ~50% Design Package	\$500,000	Appropriations (WCF)
2- Full Design, Construction, & Closeout	\$TBD	Pre-payment (PCN)
<b>* TOTAL PROJECT BUDGET</b>	<b>\$TBD</b>	

*\*TOTAL PROJECT BUDGET will be updated upon completion of the ~50% design package which is expected in September 2017*



# FY18 PROPOSED NEW CONSTRUCTION PROJECTS



# Coolidge-Valley Farms 115-kV Transmission Line AOA Breakdown

## Description

- *Reference page 41 in 10-Year Plan Handout Book*
- 6.1-mile segment of the Coolidge to Oracle 45-mile 115-kV transmission line.
- Originally constructed in 1943.
- Comprised of mostly wood H-frame structures, 4/0 copper conductor (rating = 89 MVA), and overhead ground wire.



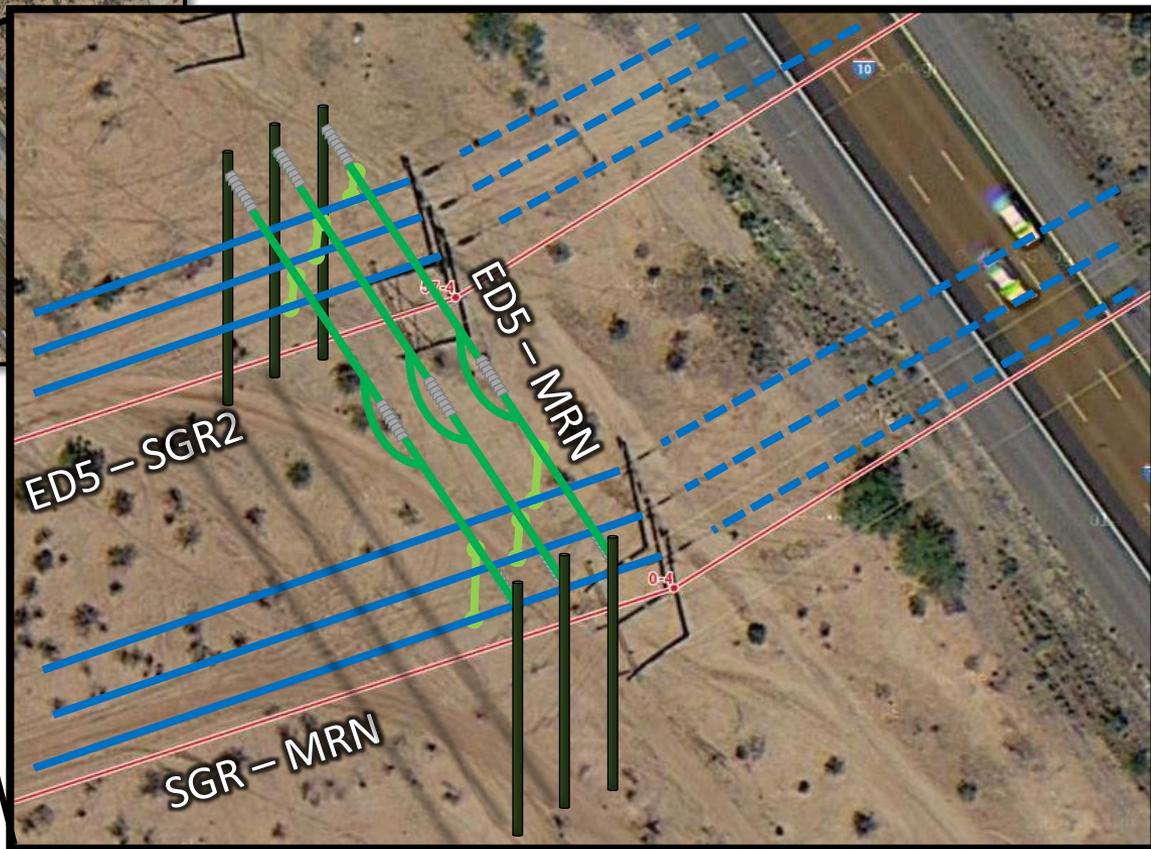
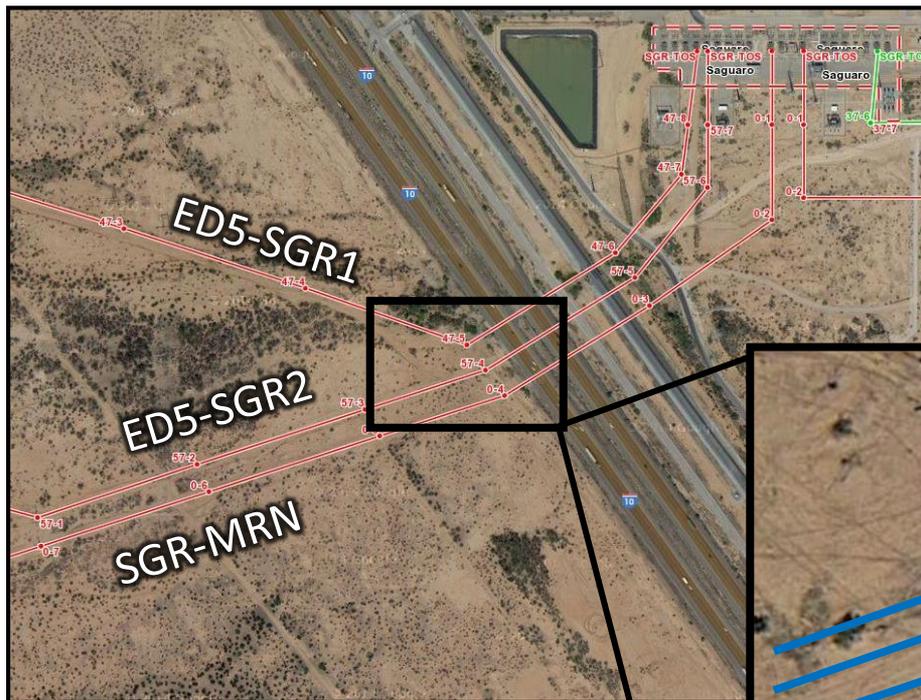
# Coolidge-Valley Farms 115-kV Transmission Line AOA Breakdown



# Coolidge-Valley Farms 115-kV Transmission Line AOA Breakdown

- Project Request Form submitted in FY13 by DSW Planning group
- Project postponed due to “Saguaro Bypass” temporary fix in 2015.
- New Project Request Form received February 2017
- AOA Study completed August 2017





# Coolidge-Valley Farms 115-kV Transmission Line AOA Breakdown

## **Project Justifications**

- Likely to begin seeing potential overload issues with typical load and generation patterns starting in the summer of 2020.
- Improve reliability to continue meeting existing contractual obligations.

## **Additional Benefits**

- 2 National Electric Safety Code (NESC) clearance violations have been identified and need to be corrected.
- Existing condition of access roads and rights-of-way is poor and limits access.
- Estimated 20% of existing wood poles have defects (moderate-serious defects)
- Additional communication requirements have been identified.



# July 27, 2017 COL-VAF 115kV G5200 Maintenance Report

## Maintenance Performed in 2017

	Anchor	Brace	Crossarm	Foundation	Guy	Insulator	Phase/Conductor	Pole	Pole Hardware	Signs	Static Wire	TOTALS
Adjusted/Modified												0
Repaired												0
Replaced												0
<b>TOTALS</b>	0	0	0	0	0	0	0	0	0	0	0	0

Note: Totals include RADDs projects and maintenance items.

