10-Year Capital Plan
Active Construction Meeting

April 3rd, 2019
Desert Southwest Region
Phoenix, AZ

2019-2028
WELCOME
AGENDA

1. Welcome
2. Introductions
3. Active Construction Projects Requiring Additional Funding
4. Active Construction Projects Review
5. Seed Project Update
6. Work For Others
7. TYP Strategic Pivot Status
8. TYP Next Steps / Action Item Recap
9. Vegetation Management
ACTIVE CONSTRUCTION PROJECTS REQUIRING ADDITIONAL FUNDING
Additional Funds Required

• Two active construction projects have been identified requiring additional funds.

• WAPA is currently in the process of gathering all relevant information in regards to the additional costs.

• The material to be covered today will provide an overview of the two projects in question.

• We understand that there may be a lot of questions and discussions regarding these projects.

• For the sake of time today, WAPA can put together a sub-meeting to discuss these projects in more detail if requested.

See Page 06 of Handout Booklet
Crossman Peak

Transmission Work
Substation Work
Communication Work

Desert Southwest Region - Ten Year Capital Plan
Project Manager: Mike Garcia

See Page 06 of Handout Booklet
Crossman Peak

Project Status

• Fort Mohave has requested a government-to-government meeting with BLM/WAPA management; schedule conflicts have been encountered over the last 6 months
• As of today no government-to-government meeting has been successfully scheduled
• Land owner with pre-existing leases exists over proposed microwave site; Legal issues and lease agreement still needs to be resolved
• Project was placed on hold in December of 2018

Identified Risks

• Due to scale of forecasted budget increase, WAPA will be exploring potential alternatives to the construction of the facility at Crossman Peak. During the original study it was identified as the only feasible solution but that finding will be tested

Project Schedule

<table>
<thead>
<tr>
<th>PROJECT MILESTONE</th>
<th>STATUS</th>
<th>DATE</th>
</tr>
</thead>
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</tr>
<tr>
<td>Financial Closeout</td>
<td>Projected</td>
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</table>
Crossman Peak – Funding Analysis

Total Budget Comparison

- Original prepayment budget: $4,525,000
- Cost to date: $1,373,156
- Remaining funds: $3,151,844
- Proposed additional funds required: $3,775,000
- New Project Prepayment Budget: $8,300,000

Unisource Overhead Distributions Costs

- Original overhead distribution line budget: $2,200,000
  - Includes design costs: $200,000
- Actual overhead distribution line cost estimate: $4,616,466
Crossman Peak – Funding Analysis

Environmental Assessment Cost Factors

• Original lands budget: $332,500
• Cost to date: $339,699
• Actual cost estimate: $750,000
  • Fort Mohave Tribal monitors costs: $150,000 (3 months @ $50k) included in total cost above

Lands appraisal and land cost factor

• Original appraisal budget: $250,000
• Actual appraisal cost estimate: $450,000
• Original right-of-way/land budget: $100,000
• Actual right-of-way/land cost estimate: $183,271
  • No land owner agreement or offer letter sent due to EA completion
  • No AZ State permit application due to EA completion
Crossman Peak – Funding Analysis

Design costs and building factors:

- Original WAPA design budget: **$350,000**
- Actual WAPA design cost estimate: **$657,763**
- Original building construction budget: **$600,000**
- Actual building construction cost estimate: **$950,000**
  - Due to helicopter and terrain
  - Building design in 4 to 6 segments due to shipping weight of helicopter
## Crossman Peak

![Crossman Peak Image]

### Funding Table

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<tr>
<th>Funding Type</th>
<th>Original Budget</th>
<th>Budget Adjustment 2017</th>
<th>Budget Adjustment 2018</th>
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*Cost = All Executions, Obligations, & Commitments Through 2/28/19*
Gila Substation 161-kV Rebuild

Project Manager: Tony Gagajewski

See Page 11 of Handout Booklet
Gila Substation 161-kV Rebuild

Project Status

• The new building should be completed in July 2019, and construction on the remainder of the project will continue through July 2020
• The construction contract came in >$2M above the estimate (~$10M for winning bid)
• Additional planning and earthwork were uncovered beyond the original scope to prevent runoff into the adjacent canal; the bulk of the earthwork has been completed
• There has been an increase in the cost of steel since the original estimate was performed
• For these reasons, the project will require an additional $3.27M to be completed

