What is WAPA?

- A DOE power marketing administration
- Created in 1977 to separate the generation and transmission functions
- WAPA assumed Reclamation’s function of marketing and delivering power generated at Federal hydroelectric powerplants in the west and mid-western U.S.
Colorado River Storage Project

- 12 power plants
- 27 generating units
- 1,827 MW total installed capacity (73% from Glen Canyon)
- 4,225 GWh Net Generation (74% from Glen Canyon)
- 2,325 circuit miles (Arizona, Colorado, New Mexico, Utah, Wyoming)
CRSP MC

• Committed to protecting the delicate balance of the Colorado River and its tributaries. Agencies that manage this river's resources must weigh multiuse needs: irrigation, recreation, hydropower, flood control, cultural resources, and native and non-native species, and endangered species protection.

• Balancing these resources with the needs of water and electrical energy is a chief concern.
Responsibilities

**WAPA**

- Owns and operates the transmission system infrastructure
- Markets, schedules and delivers energy to long term firm electric service customers
- Dispatches generation from the powerplants at the dams for electrical regulation and emergencies
- Rate setting and repayment of project debt to U.S. Treasury from revenue

**Reclamation**

- Owns, operates, and maintains dams and power plants
- Water management (reservoir management, irrigation, flood control, and water compact deliveries)
- Generates power which is delivered to WAPA at the plant transformers
CRSP Customers

• 135 long-term customers
  • 54 Native American tribes
  • 64 Municipalities, cooperatives, irrigation districts
• 17 Other
Setting CRSP Power Rates

Cost-based rates
• Operations & maintenance
• Required principal & interest payments
• Amortized capital replacements (WAPA & BOR)
• Purchase power to “firm” contractual commitments
• Repayment of CRSP and participating irrigation projects
• Salinity Control Program – reduce salt in Colorado River water
• Repayment of Loan to fund Capitalized UCRIP expenses

Revenue requirement
• Rate = revenue requirement/projected energy sales
• Simplified Example:
  • $200 required revenue to cover costs
  • Contracts = 200 KWh of energy delivery
  • Rate = $1.00/KWh
• Rate change is done only if projected revenue is insufficient to meet future projected expenses

Basin Fund cash balance is not a component of the rate
What’s in the SLCA/IP Rate

<table>
<thead>
<tr>
<th></th>
<th>FY2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Revenue</td>
<td>$225</td>
</tr>
<tr>
<td>Operations &amp; Maintenance</td>
<td>$96.8</td>
</tr>
<tr>
<td>Purchase Power &amp; Wheeling</td>
<td>$43.4</td>
</tr>
<tr>
<td>States’ MOA Funds</td>
<td>$11.5</td>
</tr>
<tr>
<td>Repayment of Investment</td>
<td>$61.3</td>
</tr>
<tr>
<td>Interest on Investment</td>
<td>$12.7</td>
</tr>
<tr>
<td>Total Costs</td>
<td>$225</td>
</tr>
</tbody>
</table>
Electrical System
Regulation and Emergencies

• NERC and WECC requirement of electrical utility

• The CRSP MC is a member of the Rocky Mountain Reserve Group and responds to electrical emergencies in the region (not just CRSP system).

• Regulation signal
  • Comes from WAPA dispatch office to GCD, every few seconds.
  • Purpose is to maintain system frequency while managing transmission line loading and providing voltage support
  • Changes caused by changes in demand
Basin Fund Obligations

• Manage the financial requirements of the CRSP Act
  • Glen Canyon, Aspinall, Flaming Gorge
  • Several additional units that include dams, reservoirs, powerplants, transmission facilities and other related works

• Reclamation operations are funded by periodic transfers from the CRSP Basin Fund to a Reclamation subaccount
  • Allows Reclamation to maintain programmatic oversight of their facilities
  • Funds are transferred approximately on a monthly basis and only the amount they need to operate for the fiscal year
CRSP Basin Fund Status

- Current FY 2019 Balance...$141M
  - As of 4/16/2019
  - Final FYE 2018 Balance...$126.9M

- Projected FYE 2019 Balance.....$112M*
  * Projection based on actual revenue and expense data through February 28, 2019, and anticipated cash return to Treasury of $21M, but could change.

- Direction to return cash?
  - Last cash return was $25M to the General Fund of the U.S. Treasury in 2012
  - No cash return was made in 2013-2018.
  - Annual Constructive Returns (non-cash) around $18-23M per year (2013-2018)
  - FY19 will be significantly lower due to OMB direction to not transfer funds to Reclamation
Basin Fund Balance

Reserve Strategy
• WAPA-wide strategy for maintaining fund balances
• CRSP target is ~$180M
• Projected end of fiscal year balance is $112M

Risk Factors
• Replacements (Reclamation & WAPA)
• Environmental Programs
• Bypass (including Spring Flows out of FG and Aspinall)
• Market Price for Purchase Power
• Hydrology/Releases/Pool Elevation
Purchase Power

• GCD Releases
• Releases at other CRSP facilities
• Hydrology
• Pool Elevation/Efficiency
• Market Prices
CRSP Generation vs Demand (data from Jan. 15 preschedule)
GCD Hydropower Head
From the beginning of current drought 1999 - 2019
Purchase Power and Hydrology

