

# DESERT SOUTHWEST REGION Customer Prepayment Meeting Fiscal Year 2017



*Figure 1 Tucson Substation, location of new 230kV yard*

**ANNUAL CUSTOMER MEETING: OCTOBER 4, 2016**

**DESERT SOUTHWEST REGIONAL OFFICE**

**615 S. 43<sup>RD</sup> AVE**

**PHOENIX, AZ**



**Western Area  
Power Administration**

*POWERING THE ENERGY FRONTIER*



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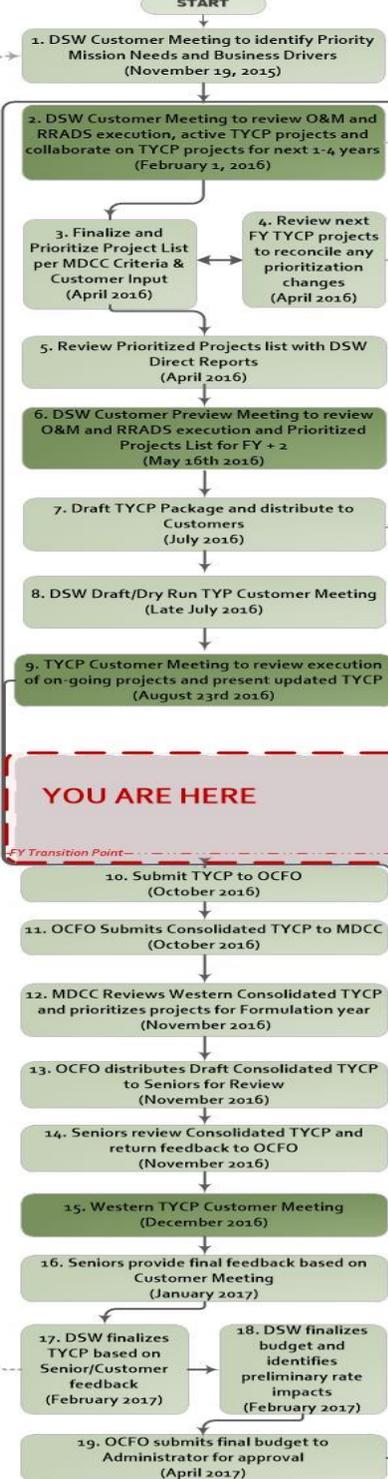




# 1.0 Ten Year Plan Budget Flow

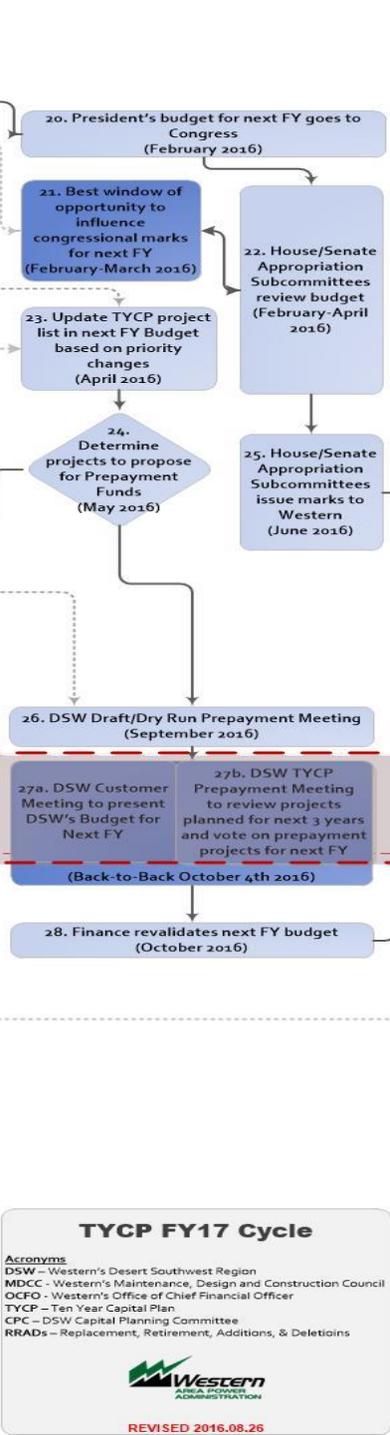
## BUDGET FORMULATION (FY19)

Starts 2 FY before execution year

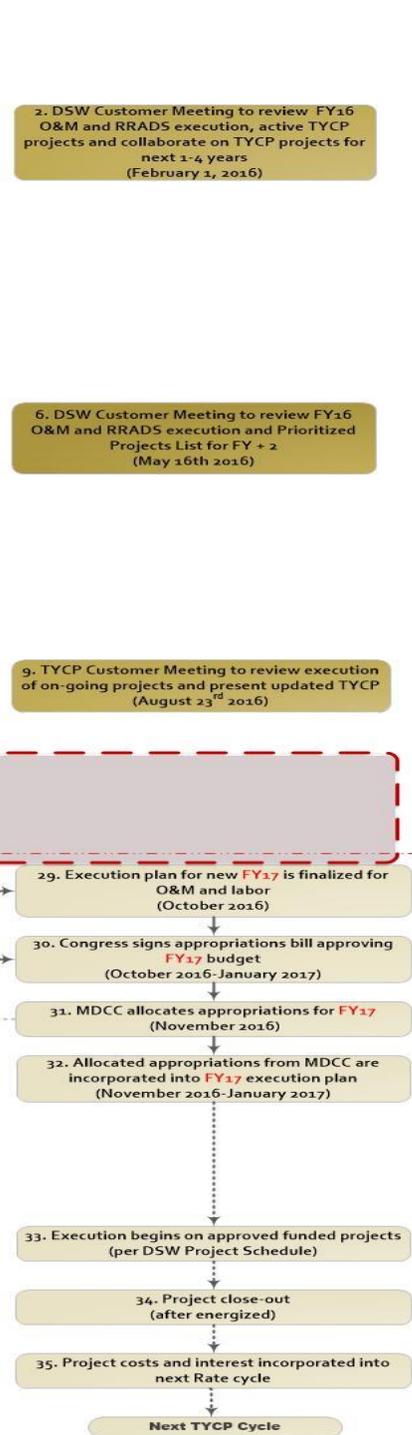


## NEXT FY PLANNING (FY17)

Starts 1 FY before execution year



## EXECUTION YEAR (FY16)





## 2.0 Meeting Agenda

### Conference Bridge

(800) 857-2038 Code: 37293

### Objectives

1. DSW FY16 Review and FY17 Budget Overview: To provide an in-depth financial presentation of DSW's Parker Davis and Intertie Projects budgets.
2. FY17 Prepayment Presentation: Report of execution on active projects, present proposed prepayment projects including detailed overview of project rationale for FY17, rate impact of proposed prepayment projects, and customer vote on prepayment funding plan.

### Discussion

1. Welcome
  - a. Agenda Review
  - b. Review Action Items
2. FY16 Budget vs. Actuals and FY17 Budget Overview
3. Prepayment Projects
  - a. Review Active Prepayment Projects
  - b. Review Proposed Prepayment Projects for FY17
4. Financial Review and Accounting of Prepayment Fund Usage
  - a. Sources and Uses of Funds
5. Customer Vote
6. Review Action Items





### 3.0 Action Items - August 23, 2016, Ten-Year Plan Meeting

1. **Action:** Separate prepayment funding budgets by Power System when applicable on project financial summaries (i.e. Mead CCVT Support Structure Replacement; Intertie funding vs Parker Davis funding).

**Response:** Mead CCVT project has been updated and future reports will reflect this request.

2. **Action:** Mesa Substation Remediation – upon the sale of the land can the proceeds (if any) be recuperated by the respective power system, or are funds returned to the general fund of the U.S. Treasury?

**Response:** If the disposal of substation land through GSA produces any financial return (after expenses) and there are still unpaid construction costs or other contractual obligations, the funds would be deposited into the Reclamation Fund rather than returned to the general fund of the U.S. Treasury per the Hayden-O'Mahoney amendment (43 U.S.C 392a). The Mesa Substation is within the Parker-Davis Project (P-DP), and there are still unpaid Federal investments from ongoing P-DP replacement activities. Therefore, funds from the disposal of Mesa Substation would be credited as miscellaneous receipts to the Reclamation Fund (fund 609) and P-DP power system (GGPD). The net proceeds, however, are not available for WAPA to reuse until appropriated by Congress.

3. **Action:** Gila Substation – Use any lessons learned from the rebuild of the 161kV yard when designing and estimating the rebuild of the 69kV and 34.5kV yards (i.e. soil conditions and other cost drivers).

**Response:** Lessons Learned will be completed after completion of construction of the 161kV yard and applied to the development of the other two yards. Furthermore AOA studies will be developed to further study the 69kV and 34.5kV yards to determine system needs and associated cost for such development.

4. **Action:** When feasible, combine smaller project efforts into one to maximize efficiency, cost effectiveness, and return on investment.

**Response:** WAPA's AoA study processes evaluates return on investment through each identified alternative and as such will work to maximize customer investment.

5. **Action:** Investigate with ADOT the future expansion of Route 95 and any implications to the transmission line ROW.

**Response:** ADOT has a proposed project to improve US Route 95 from Ave 9E in Yuma, north to Aberdeen Rd (approximately 15 miles). The project will be done in phases with phase one being the construction of the Fortuna Wash Bridge which is under construction. The rest of the project is now on hold due to lack of funding. ADOT expects the project to remain on hold for the next five years. There are a total of 6 spans (nothing running in parallel) that cross US 95 that could potentially be affected by the pending latter phase of ADOT's project.





6. Action: Investigate new Prepayment memorandum of Understanding funding language

Response: At a previous meeting, we reported that the Prepayment MOU does not accommodate the introduction of new projects (e.g. mid-year projects) after a funding plan has been established. We then agreed to propose a modification to the MOU that would allow for that flexibility. We suggest adding a new subsection to the MOU under “Coordination with the TYP Process”

Proposed Subsection: 3.6 Western may amend the Prepayment Funding Plan during the current year to finance additional projects with prepayments. Western shall schedule a Prepayment Funding Meeting for a vote of the Participants.

Please provide any feedback on this language to [dswpwrmrk@wapa.gov](mailto:dswpwrmrk@wapa.gov) by November 15, 2016. We will then schedule a vote by the participants to adopt/reject the modification.





## 4.0 Prepayment Project Funding Introduction

The Desert Southwest (DSW) Construction Program is reviewed by Western Area Power Administration's (WAPA) management team annually each June. After review, construction projects are submitted to Congress for funding.

Though some of these projects do receive federal funding, there is more work than the budget can absorb, and as a result, some projects do not receive a funding allocation. The un-funded projects are then set aside as "prepayment projects".

WAPA and its customers needed to find an alternative approach to fund these projects. In FY2010, WAPA and its customers decided that the best way to address this on-going struggle with project funding was to create a method of prepayment funding.

Prepayment funding is comprised of customer input towards the financial requirements of each project. Proposed Prepayment projects are presented by WAPA to our customers for review and consideration. A customer meeting is held annually in the fall providing a forum for WAPA and its customers to hold an open dialogue about the projects, answering any questions or concerns our customers may have.

An official vote on the proposed prepayment is conducted in the fall, to ensure only projects that receive customer support for funding through this prepayment mechanism are pursued for construction.



*Figure 2 Linemen work on a structure above Hoover Dam*





#### 4.1 Recently Completed Prepayment Projects

<b>Project Name</b>	<b>Approved Prepayment Budget</b>	<b>Prepayment Cost to Date</b>	<b>Power System</b>
Mead Substation CCVT Support Structure Replacement	\$975,000	\$851,567	Intertie & Parker Davis
Del Bac-Nogales Right-of-Way Renewal	\$3,550,000	\$3,500,146	Parker Davis





## 4.2 Mead Substation CCVT Support Structure Replacement

This project was managed in conjunction with the Mead Stage 15 Project (energize new transformer KU2B) and incorporated into one design and specification package. This optimized outage coordination, contractor operations, and WAPA management of all of the work performed at Mead. This project addressed extensive cracking, expansion, spalling and advanced deterioration of various support structures.

### Project Status

- Field construction completed May 20th , 2016
- 27 concrete 230kV CT and CCVT support structures rebuilt/replaced
- Project currently in close-out
- Original prepayment budget consist of \$700,000 from Intertie and \$275,000 from Parker Davis Power System.

