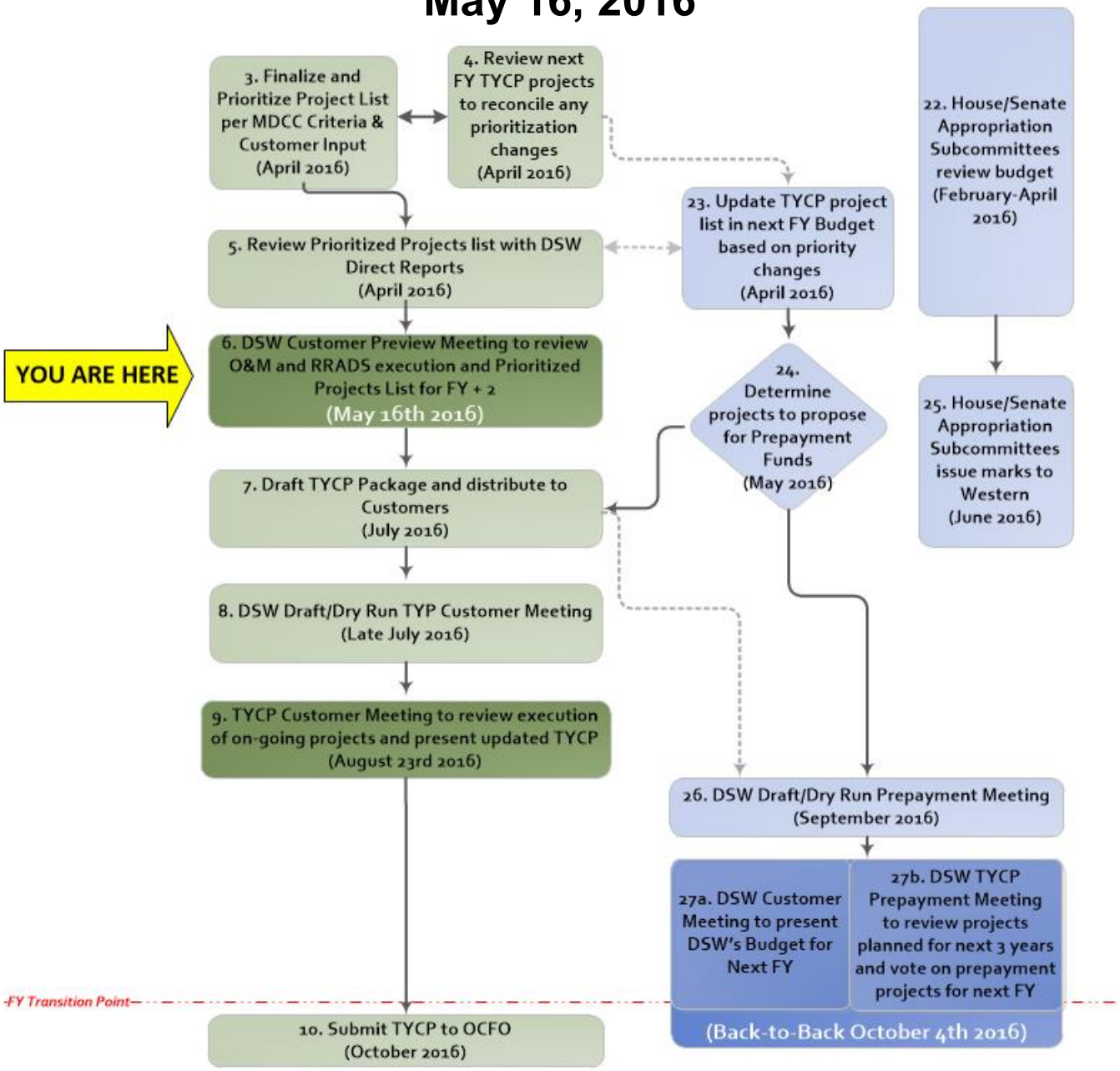
Desert Southwest Region Ten Year Plan
Customer Preview Meeting
May 16, 2016



Western
AREA POWER
ADMINISTRATION

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DSW Customer TYP Preview Meeting
May 16th, 2016
1:00 pm – 4:00 pm MST
Bridge: (800) 857-2038 Code: 42250

Objectives:

To preview and solicit customer feedback on the projects DSW is looking at for FY17-19. Have open exchange on the proposed projects, the major drivers/rationale for the projects, the alternatives that were studied and the recommended approach.

Agenda:

1. Welcome
    a. Introduce Jimmy Kendrick, VP of Transmission System Asset Management
    b. Action Items from February 1, 2016 Customer Meeting
        i. Transmission Business Unit - Parker transformer agreement update
        ii. Power Marketing – MOU funding options
        iii. Transmission Planning – Customer study group update

2. TYP Preview Presentation
    a. Project Updates
        i. Saguaro Bypass
        ii. Mead KU2A Transformer
        iii. Southline Update
    b. Active AoA Studies
        i. Gila-Wellton Mohawk Interstate-8 Crossing Upgrade
        ii. Bouse - Kofa
        iii. Kofa – Dome Tap
        iv. Dome Tap - Gila
        v. Facility Ratings Improvements Program (Various Locations)

3. Proposed Projects – Next AoA Studies
    a. Customer Issues/Concerns South of Parker
    b. Customer Issues/Concerns South of Phoenix
    c. Western Issues/Concerns
        i. Knob – Goldmine Tap
        ii. Goldmine Tap – Blythe
        iii. Blythe – Parker
        iv. Mead KU2A Replacement

4. Finance Update on Executions

5. Next Customer Meeting
    a. August 23, 2016 – TYP Presentation
    b. October 4, 2016 – PCN Presentation / Vote

6. Action Items/Recap

BUDGET FORMULATION (FY19)
Starts 2 FY before execution year

NEXT FY PLANNING (FY17)
Starts 1 FY before execution year

EXECUTION YEAR (FY16)

START

1. DSW Customer Meeting to identify Priority Mission Needs and Business Drivers (November 19, 2015)

2. DSW Customer Meeting to review O&M and RRADS execution, active TYCP projects and collaborate on TYCP projects for next 1-4 years (February 1, 2016)

3. Finalize and Prioritize Project List per MDCC Criteria & Customer Input (April 2016)

4. Review next FY TYCP projects to reconcile any prioritization changes (April 2016)

5. Review Prioritized Projects list with DSW Direct Reports (April 2016)

6. DSW Customer Preview Meeting to review O&M and RRADS execution and Prioritized Projects List for FY + 2 (May 16th 2016)

7. Draft TYCP Package and distribute to Customers (July 2016)

8. DSW Draft/Dry Run TYP Customer Meeting (Late July 2016)

9. TYCP Customer Meeting to review execution of on-going projects and present updated TYCP (August 23rd 2016)

FY Transition Point

10. Submit TYCP to OCFO (October 2016)

11. OCFO Submits Consolidated TYCP to MDCC (October 2016)

12. MDCC Reviews Western Consolidated TYCP and prioritizes projects for Formulation year (November 2016)

13. OCFO distributes Draft Consolidated TYCP to Seniors for Review (November 2016)

14. Seniors review Consolidated TYCP and return feedback to OCFO (November 2016)

15. Western TYCP Customer Meeting (December 2016)

16. Seniors provide final feedback based on Customer Meeting (January 2017)

17. DSW finalizes TYCP based on Senior/Customer feedback (February 2017)

18. DSW finalizes budget and identifies preliminary rate impacts (February 2017)

19. OCFO submits final budget to Administrator for approval (April 2017)

20. President's budget for next FY goes to Congress (February 2016)

21. Best window of opportunity to influence congressional marks for next FY (February-March 2016)

22. House/Senate Appropriation Subcommittees review budget (February-April 2016)

23. Update TYCP project list in next FY Budget based on priority changes (April 2016)

24. Determine projects to propose for Prepayment Funds (May 2016)

25. House/Senate Appropriation Subcommittees issue marks to Western (June 2016)

26. DSW Draft/Dry Run Prepayment Meeting (September 2016)

27a. DSW Customer Meeting to present DSW's Budget for Next FY

27b. DSW TYCP Prepayment Meeting to review projects planned for next 3 years and vote on prepayment projects for next FY

(Back-to-Back October 4th 2016)

28. Finance revalidates next FY budget (October 2016)

2. DSW Customer Meeting to review FY16 O&M and RRADS execution, active TYCP projects and collaborate on TYCP projects for next 1-4 years (February 1, 2016)

6. DSW Customer Meeting to review FY16 O&M and RRADS execution and Prioritized Projects List for FY + 2 (May 16th 2016)

9. TYCP Customer Meeting to review execution of on-going projects and present updated TYCP (August 23rd 2016)

29. Execution plan for new FY17 is finalized for O&M and labor (October 2016)

30. Congress signs appropriations bill approving FY17 budget (October 2016-January 2017)

31. MDCC allocates appropriations for FY17 (November 2016)

32. Allocated appropriations from MDCC are incorporated into FY17 execution plan (November 2016-January 2017)

33. Execution begins on approved funded projects (per DSW Project Schedule)

34. Project close-out (after energized)

35. Project costs and interest incorporated into next Rate cycle

Next TYCP Cycle

TYCP FY17 Cycle

Acronyms
DSW – Western's Desert Southwest Region
MDCC - Western's Maintenance, Design and Construction Council
OCFO - Western's Office of Chief Financial Officer
TYCP – Ten Year Capital Plan
CPC – DSW Capital Planning Committee
RRADs – Replacement, Retirement, Additions, & Deletioins

Western AREA POWER ADMINISTRATION

REVISED 2016.03.30

Customer Meeting FY2016
Feburary 1, 2016
Action Items Responses

Action Items:

1. Agreement needs to be finalized with TEP/Unisource on 69kV connection at Parker (Parker Transformer Agreement. Working with SWTCO/TEP to resolve.