2017 Inspection Progress

	Structures
Inspected	56
Uninspected	1
<b>Total</b>	<b>57</b>
<b>98%</b>	

## Outstanding Maintenance in 2017

Row Labels	C	D	E	Grand Total
Anchor	1			1
Brace		1		1
Crossarm	3			3
Guy	1			1
Insulator	2			2
Phase/Conductor		1		1
Pole	15	3		18
Pole Hardware	3			3
Signs				0
Static Wire				0
Vibration Damper				0
<b>Grand Total</b>	<b>25</b>	<b>5</b>	<b>0</b>	<b>30</b>

Maintenance Priority Codes

<b>A</b>	Good or like new. No action required.
<b>B</b>	Minor defect. Monitor degradation.
<b>C</b>	Moderate defect. Rehabilitation or replacement recommended as scheduled maintenance.
<b>D</b>	Serious defect. Repair, reinforce, or replace as soon as possible.
<b>E</b>	Risk to public safety or system reliability.



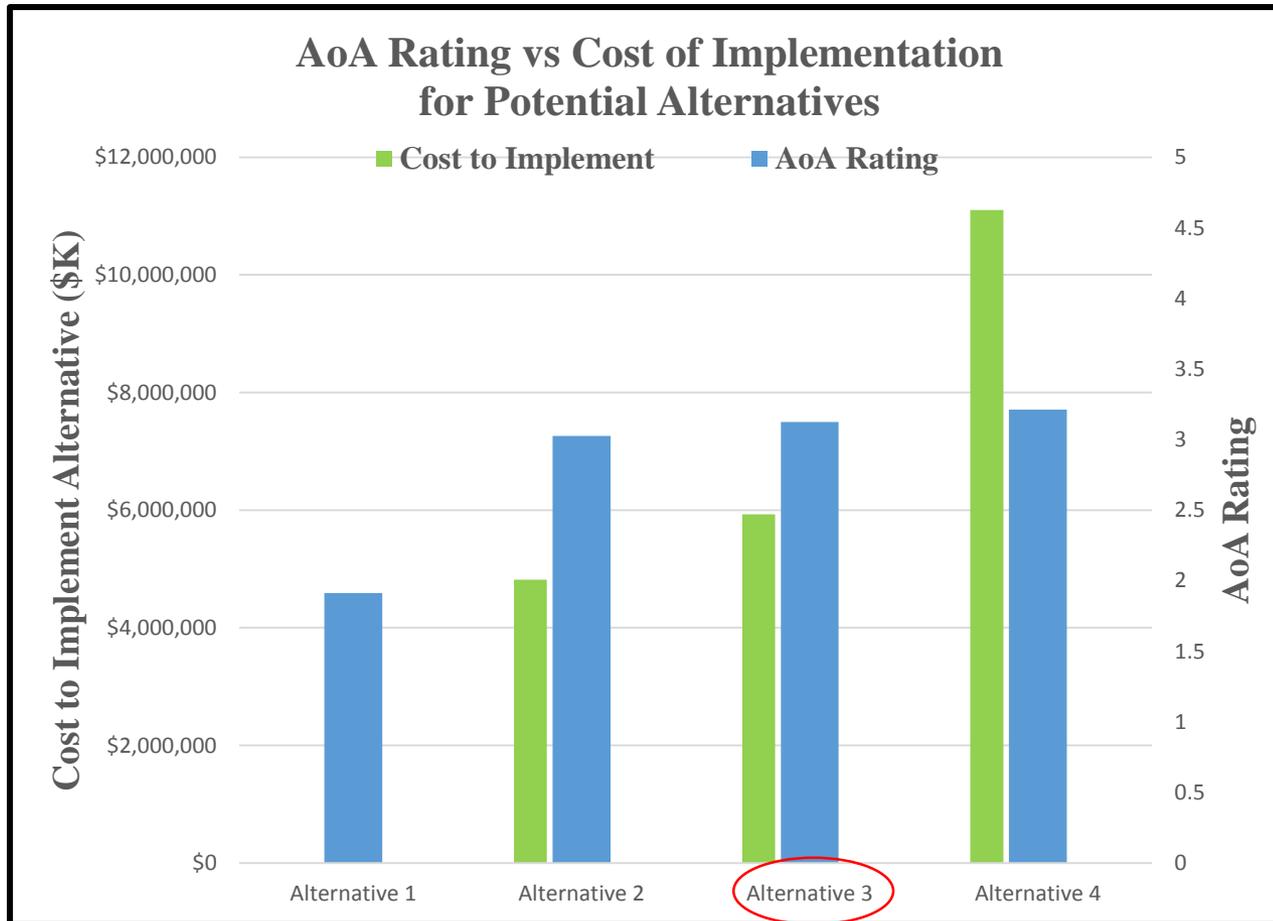
# Coolidge-Valley Farms 115-kV Transmission Line AOA Breakdown

## AOA Study Alternatives

- Alternative 1 – Status Quo, continue with maintenance only
- Alternative 2 – Upgrade conductor (180 – 230MVA), replace failing wood poles in-kind, 115-kV with OPGW
- Alternative 3 – Upgrade conductor (180 – 230MVA), upgrade all structures to light duty steel, 115-kV with OPGW
- Alternative 4 – Upgrade conductor (180 – 230MVA), upgrade all structures to steel monopoles, double circuit 115-kV with OPGW



# Coolidge-Valley Farms 115-kV Transmission Line AOA Breakdown



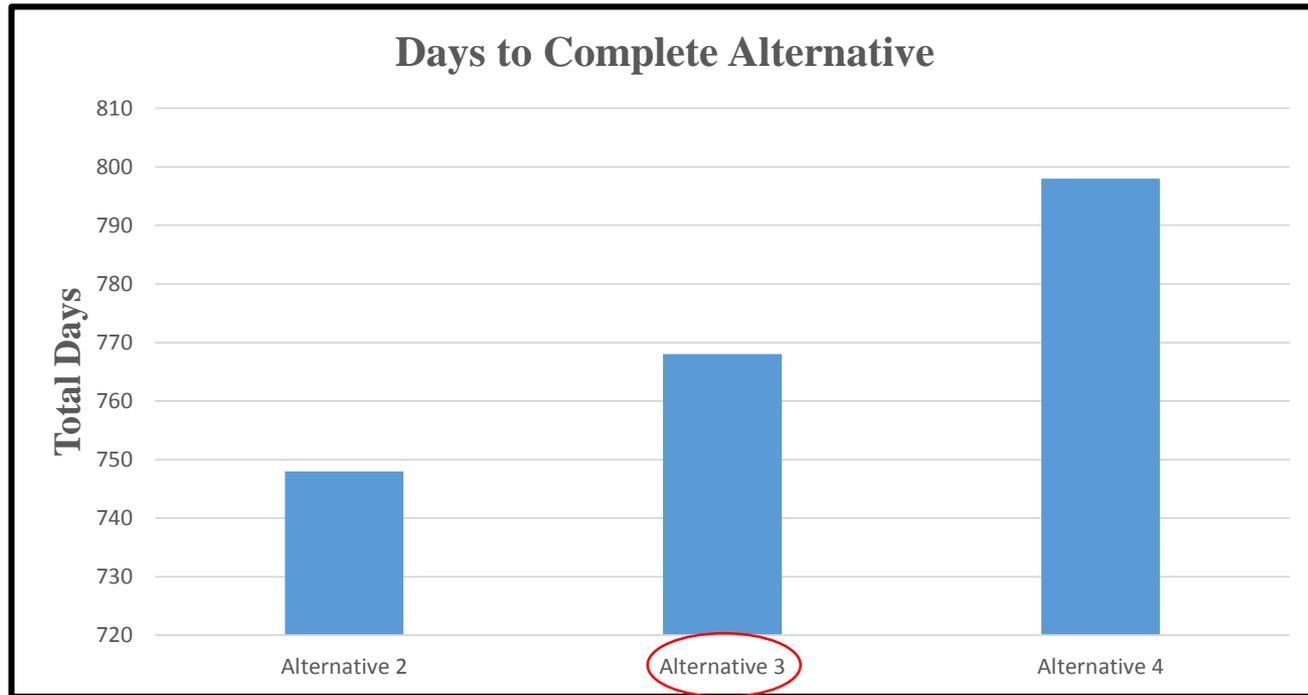
# Coolidge-Valley Farms 115-kV Transmission Line AOA Breakdown