	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Funding Summary				[A+B+C]		[D-E]		[D+G]
Funding	Original Project Budget	Prepayment Adjustments	Appropriations Adjustments	Current Project Budget	Total Executed	Remaining Funds	Additional Funds Required	Revised Project Budget
Prepayment	700,000	-	-	700,000	541,744	158,256	-	700,000
Appropriations	-	-	-	-	-	-	-	-
<b>Total Intertie</b>	<b>700,000</b>	-	-	<b>700,000</b>	<b>541,744</b>	<b>158,256</b>	-	<b>700,000</b>
Prepayment	275,000	-	-	275,000	309,823	(34,823)	-	275,000
Appropriations	-	-	-	-	-	-	-	-
<b>Total Parker Davis</b>	<b>275,000</b>	-	-	<b>275,000</b>	<b>309,823</b>	<b>(34,823)</b>	-	<b>275,000</b>
<b>Total Project Funding</b>	<b>975,000</b>	-	-	<b>975,000</b>	<b>851,567</b>	<b>123,433</b>	-	<b>975,000</b>

Executions include expenses, obligations, and commitments through 9/28/2016



Figure 3 -Support Structure prior to replacement/repair





### 4.3 Del Bac- Nogales Right-of-Way Renewal

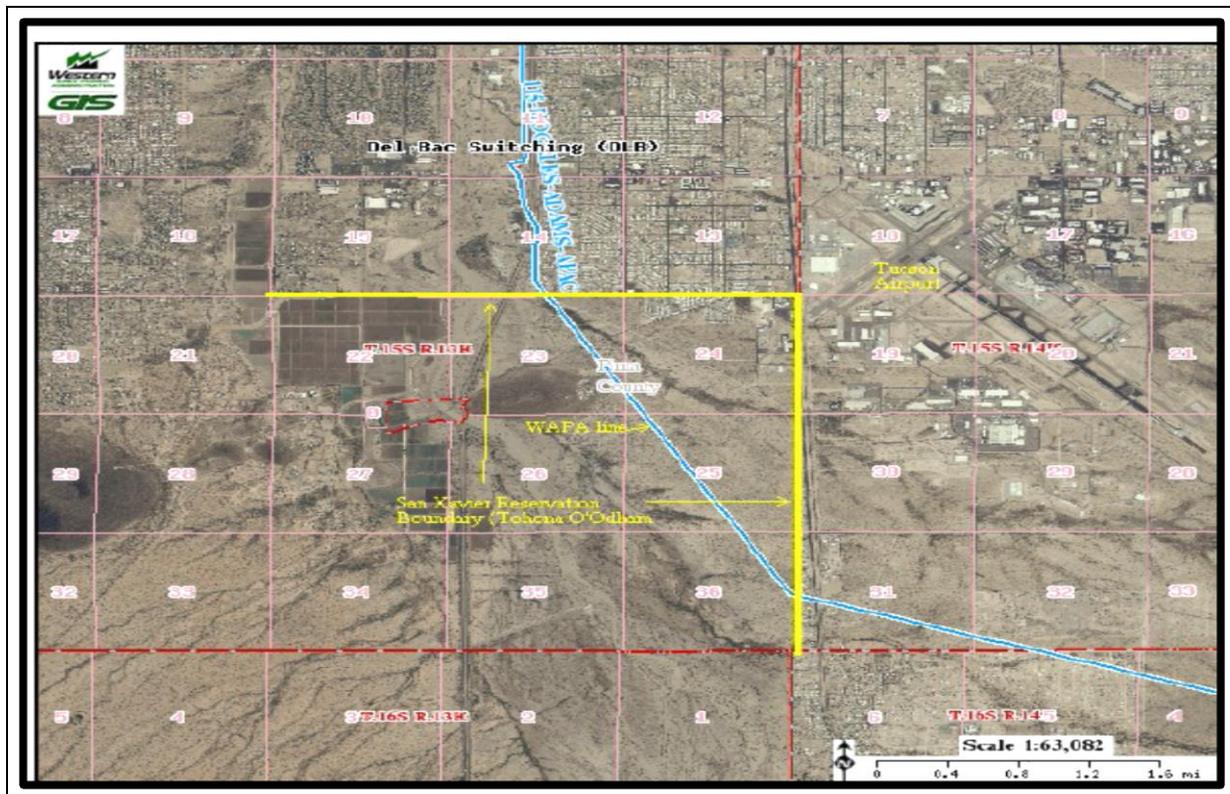
The purpose of this project was to renew the right-of-way agreement for a portion of the 115kV line that crosses the Tohono O’odham tribal property between Del Bac and Nogales substations. WAPA has a 115kV line that crosses approximately 4.5 miles of the Tohono O’odham tribal land south of Tucson. The right-of-way agreement for this portion of line expired in 2009. In order to keep the line in its present location and to properly maintain it, a new ROW agreement between WAPA and the Tohono O’odham was required. WAPA’s Land Department negotiated a new 50 year agreement with the tribe. The 50 year agreement is effective retroactively to the time of expiration in 2009.

#### Project Status

- WAPA closed the transaction with the Tohono O’odham Tribe in March of 2016.
- 50 Year right-of-way lease acquired and retroactive to 2009

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
Funding Summary	[A]	[B]	[C]	[A+B+C]	[E]	[D-E]	[G]	[D+G]
Funding	Original Project Budget	Prepayment Adjustments	Appropriations Adjustments	Current Project Budget	Total Executed	Remaining Funds	Additional Funds Required	Revised Project Budget
Prepayment	3,550,000	(49,854)	-	3,500,146	3,500,146	-	-	3,500,146
Appropriations	-	-	-	-	-	-	-	-
Total Project Funding	3,550,000	(49,854)	-	3,500,146	3,500,146	-	-	3,500,146

Executions include expenses, obligations, and commitments through 9/28/2016





## 5.0 Active Prepayment Projects Under Construction

<b>Project Name</b>	<b>Approved Prepayment Amount</b>	<b>Prepayment Cost to Date</b>
Crossman Peak Microwave Facility	\$4,525,000	\$576,372
Liberty Series Capacitor Bank	\$10,372,000	\$7,880
Facility Ratings Mitigation Year 2	\$8,525,000	\$7,412,318
Mesa Substation Remediation	\$3,535,000	\$120,888
Tucson Substation Rebuild	\$7,000,000	\$4,839,855
Parker 161kV Switch Replacement	\$1,250,000	\$23,899
Facility Ratings Mitigation Year 3	\$16,000,000	\$97,939
Parker-Headgate Rock & Parker-Bouse 161kV Reroute	\$17,619,824	\$407,057
Gila Substation 161kV Rebuild	\$10,924,403	\$2,545,306
Gila-Knob 161kV Rebuild	\$2,500,000	\$1,389,773





### 5.1 Crossman Peak Microwave Facility

This project is constructing a new WAPA owned microwave communication site on Crossman Peak, adjacent to an existing non-WAPA communication site. Crossman Peak is located east of Lake Havasu City. The new site will support the primary microwave communications between WAPA’s existing Christmas Tree Pass and Metal Mountain communication sites. This project includes land acquisition, equipment shelter, transmission tower, backup generator with fuel tanks, a distribution power line for primary power, and an access easement.

#### Project Status

- Survey/Legal description and site layout has been completed
- Contract with UNS/TEP for the distribution line is executed
- Right-of-way and lands work is underway
- Project meeting with BLM was held on Sept. 21, 2016
- Projected completion of construction April 2018
- Projected completion of close-out September 2018

	[A]	[B]	[C]	[D] [A+B+C]	[E]	[F] [D-E]	[G]	[H] [D+G]
Funding Summary	Original Project Budget	Prepayment Adjustments	Appropriations Adjustments	Current Project Budget	Total Executed	Remaining Funds	Additional Funds Required	Revised Project Budget
Prepayment	4,525,000	-	-	4,525,000	576,372	3,948,628	-	4,525,000
Appropriations	-	-	-	-	-	-	-	-
<b>Total Project Funding</b>	<b>4,525,000</b>	<b>-</b>	<b>-</b>	<b>4,525,000</b>	<b>576,372</b>	<b>3,948,628</b>	<b>-</b>	<b>4,525,000</b>

Executions include expenses, obligations, and commitments through 9/28/2016

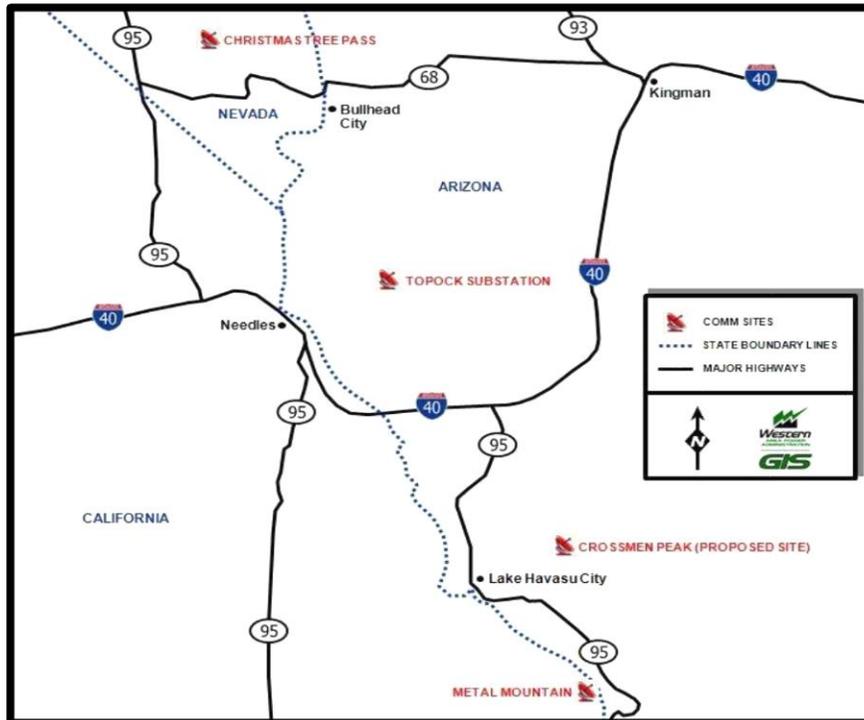


Figure 4-Microwave Site Locations





## 5.2 Liberty Series Capacitor Bank

Construct and install a new 345kV series capacitor bank to replace the existing, in-service, Westinghouse Capacitor bank (PU1A). This station equipment was installed in 1969 and has degraded significantly. The series capacitor bank is made up of: capacitor cans, a control system, air compressor, air dryer, air piping system, inserting circuit breaker, relaying, surge arrestors and reactors.

### Project Status

- New capacitor bank will be installed adjacent to the existing unit
- New capacitor bank will be Government Furnished Equipment (GFE)
- Award construction contract June of 2017
- Projected completion of construction June 2018
- Projected completion of close-out December 2018

	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Funding Summary				[A+B+C]		[D-E]		[D+G]
Funding	Original Project Budget	Prepayment Adjustments	Appropriations Adjustments	Current Project Budget	Total Executed	Remaining Funds	Additional Funds Required	Revised Project Budget
Prepayment	10,372,000	-	-	10,372,000	7,880	10,364,120	-	10,372,000
Appropriations	-	-	57,047	57,047	57,047	-	-	57,047
<b>Total Project Funding</b>	<b>10,372,000</b>	<b>-</b>	<b>57,047</b>	<b>10,429,047</b>	<b>64,927</b>	<b>10,364,120</b>	<b>-</b>	<b>10,429,047</b>

Executions include expenses, obligations, and commitments through 9/28/2016



Figure 5 - Liberty Series Capacitor Bank





### 5.3 Facility Ratings Mitigation Year 2

DSW’s Year 2 National American Electric Reliability Corporation (NERC) facility assessment LiDAR surveyed 1,087 miles of transmission line, resulting in 240 potential violations. After field verification, 79 deficiencies were found requiring a design solution, with the majority of them existing on four different line segments, which required construction in order to mitigate the violation. Although the required work is on (4) different line segments, the solicitation will be a single construction contract.

**Line Segments Include:** Gavilan Peak – Prescott, Prescott – Round Valley, Round Valley – Peacock, Black Mesa – Topock (CAP)

**Project Status**

- Field construction started Fall 2015
- Peacock-Round Valley, Topock-Black Mesa, & Prescott-Gavilan Peak segments are completed
- Round Valley-Prescott line segments are scheduled to start in November 2016
- Projected completion of construction June 2017
- Projected completion of close-out December 2017

	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
<b>Funding Summary</b>				[A+B+C]		[D-E]		[D+G]
Funding	Original Project Budget	Prepayment Adjustments	Appropriations Adjustments	Current Project Budget	Total Executed	Remaining Funds	Additional Funds Required	Revised Project Budget
Prepayment	3,225,000	5,300,000	-	8,525,000	7,412,318	1,112,682	-	8,525,000
Appropriations	-	-	384,152	384,152	384,152	-	-	384,152
<b>Total Project Funding</b>	<b>3,225,000</b>	<b>5,300,000</b>	<b>384,152</b>	<b>8,909,152</b>	<b>7,796,470</b>	<b>1,112,682</b>	<b>-</b>	<b>8,909,152</b>

Executions include expenses, obligations, and commitments through 9/28/16



Figure 6- Insulator Work on the Peacock-Round Valley Line





### 5.4 Mesa Substation Remediation

Complete the demolition and cleanup of the former 9.2 acre Mesa substation, and prepare it for sale as surplus land. The substation, which is located in a highly populated residential area, has been decommissioned. All yard equipment and support structures have been removed; but buildings, concrete foundations, and underground oil piping have been left in place. The environmental survey has been completed and the Arizona Department of Environmental Quality (ADEQ) has approved the remediation work plan. WAPA has awarded service contracts to remediate the site to residential standards per the work plan and ADEQ.