   Response: *Agreement was signed by all parties in mid-March 2016*

2. Review prepayment MOU to determine if it will allow funds to be used more effectively in a mid-stream environment rather than just once a year.

   Response: The Memorandum of Understanding currently provides for changes in costs of approved prepayment projects with defined thresholds to increase funding, re-program funding, and seek approval for additional funding. Projects that were not approved for prepayment funding, including new projects, must be funded by other sources or approved in subsequent years.

3. Western to develop South of Phoenix study charter group.

   Response: Western's Tranmission Planning group organized interested parties and the first charter meeting took place on May 5th, 2016.

4. Western to develop South of Parker study charter group

   Response: Western's Tranmission Planning group is actively developing the charter group and will be be circulated to those that expressed interest in participating at the last TYP customer meeting. The charter will be delivered to those interested the week of May 23rd, 2016.

PROJECT UPDATE

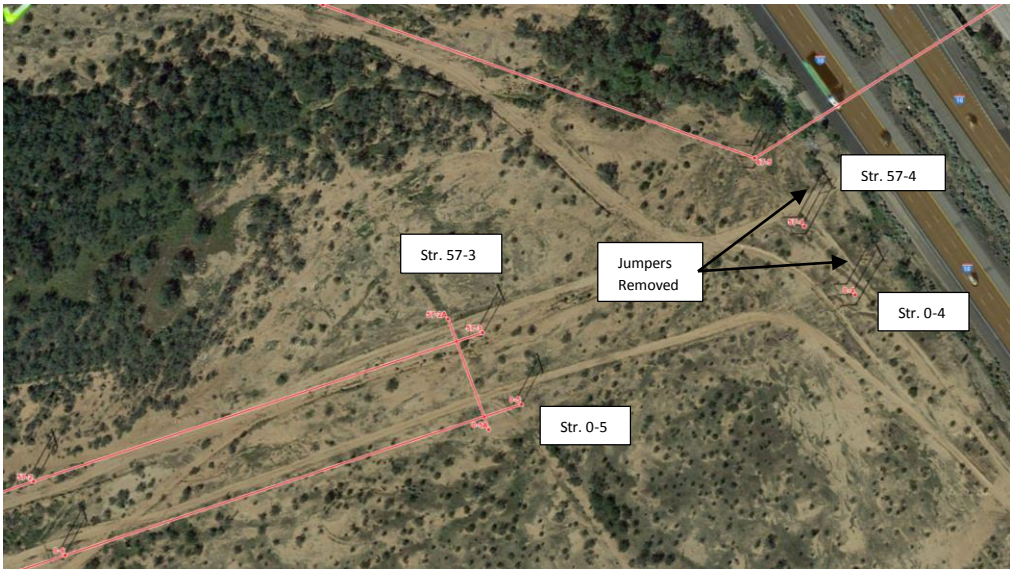
SAGUARO BYPASS

Status

Completed by Western maintenance crews on April 19th, 2016

Description

Construct a flying tap using 795 kcmil ACSR conductor to tie ED5-Saguaro (SGR) #2 and Saguaro-Marana Tap (MRN) 115-kV transmission lines together. Locate the flying tap on the west side of structures 0-5 and 57-3 of the SGR-MRN and ED5-SGR#2 lines respectively. Install jumpers across each insulator string. Remove the existing jumpers across the existing tension insulators at 57-4 and at 0-4. Line protection relay settings were changed at ED5 and Tucson substations due to the new line configuration. Restoration of the bypassed lines can be accomplished by re-installing jumpers across the tension insulators at 57-4 and 0-4, and removing the f-jumpers across the insulators in the flying tap.

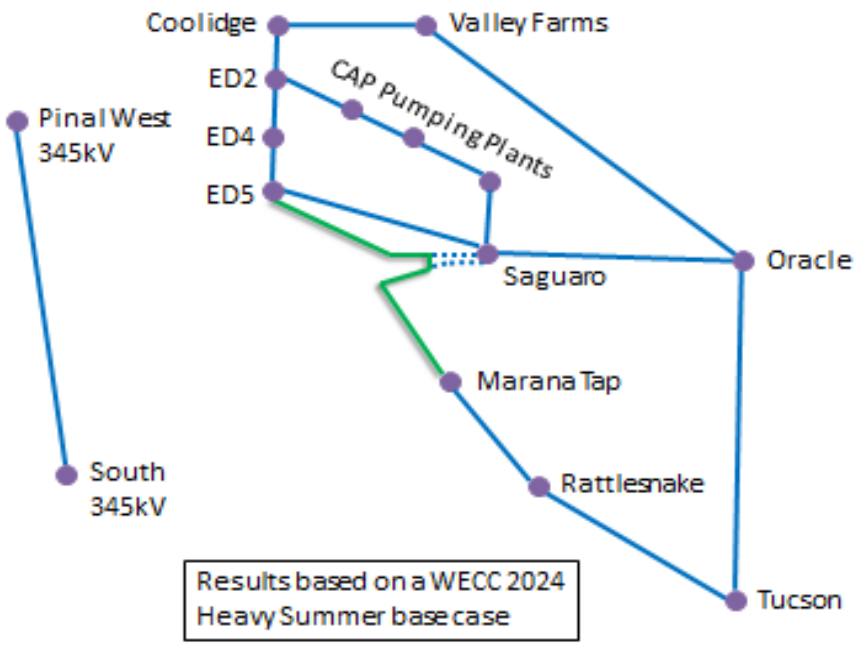


Justification for Project

Western must perform annual assessments to ensure that its system can maintain reliable performance under a range of credible contingencies and dispatch scenarios per the North American Reliability Corporation (NERC) Transmission Planning (TPL) Reliability Standards.

In a recent study conducted by Western in 2014 it was observed that based on a WECC 2024 Heavy Summer base case, two of its system elements, COL-VAF 115 kV and MRN-SGR 115 kV lines, could potentially overload beyond acceptable NERC TPL criteria after certain contingencies.

It was observed that the COL-VAF 115 kV could overload above its emergency rating after a breaker failure at Saguaro 115 kV bus tie breaker 1612. In addition, the MRN-SGR 115 kV could overload with certain Tucson Electric Power contingencies including the Springerville-Vail 345 kV or the Pinal West-South 345 kV line. These overloads could occur in a credible, though large, loading condition on today's system. Additionally, these overloads will likely grow in future years considering the projected increasing load demands.



PROJECT UPDATE

MEAD KU2A TRANSFORMER

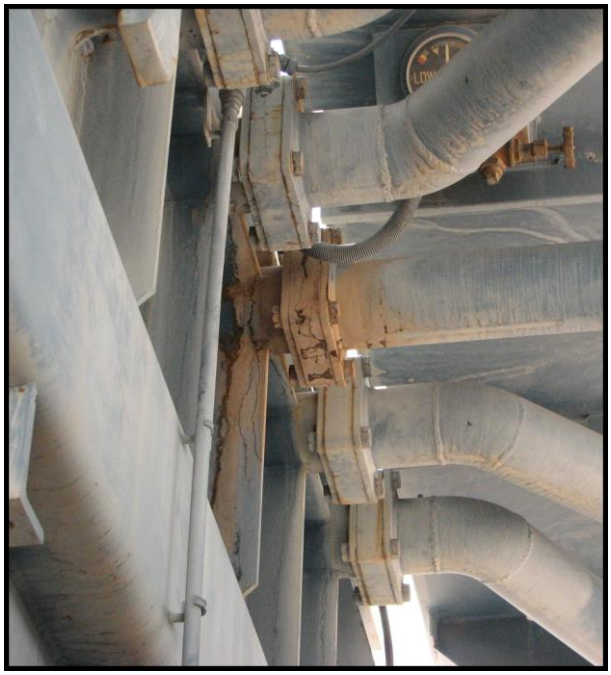
Status

Western has performed multiple tests on the KU2A transformer and continues to monitor gas levels and oil processing on a monthly basis. Through degassing efforts and oil processing, the most recent oil sample showed 10 PPM of acetylene and is still in a condition 1 for overall oil condition. A contract has been solicited to industry experts to analyze all of the test results and render an expert opinion on the health of the transformer. The award of that contract is expected within the month of May. The transformer was out of service during a portion of the Mead stage 15 project but it was put back into service on 5/13/16.

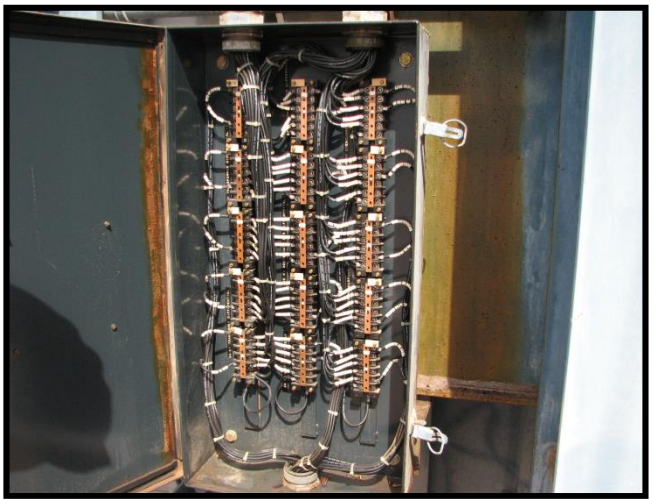
Justification for Project

The Mead KU2A transformer is a 345/230/24-kV device, rated at 600 MW. It was manufactured in 1964 by General Electric. Statistical analysis, as stated in the DOE Replacements Manual, indicates that the average service life of a main power transformer is 40 years. KU2A has been in service past this lifespan, and is exhibiting condition-related issues consistent with its age and the Desert Southwest region's environment. Testing indicated deterioration of both external (bushings) and internal (cellulose insulation) elements.