Preferred Alternative #3 Conceptual Estimate	
Rebuild COL-VAF With Light Duty H-Frame Structures	
	TOTAL
Administrative	\$1,190,328
EVMS	\$0
Design	\$167,199
Environmental	\$484,824
Land & Land Rights	\$125,466
Government Furnished Equipment	\$1,349,024
Construction	\$1,527,094
Commissioning Activity	\$98,021
Subtotal	\$4,941,956
Contingency (20%)	\$988,391
<b>Total Project Budget</b>	<b>\$5,930,349</b>

- Administrative Cost Include:**
- **Federal and Contract Labor**
    - Project Management
    - Planning/Collection of Field Data
    - Procurement/Contracts
    - Budget/Finance/Accounting
    - Safety Inspections/Security



# Coolidge-Valley Farms 115-kV Transmission Line AOA Breakdown



# Coolidge-Valley Farms 115-kV Transmission Line AOA Breakdown

## AOA Study Results

- DSW proposes Alternative 3 – Upgrade conductor (180 – 230MVA), upgrade all structures to light duty steel H-frame, 115-kV with OPGW
- Projected Cost = \$5,930,349
  - Approximately ~\$120,000 salvage value of copper 4/0 conductor (subject to market value)
- Target energization fall of 2020
  - Issues anticipated by Summer of 2020
- Significant environmental sensitivities along the right-of-way
- Pre-payment funds will be requested in the October 5<sup>th</sup> Pre-payment Presentation.
- DSW invites interested customers to partake in a site visit to view the transmission line and right-of-way.



# Kofa-Dome Tap 161-kV AOA Breakdown

## Description

- *Reference page 54 in 10-Year Plan Handout Book.*
- Single-circuit, 7.3-mile line segment along the Parker-Gila Transmission line.
- Originally constructed in 1943 with 300 kcmil hollow core copper conductors.
- Most wood H-Frame structures have been replaced with light duty steel H-Frame structures.
- Seven wood structures remain in service.



# Kofa-Dome Tap 161-kV AOA Breakdown



# Kofa-Dome Tap 161-kV AOA Breakdown

- Project Request Form submitted in FY12 by DSW construction/engineering group
- Project prioritized and AOA Study initiated in January 2016
- AOA Study completed July 2016



# Kofa-Dome Tap 161-kV AOA Breakdown

## Project Justifications

- 8 National Electric Safety Code (NESC) violations have been identified and need to be corrected
- Safety concerns are significant due to high level of observed deterioration
- Existing condition of access roads and rights-of-way is poor and limits adequate access
- Emergency repairs would be prolonged and costly due to access constraints
- In some cases new access roads will need to be constructed
- Additional communication requirements have been identified



# July 25, 2017 KOF-DME 161kV G5200 Maintenance Report

Geographic Information System

## Maintenance Performed in 2017

	Anchor	Brace	Crossarm	Foundation	Guy	Insulator	Phase/Conductor	Pole	Pole Hardware	Signs	Static Wire	TOTALS
Adjusted/Modified												0
Repaired			1								1	2
Replaced												0
<b>TOTALS</b>	0	0	1	0	0	0	0	0	0	0	1	2

2017 Inspection Progress

	Structures
Inspected	54
Uninspected	7
<b>Total</b>	<b>61</b>

Note: Totals include RADDs projects and maintenance items.

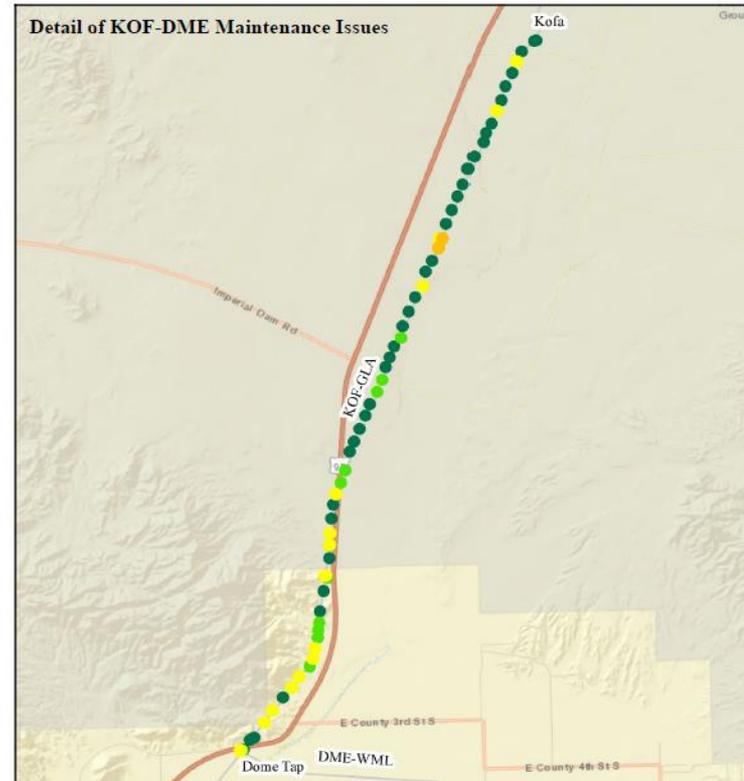


## Outstanding Maintenance in 2017

Row Labels	C	D	E	Grand Total
Anchor				0
Brace	4			4
Crossarm	3			3
Guy	2			2
Insulator	3			3
Phase/Conductor				0
Pole	9	2		11
Pole Hardware	3			3
Signs				0
Static Wire	1			1
Vibration Damper				0
<b>Grand Total</b>	25	2	0	27

Maintenance Priority Codes

<b>A</b>	Good or like new. No action required.
<b>B</b>	Minor defect. Monitor degradation.
<b>C</b>	Moderate defect. Rehabilitation or replacement recommended as scheduled maintenance.
<b>D</b>	Serious defect. Repair, reinforce, or replace as soon as possible.
<b>E</b>	Risk to public safety or system reliability.