Figure 7- Left: Mesa Substation Vault Basement Right: equipment foundations

#### Project Status

- Environmental service contract awarded in October 2016
- Projected completion of field activities April 2017
- Projected completion of close-out October 2017

	[A]	[B]	[C]	[D] [A+B+C]	[E]	[F] [D-E]	[G]	[H] [D+G]
Funding Summary	Original Project Budget	Prepayment Adjustments	Appropriations Adjustments	Current Project Budget	Total Executed	Remaining Funds	Additional Funds Required	Revised Project Budget
Prepayment	1,025,000	2,510,000	-	3,535,000	120,888	3,414,112	-	3,535,000
Appropriations	-	-	370,549	370,549	370,549	-	-	370,549
<b>Total Project Funding</b>	<b>1,025,000</b>	<b>2,510,000</b>	<b>370,549</b>	<b>3,905,549</b>	<b>491,437</b>	<b>3,414,112</b>	<b>-</b>	<b>3,905,549</b>

Executions include expenses, obligations, and commitments through 9/28/2016





### 5.5 Tucson Substation Rebuild

This project will completely rebuild the 115kV substation located in Tucson. Land within the existing Substation fence will be utilized to construct the new substation prior to the demolition of the existing station. Many of the components are 1950’s vintage and have exceeded their normal operating life span. This Substation contains the breaker in the worst condition at DSW as indicated by an Asset Management assessment.

**Project Status**

- All Government Furnished Equipment has been purchased & delivered:
  - Disconnect Switches, instrument transformers, Power Circuit Breakers, Steel Pole Structures
- A construction contract has been awarded for \$4.2M
- Construction contractor mobilized September 6<sup>th</sup> and site preparation is underway
- Projected completion of construction December 2017
- Projected completion of close-out June 2018

	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
<b>Funding Summary</b>				[A+B+C]		[D-E]		[D+G]
Funding	Original Project Budget	Prepayment Adjustments	Appropriations Adjustments	Current Project Budget	Total Executed	Remaining Funds	Additional Funds Required	Revised Project Budget
Prepayment	7,000,000	-	-	7,000,000	4,839,855	2,160,145	-	7,000,000
Appropriations	-	-	1,714,222	1,714,222	1,714,222	-	-	1,714,222
<b>Total Project Funding</b>	<b>7,000,000</b>	<b>-</b>	<b>1,714,222</b>	<b>8,714,222</b>	<b>6,554,078</b>	<b>2,160,145</b>	<b>-</b>	<b>8,714,222</b>

*Executions include expenses, obligations, and commitments through 9/28/2016*



*Figure 8 - Tucson Substation construction site preparation in progress*

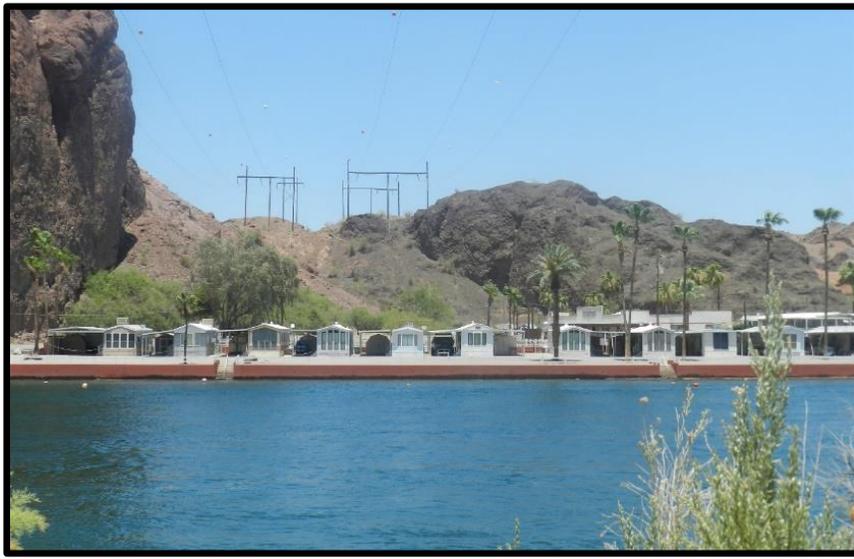




## 5.6 Parker - Headgate Rock & Parker- Bouse 161kV Reroute

This transmission line re-route project consists of replacing the existing line from Parker to Headgate Rock, part of the Parker to Blythe system, and from Parker to Bouse, part of the Parker to Gila system. The rebuild will upgrade the existing wooden pole structures that are currently showing signs of advanced degradation, having exceeded their useful life cycle and will require replacement.

A new 230kV transmission system replacing the existing 161kV circuits had been originally proposed, but considering load demand and system forecasting models in the service region, an in-kind 161kV system will now be selected as the new construction design for this project. The line will be configured as a double circuit shortly after departing from the Parker Substation for the proposed alignment on the California side of the Colorado River. Once across the river, single circuit transmission lines will be constructed 3 miles southeast to connect with the existing Parker- Bouse circuit, and southwest to Headgate Rock Substation pending final routing approval. Several options are now being considered with regard to routing and re-use of existing rights-of-way in an effort to control and reduce total cost to the project.



*Figure 9- Right-of-way along the Parker-Bouse/Headgate Rock 161kV lines*

Following Government to Government Consultation, WAPA has received a new proposed and preferred Colorado River crossing location from the Colorado River Indian Tribe (CRIT). The new river crossing is further upstream than the original crossing locations and utilizes CRIT land. With the proposed new crossing, there are currently three river crossing alternatives (one being the current) being reviewed through the NEPA process and one other WAPA feasibility survey of existing use of rights-of-way. The next step for WAPA is to obtain new environmental survey data, revise complete environmental studies, as well as revise and complete the draft design. WAPA is continuing to coordinate with CRIT to advance the project while also investigating other new alignment options that will still meet the purpose and needs of the project.





**Project Status**

- Project is subject to being placed on-hold upon the completion of the design package
- In April 2016 CRIT requested that the river crossing on their land be relocated further upstream
- Construction phase will be on hold until the total project budget is revalidated on an established design and routing plan
- Negotiations for access to CRIT land for the environmental work and cost discussions for the new CRIT easements that WAPA will need to complete the project are still in progress
- No Government Furnished Equipment (GFE) has been purchased to date

	[A]	[B]	[C]	[D] [A+B+C]	[E]	[F] [D-E]	[G]	[H] [D+G]
<b>Funding Summary</b>								
	Original Project Budget	Prepayment Adjustments	Appropriations Adjustments	Current Project Budget	Total Executed	Remaining Funds	Additional Funds Required	Revised Project Budget
Prepayment	17,954,000	(334,176)	-	17,619,824	407,057	17,212,768	-	17,619,824
Appropriations	-	-	771,258	771,258	771,258	-	-	771,258
<b>Total Project Funding</b>	<b>17,954,000</b>	<b>(334,176)</b>	<b>771,258</b>	<b>18,391,083</b>	<b>1,178,315</b>	<b>17,212,768</b>	<b>-</b>	<b>18,391,083</b>

*Executions include expenses, obligations, and commitments through 9/28/2016*



*Figure 10 - Residential growth near the Parker-Bouse/Headgate Rock 161kV T-line corridor*





## 5.7 Parker 161kV Switch Replacement (Canceled)

WAPA proposes the cancelation of the Parker 161kV Switch Replacement Project to further evaluate the regional needs of the Parker transmission system. If approved, this would result in the return of approximately \$1.2 million prepayment dollars to the Parker-Davis Project.

This project and others associated with the Parker 69kV, 161kV, & 230kV substations were previously placed on hold, to evaluate the collective impacts on the Parker area transmission system. After further studies it has been determined that additional transmission planning analysis is needed. In an effort to incorporate the transmission needs of our customers in the Parker area, WAPA has created a South of Parker Planning Charter group. This sub-regional, transmission planning forum will identify interested parties long term transmission needs and assure a high degree of reliability in joint planning, development, and operations of the Bulk Electric System (BES).

It is with these considerations that WAPA proposes the cancellation of this project in lieu of a potentially lengthy on-hold status. Once adequate analysis of the greater Parker transmission system has concluded, WAPA will present new projects to the customers. Of which will address the known and developing maintenance related issues respective to the Parker Substation 69kV, 161kV, & 230kV yards.

### BACKGROUND

Project consist of replacing (12) 161kV switches, two with grounding switches in bays 5, 7, 8, 12 at the Parker 161kV Substation. The switches are 50 plus years old and have become difficult to operate. Routine maintenance has been performed but because of their age and the normal degradation these switches have become unreliable and pose a potential safety hazard to maintenance personnel. Additionally their unreliability can prolong outages and create an uncertainty to systems operations.

#### Project Status

- Approved for prepayment funding in FY14
- No Equipment has been purchased to date
- Project is being suspended and prepayment funds released

	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Funding Summary				[A+B+C]		[D-E]		[D+G]
Funding	Original Project Budget	Prepayment Adjustments	Appropriations Adjustments	Current Project Budget	Total Executed	Remaining Funds	Additional Funds Required	Revised Project Budget
Prepayment	1,250,000	(1,250,000)	-	-	23,899	(23,899)	-	-
Appropriations	-	-	-	-	-	-	-	-
Total Project Funding	1,250,000	(1,250,000)	-	-	23,899	(23,899)	-	-

*Executions include expenses, obligations, and commitments through 9/28/2016*





### 5.8 Facility Ratings Mitigation Year 3 (Canceled)

Approved for prepayment funding in FY15, the Facility Ratings Mitigation Year 3 project was placed on hold last year pending Analysis of Alternatives (AoA) Studies in the South of Parker and South of Phoenix areas. Upon further evaluation WAPA is proposing the cancellation of this project which will release \$16 million in available prepayment funding for other projects. Project executions to date will be expensed under an Operations and Maintenance account and the project formally closed. WAPA will continue to address the violations associated with Facility Ratings Year 3 with individual sub-projects, which incorporate other emerging issues like extensive wood pole replacement, re-conductor work, and/or other project efforts currently proposed in the Ten-Year Plan.

#### BACKGROUND

The National American Electric Reliability Corporation (NERC) issued an order that all transmission operators verify all lines of 100kV or higher, are in compliance with the National Electrical Safety Code (NESC). This was driven by tree caused outages throughout the United States. The order allowed the operator to establish high (Year 1), medium (Year 2) and low (Year 3) priorities. These priorities were mostly driven by voltage class, 500kV and 345kV high, 230kV medium and 161kV and 115kV low. After each priority had been surveyed, NERC required a report with the findings and a mitigation plan for the deficiencies.

Facility Ratings Year 3 consisted of a total of 939 miles of lines which was LiDAR surveyed, resulting in 499 potential violations. Field verification identified that 151 violations required an engineered/design solution. The mitigation of these violations on each line segment requires the solicitation of a construction contract. This project will require significant outages coordination and most likely will be built over two construction seasons.

#### Project Status

- No Equipment purchased to date
- Project is being cancelled and prepayment funds released

	[A]	[B]	[C]	[D] [A+B+C]	[E]	[F] [D-E]	[G]	[H] [D+G]
<b>Funding Summary</b>								
Funding	Original Project Budget	Prepayment Adjustments	Appropriations Adjustments	Current Project Budget	Total Executed	Remaining Funds	Additional Funds Required	Revised Project Budget
Prepayment	16,000,000	(16,000,000)	-	-	97,939	(97,939)	-	-
Appropriations	-	-	-	-	-	-	-	-
<b>Total Project Funding</b>	<b>16,000,000</b>	<b>(16,000,000)</b>	<b>-</b>	<b>-</b>	<b>97,939</b>	<b>(97,939)</b>	<b>-</b>	<b>-</b>

*Executions include expenses, obligations, and commitments through 9/28/2016*





### 5.9 Gila Substation 161kV Rebuild

This project will completely rebuild the Gila 161kV Substation to 230kV standard and re-use existing 161kV transformers. The rebuild will be on WAPA owned land adjacent to the existing substation. In addition to the rebuild, a new control building will be built to accommodate the future rebuild of the 69kV and 34.5kV yards. The Gila Substation (161kV, 69kV, 34.5kV and 4.16kV) was originally constructed in 1949. The rebuild of this substation will increase reliability and will also replace aged components that have become unreliable and a detriment to the WAPA System. In 1949 when the substation was originally built, safe working and minimum approach distances were considerably less than today’s standards. The rebuild to current day standards will increase worker safety and lessen the possibility of equipment flashover and failure.

*\*PLEASE SEE “FY17 PROPOSED PREPAYMENT PROJECTS” SECTION FOR A COMPLETE FINANCIAL SUMMARY*

**Project Status**

- Additional prepayment funds are requested for FY17 in the amount of \$6,299,184
- WAPA acquired perpetual land rights from Bureau of Land Management
- GFE purchased to date
  - (9) 245kV Power Circuit Breakers
  - 34.5Kv Transformer
  - Steel Pole Structures
  - Protection & Communication Equipment
- Protection & Communication work has completed at Knob, Kofa, Wellton Mohawk Ligurta

	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Funding Summary				[A+B+C]		[D-E]		[D+G]
Funding	Original Project Budget	Prepayment Adjustments <sup>2/</sup>	Appropriations Adjustments <sup>3/</sup>	Current Project Budget	Total Executed (Excluding IDC)	Remaining Funds	Additional Funds Required <sup>4/</sup>	Revised Project Budget
Prepayment	12,000,000	(1,075,597)	-	10,924,403	2,545,306	8,379,097	6,299,184	17,223,587
Appropriations	-	-	1,770,913	1,770,913	1,770,913	-	-	1,770,913
<b>Total Project Funding</b>	<b>12,000,000</b>	<b>(1,075,597)</b>	<b>1,770,913</b>	<b>12,695,316</b>	<b>4,316,219</b>	<b>8,379,097</b>	<b>6,299,184</b>	<b>18,994,500</b>

*Executions include expenses, obligations, and commitments through 9/28/2016*



Figure 11- Existing Gila 161KV Yard





### 5.10 Gila- Knob 161kV Rebuild

This project will replace the existing 161kV circuit with 3,500-feet of new 230kV transmission line; which will be operated at 161kV initially. This project is being performed in conjunction with APS and their new transmission line in the corridor connecting WAPA’s Gila and APS’s North Gila substations. Structures 4/7 to 5/2 will be built to double circuit standards using steel monopoles and overhead optical ground wire for future connection at Knob Switching Station. An existing 100-foot’ right-of-way will be used for the rebuilt circuits, except where conditions prevent vertical conductor orientation, such as under APS’s 500kV lines. This requires extensive outage coordination with APS.