Despite a re-gasketing, conducted in 2005, the transformer is leaking oil. Leaks indicate an elevated risk of a catastrophic loss of cooling oil. This loss of oil would cause the transformer to either shut down or to fail completely. Other parts of this device are also deteriorating, including, but not limited to, the external wiring, oil pumps, and fans. Some elements, such as the tap changers, are no longer operated and tested because of the elevated risk of malfunction and subsequent transformer shutdown. Much of the associated equipment is no longer manufactured, and, as such, has to be machined or rebuilt by specialty vendors. As the transformer continues to age, maintenance costs will increase and the transformer's reliability will be put further at risk.



Piping and Connection Leaks and Stains



Oil Leaks Behind CT Cable Termination Box

The Mead-Peacock Transmission Line is very important in Western's system. 570-MW Griffith Energy Plant, located 100 miles southeast of Las Vegas, uses the Mead-Peacock transmission line as their scheduling path. The Mead Stage 15 project involved the installation of transformer KU2B. The overall goal of this installation was to increase the capacity of the Mead-Peacock line to 1200mVA. This was to meet the demands of Western's customers, as well as several upcoming projects in the area, including a 345kV installation for APS.

During the Mead Stage 15 project, KU2A was rehabilitated with new bushings. After this rehabilitation gassing problems appeared on the transformer. Western is now in the process of turning over historical data on the performance of the transformer to an external third party for expert analysis. This can be used to determine the health of the transformer without taking the additional risk of physical testing, which may result in the loss of the transformer entirely. Currently there are plans to bring the existing KU2A transformer online with KU2B to investigate the load balancing, though it is unknown currently how KU2A will respond.

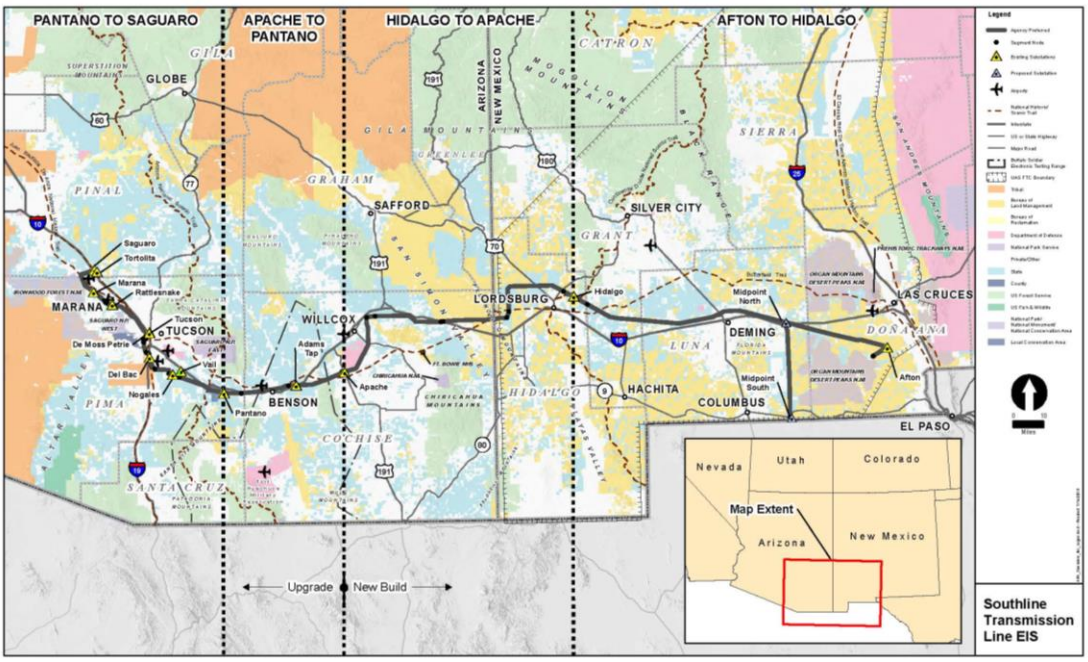
A parallel arrangement with a KU2A replacement would also serve as an excellent risk mitigation element. In the event that KU2A were to be lost, the existing yard arrangement does not allow for KU2B to be easily taken out of service to perform maintenance work, any outages on KU2B will also result in an outage on Mead-Peacock. Any unexpected failures or downtime of KU2B will also result in total loss of service to the line. With the installation of a replacement for KU2A running in parallel, a reliable backup path for the heavily loaded line will be available through the Mead substation.

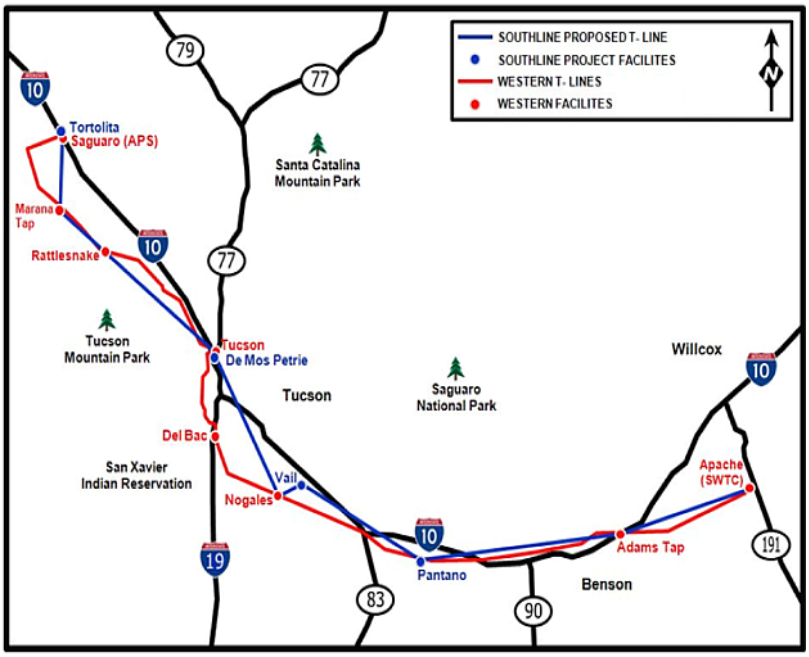
PROJECT UPDATE

SOUTHLINE

Updates

1. The Southline Open Solicitation was opened on March 31st, 2016. This solicitation is open for 90 days through June 30th.
2. BLM and Western's Record of Decision have been finalized.
3. Western will publish Federal Register Notice soliciting interest on the new build this summer.
4. Western will discuss interest gathered and future direction at August 23rd, customer TYP Presentation Meeting.





Criteria for Evaluating Capital Projects and Ranking Them for Comparison

The Maintenance, Design, & Construction, Council (MDCC) has established the following process (note this process and ranking have been vetted through the Power System Operating Council (PSOC) and the Western Maintenance Management Council (WMMC):

Project Ranking:

Each Project will be ranked based on **Compliance**, **Reliability**, and **Economics** to determine the overall order these projects should be implemented. Each of these categories is comprised of specific criteria that will be evaluated and assigned a ranking based on importance/impact to the proposed project.

The **Compliance** category includes the following criteria:

- Meets Environmental regulatory requirements. (not including projects that are solely to enhance the environment, IE. Basic Substation cleanup)
- Meets North American Electric Reliability Corporation (NERC) reliability standards.
- The equipment or facility currently is or in the near future will constrain the transmission system
- Meets Health and Safety requirements.

Each criterion has equal weight within the category.

The **Reliability** category includes the following criteria:

- Condition of the equipment or facility
- Availability of replacement parts or repair services
- Impact to the power system if the project is not completed
- Number of outages that have occurred and the frequency of outages
- Facility loading and encroachment on maximum ratings
- Risk score(s) from the AM Risk Register Spreadsheet of various equipment that may be included in a project.

Each criterion has equal weight within the category.

The **Economic (Western and its customers)** category includes the following criteria:

- Economic impacts of not completing the project is determined to be significant to the regional transmission system.
- There is a contractual need for the project such as a power marketing agreement stating the need
- An obligation for a path that meets a contractual requirement
- Loss of revenue to Western, including additional revenue that would become available as a direct result of the project.
- Customer(s) incur increased costs if they need to purchase alternate path or power.

Each criterion has equal weight within the category.

The ranking levels are as follows:

0 - Minor: There is negligible impact in regards to the issue and why the project is needed
1 - Moderate: There is limited impact in regards to the issue and why the project is needed
2 - Major: There is significant impact in regards to the issue and why the project is needed
3 - Severe: There is high impact in regards to the issue and why the project is needed
4 - Catastrophic: Failure to complete the project will result in extended outages, severe system degradation and/or significant economic repercussions.

After each of the proposed projects is rated for each of the categories, the following weighting factor is applied:

- Compliance will have a weighting factor of 0.40 because of the need of the project and possible impact to life or limb, heavy fines could be imposed, and the requirement by law or regulation.
- Reliability will have a weighting factor of 0.35 because of its impact to the system and Western's credibility and reputation if there is a failure or outage.
- Economical will also have a weighting of 0.25 due to the monetary impact and direct impact to our customers if the project is not completed.

