Rocky Mountain Region Ten Year Plan Version Control

- **R0**-version of Ten Year Plan submitted to customers and to headquarters for consolidation of Western-wide budget; late October-November
- **R1**-version of Ten Year Plan with any corrections or changes after customers and senior management review; mid-January
- **RFINAL**-final version submitted to headquarters for consolidation of Western-wide budget submission to the Dept. of Energy; April
FY 15 Rocky Mountain Region Maintenance Projects

• New System Operation Methodology
• Completed Projects
• New Projects
• Changed Projects
• Ongoing Projects
Transmission Operator Methodology
Changes

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

• Western plans and designs its system to operate through a single contingency without loss of load (TPL standards).

• Western Operations studies and controls the system to perform through multiple contingencies. (TOP standards)

• Potential projects to address operational compliance standards
  – Curecanti 2nd 230/115 kV transformer
  – Midway 230 kV bus configuration
FY 15 Rocky Mountain Region Maintenance-Completed Projects

- Flaming Gorge 69 kV Switch Replacements
  - Replaced 7 switches, 1963 vintage
  - In-Service Date: Q2 2015
  - Total Cost: $195k, excludes IDC
  - Budget: $243k

- Gore Pass-Hayden 230 kV Uprate Term Eqmmt
  - Replaced 2 switches, 2 CTs to 2000 A rating
  - In-Service Date: Q4 2015
  - Total Cost: $58k JJCR, $257k JJCR/Trust, excludes IDC
  - Budget: $69k JJCR, $291k JJCR/Trust
FY 15 Rocky Mountain Region Maintenance-Completed Projects

• Hayden KZ2A 230/138 kV, 250 MVA Transformer
  – Replaced 150 MVA to match KZ1A at 250 MVA
  – In-Service Date: Q4 2015
  – Total Cost: $7,374k, excludes IDC
  – Budget: $6,909k

• Montrose Digger Derrick
  – Replaced 1981 digger truck, 26k miles, worn/dysfunctional outriggers, hazardous use
  – Budget/total cost: $610k
FY 15 Rocky Mountain Region Maintenance-Completed Projects

- Buffalo Pass Communications Building Replacement
  - Replaced aging end of life building
  - In-Service Date: Q4 2015
  - Total Cost: $1,010k, excludes IDC
  - Budget: $350k
New JJCR Projects in the FY16-25 TYP

• Archer Station Service Replacement
  – Replace 1964 vintage switchgear and controls; auto-throw over switch non-functional
  – Est. Cost: $585k
  – Est. In-Service Date: Q2 2018

• Ault Station Service Replacement
  – Replace 1980 vintage station switchgear, controls, and transformers which has a history of failures and nonfunctional equipment
  – Est. Cost: $940k (JJCR $183k)
  – Est. In-Service Date: Q4 2016
New JJCR Projects in the FY16-25 TYP

• Ault KW1F/KW1G, 2-25 MVAR Reactor Replacement
  – Replace failed KW1F and twin KW1G prior to KU1A replacement (AM supported)
  – Est. Cost: $711k (JJCR cost $455k)
  – Mitigation: Replacement
  – Est. In-Service Date: Q4 2017

• Ault 345 kV Surge Arrestors (AU-CRG 345 kV line)
  – Needed for minimum approach distances(new OSHA) and aids in fault location determination
  – Est. Cost: $50k (JJCR cost $18k)
  – Mitigation: Replacement
  – Est. In-Service Date: Q4 2016
New JJCR Projects in the FY16-25 TYP

• Shiprock Substation-new Control Building
  – Existing building has full cable trays, is at maximum capacity, and has asbestos; includes 345 kV yard and transformer; batteries, air control, communication
  – Est. Cost: $2,581k potential trust of $500k
  – Mitigation: Replacement, with/without Trust support
  – Est. In-Service Date: Q4 2019
New JJCR Projects in the FY16-25 TYP