*\*PLEASE SEE “FY17 PROPOSED PREPAYMENT PROJECTS” SECTION FOR A COMPLETE FINANCIAL SUMMARY*

**Project Status**

- Equipment purchased to date:
  - (9) Steel Poles
  - Conductor
- ROW acquisition completed
- Construction design & specifications are in review for re-issue
- Construction contract solicitation was issued, then cancelled due to magnitude of bid estimates
- Additional Prepayment funds are requested for FY17 in the amount of \$1,530,573

	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Funding Summary				[A+B+C]		[D-E]		[D+G]
Funding	Original Project Budget	Prepayment Adjustments <sup>2/</sup>	Appropriations Adjustments <sup>3/</sup>	Current Project Budget	Total Executed (Excluding IDC)	Remaining Funds	Additional Funds Required <sup>4/</sup>	Revised Project Budget
Prepayment	2,000,000	500,000	-	2,500,000	1,389,773	1,110,227	1,530,573	4,030,573
Appropriations	-	-	673,627	673,627	673,627	-	-	673,627
<b>Total Project Funding</b>	<b>2,000,000</b>	<b>500,000</b>	<b>673,627</b>	<b>3,173,627</b>	<b>2,063,400</b>	<b>1,110,227</b>	<b>1,530,573</b>	<b>4,704,200</b>

*Executions include expenses, obligations, and commitments through 9/28/2016*





### 6.0 FY 17 Proposed Prepayment Projects

WAPA’s proposed prepayment funding plan for FY17 will reduce the overall prepayment program by \$1,338,514. This is the result of the cancelation and reprogramming of prepayment funds associated with the Facility Ratings Mitigation Year 3 project and the Parker Substation 161kV Switch Replacement Project. The total project cost to date for each canceled project (See Table #1 below) will be transferred and expensed under an Operations and Maintenance account and formally closed. Table #2 below summarizes the FY17 prepayment funding plan with sources and uses across recently completed projects, canceled projects, and proposed projects.

Active Projects	Approved Prepayment Funds	Prepayment Executions To Date
Facility Ratings Year 3 Budget	\$16,000,000	\$97,939
Parker Substation Switch Replacement	\$1,250,000	\$23,899
<b>TOTAL</b>	<b>\$17,250,000</b>	<b>\$121,838</b>

Table #1 – Data as of 9/28/2016

FY17 Prepayment Funding Plan				
FY	Action	Project Name	Sources	Uses
13	<b>Completed</b>	Pinnacle Peak-Rogers Right-of-Way	198,174	
15	<b>Completed</b>	Del Bac-Nogales Right-of-Way Renewal	49,854	
12	<b>Reprogram</b>	ED2-ED4 115kV Transmission Line Rebuild	500,000	
14	<b>Reprogram</b>	Gila-Knob 161kV Rebuild		500,000
14	<b>Canceled</b>	Parker Substation 161kV Switch Replacement	1,250,000	
15	<b>Canceled</b>	Facility Ratings Mitigation Year 3	16,000,000	
14	<b>Proposed</b>	Gila Substation 161kV Rebuild		6,299,184
14	<b>Proposed</b>	Gila-Knob 161kV Rebuild		1,530,573
		<b>New Prepayment Funding Needed</b>	<b>(9,668,271)</b>	
		<b>FY16 Prepayment</b>	<b>8,329,757</b>	<b>8,329,757</b>

Table #2 – Data as of 9/28/2016





## 6.1 Gila Substation 161kV Rebuild

### EXECUTIVE SUMMARY

The Gila Substation 07 project was started in 2013 and has had several design evolutions to ensure the reliability of present and future customer's needs. The project design and rebuild is predicated on safety and dependability of the bulk electrical system from a substation that is 67 years old. Many upgrades are required due to equipment age or incompatibility with newer equipment, as well as the project being expanded from a 3 bay system to a 4 bay system, allowing for consistent system reliability and minimal outage disruption during maintenance work.

As with a majority of the projects, the preliminary project scope of work was viewed as a guide to determine the cost of the project. Budget outlines were based on similar projects and WAPA's experience with similar construction projects. When the project was approved by customers, and design began, the project's scope of work became more detailed as the equipment and construction requirements were defined, causing large deviations from the initial pre-design budget.

As the design neared completion, it became evident the original budget proposal was not sufficient for the construction of Gila 07 substation and additional funding would be needed to complete the project. Presently, there is a need for an additional \$6,299,184, as outlined in the project summaries below.

### BACKGROUND

The Gila Substation was originally constructed in 1949 and operates at 161kV, 69kV, 34.5kV, and 4.16kV. All the yards are arranged in a main-and-transfer configuration outside of the 4.16kV yard. The 161kV yard was originally constructed in 1949 along with the 34.5kV yard, which was expanded in 1999.

The new 161kV yard will be built in a breaker and half configuration, operating at 161kV, while being constructed to 230kV standards. This allows for future increased energy requirements with minimal disruption of service. The existing 161kV yard will be demolished once the new 161kV system is operational to create space for the reconstruction of the 69kV and 34.5kV yards, as both yards are in poor condition and present safety risks to equipment and personnel, due to a lack of proper clearances to perform routine maintenance work, requiring WAPA to take outages on adjacent bays.

During our design study, existing power circuit breakers, current transformers and coupling capacitor voltage transformers were found to be inadequate because of their amperage ratings, thus requiring the purchase of new equipment. A new service building will be erected to house the operational equipment and a transformer will be installed to ensure reliability for the Yuma-Mesa pumping plant and operation of the substation. Components of the substation include battery systems and chargers, vertical switch boards, cable trays, and a control room.

Additionally, the present communication system is analog based and WAPA now operates on a digital configuration. To meet this requirement, upgrades at three relay sites and Gila substation are needed. All proposed construction changes are meant to ensure system reliability, minimize repair and construction interruptions, and contain future costs.





## BUDGET EXPLANATION

The estimated budget was prepared three years in advance and was not updated to account for newer technology, aging equipment or inflation. Since then it has been discovered that approximately \$500,000 has been spent on maintenance in the last five years. We consider the maintenance costs excessive, indicating aging equipment which requires replacement parts that are not easily acquired. Our present design is based on dependability for our customers, along with developing and designing for future needs. The requirement to perform detailed assessments of equipment conditions, as well as taking time to analyze substation options to provide our customers years of continuous reliability, took time and became a priority.

In order to ensure a reliable transmission, with minimal disruptions, WAPA has taken an active approach to develop a substation that required changes to our original considerations, with the stakeholders' welfare and long term transmission requirements in mind. By building the four bay 161kV yard to the present design and installing an additional 34.5-kV transformer, reliability for the pumping plant, and the region in general will be greatly enhanced. The proposed construction will have greater reliability than the existing 161kV yard, due to the fact that it will be constructed in a breaker-and-a-half arrangement and the transformers will be configured in parallel, ensuring a constant energy source. The new yard will also have higher amperage capacity, which will ensure WAPA and stakeholders' future system requirements are met.

Another vital area considered was the communications aspect. The existing system is an outdated analog system which needs to be updated to digital for safety and reliability reasons. This required the purchase of new technology necessary for communications with our operations division.

The improved substation will relieve the need for lengthy outages during future expansion activities, meaning disruption of transmission will be negligible. In general, the breaker-and-a-half configuration with new equipment and fewer maintenance demands will increase the reliability of WAPA's system for all customers in the region. The new communication system will provide protection of our equipment, while providing consistent, dependable power delivery.





## FINANCIAL SUMMARY – PROJECT BUDGET CATEGORIES

- **Administration**

Costs associated with project management and support functions related to the administration of construction projects to include: general supplies and services, construction planning, collection of field data, procurement and contract administration, safety, and finance administration.

- **Design**

Costs associated with creating the design and specifications of construction projects.

- **Environmental**

Costs associated with compliance with the National Environmental Policy Act, Toxic Substances Control Act, Resource Conservation and Recovery Act, Clean Air Act, Clean Water Act to include: cultural surveys and monitoring, biological surveys and monitoring, asbestos abatement, storm water, oil-filled equipment disposal, hazardous waste disposal, etc.

- **Right-of-Way**

Costs associated with the acquisition of right-of-way, easements, etc.

- **Construction**

Costs associated with the construction contract and inspection services.

- **Government Furnished Equipment (GFE)**

Costs associated with the procurement of structures, station equipment (breakers, transformers, etc.), towers, wood poles, steel poles, conductor, Supervisory Control and Data Acquisition (SCADA) equipment, microwave equipment, fixed radio equipment, and fiber optics equipment. These items are often procured by the government and provided to the contractor to mitigate long lead times.

- **Commissioning Activity**

Costs associated with the energization and commissioning of the assets into service including: communications, SCADA, and operations.

- **Contingency**

Amounts held in reserve to mitigate unknown project risks.

- **Interest during Construction (IDC)**

Interest is calculated annually and at the end of the project and is included in the total project cost used to calculate rates. IDC is not included in the project budget.



## Gila Substation 161-kV Rebuild Project Summary

Category	Original Project Budget	% of Original Budget	Revised Project Budget	% of Revised Budget	Executed to Date (as of 9/28/2016)					
					Commitments	Obligations	Expenses	Total Executed	% of Original Budget Executed	% of Revised Budget Executed
Administration	1,185,308	10%	1,679,500	9%	-	19,689	465,151	484,840	41%	29%
Design	569,992	5%	1,300,000	7%	-	-	1,176,897	1,176,897	206%	91%
Environmental	57,595	0%	125,000	1%	-	-	109,738	109,738	191%	88%
Right-of-Way	-	0%	35,000	0%	-	-	24,171	24,171	N/A	69%
Government Furnished Equipment	1,875,800	16%	4,363,400	23%	-	1,300,017	820,865	2,120,881	113%	49%
Construction	6,843,405	57%	7,956,800	42%	-	-	12,057	12,057	0%	0%
Commissioning Activity	1,467,900	12%	2,630,300	14%	-	-	387,565	387,565	26%	15%
Contingency	-	0%	904,500	5%	-	-	-	-	N/A	0%
<b>Total Project (Excluding IDC)</b>	<b>12,000,000</b>	<b>100%</b>	<b>18,994,500</b>	<b>100%</b>	<b>-</b>	<b>1,319,706</b>	<b>2,996,443</b>	<b>4,316,149</b>	<b>36%</b>	<b>23%</b>
Interest During Construction <sup>1/</sup>	N/A	N/A	N/A	N/A	-	-	25,792	25,792	N/A	N/A
<b>Total Project (Including IDC)</b>					<b>-</b>	<b>1,319,706</b>	<b>3,022,235</b>	<b>4,341,941</b>		

Funding Summary	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
				[A+B+C]		[D-E]		[D+G]
Funding	Original Project Budget	Prepayment Adjustments <sup>2/</sup>	Appropriations Adjustments <sup>3/</sup>	Current Project Budget	Total Executed (Excluding IDC)	Remaining Funds	Additional Funds Required <sup>4/</sup>	Revised Project Budget
Prepayment	12,000,000	(1,075,597)	-	10,924,403	2,545,306	8,379,097	6,299,184	17,223,587
Appropriations	-	-	1,770,913	1,770,913	1,770,913	-	-	1,770,913
<b>Total Project Funding</b>	<b>12,000,000</b>	<b>(1,075,597)</b>	<b>1,770,913</b>	<b>12,695,316</b>	<b>4,316,219</b>	<b>8,379,097</b>	<b>6,299,184</b>	<b>18,994,500</b>

Prepared: 9/28/2016

<sup>1/</sup> Interest during construction (IDC) is a non-cash entry which does not impact the project budget, however, it is a cost of the project when the asset is capitalized

<sup>2/</sup> Prepayment funding was reduced due to the use of available available construction appropriations in lieu of construction prepayments

<sup>3/</sup> Appropriated funding was increased due to the use of available construction appropriations in lieu of construction prepayments

<sup>4/</sup> Please refer to project handout for explanation of project cost increases