Other Considerations:

- If a capital project has had a prior year start, meaning that the project had a construction award or a major equipment purchase in the prior fiscal year, it will be given a priority in funding consideration in order to avoid increased costs resulting from equipment delivery issues, contract modifications, interest during construction (IDC), and personnel scheduling. If there is a funding conflict, a further comparison of risk will be performed.
- If the project has joint participation (i.e. Partial funding from customer trust project and partial Western funding) it will be given priority in funding consideration similar to prior year start projects.
- A NERC compliance violation, or other system emergency need, which may require a new project start, might be more costly than increased costs from delays to an on-going capital project, and may be given priority. In other words, cost impacts from delaying any prior starts will be weighed against the impact of not complying with NERC Standards or not correcting the system need.
- Interconnection requests that are not funded by the requestor will be included in this process for ranking.
- Upon completion of the ranking consensus, each region will review their qualifying projects to verify and confirm that they can execute the appropriated funds by fiscal year end.

REF #	POWER SYSTEM	PROJECT NAME	PROJECT COST (Conceptual)	MDCC SCORE
Active AoA Studies (Proposed Starts 2017-2019)				
1	Parker Davis	Gila-Wellton Mohawk Interstate: I-8 Crossing & Telegraph Pass	Full Study Pending	3.250
2	Parker Davis	Bouse-Kofa 161kV Rebuild	Full Study Pending	3.150
3	Parker Davis	Kofa-Dome 161kV Rebuild	Full Study Pending	3.150
4	Parker Davis	Dome-Gila 161kV Rebuild	Full Study Pending	3.150
5	Various	Facility Ratings Improvements Program	Full Study Pending	Various
Next-up AoA Studies				
6	Parker Davis	Parker 161 kV Substation Rebuild	$10,500,000	3.000
7	Parker Davis	Parker-Blythe 161kV #2 Rebuild	$60,050,000	2.950
8	Parker Davis	Blythe - Gold Mine Tap 161kV Rebuild	$41,000,000	2.950
9	Parker Davis	Gold Mine Tap - Knob 161kV Rebuild	$15,000,000	2.950
Future AoA Studies				
10	Parker Davis	Gila - Wellton Mohawk 161kV Rebuild (Remaining)	$15,745,000	2.850
11	Parker Davis	Blythe-Headgate Rock (#1 line) 161kV Rebuild	$43,237,000	2.700
12	Parker Davis	Rogers-Coolidge 230kV Reconductor	$6,373,000	2.600
13	Parker Davis	Oracle- Saguaro 115kV Rebuild	$18,000,000	2.600
14	Parker Davis	Tucson-Oracle 115kV Partial Rebuild	$15,766,000	2.550
15	Parker Davis	Apache - Tucson 115kV Rebuild	$80,000,000	2.425
16	Parker Davis	Nogales - Facility Ratings Improvements	TBD	2.200
17	Various	Interstate Wood Crossings (Various locations)	TBD	2.175
18	Parker Davis	Gila-Knob 161kV Rebuild	$22,987,888	2.125
19	Parker Davis	Gila Substation 69 kV Rebuild	$8,000,000	2.125
20	Parker Davis	Gila Substation 34.5/4.16 kV Rebuild	$12,000,000	2.125
21	Intertie	Mead - Replace KU2A Transformer	TBD	N/A
22	Parker Davis	Empire - Bus & Jumper Replacement	TBD	1.850
23	Parker Davis	Wellton & Ligurta - Consolidate Control House	$1,800,000	1.800
24	Parker Davis	Coolidge- VAF 115kV Rebuild	$11,750,000	2.950
25	Various	Jumper Upgrade Program (Facility Ratings	TBD	1.650
26	Parker Davis	VAF-Oracle 115kV Rebuild	$28,480,000	1.625
27	Parker Davis	Knob - New Control Building	$1,500,000	1.600
28	Parker Davis	Cochise (Decommissioned) Site Remediation	$2,000,000	1.200
29	Parker Davis	ED5-Saguaro 115kV #1 Rebuild to 230kV	$17,000,000	1.125
30	Parker Davis	Coolidge-ED2 Rebuild	$8,700,000	0.875
31	Parker Davis	Headgate Rock - Parker 161kV Facility Ratings Improvements	TBD	0.500
32	Intertie	Mead - Peacock - 345kV Facility Ratings Improvements	TBD	0.500
33	Intertie	Mead - Removal of PU2A Capacitor	$1,000,000	0.400
34	C.R. Salinity	Gila-Sonora 69kV Rebuild	$4,242,000	0.350
35	Parker Davis	Lone Butte-Sundance - Reconductor	$13,549,000	0.250

Title: Gila-Wellton Mohawk Interstate - 8 Crossing Rebuild

MDCC SCORE	3.250

Budget Activity: GLA-WML
Age of Substation/T-Line: 59
MW Capacity Increase: N/A

Power System: Parker-Davis
No. of Miles of Line: 2.8

Activity: ☐New ☒Replacement ☒Upgrade ☒Rebuild ☐OTHER

Location (County/State/Cong District): Yuma County / AZ / 4

Fund: ☒ WCF ☐WMF ☐TCF ☐ACF ☐RCF

1. ***Facility Composition (List Equipment):***
The Gila-Wellton Mohawk Transmission Line (GLA-WML) is a 161kV transmission line built in 1956 that runs through southwestern Arizona. The GLA-WML transmission line is a single circuit that has 13 miles of 397.5 kcmil ACSR, it is supported mainly by wood structures and has two overhead ground wires. The limiting factor is currently the breaker bushing CT's at WML. Currently this transmission line is using 13% of its nominal conductor limit capacity. The GLA-WML Transmission Line is one of two Parker Davis transmission lines feeding the Wellton Mohawk 161kV substation. The Wellton Mohawk 161kV yard feeds the Wellton Mohawk 69kV, 34.5kV and 13.8kV portions of the substation; this in turn feeds the various pumping plants in the area.

The GLA-WML line runs through desert and agricultural land, flat low desert terrain and midway has a section with an altitude delta of ~1,000 feet as it travels thru telegraph pass within BLM land. This section of line includes 3 major highway crossings, 4 of the structures crossing Interstate Highway 8 (I-8) are the originals installed in the late 1950s, where the right-of-way (ROW) access roads no longer exist.

Total Number of Structures GLA-WML 161kV	108
Total Number of Poles Making up Structures	245
Total Number of Structures Requiring Pole Replacement	81
Structures Inside BLM 6/8 THRU 12/8 GLA-WML	53
Structures that Require ROW Work for Access 6/7 THRU 9/8	27

This submission is shown with four options: all which contain repair or rebuild of ROW access roads from structures 6/7 thru 9/6 thru the rugged terrain of Telegraph Pass.

2. ***Justification for Project:***
The original wooden structures on the Gila-Wellton Mohawk Transmission Line have been in service since 1956. Of the 108 wood structures on this line segment, 81 (75%) have been rejected or are recommended for replacement using Polux® testing data as having insufficient fiber strength (<65%), in conjunction with the National Electric Safety Code (NESC) standards and other physical inspections showing splits or other physical damage.

All alternatives listed below (#1- #4) will require that 2.8 miles of major ROW access work be started prior to any work on the structures. The required ROW access work is located on BLM land, and will require the involvement of G0400 environmental and G5600 lands groups. Existing ROW access roads have been reconditioned from structure 9/8 to the WML substation, structures 6/7 thru 9/6 thru the rugged terrain of Telegraph Pass will require new or repaired access roads.

3. ***Description:***
Analyze, model and design utilizing dead-end structures for highway crossings and replace the immediate structures crossing I-8 freeway with new jumpers and new hardware. Replace 23 wood structures running along the north side of Interstate 8 thru telegraph pass for 2.8 miles. Model and design then recondition or build new ROW access roads thru Telegraph Pass for structure access that currently does not exist.

After design, Department of Transportation and Yuma County permits would be secured, and procurement of a construction contract will begin. Barricades and patrol officers will also be required. The variable elevations of the mountain terrain, rocky soil, and scattered greasewood may present some challenges.

4. ***Alternatives:*** *NOTE: All alternatives include the creation or repair of ROW access roads from structures 6/7 thru 9/6.*

An option saving both time and cost would include working with Arizona Department of Transportation (ADOT) to explore a possible reroute of the transmission line and access ROW around the "island" that is created by both lanes of Interstate 8 (SEE FIGURE 1). Currently there is no ROW access from I-8 onto the land between the northbound and southbound lanes (structure 8/7 to 9/8). Therefore an off-ramp would need to be created in conjunction with ADOT for construction and maintenance purposes. It is recommended that a new 0.9 mile ROW be created north of the existing ROW from Structure 8/7 to 9/8 (SEE FIGURE 1). This alternative ROW location could save an estimated $200,000 on the overall ROW work and time in the construction schedule as coordination with ADOT on constructing an off ramp onto the island would not be required.

Alternative 1: Status Quo:
Under the no action alternative, Western maintenance forces would continue to replace failed wood poles with replacements in kind upon failure. However, ROW access construction costs would still be required with this option in order to gain access to existing structures that have been isolated by I-8, the rugged terrain of Telegraph Pass, and primitive lands.

Alternative 2: Replacement of Structures 6/7 thru 9/8 with wood structures, highway crossings will be dead end structures. Under this Alternative the 27 wood structures showing the need for replacement in Polux studies or maintenance inspection will be removed and replaced with in-kind wood structures. The 2.8 miles of structures will require that a new ROW roadway be established.