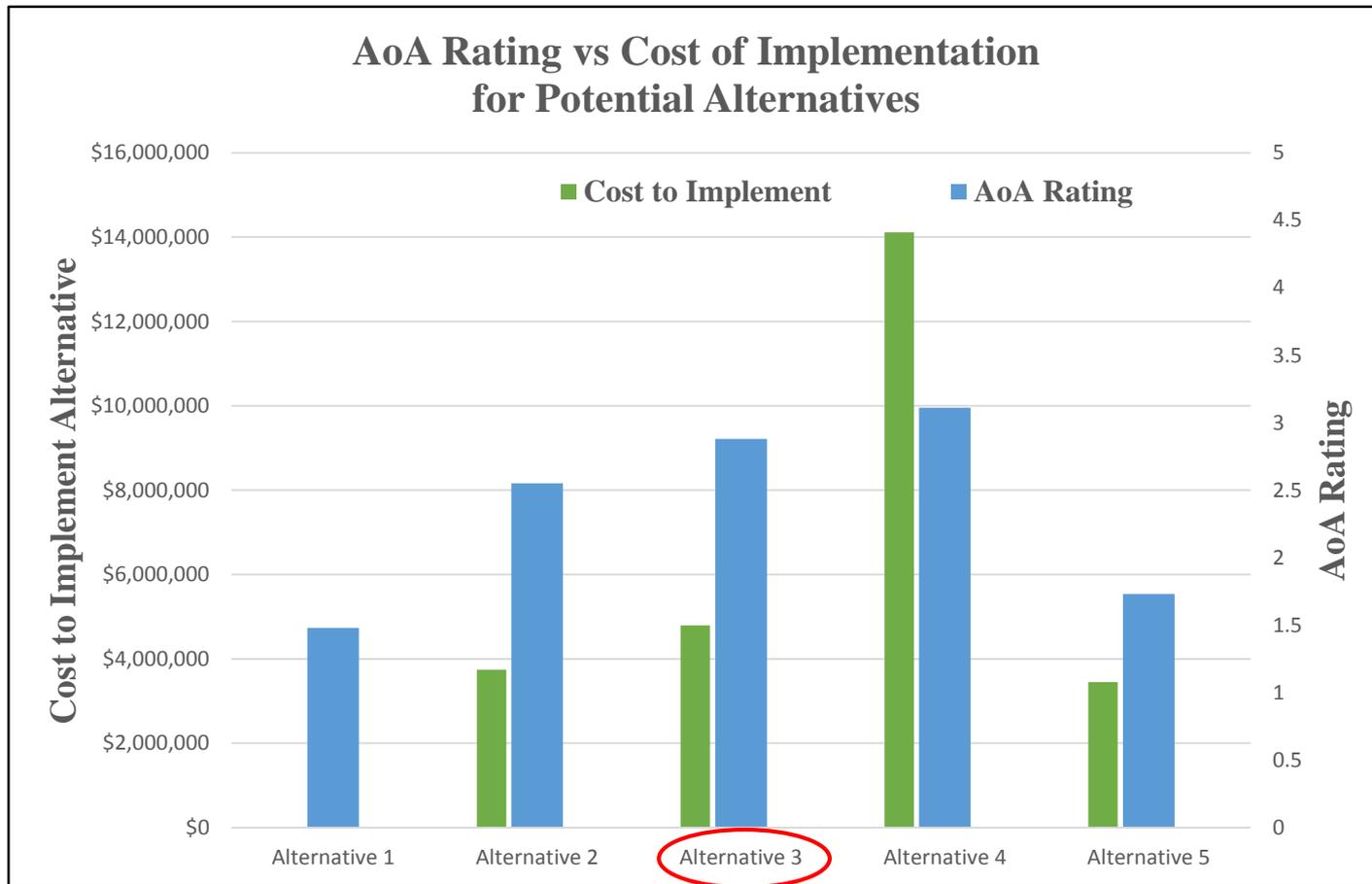
# Kofa-Dome Tap 161-kV AOA Breakdown

## **AOA Study Alternatives**

- Alternative 1- Status Quo (Routine maintenance only)
- Alternative 2- Re-conductor KOF-DME
- Alternative 3- Rebuild with Light Duty Steel H-Frame Structures
- Alternative 4- Rebuild to 230-kV Standards operated at 161-kV
- Alternative 5- Inset Structures as needed to mitigate NERC violations



# Kofa-Dome Tap 161-kV AOA Breakdown



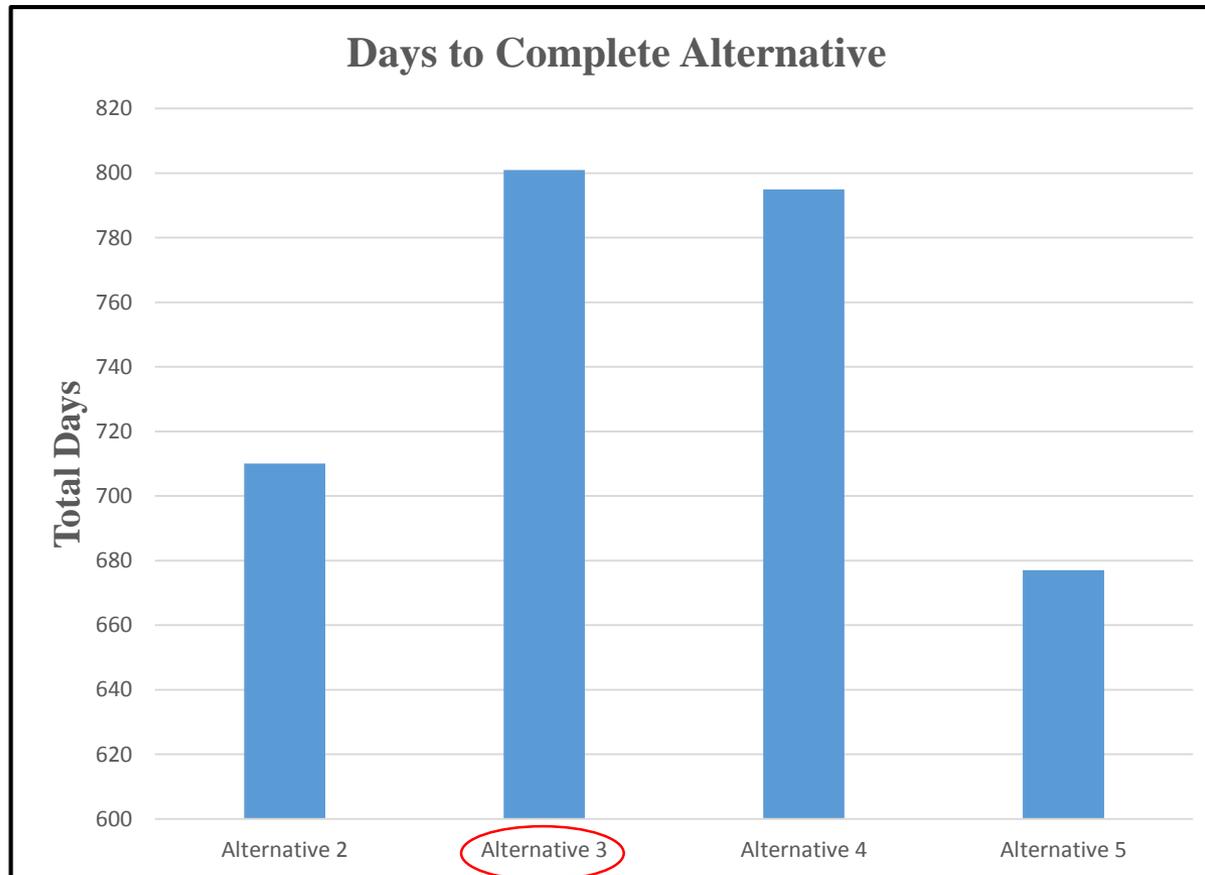
# Kofa-Dome Tap 161-kV AOA Breakdown

Preferred Alternative #3 Conceptual Estimate	
Rebuild KOF-DME With Light Duty H-Frame Structures	
	TOTAL
Administrative	\$803,197
EVMS*	\$0
Design	\$170,433
Environmental	\$58,564
Land and Lands Rights	\$35,190
Government Furnished Equipment	\$1,490,000
Construction	\$1,881,811
Commissioning Activity	\$27,490
Subtotal	\$4,016,685
Contingency (20%)	\$889,337
<b>Total Project Budget</b>	<b>\$5,360,022</b>

- Administrative Cost Include:**
- **Federal and Contract Labor**
    - Project Management
    - Planning/Collection of Field Data
    - Procurement/Contracts
    - Budget/Finance/Accounting
    - Safety Inspections/Security



# Kofa-Dome Tap 161-kV AOA Breakdown



# Kofa-Dome Tap 161-kV AOA Breakdown

## AOA Study Results

- DSW proposes Alternative 3- Rebuild with Light Duty Steel H-Frame Structures
- Projected Cost = \$5,360,022
- \$500,000 in Appropriated Seed Funds would be used to complete ~50% design package (phase 1)
- Pre-payment funds would be requested to complete the project through closeout, in accordance with the MOU.
- DSW invites interested customers to partake in a site visit to view the transmission line and right-of-way.