## Gila Substation 161-kV Rebuild Project Detail

### Budget vs. Execution Detail

Budget vs. Execution Detail							Executed to Date (as of 9/28/2016)					
Category	Task	Task Description	Original Project Budget	% of Original Budget	Revised Project Budget	% of Revised Budget	Commitments	Obligations	Expenses	Total Executed	% of Original Budget Executed	% of Revised Budget Executed
Administration	30001	General Engineering Supply Services	-	0%	-	0%	-	-	-	-	N/A	N/A
Administration	30010	Construction Planning	-	0%	-	0%	-	-	4,216	4,216	N/A	N/A
Administration	30012	Collection of Field Data	-	0%	-	0%	-	-	76,468	76,468	N/A	N/A
Administration	30015	Procurement & Contract Admin	-	0%	-	0%	-	-	5,253	5,253	N/A	N/A
Administration	30016	Safety Inspections	-	0%	-	0%	-	-	-	-	N/A	N/A
Administration	30022	Project Management	-	0%	-	0%	-	19,689	369,727	389,416	N/A	N/A
Administration	30023	Finance Administration	-	0%	-	0%	-	-	9,487	9,487	N/A	N/A
<b>Administration</b>			<b>1,185,308</b>	<b>10%</b>	<b>1,679,500</b>	<b>9%</b>	<b>-</b>	<b>19,689</b>	<b>465,151</b>	<b>484,840</b>	<b>41%</b>	<b>29%</b>
<b>Design</b>	<b>30013</b>	<b>Design and Specs</b>	<b>569,992</b>	<b>5%</b>	<b>1,300,000</b>	<b>7%</b>	<b>-</b>	<b>-</b>	<b>1,176,897</b>	<b>1,176,897</b>	<b>206%</b>	<b>91%</b>
<b>Environmental</b>	<b>30011</b>	<b>Environmental Activities</b>	<b>57,595</b>	<b>0%</b>	<b>125,000</b>	<b>1%</b>	<b>-</b>	<b>-</b>	<b>109,738</b>	<b>109,738</b>	<b>191%</b>	<b>88%</b>
Right-of-Way	35000	Land & Land Rights	-	0%	-	0%	-	-	24,171	24,171	N/A	N/A
Right-of-Way	35900	Roads & Road Structures	-	0%	-	0%	-	-	-	-	N/A	N/A
<b>Right-of-Way</b>			<b>-</b>	<b>0%</b>	<b>35,000</b>	<b>0%</b>	<b>-</b>	<b>-</b>	<b>24,171</b>	<b>24,171</b>	<b>N/A</b>	<b>69%</b>
Government Furnished Equipment	35210	Structures & Improvements-Bldgs	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	35220	Structures & Improvements-Other	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	35300	Station Equipment	-	0%	-	0%	-	1,300,017	475,905	1,775,921	N/A	N/A
Government Furnished Equipment	35400	Towers & Fixtures	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	35510	Wood Poles & Fixtures	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	35520	Steel Poles & Fixtures	-	0%	-	0%	-	-	344,960	344,960	N/A	N/A
Government Furnished Equipment	35600	Overhead Conductors	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	35700	Underground Conduit	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	35800	Underground Conductor (15-35kV)	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	39710	SCADA Equipment	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	39720	Microwave Equipment	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	39760	Fixed Radio Equipment	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	39770	Fiber Optics Equipment	-	0%	-	0%	-	-	-	-	N/A	N/A
<b>Government Furnished Equipment</b>			<b>1,875,800</b>	<b>16%</b>	<b>4,363,400</b>	<b>23%</b>	<b>-</b>	<b>1,300,017</b>	<b>820,865</b>	<b>2,120,881</b>	<b>113%</b>	<b>49%</b>
Construction	30014	Construction Supervision	-	0%	-	0%	-	-	12,057	12,057	N/A	N/A
Construction	30100	Principal Contract	-	0%	-	0%	-	-	-	-	N/A	N/A
<b>Construction</b>			<b>6,843,405</b>	<b>57%</b>	<b>7,956,800</b>	<b>42%</b>	<b>-</b>	<b>-</b>	<b>12,057</b>	<b>12,057</b>	<b>0%</b>	<b>0%</b>
<b>Commissioning Activity</b>	<b>30021</b>	<b>Commissioning Activity</b>	<b>1,467,900</b>	<b>12%</b>	<b>2,630,300</b>	<b>14%</b>	<b>-</b>	<b>-</b>	<b>387,565</b>	<b>387,565</b>	<b>26%</b>	<b>15%</b>
<b>Contingency</b>	<b>N/A</b>	<b>N/A</b>	<b>-</b>	<b>0%</b>	<b>904,500</b>	<b>5%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>N/A</b>	<b>0%</b>
<b>Total Project (Excluding IDC)</b>			<b>12,000,000</b>	<b>100%</b>	<b>18,994,500</b>	<b>100%</b>	<b>-</b>	<b>1,319,706</b>	<b>2,996,443</b>	<b>4,316,149</b>	<b>36%</b>	<b>23%</b>

Prepared: 9/28/2016





## 6.2 Gila-Knob 161kV Rebuild

### EXECUTIVE SUMMARY

WAPA received bids for the Gila Knob 161kV project on July 13, 2016, and the apparent low bidder for the project was substantially higher than what the government estimate considers fair and reasonable for the work. Because of the large discrepancy between the bids received and the government project estimate, WAPA investigated the reasons for the additional costs required to perform the work. Due to the large disparity in the project cost, the current approved prepayment budget would not allow this project to be awarded.

### BACKGROUND

In 2013 the Yuma customers came out in support of upgrades to the Gila-Knob transmission line around North Gila Substation in a letter dated July 7, 2013. Upgrading the line from 161kV to 230kV was encouraged to avoid “future costly facility incompatibilities” with APS. APS was adding a third 500kV circuit into North Gila and work was starting on two additional 230kV circuits between North Gila and Yucca. WAPA received \$2 million dollars of prepayment funding for the upgrades in 2014. The project was formally approved in late 2014 and the project kicked-off in April 2015. The Gila-Knob voltage upgrade encouraged by the Yuma-area customers and funded using prepaid Parker-Davis customer dollars will include future provisions for a second 230kV circuit.

### PROJECT SCOPE

In 1982, between structures 4/7 and 5/2, the Gila-Knob line was re-routed by APS, when the North Gila Substation was constructed. The re-routed section skirts the edge of APS’ North Gila Substation and crosses under APS’ 500-kV lines which enters the substation from the northeast. Sections (4/7-4/8 and 4/10-5/2) will be built for double circuit 230kV, with only one circuit being installed using a vertical conductor configuration on the existing 100’ ROW. Between structures 4/8 and 4/10, the structures will be installed in a horizontal configuration to allow for proper clearance under the 500kV APS line and a double circuit of high strength, high temperature conductor will be installed, with one phase being grounded, in preparation for future use. It is approximately 0.70 miles in length and will include an overhead ground wire (OGW) and a 48 count fiber optic line (OPGW) for future communications.

### PROJECT DEVELOPMENT AND SCOPE INCREASES

The Gila Knob section consists of .7 miles of rebuild. The project scope was originally conceived in August of 2014 and has been changed due to multiple modifications. From the original conception the following items directly impacted the project cost: addition of a 48 count fiber optic line, soil report commissioned (11/30/2015), WAPA design determined more expensive base plate poles were required, clearance issues (161kV to APS 500kV), phase to ground clearance issues, and the requirement of an upgraded conductor. A stronger, more expensive conductor was needed in order to have a higher tension rating to reduce sag between structures 4/8 and 4/9 and eliminate the need to excavate 13,000 cubic yards of material.





The original budget for the project was \$ 2,000,000.00. After receiving additional information following inception, the original design scope changed considerably. The proposed budget for the complete project is now \$ 4,704,200.00. WAPA has spent \$ 2,063,400.00 from WCF and PCN funds, and we have \$1,110,227.00 in remaining PCN funds. Due to the revised budget, what has been spent, the remaining PCN funds available and what is still required to complete the project, we are requesting an additional \$1,530,573.00 for completion of the project.

#### **BUDGET DISCREPANCIES**

- 1) A large delay was in designing a high tension conductor under 500-kV APS lines, capable of carrying adequate amperage, while eliminating the need to excavate 13,000 cubic yards of material under the 161-kV line to avoid clearance issues.
  - i. The Martin ACCR conductor increased GFE by \$ 182,425.00
  - ii. Contractor construction bid was \$ 145,060.00 over the IGE.
- 2) The overhead fiber optic line was added to the project because the contractor was working in the area below the APS 500-kV lines and had established grounding. By installing the fiber optic line, WAPA eliminated the need to install the OPGW under energized 500-kV lines in the future.
  - i. Contract budget for the fiber optic conductor added \$78,477.00 to the contractor's proposal.
- 3) Changing from Direct Embed poles to Base Plate construction increased the GFE as well as the contractor's proposal pricing over the government's estimate. Multiple H-Frame poles-six (6) were required instead of three (3) single-double circuit poles, resulting in costs being considerably more for material and construction work. This was due to safety clearance issues and sandy soil conditions indicating concrete foundations in order to ensure stability.
  - i. The increase for the GFE poles was \$578,650.00
  - ii. Contractor's submitted bid was \$ 370,382.00 over proposed government estimate
- 4) WAPA's labor increased due to the amount of work associated with the project. Inspection costs increased, WAPA's administration budgets were raised due to the many required changes to the project, and environmental needed to secure and perform clearances on proposed laydown yards, site access, and construction right-of way.
  - i. Increase for Project Administration, Construction Inspection and Environmental costs of \$803,525.00.
- 5) Due to the size of the project, site access and working under the energized APS 500-kV line, the combined bid for mobilization, site work, and transmission line removal was considerable higher than the government estimate
  - i. Contractors combined bid was \$ 213,400.00 more than was anticipated by the WAPA estimate.
- 6) Increase in contingency budget of \$ 165,820.00



## Gila-Knob 161-kV Double Circuit Upgrade Project Summary

Category	Original Project Budget	% of Original Budget	Revised Project Budget	% of Revised Budget	Executed to Date (as of 9/28/2016)					
					Commitments	Obligations	Expenses	Total Executed	% of Original Budget Executed	% of Revised Budget Executed
Administration	148,133	7%	933,700	20%	-	19,259	441,934	461,192	311%	49%
Design	49,235	2%	178,300	4%	-	-	167,444	167,444	340%	94%
Environmental	29,492	1%	123,200	3%	-	-	100,982	100,982	342%	82%
Right-of-Way	-	0%	15,300	0%	-	-	25,211	25,211	N/A	165%
Government Furnished Equipment	540,000	27%	1,304,750	28%	-	1,158,606	146,141	1,304,747	242%	100%
Construction	1,200,000	60%	1,950,000	41%	-	-	3,824	3,824	0%	0%
Commissioning Activity	-	0%	-	0%	-	-	-	-	N/A	N/A
Contingency	33,140	2%	198,950	4%	-	-	-	-	0%	0%
<b>Total Project (Excluding IDC)</b>	<b>2,000,000</b>	<b>100%</b>	<b>4,704,200</b>	<b>100%</b>	<b>-</b>	<b>1,177,865</b>	<b>885,536</b>	<b>2,063,400</b>	<b>103%</b>	<b>44%</b>
Interest During Construction <sup>1/</sup>	N/A	N/A	N/A	N/A	-	-	19,468	19,468	N/A	N/A
<b>Total Project (Including IDC)</b>					<b>-</b>	<b>1,177,865</b>	<b>905,004</b>	<b>2,082,868</b>		

	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
<b>Funding Summary</b>				[A+B+C]		[D-E]		[D+G]
Funding	Original Project Budget	Prepayment Adjustments <sup>2/</sup>	Appropriations Adjustments <sup>3/</sup>	Current Project Budget	Total Executed (Excluding IDC)	Remaining Funds	Additional Funds Required <sup>4/</sup>	Revised Project Budget
Prepayment	2,000,000	500,000	-	2,500,000	1,389,773	1,110,227	1,530,573	4,030,573
Appropriations	-	-	673,627	673,627	673,627	-	-	673,627
<b>Total Project Funding</b>	<b>2,000,000</b>	<b>500,000</b>	<b>673,627</b>	<b>3,173,627</b>	<b>2,063,400</b>	<b>1,110,227</b>	<b>1,530,573</b>	<b>4,704,200</b>

Prepared: 9/28/2016

<sup>1/</sup> Interest during construction (IDC) is a non-cash entry which does not impact the project budget, however, it is a cost of the project when the asset is capitalized

<sup>2/</sup> In accordance with the Prepayment Process MOU, \$500K was reprogrammed from the ED4-ED2 115-kV Transmission Line Rebuild project

<sup>3/</sup> Appropriated funding was increased due to the use of available construction appropriations in lieu of construction prepayments

<sup>4/</sup> Please refer to project handout for explanation of project cost increases