Alternative 3: Replacement of Structures 6/7 thru 9/8 with wood equivalent steel H-frame structures built to standards allowing for a voltage of 161kV, highway crossings will be dead end structures. Under this Alternative the 27 wood structures showing the need for replacement in Polux studies or maintenance inspection will be removed and replaced with wood equivalent steel H-frame structures. The 2.8 miles of structures will require that a new ROW roadway be established.

Alternative 4: Replacement of Structures 6/7 thru 9/8 with heavy duty steel mono-pole structures built to standards allowing for future voltage upgrade to 230kV on the conductor, highway crossings will be dead end structures. Under this Alternative the existing 27 wood structures showing the need for replacement in Polux studies or maintenance inspection will be removed and replaced with approximately 15 heavy duty steel mono-pole structures.

5. ***Objective:*** Increase the reliability of the transmission line assets and maintenance access on the GLA-WML transmission line, provide vehicular access, reduce public health & safety risks related to I-8 crossing, and reduce maintenance costs.

6. ***Benefit to Western/Customers:***
☒ **RELIABILITY** ☐ **LOAD GROWTH** ☒ **SAFETY** ☐ **INTERCONNECTION**

Replacing the aging wood support structures on the GLA-WML Transmission Line will increase the reliability of service by dramatically reducing the risk of line outages due to structure and support failures. Replacing the structures at I-8 crossings will minimize risks to highway traffic and public safety. In addition, the costs and level of maintenance effort will be reduced while safety for maintenance personnel is improved. Overall the return on investment will be evident in reduced maintenance cost through reduced incremental reactionary repairs and an improved engineered life span on the new transmission line assets.

7. ***Impact if Delayed or Canceled:*** Repairs will be reactionary per each failure incident. There is a potential for greater risk of equipment failure resulting in potential outages, possible interstate 8 closures/traffic delays, and maintenance costs could remain above normal based on inaccessible ROW and incremental repair efforts. Western strives to provide premier transmission service while mitigating potential risk and civil liability in its design and operation of its infrastructure.

8. ***Conceptual schedule of Planned Activities (Inception thru close-out)*:**

Activity	Duration (calendar months)
Alternative 1 ROW Access only	36
Alternative 2	48
Alternative 3	48
Alternative 4	48

<u> Assumptions: **</u>**

- All Alternatives will prioritize highway I-8 NERC violation at crossing.
- All schedules assume the new single crossing ROW avoiding the I-8 island and associated unknown costs of an access off ramp.
- All schedule durations are conceptual.
- No new land lease or acquisition will be required.
- Environmental work assumes an EA for the BLM will be needed.
- No relaying work needed in both ends or along substations.

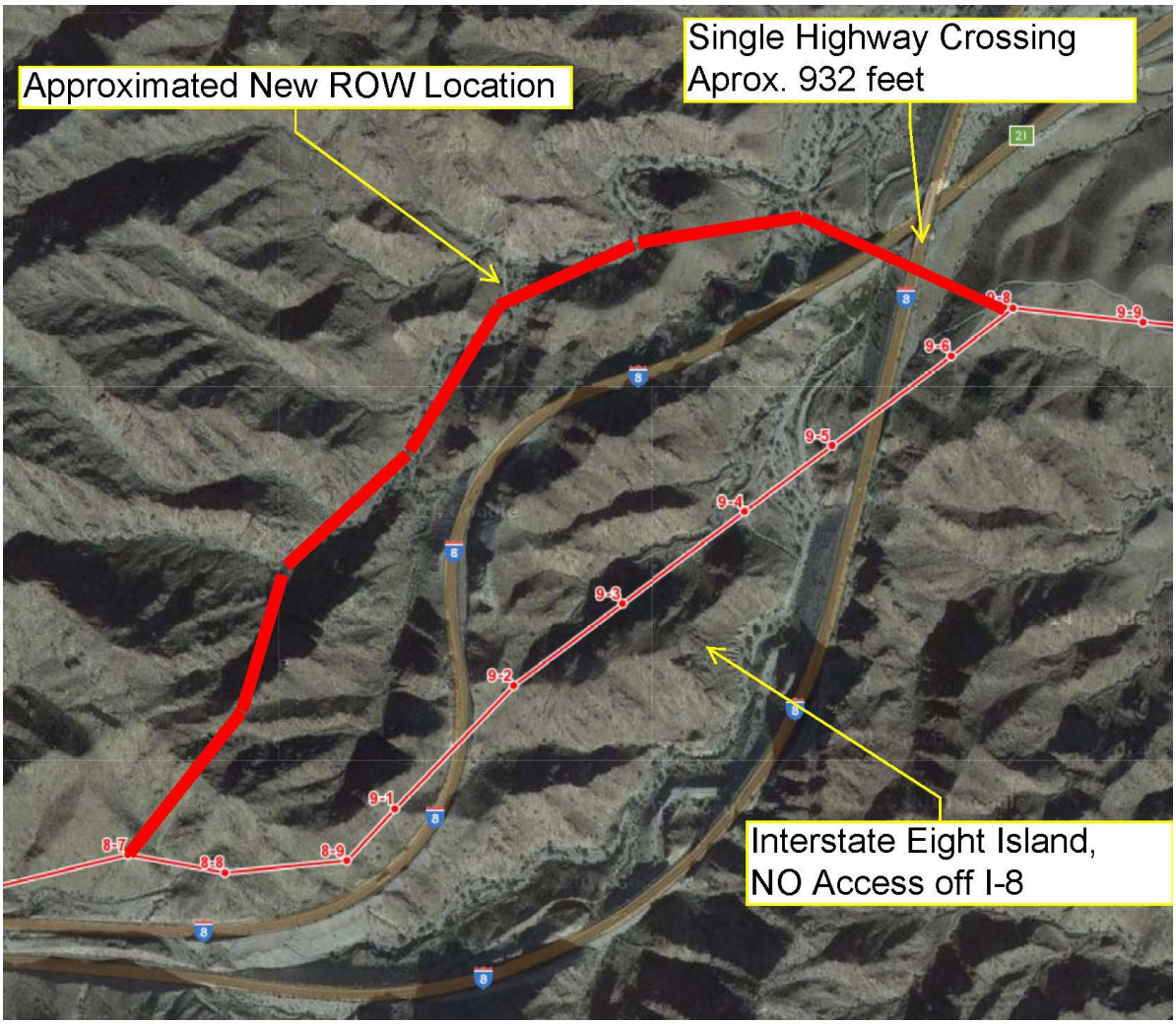


Figure 1: PROPOSED NEW ROW LOCATION

Title: BOUSE-KOFA 161-KV Rebuild

MDCC SCORE	3.150

Budget Activity: BSE-KOF
Age of Substation/T-Line: 73
MW Capacity Increase: N/A

Power System: Parker-Davis
No. of Miles of Line: 84.3

Activity: ☐**New** ☐**Replacement** ☐**Upgrade** ☒**Rebuild** ☐**OTHER**

Location (County/State/Cong District): La Paz and Yuma Counties / AZ / 4

Fund: ☒ **WCF** ☐**WMF** ☐**TCF** ☐**ACF** ☐**RCF**

1. ***Facility Composition (List Equipment):***
The Bouse-Kofa Transmission Line (BSE-KOF) is an 84.3 mile segment of the Parker-Gila 161kV transmission line built in 1943. The line runs through western Arizona from Bouse Substation south to Kofa Substation. The line was originally constructed with three 300 kcmil hollow core copper conductors, two steel overhead ground wires, porcelain insulators, and wood H-Frame structures. All but 82 of the structures on this line have been upgraded from wood H-Frame structures to light duty steel H-Frame structures. In 2006 a portion of the line was rerouted around the town of Quartzsite. The reroute replaced 3.3 miles of the existing line through Quartzsite with 8.4 miles of three 954 kcmil ACSR conductors, and one ½ inch steel overhead ground wire (OGW) supported on single circuit steel monopoles.

The terrain along the northern half of the line is low desert with low rises and several wash crossings. Further south, the terrain is more mountainous and rugged in the Castle Dome mountain foothills. Most of the line runs parallel to highway 95. The BSE-KOF transmission line crosses State Route 72 once, I-10 once, and US95 twice. The line is part of the 161kV system that provides power from the Parker Dam and serves the Wellton-Mohawk Irrigation and Drainage District (WMIDD), the U.S. Army, and other entities.

2. ***Justification for Project:***
The North American Reliability Corporation (NERC) required all transmission line owners/operators to perform a Facility Rating Analysis of all transmission lines over 100-kV in order to determine the as-built condition and de-rate the line to that condition, or to mitigate the condition to achieve the design rating. Western is involved in an ongoing effort to mitigate those conditions.

There are extensive cases of phase to ground clearance issues, and a single case of a phase to OGW of a crossing line clearance not meeting the standards required by NERC and the NESC. These issues are currently pending and are included in the NERC Year 3 project, which was put on hold in fiscal year 2015, pending further study efforts.

Optical ground wire could also be added during the rebuild, to create a redundant communications path. The DSW Communications Maintenance group states the following regarding optical ground-wire; “To comply with NERC Policy 7A Guides-4 (Backup Circuits): A[n] alternate and physically independent telecommunications system should be provided for emergency use to back up the circuits used for critical data and voice communications”.

3. ***Description:***
After choosing an alternative, environmental and right-of-way (ROW) work will be required due to access issues and vegetation encroachment along this line. With environmental clearance in place and line survey completed, design work would begin using the chosen alternative. Western would then begin procuring support structures once design has progressed far enough to create structure specifications. After the construction contract is awarded, the contractor would begin improving

access. With access improved and materials delivered the contractor will proceed with the line rebuild.