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

• Shiprock Substation-Move 115 kV Eqmnt & Controls
  – Purchase panels and controls, install in new building
  – Est. Cost: $1,158
  – Mitigation: Replacement
  – Est. In-Service Date: Q4 2021
New JJCR Projects in the FY16-25 TYP

• Weld Substation 230 kV Breaker & Half
  – Modify the four terminal main/transfer configuration to breaker and half to increase system reliability for the N-1 that overloads 2-115 kV lines.
  – Est. Cost: $2,580k
  – Est. In-Service Date: Q4 2023

• UHF Radio Replacements
  – Replace existing polling radios at the end of their useful life.
  – Est. Cost: $850k, JJCR $35k
  – Mitigation: Replacement
  – Est. In-Service Date: Q4 2021
New JJCR Projects in the FY16-25 TYP

• MOC Pressure Digger Truck Replacement
  – Replace 1994 pressure digger truck, 15k miles and low usage as incorrect truck for high voltage t-lines; will trade in
  – Est. Cost: $325k
  – Mitigation: Replacement
  – Est. In-Service Date: Q4 2018

• SHR 72 ft Manlift Aerial Elbow Bucket Truck (Repl. 40 ft)
  – Replace 1979 elbow bucket truck, worn/sloppy hydraulics, 21k miles, at end of life
  – Est. Cost: $125k
  – Mitigation: Replacement
  – Est. In-Service Date: Q4 2018
# Changed JJCR Projects in the FY16-25 TYP

<table>
<thead>
<tr>
<th>Project</th>
<th>Total Cost x1000</th>
<th>JJCR Shared Cost x1000</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dolores Transformer Project (TRUST)</td>
<td>$1350</td>
<td>$0</td>
<td>Slid a year to FY 16-17</td>
</tr>
<tr>
<td>Shiprock 230 &amp; 345 kV POD (TRUST TSGT Interconnection and 3 Rivers)</td>
<td>$3,781</td>
<td>$0*</td>
<td>Slid a year to FY 20; *land use</td>
</tr>
<tr>
<td>Ault 230 kV CB 1482 &amp; 1586</td>
<td>$564</td>
<td>$285</td>
<td>Project slid to FY18 to align replacement with Ault KU1A (high/low side CBs)</td>
</tr>
<tr>
<td>Shiprock (3262, 3362, 3462) PCB 115-kV Replacement</td>
<td>$577</td>
<td>$577</td>
<td>Breakers purchased in FY15, ISD FY16</td>
</tr>
<tr>
<td>Ault-Weld West OPGW</td>
<td>$566</td>
<td>$566</td>
<td>$38k increase with updated estimate</td>
</tr>
</tbody>
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## Changed JJCR Projects in the FY16-25 TYP

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<tr>
<td>Island Lake Comm Building</td>
<td>$750</td>
<td>$750</td>
<td>$250k increase of estimate based on recent bid openings</td>
</tr>
<tr>
<td>IT General Support Systems</td>
<td>$622</td>
<td>$622</td>
<td>$155k increase in JJCR costs spread over FY14-23</td>
</tr>
<tr>
<td>Mobile Radio Infrastructure Replacements</td>
<td>$1,300</td>
<td>$650</td>
<td>Slid to FY17 to accommodate shifting COMM projects</td>
</tr>
</tbody>
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### Changed and Ongoing JJCR Projects in the FY16-25 TYP

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</table>
| Ault 345 kV CB 692, 696, 1096  
- In design, CB ordered  
- ISD Q4 FY16 | $1,802 | $270 | Customer funding slid schedule and in-service date, shifted ISD to 2017 |
| Shiprock Stage 07 230 kV Main and Transfer Bus Uprate  
- In construction  
- ISD Q3 FY16 | $1,208 | $1,208 | $720k decrease with bid; $400k shifted to FY16 for project completion |
| Waterflow PST KU1A-KU1B and CB replacement  
- In construction  
- Delay of PST delivery to 1/16  
- ISD Q2 FY16 | $15,058 | $15,058 | $450k shifted to FY16 for project completion and closeout. |
## Changed and Ongoing JJCR Projects in the FY18-25 TYP