Identified Risks

• The project will continue through the fiscal year while remaining within the 10% threshold of budget overrun and additional funds for completion of the project will be sought in December 2019

Project Schedule

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<tr>
<td>Financial Closeout</td>
<td>Projected</td>
<td>Q4 2020</td>
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</table>
Gila Substation 161-kV Rebuild

Total Budget Comparison

- Current project budget: $18,994,500
- Cost to date: $19,006,214
- Remaining Funds: -$11,714
- Proposed funds: $3,296,183
- New project budget: $22,296,183

Other cost factors

- Additional earthwork required re-design of site
- Government furnished equipment was higher cost than anticipated
- Administrative costs associated with project delay

Construction contract cost factors

- Original construction contract budget: $7,956,800
- Actual construction cost: $10,297,178
- Difference of $2,340,378
- Significant impacts:
  - Earthwork to address runoff issues into WMIDDD Canal
  - Market value for steel increased
  - One year delay on project
# Gila Substation 161-kV Rebuild

## Funding Table

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<tr>
<th>FUNDING TYPE</th>
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*Cost = All Executions, Obligations, & Commitments Through 2/28/19*
ACTIVE CONSTRUCTION PROJECTS REVIEW
Gila-Wellton Mohawk I-8 Crossing

Transmission Work
Substation Work
Communication Work

Desert Southwest Region - Ten Year Capital Plan
Project Manager: Tony Gagajewski

See Page 14 of Handout Booklet
Gila-Wellton Mohawk I-8 Crossing

Project Status

• The I-8 project was the first seed funded construction project by WAPA
• The micro-pile foundation installation, although new to WAPA, proceeded without issue thanks to a well defined specification and design package
• Drilling of the direct-embedded foundations proved challenging, but the work was completed slightly ahead of schedule
• The project as a whole is progressing on schedule and in-line with the prepayment budget

Identified Risks

• None to report

<table>
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# Gila-Wellton Mohawk I-8 Crossing

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Gila-Dome Tap and Kofa-Dome Tap 161-kV Rebuild

Project Status

• Gila-Dome Tap and Kofa – Dome Tap are seed funded projects that were voted on December 2018

• Work continues on pre-construction activities

• The environmental review was completed in 2018 and the design was completed March 2019

• Construction is expected to begin on schedule

Identified Risks

• None to report

Conceptual Schedule Gila

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Conceptual Schedule Kofa

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### Gila – Dome Tap Budget

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*Cost = All Executions, Obligations, & Commitments Through 2/28/19

### Kofa – Dome Tap Budget

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<td><strong>$</strong></td>
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Coolidge – Valley Farms 115-kV Rebuild

Project Status

• Outage for construction has been scheduled for December 2\textsuperscript{nd}, 2019
• Outage will run through May 30\textsuperscript{th}, 2020
• Procurement in progress, with an anticipated award date June 2019
• No Government Furnished Equipment will be provided on this project, all materials are contractor furnished
• An additional month was added to the project schedule due to coordination delays during the 2018 end of year holiday season for a transmission and railroad crossing

Identified Risks

• Competing outage requirements are possible and may present future delays

Project Schedule

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<th>DATE</th>
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Liberty Series Capacitor Bank

Desert Southwest Region - Ten Year Capital Plan

Project Manager: Roger Wright

See Page 25 of Handout Booklet
Liberty Series Capacitor Bank

Project Status

• Testing on the capacitor bank was completed in 2018
• Construction contract award was subject to a protest, which extended the timeline of the project by approximately 8 months
• Due to issues with birds nesting on and fouling hardware in the yard, removal of the existing capacitor bank has been rolled into the project
• Bird irritant dispensers have been rolled into the project to ensure the longevity of the new capacitor bank being installed
• Removal of the existing capacitor bank foundations will not be included on this project

Identified Risks

• Limited outage window to complete work

Project Schedule

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# Liberty Series Capacitor Bank

![Image of Liberty Series Capacitor Bank](image)

## Funding Summary

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*Cost = All Executions, Obligations, & Commitments Through 2/28/19*
**Bouse-Kofa Rebuild**

**Project Status**

- Re-validation of estimates to split project into phases
- AOA study was initially performed as a single construction project; phasing will lead to modifications of the estimate and is currently being re-evaluated to ensure accurate phasing budgets
- Estimate is consistent with initial AOA cost estimates at present as we are still in preliminary phases of gathering survey, geotechnical, environmental and lands requirements.
- Due to Kofa-Dome and Gila-Dome transmission line projects, design of transmission line will not begin until Q4 2019, as construction is slated for 2022 through 2024