4. **Alternatives:** *Note that alternatives 2, 3, and 4 would reduce the scope of work on the NERC Year 3 approved project.*

Alternative 1
Status Quo:
Under the no action alternative no construction costs would occur with this option however, it is not recommended considering that Western could be assessed sanctions and the BSE-KOF transmission line could potentially be de-rated if the compliance violations are not corrected.

Alternative 2
Remove 75.6 miles of 300 kcmil hollow core copper conductor, and 84.3 miles of steel OGW. Install 75.6 miles of 336.4 kcmil ACSS conductor, hardware and polymer insulators. Install 84.3 miles of OPGW. Replace light duty steel H-Frame structures and wood pole structures with taller light duty steel H-Frame structures as needed to correct compliance violations. Replace all wood structures that the maintenance group has identified as needing replacement.

Alternative 3
Remove 75.6 miles of 300 kcmil hollow core copper conductor, and 84.2 miles of steel OGW. Install 75.6 miles of 336.4 kcmil ACSS, hardware and polymer insulators. Install 84.3 miles of OPGW. Replace light duty steel H-Frame structures with taller ones as needed to correct compliance violations. Replace all wood pole structures with light duty steel H-Frame structures.

Alternative 4
Remove 75.6 miles of 300 kcmil hollow core copper conductor, two steel OGWs, insulators and hardware. Remove 8.3 miles of ½ inch steel OGW, 82 wood H-Frame structures, and 585 light duty steel H-Frame structures. Install 75.6 miles of 954 kcmil ACSR, one OPGW, single circuit 230-kV steel monopoles, polymer insulators, and hardware.

Alternative 5
Inset light duty steel H-Frame structures as needed to correct compliance violations, and light duty steel H-Frame structures as needed to replace deteriorated wood H-Frame structures.

5. ***Objective:***
Mitigate the compliance violations, reduce the scope of work on the greater NERC Year 3 effort, and maintain the current rating of the Bouse-Kofa transmission line to ensure that Western's customers are provided with safe, reliable, affordable transmission services.

6. ***Benefit to Western/Customers:***
☒ **RELIABILITY** ☐ **LOAD GROWTH** ☒ **SAFETY** ☐ **INTERCONNECTION**

Mitigating the compliance violations and replacing the aging wood support structures on the Bouse-Kofa Transmission Line will maintain its capacity rating and increase the reliability of service by dramatically reducing the risk of line outages due to structure and support failures. In addition, the costs and level of maintenance effort will be reduced while safety for maintenance personnel is improved. Overall, the return on investment will be evident in reduced maintenance cost through reduced incremental, reactionary repairs, and an improved engineered life span on the new transmission line assets.

7. ***Impact if Delayed or Canceled:***
The reactionary nature of the current maintenance scheme has proven inefficient and attributes to compounding issues on Western's aging infrastructure. The opportunity to optimize the line capacity would be lost and there would be potential risk of existing lines receiving alternate line ratings per Western's Facility Ratings Methodology which is based on industry standards, the IEEE, and the

NESC best practices. Western strives to provide premier transmission service while mitigating potential risk and civil liability in its design and operation of its infrastructure.

8. ***Conceptual schedule of Planned Activities (Inception thru close-out)*:**

Activity	Duration (Calendar months)
Alternative 1	N/A
Alternative 2	36
Alternative 3	36
Alternative 4	36
Alternative 5	24

<u> Assumptions: **</u>**

- All schedule durations are conceptual
- No new land acquisition needed

Title: KOFA-DOME TAP 161-KV Rebuild

MDCC SCORE	3.150

Budget Activity: KOF-DME
Age of Substation/T-Line: 73
MW Capacity Increase: N/A

Power System: Parker-Davis
No. of Miles of Line: 7.34

Activity: ☐New ☐Replacement ☐Upgrade ☒Rebuild ☐OTHER

Location (County/State/Cong District): Yuma County / AZ / 4

Fund: ☒ WCF ☐WMF ☐TCF ☐ACF ☐RCF

1. ***Facility Composition (List Equipment):***
The Kofa-Dome Tap (KOF-DME) Transmission Line is a 7.34 segment of the Parker-Gila 161kV transmission line built in 1943. It runs through western Arizona from Kofa Substation south to Dome Tap. The line was originally constructed with three 300 kcmil hollow core copper conductors, two steel overhead ground wires, porcelain insulators, and wood H-Frame structures. Most of the wood H-Frame structures have been replaced with light duty steel H-Frame structures, and only 8 wood structures remain.

The KOF-DME line runs through mostly low desert terrain with a mountainous area near Dome Tap. The KOF-DME transmission line crosses US95 twice. The line is part of the 161kV system that provides power from the Parker Dam and serves Wellton-Mohawk Irrigation and Drainage District (WMIDD), the U.S. Army, and other entities.

2. ***Justification for Project:***
The North American Electric Reliability Corporation (NERC) required all transmission line owners/ operators to perform a Facility Rating Analysis of all transmission lines over 100-kV in order to determine the as-built condition and de-rate the line to that condition, or to mitigate the condition to achieve the design rating. Western is involved in an ongoing effort to mitigate those conditions.

There are various cases of phase to ground clearances not meeting the minimum clearance required by the NESC and NERC. There are no aerial clearance issues.

Inspection by the maintenance group has identified 5 existing structures that need replacing, 4 are wood and 1 is steel.

Optical ground wire should be added during the rebuild to create a redundant communications path. The DSW Communications Maintenance group states the following regarding optical groundwire, “To comply with NERC Policy 7A Guides-4 (Backup Circuits): A[n] alternate and physically independent telecommunications system should be provided for emergency use to back up the circuits used for critical data and voice communications.

3. ***Description:***
After choosing an alternative, environmental and some right-of-way work will be required due to access issues and vegetation encroachment along this line. With environmental clearance in place and line survey completed, design work can begin using the chosen alternative. Western can begin procuring support structures once design has progressed far enough to create structure specifications. After the construction contract is awarded the contractor can by improving access. With access improved and materials delivered the contractor will proceed with the line rebuild.

4. ***Alternatives:*** *Note that alternatives 2, 3, and 4 would reduce the scope of work on the NERC Year 3 approved project.*

Alternative 1

Status Quo:

Under the no action alternative no construction costs would occur with this option however it is not recommended considering that Western could be assessed sanctions and the KOF-DME transmission line could potentially be de-rated further if compliance violations are not corrected.

Alternative 2

Remove 7.34 miles of 300 kcmil hollow core copper conductor, and one steel OGW. Install 7.34 miles of 336.4 kcmil ACSS, one OPGW, hardware and polymer insulators. Replace light duty steel H-Frame structures with taller ones as needed to correct compliance violations. Replace 5 structures that the maintenance group has identified as needing replacement, 1 steel H-Frame and 4 wood H-Frame structures.

Alternative 3

Remove 7.34 miles of 300 kcmil hollow core copper conductor, and one steel OGW. Install 7.34 miles of 336.4 kcmil ACSS, one OPGW, hardware and polymer insulators. Replace light duty steel H-Frame structures with taller ones as needed to correct compliance violations. Replace 8 wood pole structures with light duty steel H-Frame structures.

Alternative 4

Remove 7.34 miles of 300 kcmil hollow core copper conductor, two steel OGWs, insulators and hardware. Remove 8.3 miles of ½ inch steel OGW, 8 wood H-Frame structures, and 80 light duty steel H-Frame structures. Install 7.34 miles of 954 kcmil ACSR, one OPGW, single circuit 230-kV steel monopoles, polymer insulators, and hardware.

Alternative 5

Inset light duty steel H-Frame structures as needed to correct compliance violations, and light duty steel H-Frame structures as needed to replace deteriorated wood H-Frame structures.

5. ***Objective:***

Mitigate the various compliance violations and maintain the current rating of the Kofa-Dome Tap transmission line.

6. ***Benefit to Western/Customers:***

☒ **RELIABILITY** ☐ **LOAD GROWTH** ☒ **SAFETY** ☐ **INTERCONNECTION**

Maintaining the existing line rating allows Western to meet contract obligations, delivery schedules, and meet existing customer commitments.

7. ***Impact if Delayed or Canceled:***

The opportunity to optimize the line capacity would be lost and there would be potential risk of the existing line to receive an alternate line rating per Western's Facility Ratings Methodology which is based on industry standards, the IEEE, and NESC best practices. Western strives to provide premier transmission service while mitigating potential risk and civil liability in its design and operation of its infrastructure.

8. ***Conceptual schedule of Planned Activities (Inception thru close-out)*:**

Activity	Duration (calendar months)
Alternative 1	N/A
Alternative 2	24
Alternative 3	24
Alternative 4	30
Alternative 5	18

<u> Assumptions: **</u>**

- All schedule durations are conceptual
- No new land acquisition required

Title: Dome-Gila 161kV Rebuild

MDCC SCORE	3.150

Budget Activity: DME-GLA
Age of Substation/T-Line: 73
MW Capacity Increase: N/A

Power System: Parker-Davis
No. of Miles of Line: 7.6

Activity: ☐New ☒Replacement ☒Upgrade ☒Rebuild ☐OTHER

Location (County/State/Cong District): Yuma County / AZ / 4

Fund: ☒ WCF ☐WMF ☐TCF ☐ACF ☐RCF

1. ***Facility Composition (List Equipment):***

The Dome Tap-Gila Transmission Line (DME-GLA) is a 161kV transmission line, this line segment is part of the overall Parker – Gila Transmission line built in 1943, which runs through western Arizona. The DME-GLA Line is a 7.57 mile segment of the Parker-Gila 161kV Transmission Line. The line is part of the 161kV system that provides power from the Parker Dam, and feeds Wellton-Mohawk Irrigation and Drainage District (WMIDD), the U.S. Army, and other entities. The DME-GLA is a single circuit that has 7.57 miles of 300 kcmil CU, limited to 550Amps, or 153MVA. The line is constructed with three 300 kcmil hollow core copper conductors, two steel overhead ground wires, wood H-Frame structures and wood equivalent steel H-frame structures, only 16 wood structures remain. While the DME-GLA 161kV Transmission Line currently has two overhead ground wires, an optical ground wire should be added during the rebuild to create a redundant communications path from the Parker Generating Station to Gila Substation.