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| Weld 362,1262 (115-kV) CB, 182, 286, 482 (230kV) Replacement  
• In design  
• ISD | $1,669 | $1,669 | $954k increase added construction contract for installation in FY16 due to maintenance resource limitations |
| Archer KV2A 230/115 kV, 200 MVA Xfmr  
• 90% spec review  
• Delay-xfmr procurement  
• ISD Q1 FY17 | $3,200 | $3,200 | $282k increase to include high/low side CB 482 & 1762; 1980 vintage, high PCB bushings |
| Curecanti KZ1A 230/115 kV 150 MVA Replacement  
• In construction  
• ISD Q4 FY16 | $2,287 | $2,287 | $471k decrease, utilizing a used xfmr from Hayden. |
# Changed and Ongoing JJCR Projects in the FY18-25 TYP

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<tr>
<td>Montrose-Mexican Hat MW Rep.</td>
<td>$1,601</td>
<td>$1,601</td>
<td>$132k increase, funds shifted for FY16 completion and closeout</td>
</tr>
<tr>
<td>• Resource limited</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• ISD Q4 FY16</td>
<td></td>
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</tr>
<tr>
<td>Poncha-Midway OPGW</td>
<td>$3,156</td>
<td>$1,598</td>
<td>$566k increase due to assembly issue in design and raptor delays; shift in ISD and funds to FY16 for completion/closeout</td>
</tr>
<tr>
<td>• Raptor nesting delayed construction</td>
<td></td>
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<tr>
<td>• ISD Q2 FY16</td>
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<tr>
<td>Blue Mesa-Montrose OPGW</td>
<td>$1,883</td>
<td>$758</td>
<td>Shifted $25k to FY16 for project completion and closeout.</td>
</tr>
<tr>
<td>• Restriction in construction due to sage grouse/bird nesting</td>
<td></td>
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<tr>
<td>• ISD Q1 FY16</td>
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<tr>
<td>MOC Station Service Upgrade</td>
<td>$909</td>
<td>$909</td>
<td>$469k increase for stage 3 &amp; 4, construction contract, excavation of 1965 vintage conduit for replacement, transformer installation</td>
</tr>
<tr>
<td>• In design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• ISD Q1 FY17</td>
<td></td>
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</tr>
<tr>
<td>Central PMOC Communications Loop</td>
<td>$2,713</td>
<td>$666</td>
<td>$126k increase, funds shifted to FY16 for completion and closeout</td>
</tr>
<tr>
<td>• Resource limited delayed completion</td>
<td></td>
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<td></td>
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<tr>
<td>• ISD Q3 FY16</td>
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<tr>
<td>Collbran 115 kV CB 362 Replacement</td>
<td>$231</td>
<td>$231</td>
<td>$90k increase, underground conduits were asbestos, required new conduit/excavation installation; funds in FY16 for completion and closeout</td>
</tr>
<tr>
<td>• Delay from underground cable issue</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>• Resource limited</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>• ISD Q4 FY16</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Blue Mesa 115 kV CB 1066,1162 Replacement</td>
<td>$357</td>
<td>$357</td>
<td>$63k increase, difficulty with removal due to tight physical layout of substation; funds in FY16 for closeout</td>
</tr>
<tr>
<td>• ISD Q4 FY15</td>
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| Archer KV1A 230/115 kV, 200 MVA Xfmr Replacement  
• Xfmr delays due to procurement, radiator damage and replacement time (x2)  
• Resource limited  
• ISD Q1 FY16 | $3,203 | $3,203 | $477k increase due to contract delays, correction of as-built conditions of control panels and building |
Questions for RMR Maintenance Office