# Dome Tap-Gila AOA Breakdown

## Description

- *Reference page 71 in 10-Year Plan Handout Book*
- Single circuit, 7.5 mile line segment along the Parker-Gila transmission line.
- Originally constructed in 1943 the line is constructed with 300 kcmil hollow core copper conductor
- Mix of wood H-Frame and light duty steel H-frame structures
- 16 wood structures remain in this segment.



# Dome Tap-Gila AOA Breakdown



# Dome Tap-Gila AOA Breakdown

## Project Justification

- Eight NERC ground clearance violations have been identified and need to be corrected.
- Ten of the 16 wood structures are deteriorated and unsafe requiring replacement.
- Safety concerns are significant due to high level of observed deterioration
- 43 access roads and right-of-way constraints have been identified
- In some cases new access roads will need to be constructed
- Emergency repairs would be prolonged and costly due to access constraints
- Additional communication requirements have been identified.



# July 25, 2017 DME-GLA 161kV G5200 Maintenance Report

## Maintenance Performed in 2017

	Anchor	Brace	Crossarm	Foundation	Guy	Insulator	Phase/Conductor	Pole	Pole Hardware	Signs	Static Wire	TOTALS
Adjusted/Modified												0
Repaired							1				3	4
Replaced												0
<b>TOTALS</b>	0	0	0	0	0	0	1	0	0	0	3	4

Note: Totals include RADDs projects and maintenance items.

2017 Inspection Progress

	Structures
Inspected	61
Uninspected	6
<b>Total</b>	<b>67</b>

**91%**

## Outstanding Maintenance in 2017

Row Labels	C	D	E	Grand Total
Anchor	6			6
Brace	6			6
Crossarm	8	1		9
Guy	8			8
Insulator	12			12
Phase/Conductor	1			1
Pole	32	1		33
Pole Hardware	1			1
Signs				0
Static Wire	3			3
Vibration Damper				0
<b>Grand Total</b>	<b>77</b>	<b>2</b>	<b>0</b>	<b>79</b>

### Maintenance Priority Codes

A	Good or like new. No action required.
B	Minor defect. Monitor degradation.
C	Moderate defect. Rehabilitation or replacement recommended as scheduled maintenance.
D	Serious defect. Repair, reinforce, or replace as soon as possible.
E	Risk to public safety or system reliability.



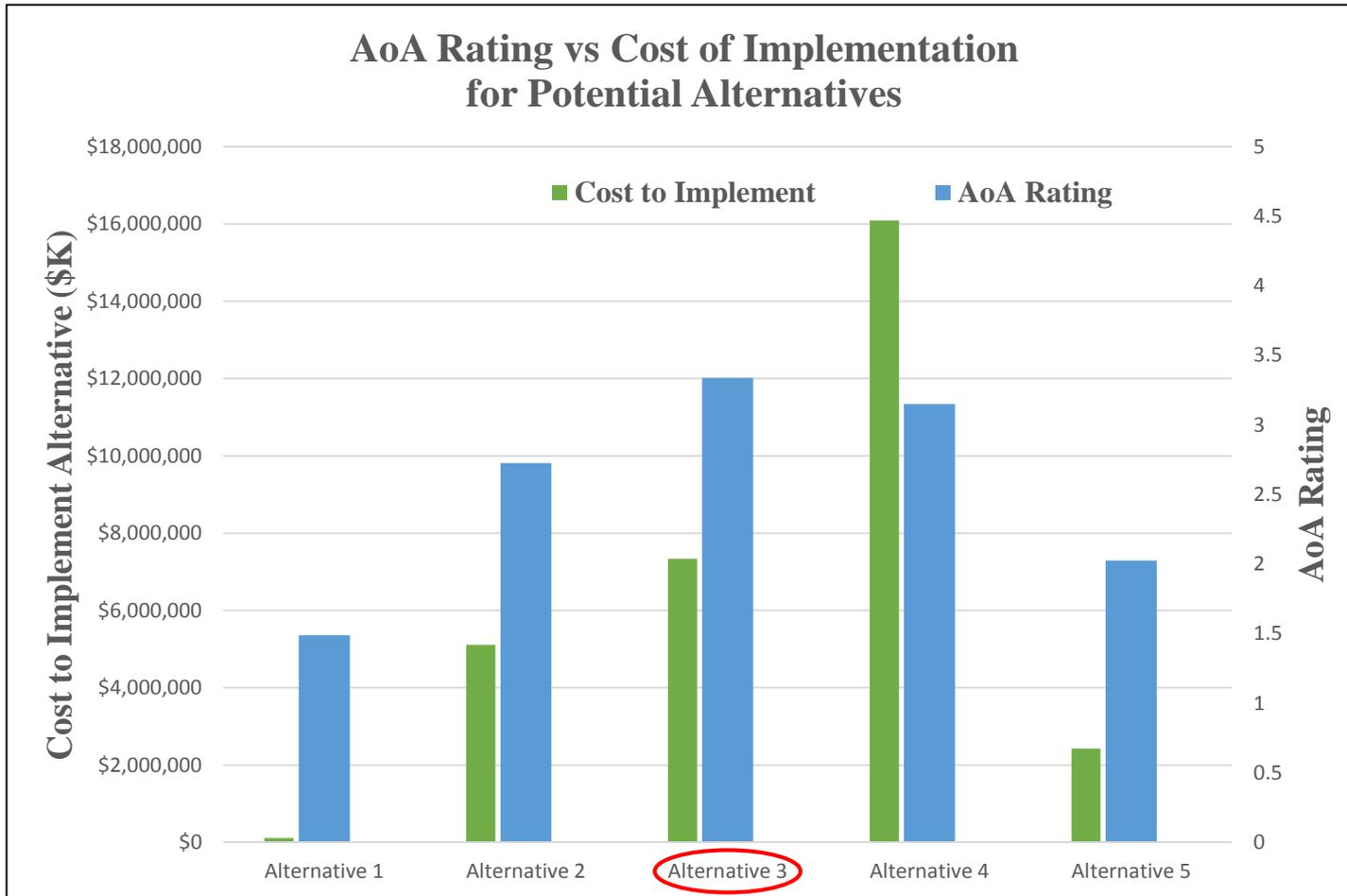
# Dome Tap-Gila AOA Breakdown

## AOA Study Alternatives

- Alternative 1- Status Quo (Routine maintenance only)
- Alternative 2- Re-conductor DME-GLA
- Alternative 3- Rebuild with Light Duty Steel H-Frame Structures
- Alternative 4- Rebuild to 230-kV standards operated at 161-kV
- Alternative 5- Inset Structures as needed to mitigate NERC violations