## Gila-Knob 161-kV Double Circuit Upgrade Project Detail

### Budget vs. Execution Detail

Budget vs. Execution Detail							Executed to Date (as of 9/28/2016)					
Category	Task	Task Description	Original Project Budget	% of Original Budget	Revised Project Budget	% of Revised Budget	Commitments	Obligations	Expenses	Total Executed	% of Original Budget Executed	% of Revised Budget Executed
Administration	30001	General Engineering Supply Services	-	0%	-	0%	-	-	94	94	N/A	N/A
Administration	30010	Construction Planning	-	0%	-	0%	-	-	9,218	9,218	N/A	N/A
Administration	30012	Collection of Field Data	-	0%	-	0%	-	-	104,753	104,753	N/A	N/A
Administration	30015	Procurement & Contract Admin	-	0%	-	0%	-	-	9,200	9,200	N/A	N/A
Administration	30016	Safety Inspections	-	0%	-	0%	-	-	-	-	N/A	N/A
Administration	30022	Project Management	-	0%	-	0%	-	19,259	318,669	337,928	N/A	N/A
Administration	30023	Finance Administration	-	0%	-	0%	-	-	-	-	N/A	N/A
<b>Administration</b>			<b>148,133</b>	<b>7%</b>	<b>933,700</b>	<b>20%</b>	-	<b>19,259</b>	<b>441,934</b>	<b>461,192</b>	<b>311%</b>	<b>49%</b>
<b>Design</b>	<b>30013</b>	<b>Design and Specs</b>	<b>49,235</b>	<b>2%</b>	<b>178,300</b>	<b>4%</b>	-	-	<b>167,444</b>	<b>167,444</b>	<b>340%</b>	<b>94%</b>
<b>Environmental</b>	<b>30011</b>	<b>Environmental Activities</b>	<b>29,492</b>	<b>1%</b>	<b>123,200</b>	<b>3%</b>	-	-	<b>100,982</b>	<b>100,982</b>	<b>342%</b>	<b>82%</b>
Right-of-Way	35000	Land & Land Rights	-	0%	-	0%	-	-	25,211	25,211	N/A	N/A
Right-of-Way	35900	Roads & Road Structures	-	0%	-	0%	-	-	-	-	N/A	N/A
<b>Right-of-Way</b>			<b>-</b>	<b>0%</b>	<b>15,300</b>	<b>0%</b>	-	-	<b>25,211</b>	<b>25,211</b>	<b>N/A</b>	<b>165%</b>
Government Furnished Equipment	35210	Structures & Improvements-Bldgs	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	35220	Structures & Improvements-Other	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	35300	Station Equipment	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	35400	Towers & Fixtures	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	35510	Wood Poles & Fixtures	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	35520	Steel Poles & Fixtures	-	0%	-	0%	-	976,181	146,141	1,122,322	N/A	N/A
Government Furnished Equipment	35600	Overhead Conductors	-	0%	-	0%	-	182,425	-	182,425	N/A	N/A
Government Furnished Equipment	35700	Underground Conduit	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	35800	Underground Conductor (15-35kV)	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	39710	SCADA Equipment	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	39720	Microwave Equipment	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	39760	Fixed Radio Equipment	-	0%	-	0%	-	-	-	-	N/A	N/A
Government Furnished Equipment	39770	Fiber Optics Equipment	-	0%	-	0%	-	-	-	-	N/A	N/A
<b>Government Furnished Equipment</b>			<b>540,000</b>	<b>27%</b>	<b>1,304,750</b>	<b>28%</b>	-	<b>1,158,606</b>	<b>146,141</b>	<b>1,304,747</b>	<b>242%</b>	<b>100%</b>
Construction	30014	Construction Supervision	-	0%	-	0%	-	-	3,663	3,663	N/A	N/A
Construction	30100	Principal Contract	-	0%	-	0%	-	-	161	161	N/A	N/A
<b>Construction</b>			<b>1,200,000</b>	<b>60%</b>	<b>1,950,000</b>	<b>41%</b>	-	-	<b>3,824</b>	<b>3,824</b>	<b>0%</b>	<b>0%</b>
<b>Commissioning Activity</b>	<b>30021</b>	<b>Commissioning Activity</b>	<b>-</b>	<b>0%</b>	<b>-</b>	<b>0%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>N/A</b>	<b>N/A</b>
<b>Contingency</b>	<b>N/A</b>	<b>N/A</b>	<b>33,140</b>	<b>2%</b>	<b>198,950</b>	<b>4%</b>					<b>0%</b>	<b>0%</b>
<b>Total Project (Excluding IDC)</b>			<b>2,000,000</b>	<b>100%</b>	<b>4,704,200</b>	<b>100%</b>	-	<b>1,177,865</b>	<b>885,536</b>	<b>2,063,400</b>	<b>103%</b>	<b>44%</b>



7.0 DSW Prepayment Budget Overview Spreadsheet

	Project	Status	Year Approved	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	Revised Prepayment Budget	Prepayment Executed to Date	Available Prepayment Funds	Appropriations Executed to Date	TOTAL Executed to Date
1	Thornton Road - Empire - ED5 Transmission Line Rebuild	Complete	FY10	28,500,000		(3,118,252)	(11,555,836)			(688,494)		13,137,418	13,137,418	-	-	13,137,418
2	ED4-ED5 Transmission Line Rebuild	Complete	FY11		14,982,000		(7,000,000)			(900,879)		7,081,121	7,081,121	-	-	7,081,121
3	Rebuild Davis 230-kV Switchyard (Davis Stage 06)	Complete	FY11		-							-	-	-	-	-
4	Coolidge Substation 230/69-kV Transformer	Complete	FY12			6,110,000	79,277	(495,841)	(332,966)	119,039		5,479,509	5,479,509	-	4,416,592	9,896,101
5	Bouse Substation 161-kV Rebuild	Complete	FY12			4,970,000	1,027,919	(3,618,770)		(44,002)		2,335,147	2,335,147	-	7,804,142	10,139,289
6	ED4-ED2 115-kV Transmission Line Rebuild	Close-Out	FY12			11,100,000				(8,312,920)	(500,000)	2,287,080	2,153,440	133,640	4,666,010	6,819,450
7	Pinnacle Peak-Rogers Right-of-Way	Complete	FY13				6,200,000				(198,174)	6,001,826	6,001,826	-	106,778	6,108,603
8	Parker-Headgate Rock	Under Review	FY13				17,954,000			(334,176)		17,619,824	407,057	17,212,768	771,258	1,178,315
9	Parker-Davis Facility Rating Mitigation Year 2	Active	FY14/15					3,225,000	5,300,000			8,525,000	7,412,318	1,112,682	384,152	7,796,470
10	Parker-Davis Facility Rating Mitigation Year 3	On Hold	FY15						16,000,000		(16,000,000)	-	97,939	(97,939)	-	97,939
11	Black Point-Mesa Transmission Line Reroute	Close-Out	FY14					1,855,500		(529,916)		1,325,584	1,149,138	176,446	930,148	2,079,286
12	Mesa Substation Remediation	Active	FY14/16					1,025,000		2,510,000		3,535,000	120,888	3,414,112	370,549	491,437
13	Gila-Knob 161-kV Double Circuit Upgrade	Active	FY14					2,000,000			2,030,573	4,030,573	1,389,773	2,640,800	673,627	2,063,400
14	Parker Substation 161-kV Switch Replacement	On Hold	FY14					1,250,000			(1,250,000)	-	23,899	(23,899)	-	23,899
15	Mead CCVT Support Structure Replacement	Close-Out	FY14					975,000				975,000	851,567	123,433	-	851,567
16	Gila Substation 161-kV Rebuild	Active	FY14					12,000,000		(1,075,597)	6,299,184	17,223,587	2,545,306	14,678,281	1,770,913	4,316,219
17	Del Bac-Nogales Right-of-Way Renewal	Complete	FY15						3,550,000		(49,854)	3,500,146	3,500,146	-	-	3,500,146
18	Tucson Substation Rebuild	Active	FY15						7,000,000			7,000,000	4,839,855	2,160,145	1,714,222	6,554,078
19	Crossman Peak Microwave Facility	Active	FY16							4,525,000		4,525,000	576,372	3,948,628	-	576,372
20	Liberty Series Capacitor Bank	Active	FY16							10,372,000		10,372,000	7,880	10,364,120	57,047	64,927
PROJECT TOTALS				28,500,000	14,982,000	19,061,748	6,705,360	18,215,889	31,517,034	5,640,056	(9,668,271)	114,953,815	59,110,599	55,843,216	23,665,438	82,776,037

\* Executed to date amounts include commitments, outstanding obligations and expenses as of 9/28/2016





## 8.0 Appendices

1. Official Prepayment Proxy Voting Ballot
2. Table of Acronyms
3. DSW Organization Charts

# THANK YOU





# Official Proxy Ballot

(Absentee Voting)

## Prepayment Funding Process for Construction

Please provide the following information if neither the primary nor the alternate representative is able to attend the meeting.

Check one:

Yes

No

I vote to approve the entire FY 2017 Prepayment Funding Plan.



If the entire Prepayment Funding Plan is not approved, my vote to approve each individual project proposed is:

1. Gila Substation 161kV Rebuild – Additional Funding



2. Gila-Knob 161kV Rebuild – Additional Funding



Company Name: \_\_\_\_\_

Date: \_\_\_\_\_ Name: \_\_\_\_\_

(Please print name legibly)\*

Signature: \_\_\_\_\_

Please return the signed Proxy Ballot to one (1) of the following addresses:

**If by First Class Mail:**

Western Area Power Administration  
Desert Southwest Regional Office  
ATTN: G6110  
P.O. Box 6457  
Phoenix, AZ 85005-6457

**If by Overnight Delivery:**

Western Area Power Administration  
Desert Southwest Regional Office  
ATTN: G6110  
615 South 43<sup>rd</sup> Avenue  
Phoenix, AZ 85009

Any questions should be directed to Mr. Scott Lund at (602) 605-2442 or [Slund@wapa.gov](mailto:Slund@wapa.gov).

\* Signature must be that of the customer's authorized representative.





## Table of Acronyms

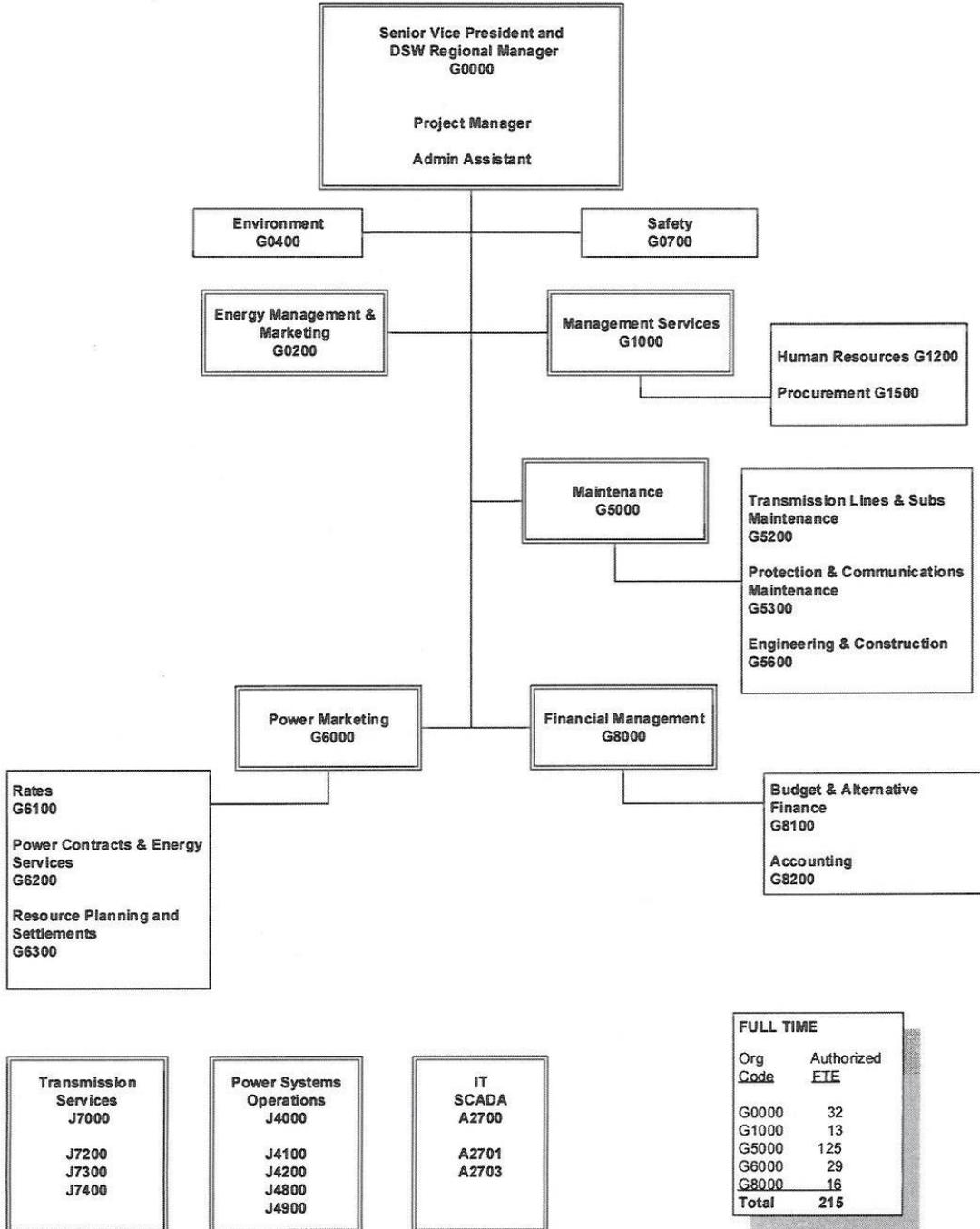
APS.....	ARIZONA PUBLIC SERVICE
BOR.....	BUREAU OF RECLAMATION
CAP.....	CENTRAL ARIZONA PROJECT
CX.....	CATEGORICAL EXCLUSION
CIP.....	CRITICAL INFRASTRUCTURE PROTECTION
DOE.....	DEPARTMENT OF ENERGY
SW.....	DESERT SOUTHWEST REGION
EA.....	ENVIRONMENTAL ASSESSMENT
GFE.....	GOVERNMENT FURNISHED EQUIPMENT
IDIQ.....	INDEFINITE DELIVERY/INDEFINITE QUANTITY
IFB.....	INVITATION FOR BID
KCMIL.....	THOUSANDS CIRCULAR MILLIMETER
MDCC.....	MANAGEMENT DESIGN CONSTRUCTION COMMITTEE
NEPA.....	NATIONAL ENVIRONMENTAL POLICY ACT
NERC.....	NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
NESC.....	NATIONAL ELECTRIC SAFETY CODE
NHPA.....	NATIONAL HISTORIC PRESERVATION ACT
NRHP.....	NATIONAL REGISTER OF HISTORIC PLACES
PAD.....	PARKER POWER PLANT
PCB.....	POLYCHLORINATED BIPHENYL
PCN.....	PREPAYMENT FUNDS
RFP.....	REQUEST FOR PROPOSAL
ROW.....	RIGHT OF WAY
SCE.....	SOUTHERN CALIFORNIA EDISON
SF6.....	SULFUR HEXAFLUORIDE
TCP.....	TRADITIONAL CULTURAL PROPERTIES
USDA.....	UNITED STATES DEPARTMENT OF AGRICULTURE
WAPA.....	WESTERN AREA POWER ADMINISTRATION
WCF.....	WESTERN CONSTRUCTION FUNDS