**Identified Risks**

- None identified

**Conceptual Schedule Phase I**

<table>
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<tr>
<td>In-Service / Energization</td>
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<tr>
<td>Financial Closeout</td>
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<td>Q4 2023</td>
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**Conceptual Schedule Phase II**

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<tr>
<th>PROJECT MILESTONE</th>
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</tr>
</tbody>
</table>
# Bouse-Kofa Rebuild

![Map of Bouse-Kofa Rebuild](image)

## Funding Summary

<table>
<thead>
<tr>
<th>FUNDING TYPE</th>
<th>ORIGINAL BUDGET</th>
<th>BUDGET ADJUSTMENT 2019</th>
<th>CURRENT BUDGET</th>
<th>COST TO DATE</th>
<th>REMAINING FUNDS</th>
<th>ADDITIONAL FUNDS REQUIRED</th>
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<td>Appropriations</td>
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<td>$26,520,000</td>
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</tr>
</tbody>
</table>

*Cost = All Executions, Obligations, & Commitments Through 2/28/19*
SEED PROJECT UPDATE
Bouse Upgrade Project

Desert Southwest Region - Ten Year Capital Plan

Project Manager: Nick Pepenelli

See Page 32 of Handout Booklet
• This is a snapshot of the Parker region as it stands today.

LEGEND
- 161 kV Line
- 230 kV Line
- Visual Indicator
- Substation
The Parker-Headgate 161kV and the Parker-Bouse 161kV transmission lines have fallen into a state of disrepair and a rebuild project was initiated in 2013.

The Project encountered hang-ups in design and for the next several years made little progress.

Due to the continued degradation of the lines, a search for an alternative to the rebuild was pursued.
The Bouse Upgrade Project was proposed to provide an alternative path to the Parker-Headgate and Parker-Bouse transmission lines.

- The initial conceptual design was drawn as a straight shot from the Parker-Liberty #2 line down to Bouse Substation.

- The line would be a **double circuit 230kV** line.

- Bouse Substation would be converted to a 230/161 kV facility.

- This conceptual project was shared during Customer Meetings over the course of 2018.

- The project moved into the Seed Funding Phase in November 2018.

---

Project Manager: Nick Pepenelli

Desert Southwest Region - Ten Year Capital Plan

See Page 32 of Handout Booklet
During the Seed Funding Phase the original proposed transmission path was identified to be non-viable, due to non-developable wilderness areas across the proposed route.
An alternative path was identified, that would weave between the wilderness areas and follow along Shea Road, this new route is ~5 miles longer than the originally proposed alignment.

This **double circuit 230kV** line would then arrive at the existing Bouse-Parker transmission line and make its way south to Bouse Substation.

This situation is an excellent example of why WAPA is now including Environmental in the Study and Seed Funding Process, as it allows the identification of situations prior to officially entering construction and allows negation of potential issues.
Bouse Upgrade Project

- The existing Parker-Headgate Rock and Parker-Bouse transmission lines would be connected together south of the Parker Strip.

- This would form a new transmission path between Parker substation, Bouse substation and Headgate Rock substation.
With this new path the Parker-Headgate and Parker-Bouse transmission lines would no longer be needed.

LEGEND
- 161 kV Line
- 230 kV Line
- Visual Indicator
- Substation
The Parker-Headgate and Parker-Bouse lines could be removed up to the point of interconnection between Bouse and Headgate Rock.

This removes the line from a major portion of the strip in Parker.
This would be the layout of the South of Parker Area upon the successful completion of the Bouse Upgrade Project.
Bouse Upgrade Project

Project Status

• Project was seed funded via appropriations in November 2018
• Aerial survey (LiDAR) and geotechnical work is being scheduled
• SF299 form has been submitted to the BLM
• Coordination with LaPaz county is underway
• An environmental assessment scope of work is projected to be completed April 1st 2019

Identified Risks

• Sensitivity of land surrounding new transmission line ROW
• Existing ROW along Parker Bouse 161kV is not sufficiently wide for new 230kV double circuit structures

Conceptual Schedule

<table>
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<td>Projected</td>
<td>Q4 2025</td>
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</table>
# Bouse Upgrade Project