# Dome Tap-Gila AOA Breakdown



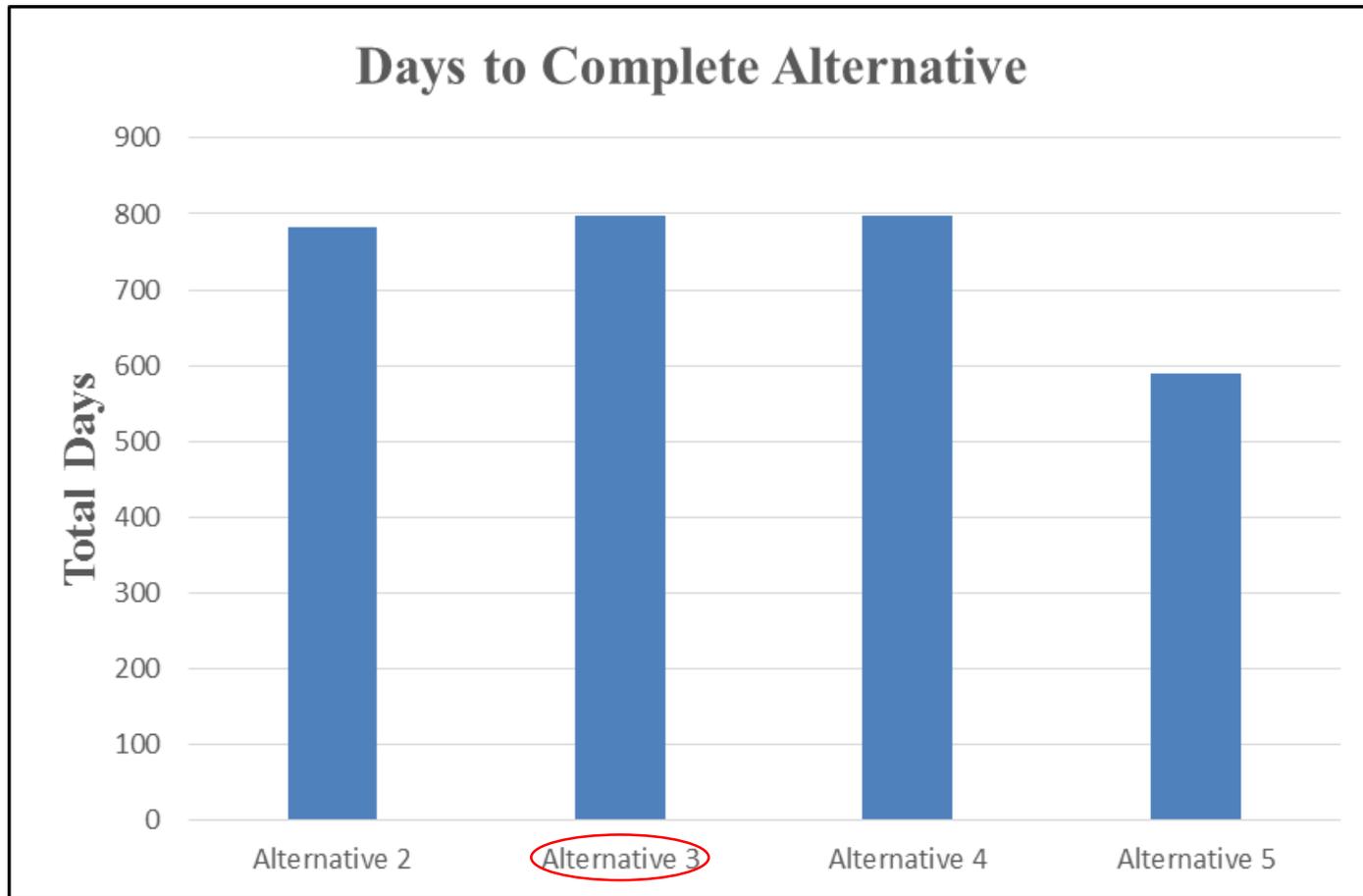
# Dome Tap-Gila AOA Breakdown

Preferred Alternative #3 Conceptual Estimate	
Reconductor and Replace all Wood Structures	
	TOTAL
Administrative	\$953,031
EVMS*	\$0
Design	\$242,735
Environmental	\$200,834
Land and Land Rights	\$90,000
Government Furnished Equipment	\$2,790,000
Construction	\$1,759,259
Commissioning Activity	\$132,000
Subtotal	\$6,167,859
Contingency (20%)	\$1,233,572
<b>Total Project Budget</b>	<b>\$7,401,431</b>

- Administrative Cost Include:**
- **Federal and Contract Labor**
    - Project Management
    - Planning/Collection of Field Data
    - Procurement/Contracts
    - Budget/Finance/Accounting
    - Safety Inspections/Security



# Dome Tap-Gila AOA Breakdown



# Dome Tap-Gila AOA Breakdown

## AOA Study Results

- DSW proposes Alternative 3- Rebuild with Light Duty Steel H-Frame Structures
- Projected Cost = \$7,401,431
- \$500,000 in Appropriated Seed Funds would be used to complete ~50% design package (phase 1)
- Pre-payment funds would be requested to complete the project through closeout, in accordance with the MOU.
- DSW invites interested customers to partake in a site visit to view the transmission line and right-of-way.



# FY18 Pre-payment Funding Plan



# Prepayment Funding Overview

**Prepayment Advances:** Long-term firm transmission customers of Parker-Davis and Intertie Projects are billed one month in advance of service

- WAPA is authorized by the Contributed Funds Act to accept advances
- WAPA named these advances “prepayments” to avoid confusion with other contractual advancing programs such as the P-DP Advancement of Funds (AOF)
- Prepayment advances are available for construction projects and treated as if the source of funds had been specifically appropriated



# Prepayment Funding Overview

2018 PROPOSED PROJECT FUNDING PLAN				
PROJECT	PRE-DESIGN COST ESTIMATE	APPROPRIATED SEED FUNDS PRIOR YEAR(S)	APPROPRIATED SEED FUNDS 2018	PRE-PAYMENT FUNDS REQUESTED 2018
Coolidge-Valley Farms Rebuild	*\$5,930,349	\$0	\$0	*\$5,930,349
Gila-Wellton Mohawk I-8 Crossing Rebuild	**\$6,342,000	\$500,000	\$0	**\$5,842,000
Kofa-Dome Tap Rebuild	\$5,360,022	\$0	~\$500,000	\$0
Dome Tap-Gila Rebuild	\$7,401,431	\$0	~\$500,000	\$0
<b>TOTAL 2018 FUNDING REQUESTED</b>			<b>\$1,000,000</b>	<b>**\$11,772,349</b>

*\*Cost estimate for preferred Alternative #3. See Coolidge-Valley Farms Section 12.2 for more details.*

**\*\*Pre-Design Estimate will be updated upon completion of ~50% design package which is expected in September 2017.**



# Prepayment Funding Overview

**Prepayment Process:** DSW will hold the annual Prepayment Funding Meeting on October 5, 2017, to vote on the funding of proposed projects. Per the Memorandum of Understand No. 10-DSR-12175 (MOU), Section 5:

- Each participant that has signed the MOU will have one vote
- Approval requires an affirmative vote of greater than fifty 50 percent of votes received by the close of the meeting (during the meeting, via e-mail, or by proxy)
- Multi-year projects in the Prepayment Funding Plan will be approved for the total funding of the project



# 10-YEAR PLAN



REF #	PROJECT	NOTES
1	Parker Substation 161-kV Switch Replacement	Canceled
2	Facility Rating Mitigation Year 2 (Medium Priority)	Completed - Closeout
3	Parker-Headgate Rock/Bouse 161-kV Rebuild	Active - On Hold Pending Design
4	Mesa Substation Remediation	Active
5	Gila-Knob 161-kV T-Line Reroute	Active
6	Tucson Substation Rebuild	Active
7	Liberty Series Capacitor Bank Replacement	Active
8	Crossman Peak Microwave Facility	Active
9	Gila Substation 161-kV Rebuild	Active
10	Gila-Wellton Mohawk Interstate-8 Crossing Rebuild	Active - Seed Funding Phase
11	Kofa-Dome Tap 161-kV Analysis	Projected FY18 Start - Study Complete
12	Coolidge-Valley Farms 115kV Analysis	Projected FY18 Start - Study Complete
13	Dome Tap-Gila 161-kV Analysis	Projected FY18 Start - Study Complete
14	Bouse-Kofa 161-kV Analysis	Projected FY19 Start - Study Complete
15	Parker-Blythe 161-kV #2 Analysis	Projected FY20 Start - Study In progress
16	Blythe-Headgate Rock #1 line 161-kV Analysis	Projected FY21 Start
17	Parker Substation 161-kV Analysis	Projected FY22 Start
18	Rogers-Coolidge 230-kV Re-conductor Analysis	Projected FY23 Start
19	Tucson-Oracle 115kV Re-conductor Analysis	Projected FY24 Start
20	Mead Substation Replace Transformer (KU2A)	Projected FY24 Start