Total Number of Structures DME-GLA 161kV	66
Total Number of Poles Making up Wood Structures	37
Total Number of Structures Requiring Pole Replacement	10
Number of Structures Inside BLM Land	20
Structures that Require ROW Work for Access.	43

2. ***Justification for Project:***

The original wooden structures on the Dome Tap - Gila transmission line have been in service for over 70 years. Of the 66 structures supporting this section of the transmission line, 50 have been replaced with wood equivalent steel H-frame structures. The remaining 16 wood transmission structures are showing signs of shell rot and surface cracking. A fiber strength analysis and ground inspection was performed on the remaining 16 structures, of these structures 10 showed as needing replacement.

This line segment crosses highway US-95 at two locations both crossings have one wood structure and both do not have dead-end structures at those locations. This line segment also crosses a canal and a railroad where one wood structure (#110/1) crosses the railroad and requires replacement. Closer to Gila, at structure (#112/3) crossing US-95 also requires replacement. There are currently 43 Right of Way (ROW) issues that need to be addressed for proper vehicular access to structure pads.

The functional requirements that need to be met by the alternatives provided below are:

1. All NERC violations are to be corrected.
2. Any structures that are in an unsafe condition are to be replaced.
3. All access roads and ROW to be repaired and to be in a safe and usable condition.

3. ***Description:***

Analyze, model and design utilizing dead-end structures for highway and railroad crossings. At a

minimum, replace 10 wood structures showing as needing replacement. Model and design then recondition or build new ROW access roads for structure access. After design, approval of Department Of Transportation permits and Yuma County and procurement awarding contract construction will begin. Barricades and patrol officers will also be required.

4. ***Alternatives:***

Alternative 1
Status Quo: Under the no action alternative, the DME-GLA T-line continues in its present condition with 8 pending NERC mitigations.

Alternative 2
Reconductor the line replacing 7.57 miles of three 300 kcmil hollow core copper conductors with three ACSS conductors, replacing one steel OGW with an OPGW, and installing light duty steel H-Frame steel structures as needed to mitigate clearance issues not corrected by stringing a new ACSS conductor. Repair and clear all ROW access roads and pads.

Alternative 3
Replace 7.57 miles of three 300 kcmil hollow core copper conductors with three ACSS conductors, replace one steel OGW with an OPGW, and install wood equivalent steel H-frame structures to replace 16 wood structures and add insets as needed to correct clearance issues not corrected by stringing new ACSS conductor. Repair and clear all ROW access roads and pads.

Alternative 4
Remove 7.57 miles of three 300 kcmil hollow core copper conductor, two steel OGWs, 50 light duty steel H-Frame structures, and 16 wood H-Frame wood structures. Install 7.57 miles of three 954 kcmil ACSR conductors, OPGW, polymer insulators, and hardware on single circuit steel monopoles. Repair and clear all ROW access roads and pads.

Alternative 5
Inset wood equivalent steel H-frame structures in the existing transmission line as necessary to correct clearance issues, add new ROW access roads and pads as needed.

5. ***Objective:***
Increase the reliability of service on the DME-GLA transmission line with new assets, mitigate NERC violations, provide vehicular access, improve safety, and reduce maintenance costs.

6. ***Benefit to Western/Customers:***
☒ **RELIABILITY** ☐ **LOAD GROWTH** ☒ **SAFETY** ☐ **INTERCONNECTION**

Replacing the aging wood support structures on the DME-GLA Transmission Line will increase the reliability of service by dramatically reducing the risk of line outages due to structure and support failures. Replacing the structures at crossings will minimize risks to highway traffic and public safety. In addition, the costs and level of maintenance effort will be reduced while safety for maintenance personnel is improved. Overall the return on investment will be evident in reduced maintenance cost through reduced incremental, reactionary repairs, and an improved engineered life span on the new transmission line assets.

7. ***Impact if Delayed or Canceled:***
The reactionary nature of the current maintenance scheme has inefficient for Western with ongoing wood pole testing, one-off repairs, and overall attributes to compounding issues on Western's aging infrastructure. A number of compliance violations will be pending mitigation and could result in the transmission lines receiving alternate line ratings per Western's Facility Ratings Methodology which is based on industry standards, the IEEE, and NESC best practices.

8. ***Conceptual schedule of Planned Activities (Inception thru close-out)*:**

Activity	Duration (Calendar months)
Alternative 1 – Status Quo	N/A
Alternative 2-Reconductor, replace wood as required with steel H-frame.	36
Alternative 3-Reconductor, replace all wood with steel H-frame.	48
Alternative 4-Reconductor, replace all wood with steel mono-poles.	48
Alternative 5- Inset wood equivalent steel H-frame structures as required.	36

**** Assumptions: ****

- All Alternatives will prioritize highway NERC violations.
- All schedule durations are conceptual.
- No new land lease or acquisition will be required.
- G0400 assumes that the work will fit the Programmatic Environmental Assessment (EA) for Parker Davis Operations and Maintenance Actions.
- BLM may require an EA to support their reissuing the 0.5 mile-long right-of-way across their lands. This would add 300 hours of federal labor and & $125,000 for contractors to the estimate.
- Relaying work needed in both ends or along substations with re-conductor option.
- Work in or near the Gila River crossing's riparian habitat (e.g., Structures 109/8-9) will not occur between June 1 and August 30, because it is suitable habitat for the Yellow Billed Cuckoo, which is an endangered or threatened species.

Title: Facility Ratings Improvements

MDCC SCORE	Various

Budget Activity: DLB-APE, COL-TUC, PPK-COL
Power System: Parker-Davis
Age of Substation/T-Line: Varies
No. of Miles of Line: N/A
MW Capacity Increase: N/A

Activity: ☐New ☐Replacement ☒Upgrade ☐Rebuild ☐OTHER

Location (County/State/Cong District): Cochise, Pima, and Pinal Counties / AZ / 1, 2, and 3

Fund: ☒ WCF ☐WMF ☐TCF ☐ACF ☐RCF

1. ***Facility Composition (List Equipment):***

- The 115-kV Del Bac – Nogales – Adams Tap – Apache Transmission Line is located in southeastern Arizona. The line is supported on mostly wooden structures and utilizes 795 MCM conductor. The line conductor is rated at 171-MVA.

- The 115-kV Coolidge – Oracle – Tucson Transmission Line is located in southeastern Arizona as well. The line is supported on steel and wood structures and utilizes 795 MCM conductor. The line conductor is rated at 86-MVA.

- The 230-kV Pinnacle Peak – Coolidge Transmission Line is located in central Arizona. The line is supported on steel structures and utilizes 795 MCM conductor. The line conductor is rated at 374-MVA.

- The limiting elements are located in or around four substations: Nogales Substation, Apache Substation, Oracle Substation, and Coolidge Substation.

2. ***Justification for Project:***
DSW's transmission planning group has been studying transmission lines to determine and identify any limiting equipment exist on those lines. Conductor should be the limiting element on the line and not other equipment. This study is approximately 33% complete and has found limiting elements on three transmission lines. These lines are:

115-kV Del Bac – Nogales – Adams Tap – Apache transmission lines
115-kV Coolidge – Oracle – Tucson transmission lines
230-kV Pinnacle Peak – Coolidge transmission lines

There is potential to maximize the return on investment of the existing transmission line assets by upgrading the identified limiting equipment. For these segments to reach their full capacity potential additional equipment will need to be upgraded. An increase capacity will enable us to meet future load growth and enable customers to reach markets with more costly resources. There are potential economic gains by increasing the capacity that will benefit all customers on the Parker–Davis system.

3. ***Description:***
The project to replace limiting facility equipment (jumpers, re-tap CTs, etc) would require the design of replacement elements on the transmission lines. New equipment would be procured next. DSW's maintenance group has already procured all material for Apache Substation, however currently does not have the resources to install them. All the work will be completed under a single construction contract, which will be awarded upon completion of the design. Once the contract is awarded the construction will begin. There are no special outage requirements for this project; however outage restrictions occur over the summer between May and September.

No construction can take place during this time. Once construction is completed the project will be closed out.

4. ***Alternatives:***

Alternative 1

Status Quo:

Under the no action alternative no construction costs would occur with this option however it is not recommended. Without any activities the lines will be de-rated to the rating of the limiting elements. Lower rating of the lines would have a negative impact on Western and its customers.

Alternative 2

All the jumpers and bus work limiting the rating of the lines will be replaced. The new equipment will be rated at or higher than the rating of the line conductor. This will ensure that in the future this equipment does not become a limiting element.