**DESERT SOUTHWEST REGION  
FY 2018**

**OVERVIEW**

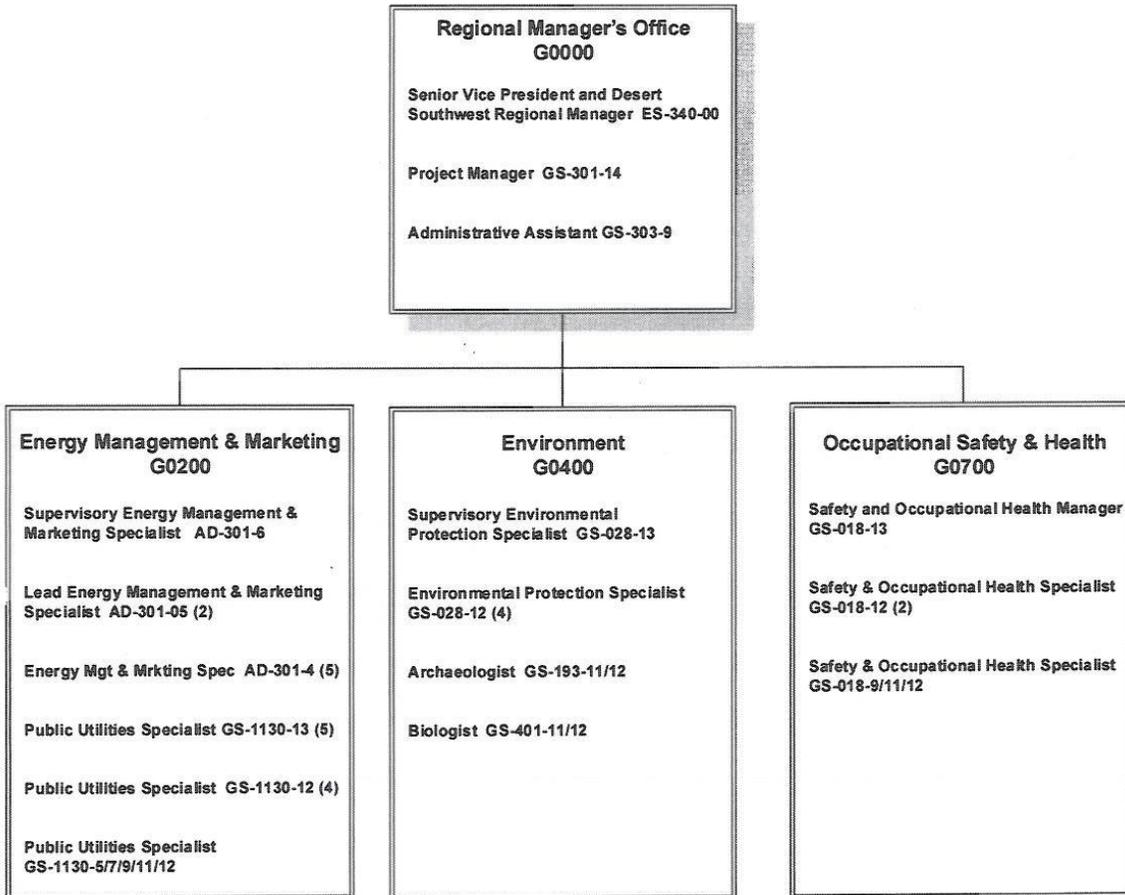


FULL TIME	
Org Code	Authorized FTE
G0000	32
G1000	13
G5000	125
G6000	29
G8000	16
<b>Total</b>	<b>215</b>





**DESERT SOUTHWEST REGION  
FY 2018**

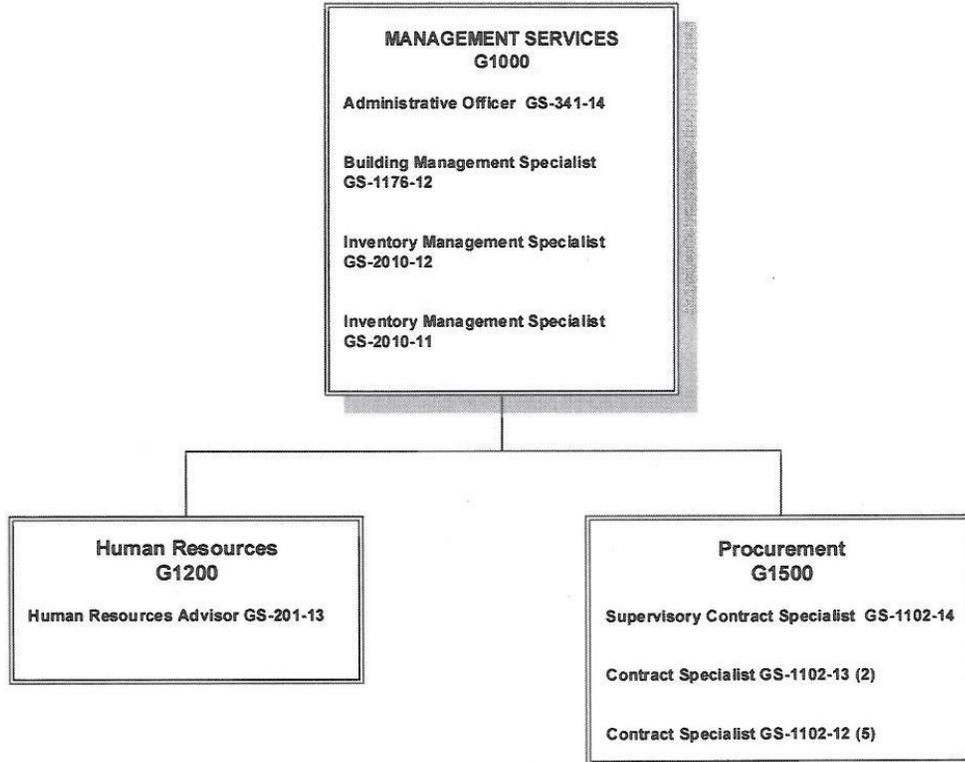


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Total	32
G0000	3
G0200	18
G0400	7
G0700	4





**DESERT SOUTHWEST REGION  
FY 2018**

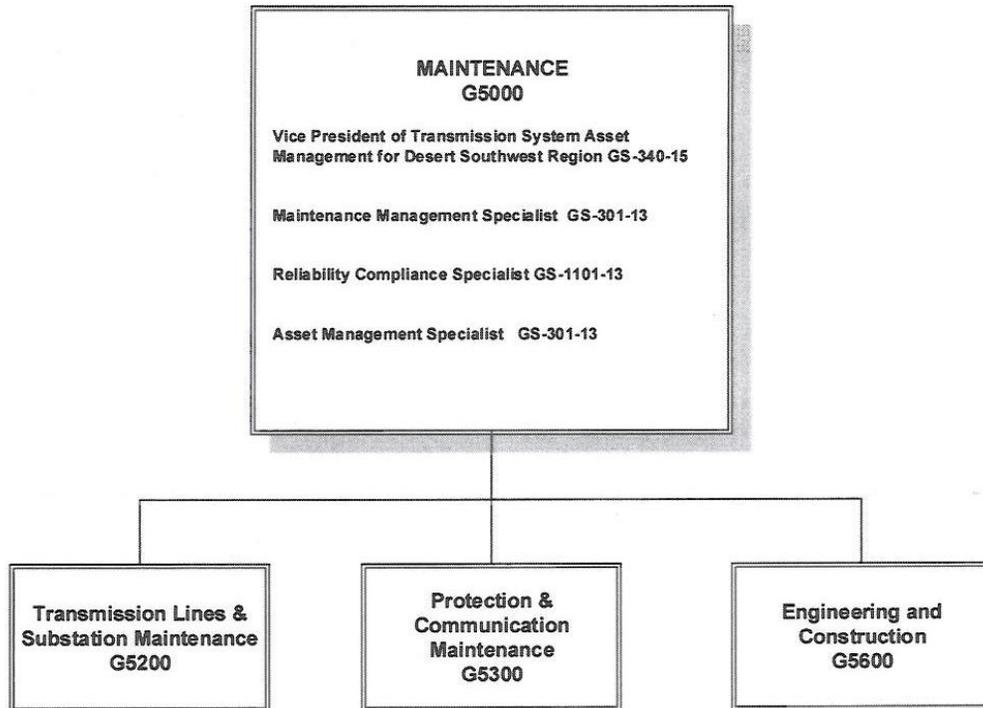


	Authorized FTE
Total	13
G1000	4
G1200	1
G1500	8





**DESERT SOUTHWEST REGION  
FY 2018**

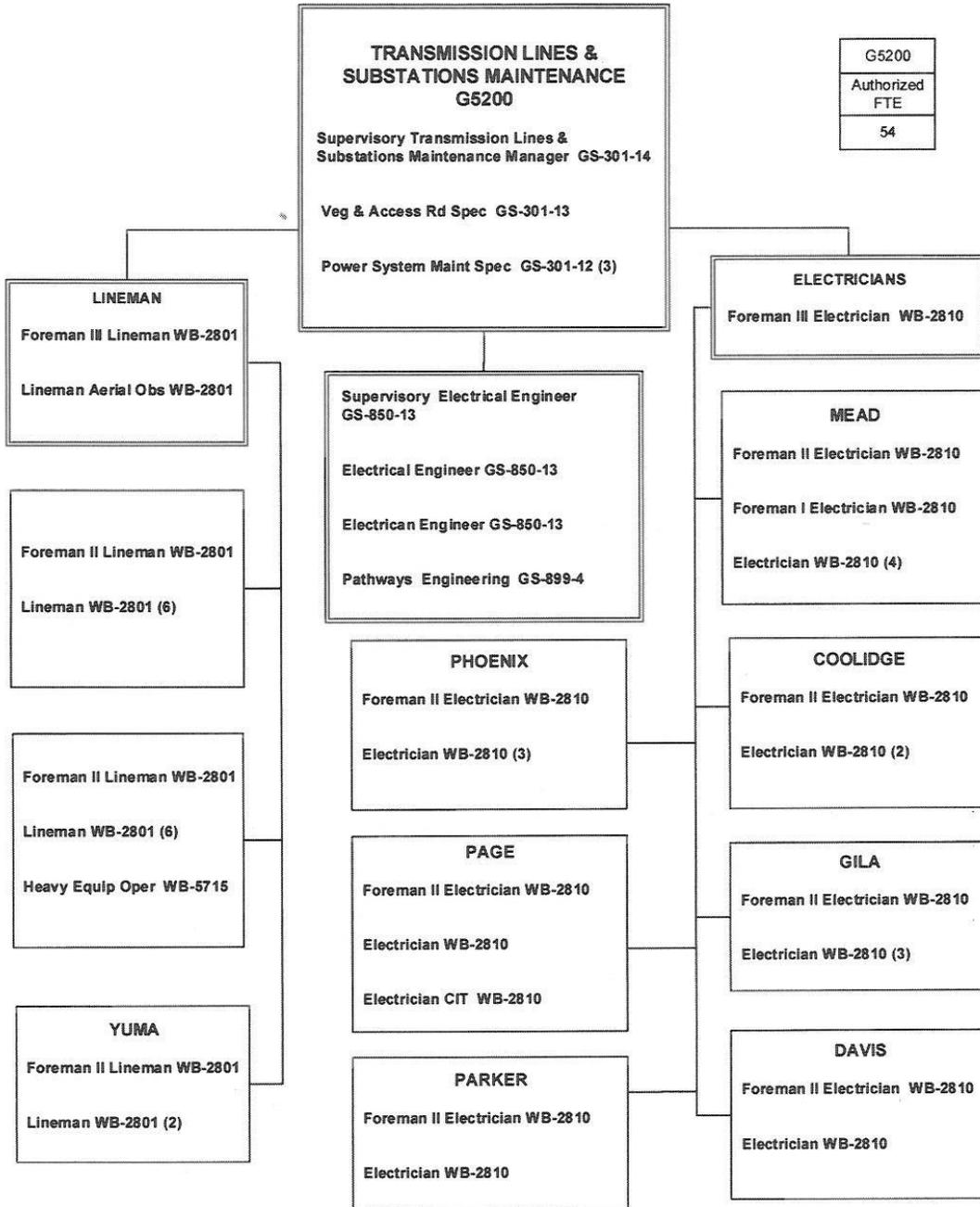


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Total	125
G5000	4
G5200	54
G5300	41
G5600	26