# FY17 BUDGET VS. EXECUTIONS



# FY17 Budget vs Actuals

## Intertie (O&M)

83% of the Year Executed

Budget Activity	Description	FY17 Budget	FY17 Actuals	Available (Shortfall)	FY17 % Executed
<b>Maintenance</b>					
N/FGIN COMMM	Communication & Control	\$ 167,978	\$ 170,237	\$ (2,259)	101%
N/FGIN LINCM	Lines, Direct Hrs, No Specific Job	\$ 208,478	\$ 102,568	\$ 105,910	49%
N/FGIN LINSM	O&M of Trans Lines	\$ 863,446	\$ 127,422	\$ 736,024	15%
N/FGIN STUDM	Transmission/Engineering Studies	\$ 363,668	\$ 258,460	\$ 105,208	71%
N/FGIN SUBCM	Subs, Direct Hrs, No Specific Job	\$ 396,394	\$ 847,102	\$ (450,708)	214%
N/FGIN SUBSM	O&M of Subs & Related Facilities	\$ 2,553,321	\$ 2,091,993	\$ 461,328	82%
	<b>Total Maintenance</b>	<b>\$ 4,553,285</b>	<b>\$ 3,597,783</b>	<b>\$ 955,502</b>	<b>79%</b>
<b>Non-Maintenance</b>					
N/FGIN BILLM	Power Billing	\$ 113,992	\$ 72,414	\$ 41,578	64%
N/FGIN FINAM	Financial Management	\$ 85,339	\$ 57,958	\$ 27,381	68%
N/FGIN GWAMM	General Western Allocation	\$ 1,293,342	\$ 440,990	\$ 852,352	34%
N/FGIN MRKTM	Power Marketing	\$ 739,172	\$ 513,513	\$ 225,659	69%
N/FGIN SAFEM	Safety & Security	\$ 117,563	\$ 80,553	\$ 37,010	69%
N/FGIN SOLDM	Sys Ops & Load Dispatch	\$ 676,354	\$ 505,599	\$ 170,755	75%
N/FGIN SOLWM	Mead-Phoenix O&M	\$ 1,503,969	\$ 332,500	\$ 1,171,469	22%
N/FGIN SUPTM	Data Activities Charges	\$ 192,168	\$ 613,995	\$ (421,827)	320%
N/FGIN SVCFM	DSWR Service Facility Clearing	\$ 215,229	\$ 102,056	\$ 113,173	47%
	<b>Total Non-Maintenance</b>	<b>\$ 4,937,128</b>	<b>\$ 2,719,579</b>	<b>\$ 2,217,549</b>	<b>55%</b>
	<b>Subtotal O&amp;M</b>	<b>\$ 9,490,413</b>	<b>\$ 6,317,362</b>	<b>\$ 3,173,051</b>	<b>67%</b>

\*Actuals include Commitments, Outstanding Obligations and Expenditures as of 7/31/17



# FY17 Budget vs Actuals

## Intertie (Replacements & Construction)

83% of the Year Executed

Budget Activity	Description	FY17 Budget	FY17 Actuals	Available (Shortfall)	FY17 % Executed
<b>Replacements</b>					
N/FGIN COMMB	Replace Comm & Control Equip	\$ 100,000	\$ (153)	\$ 100,153	0%
N/FGIN LINSB	Transmission Lines	\$ 1,500,000	\$ -	\$ 1,500,000	0%
N/FGIN MOVPB	Movable Property	\$ 40,000	\$ 222,200	\$ (182,200)	556%
N/FGIN SUBSB	Replace Substation Equip	\$ 1,560,000	\$ 1,130,746	\$ 429,254	72%
	<b>Subtotal RRADs</b>	<b>\$ 3,200,000</b>	<b>\$ 1,352,793</b>	<b>\$ 1,847,207</b>	<b>42%</b>
<b>Construction</b>					
Appropriated	Multiple Projects	\$ 1,015,000	\$ 3,887,513	\$ (2,872,513)	383%
Prepayment	Multiple Projects	\$ 7,923,000	\$ 339,936	\$ 7,583,064	4%
	<b>Subtotal Construction</b>	<b>\$ 8,938,000</b>	<b>\$ 4,227,449</b>	<b>\$ 4,710,551</b>	<b>47%</b>
	<b>Grand Total</b>	<b>\$ 21,628,413</b>	<b>\$ 11,897,604</b>	<b>\$ 9,730,809</b>	<b>55%</b>

\*Actuals include Commitments, Outstanding Obligations and Expenditures as of 7/31/17



# FY17 Budget vs Actuals

## Parker Davis (O&M)

83% of the Year Executed

Budget Activity	Description	FY17 Budget	FY17 Actuals	Available (Shortfall)	FY17 % Executed
<b>Maintenance</b>					
N/FGPD COMMM	Communication & Control	\$ 996,105	\$ 813,429	\$ 182,676	82%
N/FGPD LINCM	Lines, Direct Hrs, No Specific Job	\$ 1,365,092	\$ 1,158,899	\$ 206,193	85%
N/FGPD LINSM	O&M of Trans Lines	\$ 5,608,406	\$ 5,747,594	\$ (139,188)	102%
N/FGPD STUDM	Transmission/Engineering Studies	\$ 1,934,224	\$ 1,200,414	\$ 733,810	62%
N/FGPD SUBCM	Subs, Direct Hrs, No Specific Job	\$ 3,378,951	\$ 2,566,451	\$ 812,500	76%
N/FGPD SUBSM	O&M of Subs & Related Facilities	\$ 5,815,949	\$ 4,355,306	\$ 1,460,643	75%
<b>Total Maintenance</b>		<b>\$ 19,098,727</b>	<b>\$ 15,842,092</b>	<b>\$ 3,256,635</b>	<b>83%</b>
<b>Non-Maintenance</b>					
N/FGPD BILLM	Power Billing	\$ 568,036	\$ 359,499	\$ 208,537	63%
N/FGPD CAREM	Conserv & Renew Energy	\$ 85,208	\$ 29,404	\$ 55,804	35%
N/FGPD FINAM	Financial Management	\$ 382,561	\$ 225,067	\$ 157,494	59%
N/FGPD GWAMM	General Western Allocation	\$ 5,739,105	\$ 1,848,743	\$ 3,890,362	32%
N/FGPD MRKTM	Power Marketing	\$ 2,708,220	\$ 1,674,352	\$ 1,033,868	62%
N/FGPD SAFEM	Safety & Security	\$ 566,740	\$ 348,312	\$ 218,428	61%
N/FGPD SOLDM	Sys Ops & Load Dispatch	\$ 5,940,919	\$ 4,539,386	\$ 1,401,533	76%
N/FGPD SUPTM	Data Activities Charges	\$ 890,875	\$ 2,574,922	\$ (1,684,047)	289%
N/FGPD SVCFM	DSWR Service Facility Clearing	\$ 1,016,053	\$ 435,698	\$ 580,355	43%
<b>Total Non-Maintenance</b>		<b>\$ 17,897,717</b>	<b>\$ 12,035,384</b>	<b>\$ 5,862,333</b>	<b>67%</b>
<b>Subtotal O&amp;M</b>		<b>\$ 36,996,444</b>	<b>\$ 27,877,475</b>	<b>\$ 9,118,969</b>	<b>75%</b>