The work performed at each substation will be as follows:

- Re-tap breaker CTs at Nogales Substation to allow for higher current flow. The CTs will not be replaced.
- Replace jumpers at Apache Substation. Jumpers will be replaced inside of the substation as well as between the transmission line and the takeoff structure.
- Replace jumpers at Oracle Substation. Jumpers will be replaced between the transmission line and takeoff structures.
- Replace jumpers and bus work at Coolidge Substation. All 1" bus work and jumpers will be replaced.

5. ***Objective:***

Upgrade the jumpers and bus work in the Nogales, Apache, Oracle and Coolidge substations, so that 115-kV Del Bac – Nogales – Adams Tap – Apache, the 115-kV Coolidge – Oracle – Tucson, and the 230-kV Pinnacle Peak – Coolidge transmission lines are only limited by the rating of their conductors.

6. ***Benefit to Western/Customers:***

☒ **RELIABILITY** ☒ **LOAD GROWTH** ☐ **SAFETY** ☐ **INTERCONNECTION**

Upgrading the jumpers and bus work on the 115-kV Del Bac – Nogales – Adams Tap – Apache, the 115-kV Coolidge – Oracle – Tucson, and the 230-kV Pinnacle Peak – Coolidge transmission lines will maximize the capacity of the line, providing optimized return on investment on the current transmission line assets. Furthermore, eliminating the possibility of the lines being potentially de-rated.

7. ***Impact if Delayed or Canceled:***

The opportunity to maximize the line capacity would be lost and there would be potential risk of existing lines being de-rated per Western's Facility Ratings Methodology which is based on industry standards, the IEEE, and NESC best practices. To maintain Western's mission in providing safe, secure, reliable, and affordable transmission services it is necessary to maintain current line ratings and meet current obligations with its customers.

8. ***Conceptual schedule of Planned Activities (inception thru close-out)*:**

Activity	Duration (calendar months)
Alternative 1	N/A
Alternative 2	16

<u> Assumptions: **</u>**

- All schedule durations are conceptual
- No new land lease or acquisition
- Environmental work not estimated in this sheet

FY16 Budget vs Actuals

Intertie and Parker Davis

As of April 30, 2016

FY16 Budget vs Actuals

Intertie (O&M)

Budget Activity	Description	FY16 Budget	FY16 Actuals	Available (Shortfall)	FY16 % Executed
Maintenance					
N/FGIN COMMM	Communication & Control	$ 191,637	$ 78,632	$ 113,005	41%
N/FGIN LINCM	Lines, Direct Hrs, No Specific Job	$ 203,475	$ 36,846	$ 166,630	18%
N/FGIN LINSM	O&M of Trans Lines	$ 816,375	$ 237,832	$ 578,543	29%
N/FGIN STUDM	Transmission/Engineering Studies	$ 365,403	$ 108,506	$ 256,897	30%
N/FGIN SUBCM	Subs, Direct Hrs, No Specific Job	$ 469,900	$ 672,478	$ (202,578)	143%
N/FGIN SUBSM	O&M of Subs & Related Facilities	$ 2,100,652	$ 1,439,558	$ 661,094	69%
	Total Maintenance	**$ 4,147,442**	**$ 2,573,851**	**$ 1,573,591**	**62%**
Non-Maintenance					
N/FGIN BILLM	Power Billing	$ 109,576	$ 60,657	$ 48,919	55%
N/FGIN FINAM	Financial Management	$ 98,218	$ 24,969	$ 73,249	25%
N/FGIN GWAMM	General Western Allocation	$ 993,654	$ 286,030	$ 707,624	29%
N/FGIN MRKTM	Power Marketing	$ 692,320	$ 289,163	$ 403,157	42%
N/FGIN SAFEM	Safety & Security	$ 115,147	$ 60,166	$ 54,981	52%
N/FGIN SOLDM	Sys Ops & Load Dispatch	$ 572,880	$ 335,117	$ 237,763	58%
N/FGIN SOLWM	Mead-Phoenix O&M	$ 1,509,474	$ 242,282	$ 1,267,192	16%
N/FGIN SUPTM	Data Activities Charges	$ 168,739	$ 380,744	$ (212,005)	226%
N/FGIN SVCFM	DSWR Service Facility Clearing	$ 175,637	$ 81,807	$ 93,830	47%
	Total Non-Maintenance	**$ 4,435,645**	**$ 1,760,936**	**$ 2,674,709**	**40%**
	Subtotal O&M	**$ 8,583,087**	**$ 4,334,787**	**$ 4,248,300**	**51%**

**Actuals include Commitments, Outstanding Obligations and Expenditures as of 4/30/16*

FY16 Budget vs Actuals

Intertie (Replacements & Construction)

Budget Activity	Description	FY16 Budget	FY16 Actuals	Available (Shortfall)	FY16 % Executed
Replacements					
N/FGIN COMMB	Replace Comm & Control Equip	$ 70,000	$ 12,745	$ 57,255	18%
N/FGIN LINSB	Transmission Lines	$ 1,500,000	$ 225,000	$ 1,275,000	15%
N/FGIN MOVPB	Movable Property	$ 40,000	$ -	$ 40,000	0%
N/FGIN SUBSB	Replace Substation Equip	$ 1,705,000	$ 1,309,682	$ 395,318	77%
	Subtotal RRADs	**$ 3,315,000**	**$ 1,547,427**	**$ 1,767,573**	**47%**
Construction					
Appropriated	Multiple Projects	$ 1,115,000	$ 1,946,360	$ (831,360)	175%
Prepayment	Multiple Projects	$ 1,420,417	$ 153,795	$ 1,266,622	11%
	Subtotal Construction	**$ 2,535,417**	**$ 2,100,155**	**$ 435,262**	**83%**
	Grand Total	**$ 14,433,504**	**$ 7,982,368**	**$ 6,451,136**	**55%**

**Actuals include Commitments, Outstanding Obligations and Expenditures as of 4/30/16*

FY16 Budget vs Actuals

Parker Davis (O&M)

Budget Activity	Description	FY16 Budget	FY16 Actuals	Available (Shortfall)	FY16 % Executed
Maintenance					
N/FGPD COMMM	Communication & Control	$ 1,023,989	$ 521,601	$ 502,388	51%
N/FGPD LINCM	Lines, Direct Hrs, No Specific Job	$ 1,263,929	$ 987,962	$ 275,967	78%
N/FGPD LINSM	O&M of Trans Lines	$ 5,719,032	$ 1,791,692	$ 3,927,340	31%
N/FGPD STUDM	Transmission/Engineering Studies	$ 1,988,120	$ 840,401	$ 1,147,719	42%
N/FGPD SUBCM	Subs, Direct Hrs, No Specific Job	$ 3,325,905	$ 1,743,688	$ 1,582,217	52%
N/FGPD SUBSM	O&M of Subs & Related Facilities	$ 6,057,712	$ 3,165,647	$ 2,892,065	52%
	Total Maintenance	**$ 19,378,687**	**$ 9,050,991**	**$ 10,327,696**	**47%**
Non-Maintenance					
N/FGPD BILLM	Power Billing	$ 561,346	$ 237,871	$ 323,475	42%
N/FGPD CAREM	Conserv & Renew Energy	$ 111,112	$ 27,062	$ 84,050	24%
N/FGPD FINAM	Financial Management	$ 403,587	$ 98,388	$ 305,199	24%
N/FGPD GWAMM	General Western Allocation	$ 4,756,843	$ 1,226,085	$ 3,530,758	26%
N/FGPD MRKTM	Power Marketing	$ 2,583,483	$ 1,041,018	$ 1,542,465	40%
N/FGPD SAFEM	Safety & Security	$ 561,621	$ 287,207	$ 274,414	51%
N/FGPD SOLDM	Sys Ops & Load Dispatch	$ 5,139,935	$ 3,202,892	$ 1,937,043	62%
N/FGPD SUPTM	Data Activities Charges	$ 873,892	$ 1,630,289	$ (756,397)	187%
N/FGPD SVCFM	DSWR Service Facility Clearing	$ 829,626	$ 379,307	$ 450,319	46%
	Total Non-Maintenance	**$ 15,821,445**	**$ 8,130,119**	**$ 7,691,326**	**51%**
	Subtotal O&M	**$ 35,200,132**	**$ 17,181,110**	**$ 18,019,022**	**49%**

**Actuals include Commitments, Outstanding Obligations and Expenditures as of 4/30/16*

FY16 Budget vs Actuals

Parker Davis (Replacements & Construction)

Budget Activity	Description	FY16 Budget	FY16 Actuals	Available (Shortfall)	FY16 % Executed
Replacements					
N/FGPD COMMB	Replace Comm & Control Equip	$ 677,000	$ 306,839	$ 370,161	45%
N/FGPD LINSB	Transmission Lines	$ 3,000,000	$ 1,009,866	$ 1,990,134	34%
N/FGPD MOVPM	Movable Property	$ 1,250,000	$ 1,018,239	$ 231,761	81%
N/FGPD SUBSB	Replace Substation Equip	$ 2,541,000	$ 1,613,198	$ 927,802	63%
	Subtotal RRADs	**$ 7,468,000**	**$ 3,948,142**	**$ 3,519,858**	**53%**
Construction					
Appropriated	Multiple Projects	$ 195,000	$ 2,807,207	$ (2,612,207)	1440%
Prepayment	Multiple Projects	$ 17,925,616	$ 21,771,631	$ (3,846,015)	121%
	Subtotal Construction	**$ 18,120,616**	**$ 24,578,837**	**$ (6,458,221)**	**136%**
	Grand Total	**$ 60,788,748**	**$ 45,708,089**	**$ 15,080,659**	**75%**

**Actuals include Commitments, Outstanding Obligations and Expenditures as of 4/30/16*