<table>
<thead>
<tr>
<th>Water Year</th>
<th>Average Elevation</th>
<th>Generation (GWh)</th>
<th>Purchase Power</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Glen Canyon</td>
<td>Glen Canyon</td>
<td>All CRSP Units</td>
</tr>
<tr>
<td>2017\textsuperscript{a}</td>
<td>3,612.8</td>
<td>3,652</td>
<td>5,174</td>
</tr>
<tr>
<td>2018\textsuperscript{b}</td>
<td>3,612.8</td>
<td>3,730</td>
<td>5,101</td>
</tr>
<tr>
<td>2019\textsuperscript{c}</td>
<td>3,584.4</td>
<td>3,485</td>
<td>4,570</td>
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</tbody>
</table>

\textsuperscript{a} Observed data  
\textsuperscript{b} Observed data through June, forecasted for remaining months  
\textsuperscript{c} Forecasted generation using July 24-month study

All 9maf release years  
If WY19 is 8.23maf, ~$27.7M cost
Basin Fund Balance
FY 2008 - 2018

EOY BALANCE

<table>
<thead>
<tr>
<th>FY</th>
<th>EOY Balance</th>
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<tbody>
<tr>
<td>2008</td>
<td>$75,364,005</td>
</tr>
<tr>
<td>2009</td>
<td>$83,334,271</td>
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<tr>
<td>2010</td>
<td>$82,716,374</td>
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<tr>
<td>2011</td>
<td>$121,325,274</td>
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<tr>
<td>2012</td>
<td>$117,426,259</td>
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<td>2013</td>
<td>$112,172,609</td>
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<td>2014</td>
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<td>2015</td>
<td>$114,581,801</td>
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<td>2016</td>
<td>$101,627,138</td>
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<tr>
<td>2017</td>
<td>$100,349,156</td>
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<tr>
<td>2018</td>
<td>$126,900,381</td>
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</table>

8.23 maf release
7.48 maf release
9 maf release each year (2015-2019)
Environment and Cultural Resources

Historically funded by CRSP electric power revenues

• Upper Colorado Recovery Program - $5.5M
• San Juan Recovery Program - $2.7M
• Glen Canyon Dam Adaptive Management Program - $10.8M
• Quality of Water & Consumptive Use Studies - $1M
• High Flow Experiments and related WAPA Expenses - $2.5M
• Salinity Control Program – reduce salt in Colorado River water - $2M

Note: In 2019, CRSP power revenues are not funding the non-reimbursable environmental programs
# 2015 Budget Request

## Program and Financing (in millions of dollars)

<table>
<thead>
<tr>
<th>Identification code 89-4452-0-3-271</th>
<th>2013 actual</th>
<th>2014 est.</th>
<th>2015 est.</th>
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<tbody>
<tr>
<td><strong>Obligations by program activity:</strong></td>
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<td></td>
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<tr>
<td>0801 Program direction</td>
<td>53</td>
<td>58</td>
<td>61</td>
</tr>
<tr>
<td>0802 Equipment, Contracts and Related Expenses</td>
<td>167</td>
<td>137</td>
<td>167</td>
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<tr>
<td>0900 Total new obligations</td>
<td>220</td>
<td>195</td>
<td>228</td>
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<tr>
<td><strong>Budgetary Resources:</strong></td>
<td></td>
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<tr>
<td>Unobligated balance</td>
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<td></td>
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<tr>
<td>1000 Unobligated balance brought forward, Oct 1</td>
<td>180</td>
<td>161</td>
<td>147</td>
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<tr>
<td>Budget authority</td>
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<tr>
<td>Spending authority from offsetting collections, discretionary:</td>
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<tr>
<td>1700 Collected</td>
<td>200</td>
<td>204</td>
<td>251</td>
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<tr>
<td>1701 Change in uncollected payments, Federal sources</td>
<td>1</td>
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<tr>
<td>1720 Capital transfer of spending authority from offsetting collections to general fund</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-23</td>
<td></td>
<td>-23</td>
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<tr>
<td>1750 Spending auth from offsetting collections, disc (total)</td>
<td>201</td>
<td>181</td>
<td>228</td>
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<tr>
<td>1930 Total budgetary resources available</td>
<td>381</td>
<td>342</td>
<td>375</td>
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<tr>
<td>Memorandum (non-add) entries:</td>
<td></td>
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<tr>
<td>1941 Unexpired unobligated balance, end of year</td>
<td>161</td>
<td>147</td>
<td>147</td>
</tr>
</tbody>
</table>
CRSP Environmental Team

Shane Capron – Fish Biologist & Team Lead

New Hire Selected – Fish Biologist

Craig Ellsworth – Fish Biologist, aquatic ecology

Clayton Palmer – Economics and NEPA

Jerry Wilhite – Modeling and Data Analysis

Chrystal Dean – Resources

Aligned with leadership:

Steve Johnson (CRSP Manager)

Brian Sadler (Admin and Tech Services Manager)
CRSP Upcoming Challenges

• Drought

• State Apportionment/MOA

• Basin Fund and Returns to Treasury

• Markets
Questions

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801.524.5506