\*Actuals include Commitments, Outstanding Obligations and Expenditures as of 7/31/17



# FY17 Budget vs Actuals

## Parker Davis (Replacements & Construction)

83% of the Year Executed

Budget Activity	Description	FY17 Budget	FY17 Actuals	Available (Shortfall)	FY17 % Executed
<b>Replacements</b>					
N/FGPD COMMB	Replace Comm & Control Equip	\$ 885,000	\$ 146,117	\$ 738,883	17%
N/FGPD LINSB	Transmission Lines	\$ 2,200,000	\$ 2,917,995	\$ (717,995)	133%
N/FGPD MOVPM	Movable Property	\$ 1,275,000	\$ 3,566,584	\$ (2,291,584)	280%
N/FGPD SUBSB	Replace Substation Equip	\$ 3,162,000	\$ 2,546,597	\$ 615,403	81%
	<b>Subtotal RRADs</b>	<b>\$ 7,522,000</b>	<b>\$ 9,177,292</b>	<b>\$ (1,655,292)</b>	<b>122%</b>
<b>Construction</b>					
Appropriated	Multiple Projects	\$ 500,000	\$ 1,700,094	\$ (1,200,094)	340%
Prepayment	Multiple Projects	\$ 21,072,000	\$ 5,018,910	\$ 16,053,090	24%
	<b>Subtotal Construction</b>	<b>\$ 21,572,000</b>	<b>\$ 6,719,004</b>	<b>\$ 14,852,996</b>	<b>31%</b>
	<b>Grand Total</b>	<b>\$ 66,090,444</b>	<b>\$ 43,773,771</b>	<b>\$ 22,316,673</b>	<b>66%</b>

\*Actuals include Commitments, Outstanding Obligations and Expenditures as of 7/31/17



# SOUTHLINE TRANSMISSION PROJECT



# Background – Project Overview

Two segments, totaling 370 miles

- New Build — 345kV double-circuit Afton-Apache, 250 miles
- Upgrade — 230kV double-circuit Apache-Saguaro/Tortolita, 120 miles



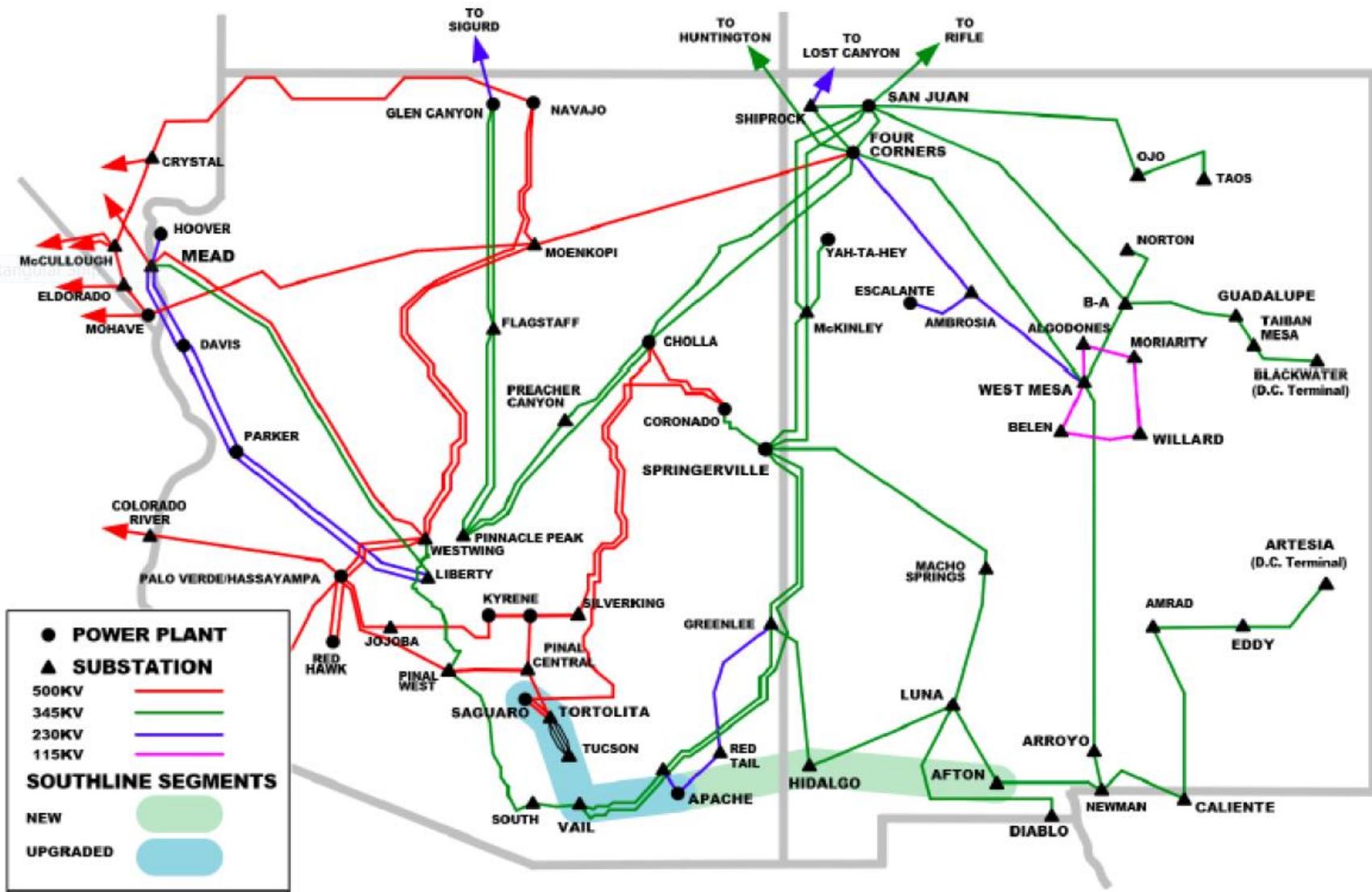
**LEGEND**

— Agency Preferred Route

- ★ Substation End Point
- ☆ Intermediate Substation Location
- ▲ Proposed Substation Location
- City/Town



# Background – Project Overview



# Updates Since June 7, 2017

- Executed a Preconstruction Agreement
  - Provides for WAPA support of preconstruction activities (e.g., technical, engineering, environmental)
  - Does not obligate WAPA to participate in project construction
- Progressed negotiations on draft Participation Agreement
- Initiated negotiations on an Ownership Agreement
  - Setting sights on Construction Agreement
- Formulating more robust WAPA team
  - Re-evaluating dated resource and schedule estimates
- Coordinating preliminary lands and environmental activities with Southline



# 10-YEAR PLAN NEXT STEPS



- **Review Action New Action Items**
- **WAPA Headquarters 10-Year Plan**
  - September 12<sup>th</sup>, 2017
  - WAPA Headquarters Office Lakewood, Colorado
  - FY20 Budget guidance from the administrator
  - Customers provide feedback on proposed budget
- **Budget & Finance Meeting**
  - September 21<sup>st</sup> 2017
  - Desert Southwest Region Phoenix, Arizona
- **Fiscal Year 2018 Pre-payment Vote**
  - October 5<sup>th</sup> 2017
  - Desert Southwest Region Phoenix, Arizona



# THANK YOU