**Desert Southwest Region - Ten Year Capital Plan**

**Project Manager:** Nick Pepenelli

---

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<td>Appropriations</td>
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*Cost = All Executions, Obligations, & Commitments Through 2/28/19*

---

**Diagram:**

- 161 kV Line
- 230 kV Line
- Visual Indicator
- Substation

Locations:
- Parker
- Headgate
- Bouse

See Page 32 of Handout Booklet
BREAK
(10 MINUTES)
WORK FOR OTHERS
Liberty-Rudd Project

Desert Southwest Region - Ten Year Capital Plan

Project Manager: Roger Wright

See Page 38 of Handout Booklet
Liberty Rudd Project

Project Description

• The Liberty Rudd Bay and the 230-kV transfer bay both require upgrades to jumpers, disconnecting switches, rigid bus ties, support structures, cable trenches and associated electrical equipment and material

• The transfer bay breaker 1386 is being replaced with a Mitsubishi breaker that is presently located in the Parker Substation, and will require the breaker foundation to be replaced

• The 230kV yard cable trench is currently near capacity; de-commissioned cables are being removed to accommodate new cables required for the upgrades

• WAPA is providing design, equipment procurement, construction contract procurement, construction supervision, and project management

• This upgrade project will mitigate existing potential LIB – RUD 230kV line emergency thermal rating overloads

Project Schedule

• In Service Projected – Q2 2019
Townsite Solar

Transmission Work

Substation Work

Communication Work

Desert Southwest Region - Ten Year Capital Plan

Project Manager: Mike Garcia

See Page 40 of Handout Booklet
Project Description

• Mead Substation’s 230-kV yard is built in a breaker-and-a-half arrangement

• An open position in the southernmost end of the bus will be utilized for a new line bay

• This new bay will consist of two 230-kV 90-kA circuit breakers, four 230-kV disconnect switches, instrument transformers, support steel and foundations, rigid bus-work, a steel takeoff structure and relay protection

• Control and communications as well as power cables will be routed between the new position and the control building through the existing cable tray system

Project Schedule

• In Service Projected – Q4 2021
Mohave Windfarm Project

Transmission Work
Substation Work
Communication Work

Desert Southwest Region - Ten Year Capital Plan

Project Manager: Mike Garcia

See Page 41 of Handout Booklet
Project Description

• The Project Proponent is proposing to build a 425-MW wind generating facility north of Kingman, Arizona

• This interconnection will require constructing a new 345-kV switching station consisting of a three-element ring bus with three power circuit breakers, a new control building, and equipment to provide redundant communication paths

• The Proponent will build a single-circuit 345-kV tie line to their step-up substation, expected to be located within a few spans of the new switching station

• Equipment upgrades and replacement will be required at Mead substation. The existing 345/230-kV, 600-MVA transformer (KU2A) will be replaced by a matching device and a second transformer with the same characteristics will be added in parallel

Project Schedule

• In Service Projected – Q4 2021
Desert Southwest Region - Ten Year Capital Plan

Southline Project

Transmission Work

Substation Work

Communication Work

See Page 42 of Handout Booklet

Project Manager: Matt Schmehl
WAPA continues to provide support for the Project. Southline is funding the work through a pre-construction agreement to isolate WAPA customers from the costs of the development of the Project.

WAPA and Southline are working under the following agreements:

- Pre-construction Agreement (Amended Dec 2018); funding mechanism to develop project to construction ($6.2MM CY2019)
- Participation Agreement (January 2018); overall master agreement that ties all project related agreements together. Provides background, project framing, governance & committees.

The current level of commercial off-take interest of Southline’s share of project capacity supports a partial build of the project, referred to as “Phase A”. Pursuing “Phase B” is contingent upon Southline sufficiently advancing committed commercial interest after which the remaining project elements would be built as “Phase B”.

Southline Project April 3rd 2019
Project Manager: Matt Schmehl

See Page 42 of Handout Booklet
Project Update – Current Efforts

• Tailoring scope, schedule, and approach to current commercial support
• Development of construction phases ("A" and "B")
• Considerable contract negotiations
• Supplemental Environmental Impact Assessment – ED-5 Extension
• Coordinating with interconnected utilities technical configurations, operational assumptions, and joint access as necessary
• T-Line design – Apache substation to Nogales substation
• Land acquisition surveys, ROW, descriptions prior to formal acquisition
Since execution of the Participation Agreement in January 2018, WAPA and Southline have been negotiating the following Key Agreements:

• **Amended and Restated Participation Agreement** – Addressing Phase A / Phase B delta.