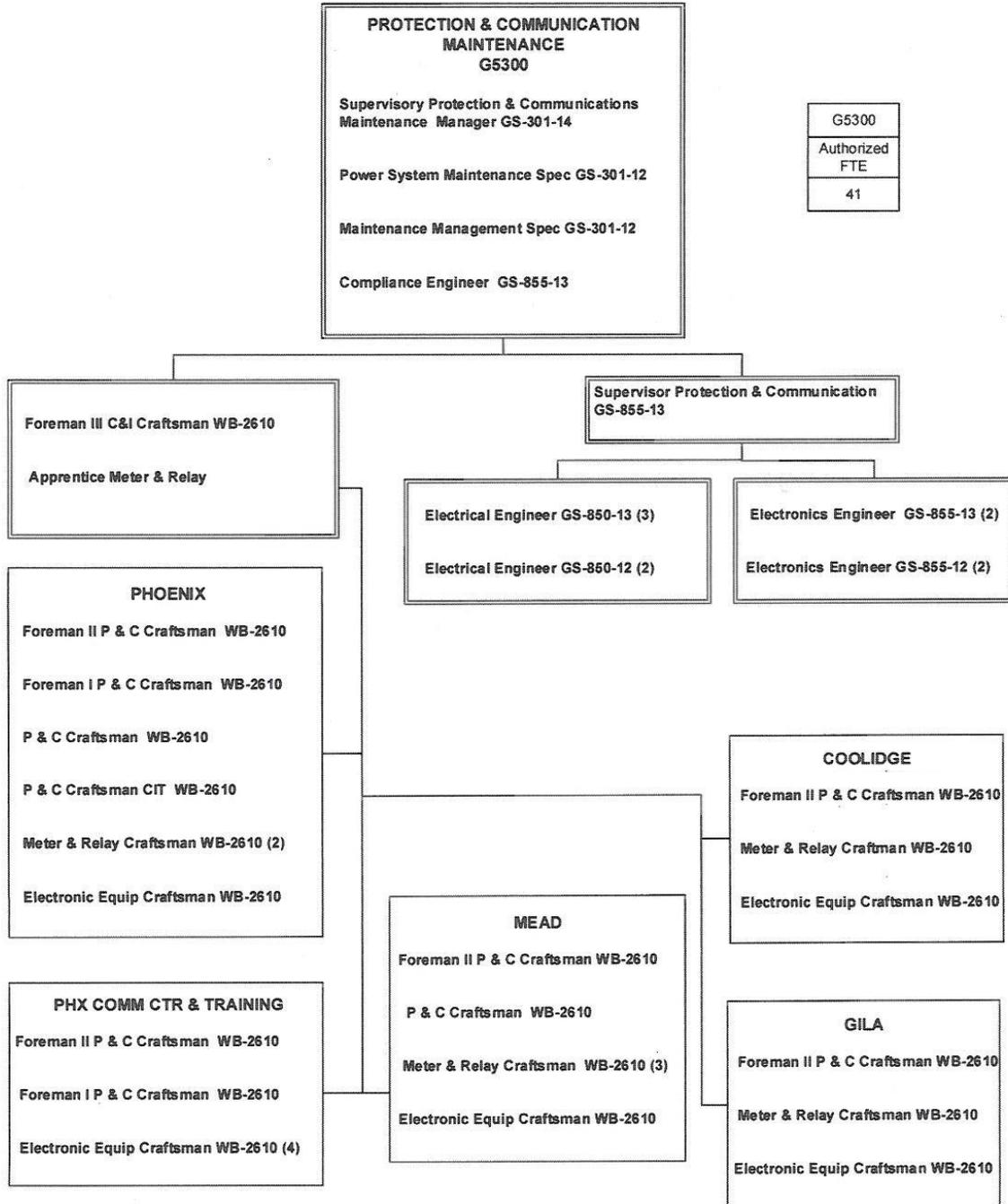


**DESERT SOUTHWEST REGION  
FY 2018**



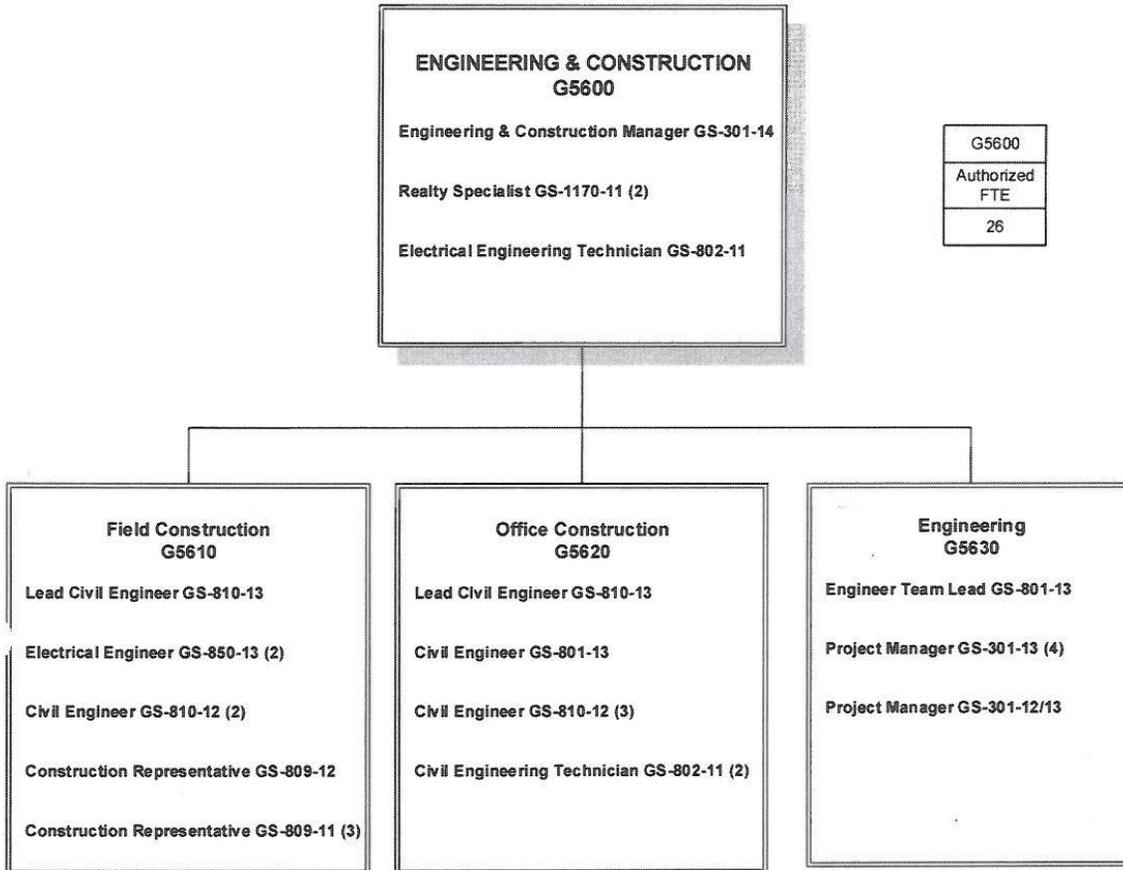


**DESERT SOUTHWEST REGION  
FY 2018**



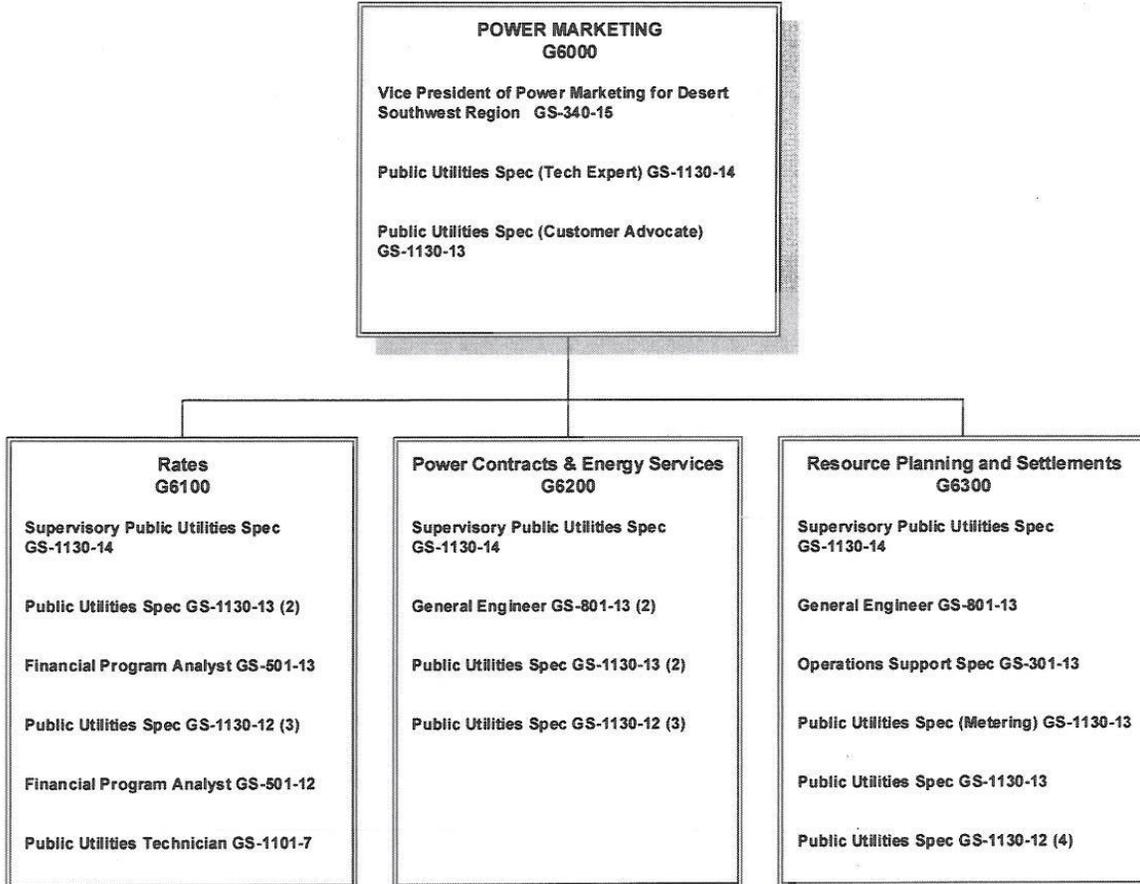


**DESERT SOUTHWEST REGION  
FY 2018**





**DESERT SOUTHWEST REGION  
FY 2018**

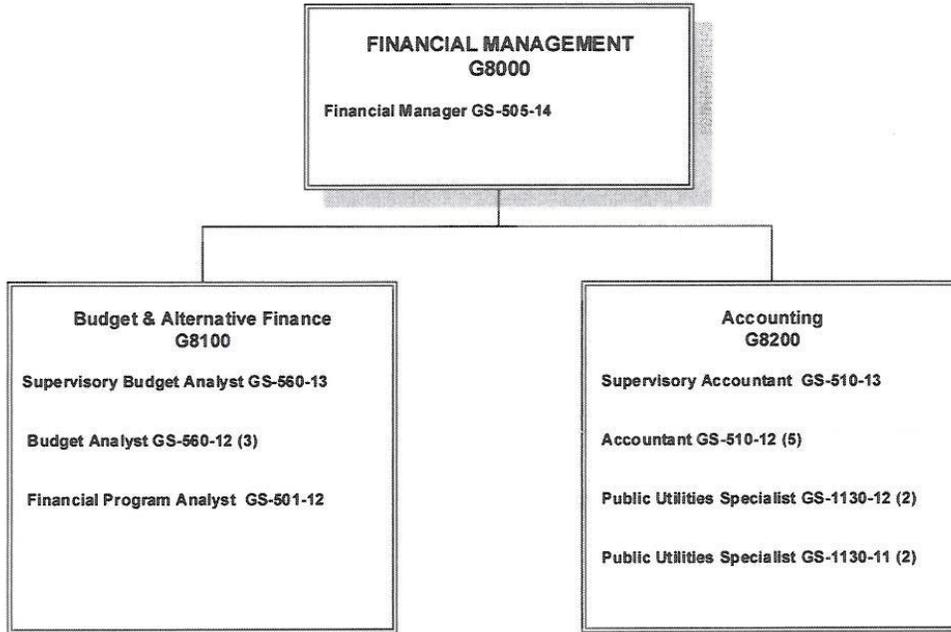


	Authorized FTE
Total	29
G6000	3
G6100	9
G6200	8
G6300	9





DESERT SOUTHWEST REGION  
FY 2018



	Authorized FTE
Total	16
G8000	1
G8100	5
G8200	10