• **Construction Agreement** – Roles, responsibilities, and expectations of constructing the project.

• **Ownership Agreement** – Delineation of which entities will hold title to which assets, equipment, structures and hold rights to specified amounts of capacity or capacity rights.

• **Operations, Maintenance, and Replacements Agreement** – Listing of all equipment associated to the project and which entity owns, operates, maintains, replaces, and has financial responsibility of the equipment.

• **Lease Agreement** – Western’s lease of land and/or facilities as needed.

• **Communications and Security Agreement** – Communication sharing arrangements between Western, Southline, and any sub-leases to include data security and compliance.

Targeting final drafts ready for execution in the 2\(^{nd}\) quarter 2019
Anticipated Timeline*

Q2 2019  – Finalize scope of work per phase
Q2 2019  – Executable contractual drafts
Q3-Q4 2019 – Project financing / commence construction
Q4 2021  – Initial transfer capabilities (Vail)
Q3 2023  – Complete Phase A construction
20??    – Complete Phase B construction

*Schedule slip while negotiations for off-takers proceed
10-YEAR PLAN STRATEGIC PIVOT STATUS
Pivot Goals

• The strategic pivot is a two part process which will align the 10-Year Plan with the budget formulation schedule
  • Federal budget formulation occurs two fiscal years in advance of the current year
• After the pivot is complete, prepayment funding will be voted on for projects that occur two years out from the current year
  • This differs from the historical prepayment voting schedule, which involved voting on projects for the current fiscal year

Desert Southwest Region - 10-Year Plan

See Page 45 of Handout Booklet
The strategic pivot will be conducted across two 10-Year Plan annual cycles (2018 & 2019)

In December 2018, WAPA successfully held a prepayment Vote Meeting completing Year 1 of the Pivot

The Prepayment vote in December 2019 will successfully conclude the Pivot

In 2020, DSW will be moving into standard 10-Year Plan operation, with voting held for budget formulation year tie in for Q4 2022

Desert Southwest Region - 10-Year Plan
10-YEAR PLAN NEXT STEPS
Next Steps

June 2019 Customer Meeting

Agenda Focus
- DRAFT 10-Year Plan
- FY19-21 project details
- RRADS Program Review
- Address any outstanding action items from April meeting

WAPA Planning Reminder

JPA Attachment 4: Transmission Planning Process and Schedule: New accommodations for customer study requests to assess regional transmission needs. Please send requests anytime to:

Joshua Johnston
Transmission Planning Manager
jjohnston@wapa.gov
DSW Customer Meeting Schedule 2019

DSW 10-Year Capital Plan
Annual Program Milestones
Parker-Davis & Intertie Project Customers

YEAR: 2019  REVISED: 2019.01.15  Budget Formulation: FY22  AOA Study Formulation: FY23

JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC

Q1 CUSTOMER MEETING (ACTIVE PROJECTS)
FOCUS ON:
- Active Construction Update
- WFO Update
- Vegetation Management
Customer Feedback on:
- Provide feedback on FY23 priorities & preliminary AOA Alternatives
- Provide WAPA written comments within 30 days

OPTIONAL CUSTOMER MEETING

Q2 CUSTOMER MEETING (Draft Plan)
FOCUS ON:
- RRADs Status Update
- Draft 10-Year Plan presented
- Estimated Rate Impacts presented
- AOA Study Review
Customer Feedback on:
- AOA study WIP status update
- Approval of viable study alternatives
- Provide WAPA written comments within 30 days

OPTIONAL CUSTOMER MEETING

Q3 CUSTOMER MEETING (Final Plan)
FOCUS ON:
- Formal 10-Year Plan presented
- Estimated Rate Impacts presented
- Completed AOA studies
Customer Feedback on:
- Preferred Alternative Selection
- Provide WAPA written comments within 30 days

OPTIONAL CUSTOMER MEETING

Q4 CUSTOMER MEETING (Prepayment Vote)
FOCUS ON:
- Prepayment funding request (vote)
- Report on allocation of Appropriations by WAPA MDCC
- Provide “sneak peak” of proposed projects for FY24 (WAPA’s project priority results)
Customer Feedback on:
- Prepayment Vote
- FY24 preliminary prioritization
- Provide WAPA written comments within 30 days

Desert Southwest Region - Ten Year Capital Plan

See Page 47 of Handout Booklet